UNIVERGE SV9500

FP95-115 V5

Peripheral Equipment Description (IP Devices)

NWD-165797-001
ISSUE 7.0

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NWD-165797-001
ISSUE 7.0
OCTOBER, 2017

UNIVERGE SV9500
Peripheral Equipment Description
(IP Devices)

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1.2 How to Insert Additional Power Unit (Dual Power Unit, optional) 2054
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CHAPTER 1
INTRODUCTION

1. General

This manual provides the procedures on how to configure and connect IP devices.

2. How to Follow This Manual

The contents of this manual are:

CHAPTER		DESCRIPTION
1	INTRODUCTION	This chapter explains the configuration of this manual.
2	IP DEVICES	This chapter explains the overview, installation procedures, data assignment, startup procedures, and operation and maintenance procedures for IP devices.
APPENDIX A	MG-SIP CONFIG_TEMPLATE DATA	This chapter shows the standard data of MG-SIP assigned by executing “set config_template” configuration command.

3. Devices Related to This Manual

This manual explains especially about the following devices.

- Analog 2MC (Analog Media Converter)
- 8LC Card [SCA-8LCA/SCA-8LCA-EMEA/SCA-8LCC/SCA-8LCC-EMEA]
- MCMG [SCA-4LC2COTA/MG-4LC2COTA]
- MG-COT Card [SCA-6COTA/SCA-6COTC]
- MG-COT Card [SCA-6COTB]
- MG(BRI) [SCA-2BRIA/MG-2BRIA/SCA-2BRIA-B]
- MG(PRI) (1.5M) [SCA-24PRIA/MG-24PRIA]
- MG(PRI) (2M) [SCA-30PRIA/MG-30PRIA]
- MG-T1(SIP) [SCA-24DTIA/SCA-24DTIA-B]
- MG-SIP128 [MG-128SIPMGL-A]
- MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]
- MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]
- MG-SIP16 [SCA-16SIPMG(US) -B/SCA-16SIPMG(US)]
- VS-32(Dual) [SCA-VS32VA/MG-VS32VA/SCA-VS32VA-B]
- SR-MGC(E) [SN8178 MGCEV-B/SN8178 MGCEV-A]
- IP Gateway
- 1U-MPC [SN8104 MGCEJ-B/SN8104 MGCEJ-A]

CHAPTER 2
IP DEVICES

Analog 2MC (Analog Media Converter)

1 General

1.1 Introduction

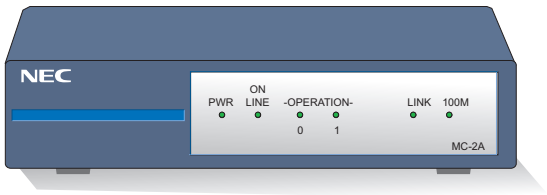
This document describes the setup, data programming, operation, and maintenance procedures of the Media Converter (MC). MC is a gateway device providing media conversion between Internet Protocol (LAN-side) and conventional Voice Data (the MC-connected conventional terminal-side). By using this converter, analog terminals can serve as IP terminals under the control of the Telephony Server.

Each MC has an RJ-45 Jack for LAN connection, and two modular jacks for analog terminal connection. The MC-connected terminals (**Note 1**) promote a call by directly sending the conventional Media (Voice/Fax) Data to the MC. The MC-side embeds the media in the IP packets that are sent to the destination terminal on the LAN. The call control signals between the Telephony Server and MC are sent/received on a different route via the Protocol Handler (PHE). The PHE function resides in the Telephony Server as Internal PHE.

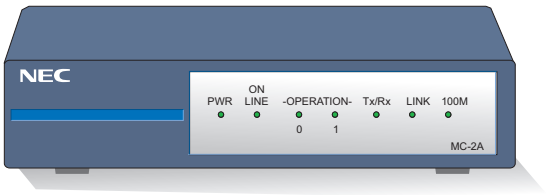
Analog 2MC comes in two models (SN8029 MCEC-C and SN8029 MCEC-A), which differ in the specification of lamp indications on the front panel. Each model can be identified by the label on the bottom of the device. For details of lamp indications, see Lamp Indications on Analog 2MC.

Note 1: Analog terminals connected to Analog MC is referred as MC terminals in this section.

Analog 2MC Outerview



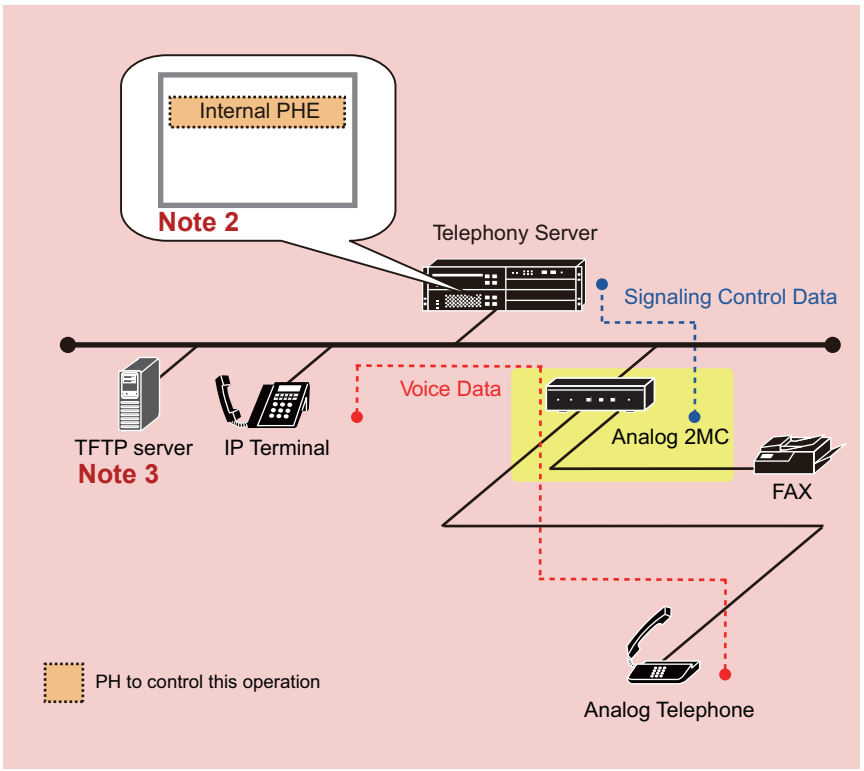
SN8029 MCEC-C



SN8029 MCEC-A

Front View

Position of Analog 2MC within the System (Basic Connection)



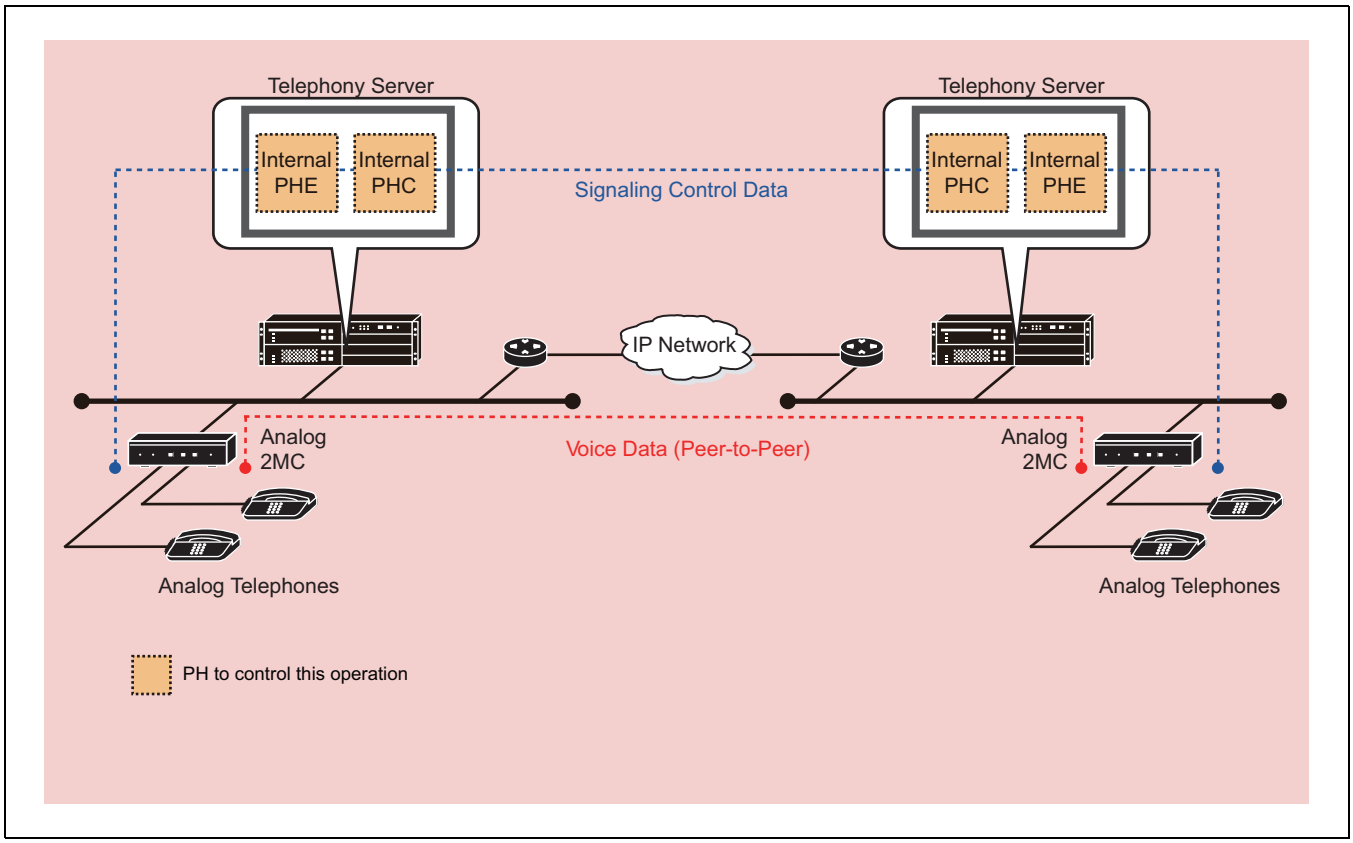
Note 2: In the communication between Analog 2MC and IP terminals/devices, Control signals are all handled by Internal PHE, Media (Voice or Fax) Data are sent/received directly between the IP terminals/devices (MC-to-MC, MC-to-DtermIP, MC-to-IPPAD, etc.), as described in Position of Analog 2MC within the System (Basic Connection) as a Peer-to-Peer Connection. This connection is a direct connection between IP terminals/devices with each other, without the control of the Telephony Server.

Note 3: A TFTP server is necessary for file download. For details, refer to 4.5 How to Use Maintenance Command in 4.

CCIS over IP

The CCIS over IP feature applies to MC terminals as well as other IP terminals, such as a DtermIP. Internal PHC, which is accommodated in the Telephony Server same as Internal PHE, enables Node-to-Node Connection - CCIS Network. The figure below shows a network configuration example using CCIS over IP. For details on CCIS over IP, refer to the Data Programming Manual - CCIS.

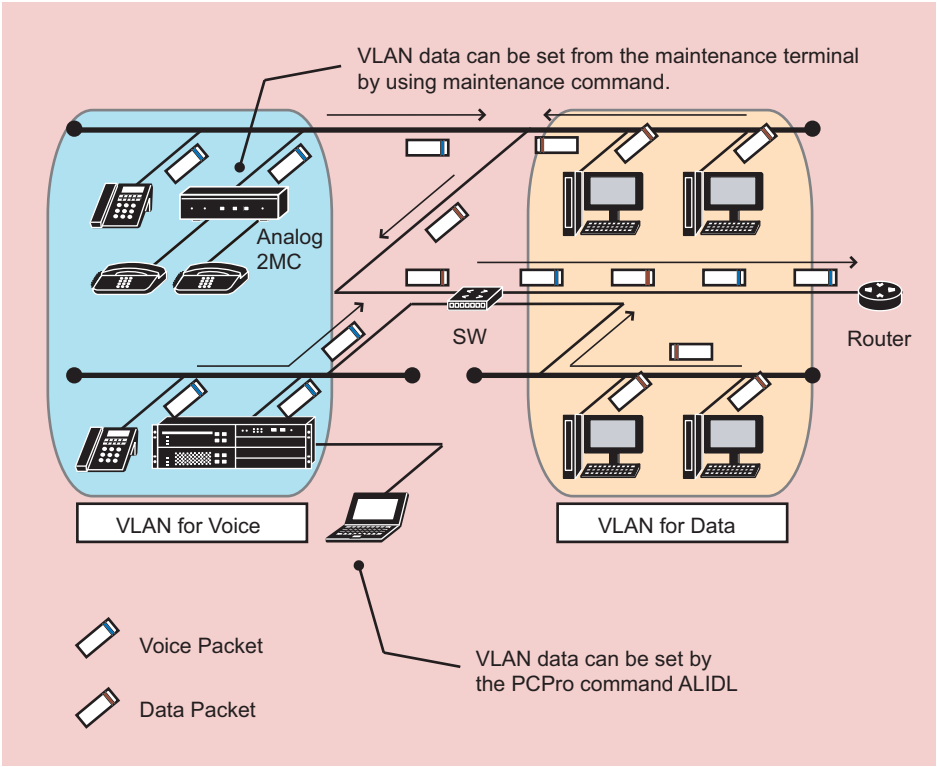
Position of Analog 2MC within the System (Node-to-Node Connection)



VLAN

The VLAN feature applies to MC terminals as well as other IP terminals, such as a DtermIP. When dividing one physical network into multiple networks virtually, priority control (giving precedence to Voice Packet) can be performed. Network data programming by the PCPro command ALIDL, and also setting VLAN to each MC terminal by the maintenance command is required (see 3.1 Data Assignment by PCPro in 3 and 4.5 How to Use Maintenance Command in 4.) VLAN Example shows an example network configuration when an Analog 2MC is used in VLAN.

VLAN Example

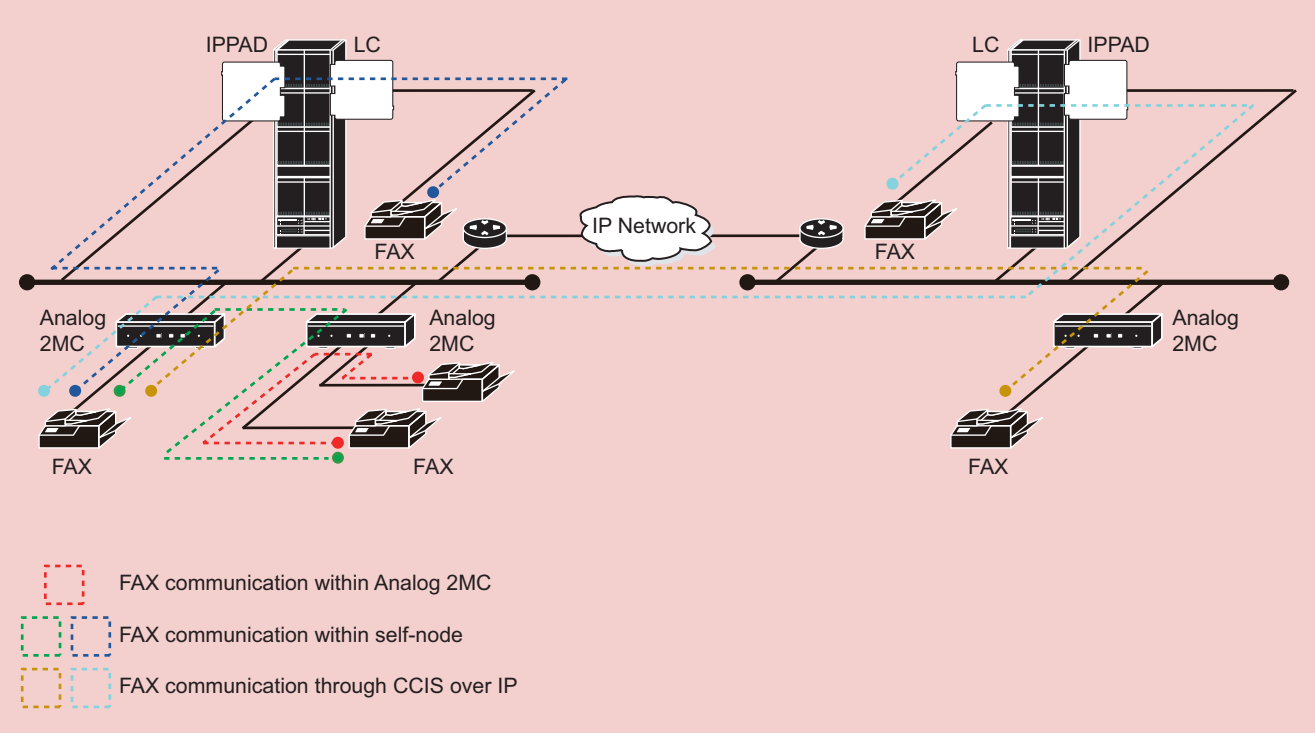


Note: For detailed explanation of the VLAN feature, refer to the Data Programming Manual.

Fax Connection

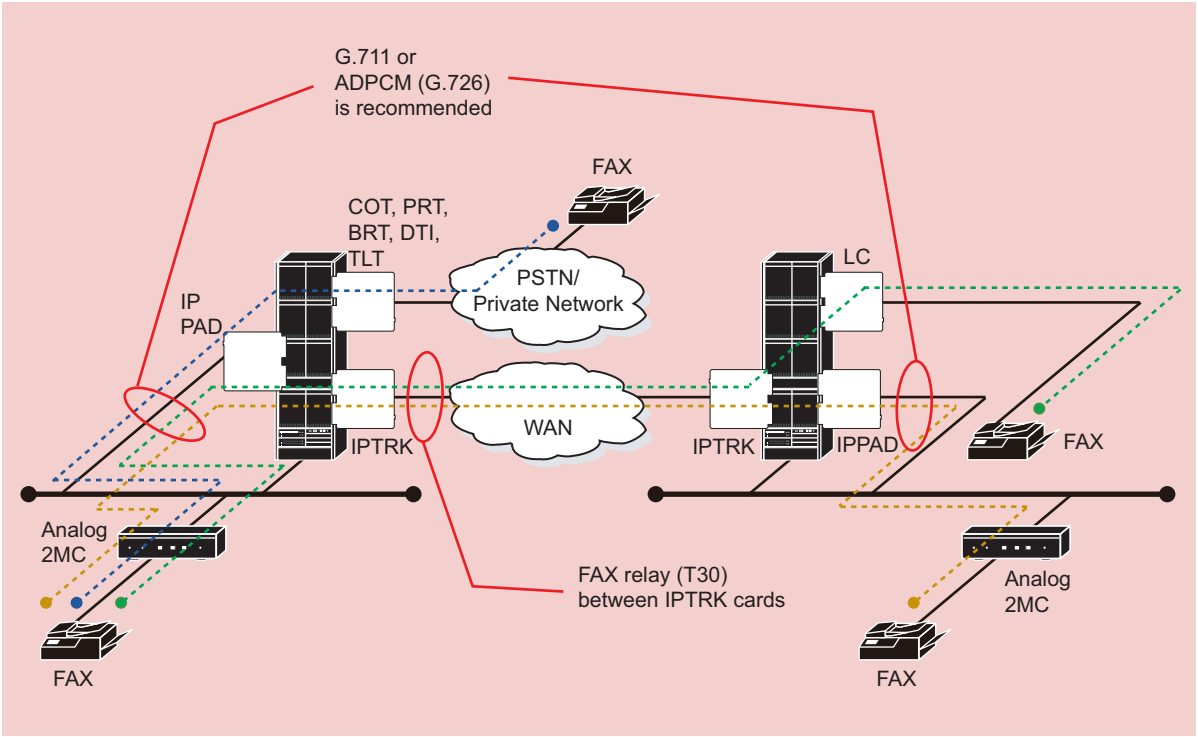
Fax data transmission can be selected according to the network configuration. The transmission type is determined by the connection route, whether the data are transferred to destination node via COT, DTI, TLT, PRT or IPTRK card to PSTN/Private Line (TDM-based) from the IP network, and also whether voice compression device is accommodated. The figure below shows a network configuration example.

[MC-MC connection, and MC-LC connection via IPPAD (including CCIS)]

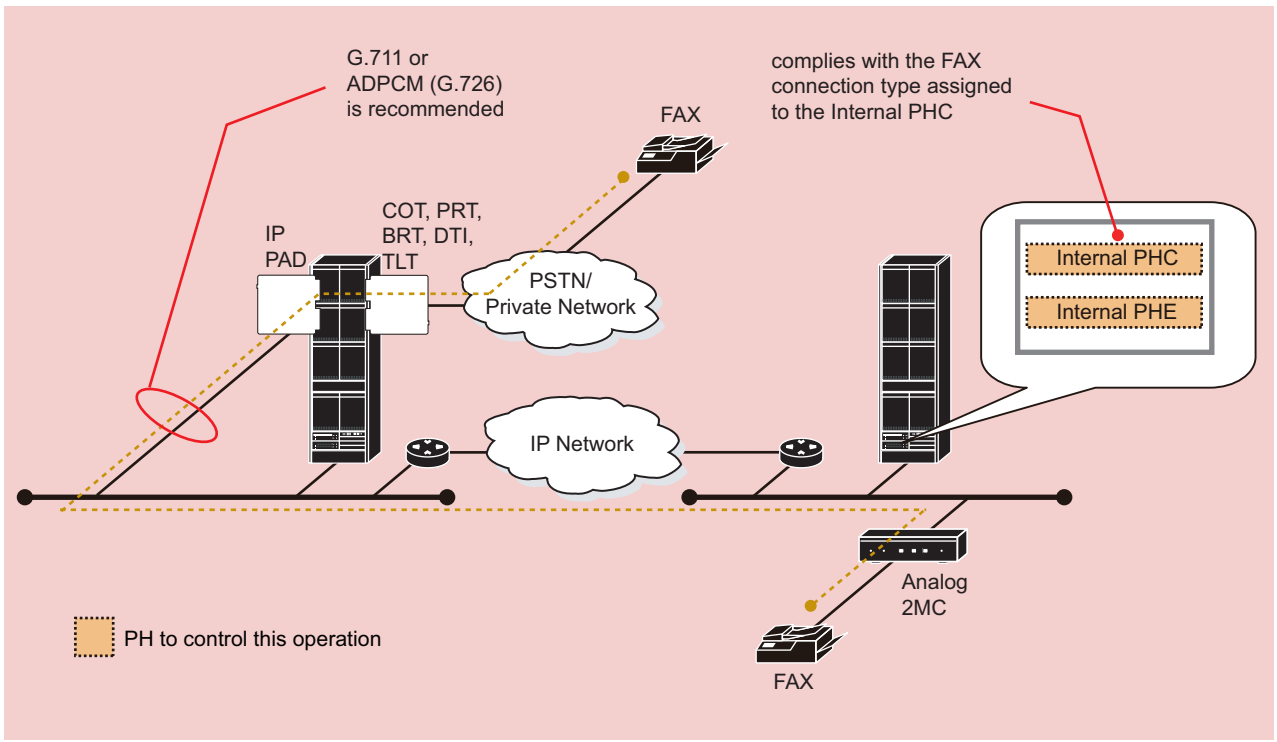


Note: For detailed procedure and data assignment for Fax connections, refer to [I-44] IP Control-FAX service in Data Programming Manual.

[MC-Trunk connection via IPPAD (excluding CCIS over IP)]



[MC-Trunk (in destination node) connection via IPPAD through CCIS]



Analog 2MC

Analog 2MC has an RJ-45 Jack (for LAN connection) and a total of two modular jacks (Port 0 and Port 1) for a maximum of two Analog (PB) Telephone/Fax (G3) terminals (**Note 4**). In addition, it provides the following features:

Note 4: Analog (DP) Telephone is not supported.

a. Voice Data Processing

- Voice Data Compression/Decompression
- Echo Canceller
- Tone Generator
- Fax Data Encoding/Multiplexing
- PAD Controlling
- DTMF Detection/Generation

b. IP Network Interface (10/100 Mbps Ethernet Interface to send/receive Voice and Signal Information)

c. Serial Interface for connecting a PC.

1.2 Specifications

The specifications for Analog 2MC are listed in the table below.

Analog 2MC Specifications

FUNCTION	SPECIFICATION	NOTE
Input Power	AC 100-240 V	Internal power is generated from DC –48V to each power supply.
Maximum Power Consumption	[Rated value] AC100V 0.6A AC120V 0.5A AC240V 0.3.A	
Voice CODEC	G.711	64 k (bps): PCM μ-law/A-law
	G.729a	8 k (bps): CS-ACELP
	G.723.1	6.3 k (bps): MP-MLQ/ACELP
		5.3 k (bps): MP-MLQ/ACELP
FAX	Data transmission as voice data	G.711/G.726 (ADPCM)
	FAX Relay (T.30) **Note 1**	G3 FAX (V.17, V.21, V.27ter, V.29, V.33): Available **Note 2**
		Super G3 (V.34, etc.): Not available **Note 3**

FUNCTION	SPECIFICATION	NOTE
VLAN	IEEE 802.1Q (Tagging VLAN), VLAN bit, Priority bit	
Echo Canceller	G.168 (NLP function available)	Tail Length is 25 milliseconds
Control Protocol	LP-PM over IP	Signaling between Analog 2MC and Internal PHE
	H.323 standard	
Jitter Buffer	Static	10~300 milliseconds (assignable in increments of 10-millisecond)
	Dynamic	10~300 milliseconds
Quality of Service (QoS)	ToS, IP Precedence	
	DiffServ	
IP Address Assignment	DHCP is supported	
Operation & Maintenance	Program download	
	Console	Connecting through RS-232C Cable
LAN Interface	100 Mbps/10 Mbps, auto-negotiation (Half/Full Duplex)	RJ-45 Connector 1 Port

Note 1: The maximum transmission speed is 14.4 kbps.

Note 2: T.30 is available for FCCS and CCIS.

Note 3: Super G3 Fax is connected in a G3 mode automatically (V.34 is not available). Assign ECM=OFF on the MC setting by using the maintenance console.

Note: Modem connection using Analog 2MC is not supported.

Specifications of Analog 2MC (Continued)

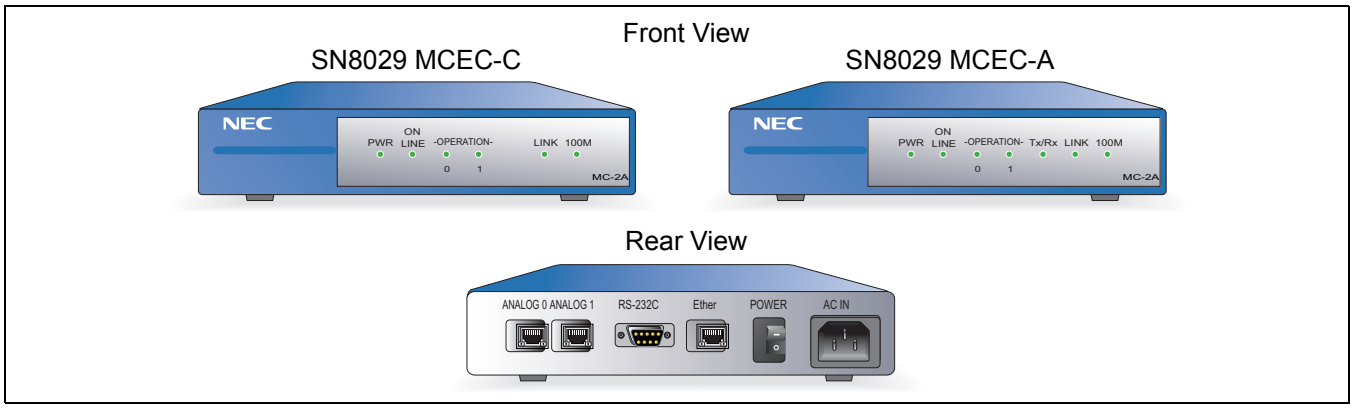
FUNCTION		SPECIFICATION	NOTE
Analog Interface/ Function	Number of lines	Two lines per MC	RJ-11 Modular Jack 2 Ports
	Supply Voltage	-48V	
	Loop Resistance	Maximum of 1200 Ω	Including the terminal
	Supply Current	25 mA	Constant current
	Ringing Voltage	50 Vrms or 75 Vrms	Selectable. Default = 75 Vrms
	Ringing Frequency	20 Hz or 25 Hz	Select either of the frequencies
	Connectable Terminal	One per line	Multi-connection is not available.
	Address Signal	DTMF only	DP is not supported
	Terminal Impedance and BNW	600Ω	
	PAD Control (for voice transmission)	0-15 dB (One dB step)	Default value: analog → LAN = 0 dB LAN → analog = 3 dB
	FAX PAD (for data transmission as voice data)	0-15 dB (One dB step) FAX PAD value is added to Voice PAD. The sum of FAX PAD and Voice PAD is limited to 15 dB.	Default value: analog → LAN = 0 dB LAN → analog = 4 dB
	Stutter Dial Tone	Supported	
	Polarity Reverse	Supported	
	Momentary Open	Supported	Switch setting is required
	Howler	PCM Howler	
	Hooking Flash Detection	Supported	One-digit hooking is not available
	Times Break Signal Detection	Supported for Australia only	
	Message Waiting Lamp	Supported	High Voltage used with booster battery is supported.
Serial Interface		RS-232C (D-Sub 9 Pin)	
Audible Tone Generator		16 types	
DTMF detection/generation		Supported	
Holding Tone		Supported (in-band)	Single Frequency Music Tone, Selectable (Minuet, Nocturne, Maiden's Prayer)
Safety Standard		UL60950, ACA	
EMI		VCCI class B, FCC Part15, ACA	

1.3 Hardware Requirements

The required hardware for using MC is described in this section.

Analog 2MC
Analog 2MC (SN8029 MCEC-C/SN8029 MCEC-A)
PZ-CC152-B (for SN8029 MCEC-C)/PZ-CC152 (for SN8029 MCEC-A) **Note 1**

Note 1: The card is built inside the MC main frame.
Installed Firmware: SP-3753 2AMC PROG-B



To use Analog 2MC for an analog terminal connection, the following hardware is required:

- TFTP Server (required for file downloading)
- DRS Server (when IP terminal/device registration is managed by a dedicated external server) **Note 2**

Note 2: DRS is a function to control the registration of IP terminals/devices. The Telephony Server contains this registration function (DRS). When DRS in the Telephony Server is to be used, dedicated External Server is not required (External DRS is not supported).

- Cables

  LAN Cable:Use any of the following cables for connecting to LAN.

  10BASE-T: Unshielded Twisted-pair (UTP) Straight-through Cable Category 3 or higher, (a maximum of 100 m)

  100BASE-TX: Unshielded Twisted-pair (UTP) Straight-through Cable Category 5 or higher, (a maximum of 100 m)

  Modular Cable:For the connection between an analog terminal and an MC, use a Modular Cable with an RJ-11 Modular Jack.

  Serial Cable:Straight-through Cable (for Maintenance Console)

1.4 Service Conditions

1. 2MC is controlled by Internal PHE. To register Internal PHE, assign the following system data: When the system data is changed, be sure to reset Internal PHE/PHI with ADPM command.
   - ASYDL, SYS 1, INDEX880, bit3=1 (Valid Internal PHE activation)
   (For more detail about ADPM command, refer to Chapter 2 BUSINESS SYSTEM COMMAND DESCRIPTIONS AND DATA SHEETS of Command Manual.)
2. Internal PHE module can be initialized with ADPM command. The behaviors of each operation are below.

   Module reset: Regenerate module after disconnection of PHE port. Connections with IP terminals are maintained.

   Module initialization: Regenerate module after disconnection of PHE port.
   Clear the terminal and transmitting control information controlled by PHE.
   IP terminals are re-registered and current active calls are disconnected.
3. Internal PHE controls each IP client using TCP/IP port of the Telephony Server (used in connection with PCPro). IP address of PHE is the same as that of TCP/IP port of the Telephony Server. Default port number of PHE is 60130. The IP address and port number are assigned by ADTM command. To activate the modified data, initialize the Internal PHE.

Note: In the UMGi system, the TCP/IP ports of CCN and RNs are used.

4. To control each IP client, Internal PHE uses UDP/IP packet that ALOCL command assigns to LOC-ID=0.
5. VLAN function is not available for Internal PHE. To set up VLAN, use network equipment.
6. Internal PHE can control up to 6144 ports.

Note: The above maximum port number is the same as maximum capacity of a system.

7. Use ALIDL command for Internal PHE data assignment. This assignment requires a group regardless of its maximum allowable number.
8. 2MC supports PB only.
9. Use DISD command to display the registration status of 2MC. And it is also possible to send Soft Reset packets to registered 2MC by the command. For more detail, refer to Chapter 7 Maintenance Commands of Operations and Maintenance Manual.
10. The system issues the messages respectively to the following error status:
    - Error status is “Warning”; 33-R IP PKG Warning
    - Error status is “Failure”; 33-S IP PKG Failure
    - Error status is “Restore”; 33-T IP PKG Restore
11. Modem connection using 2MC is not supported.
12. If connection to the Telephony Server is lost due to problems such as network failure, 2MC cannot exchange tone control signals. Thus no tone is heard on an analog telephone connected to the 2MC when it goes off-hook.

2 Analog 2MC - Installation

2.1 Mounting Location

This section shows how to install the hardware required for Analog 2MC.

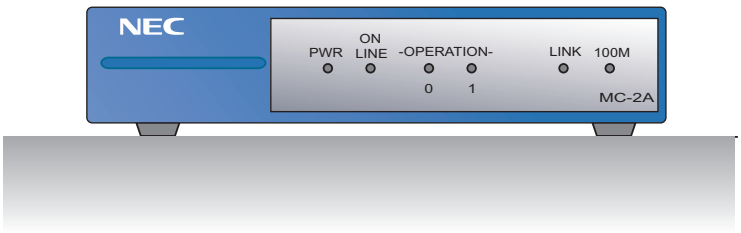
2.2 How to Set Analog 2MC

Analog 2MC can be installed in one of two ways; horizontal or vertical setting.

- Desktop horizontal setting

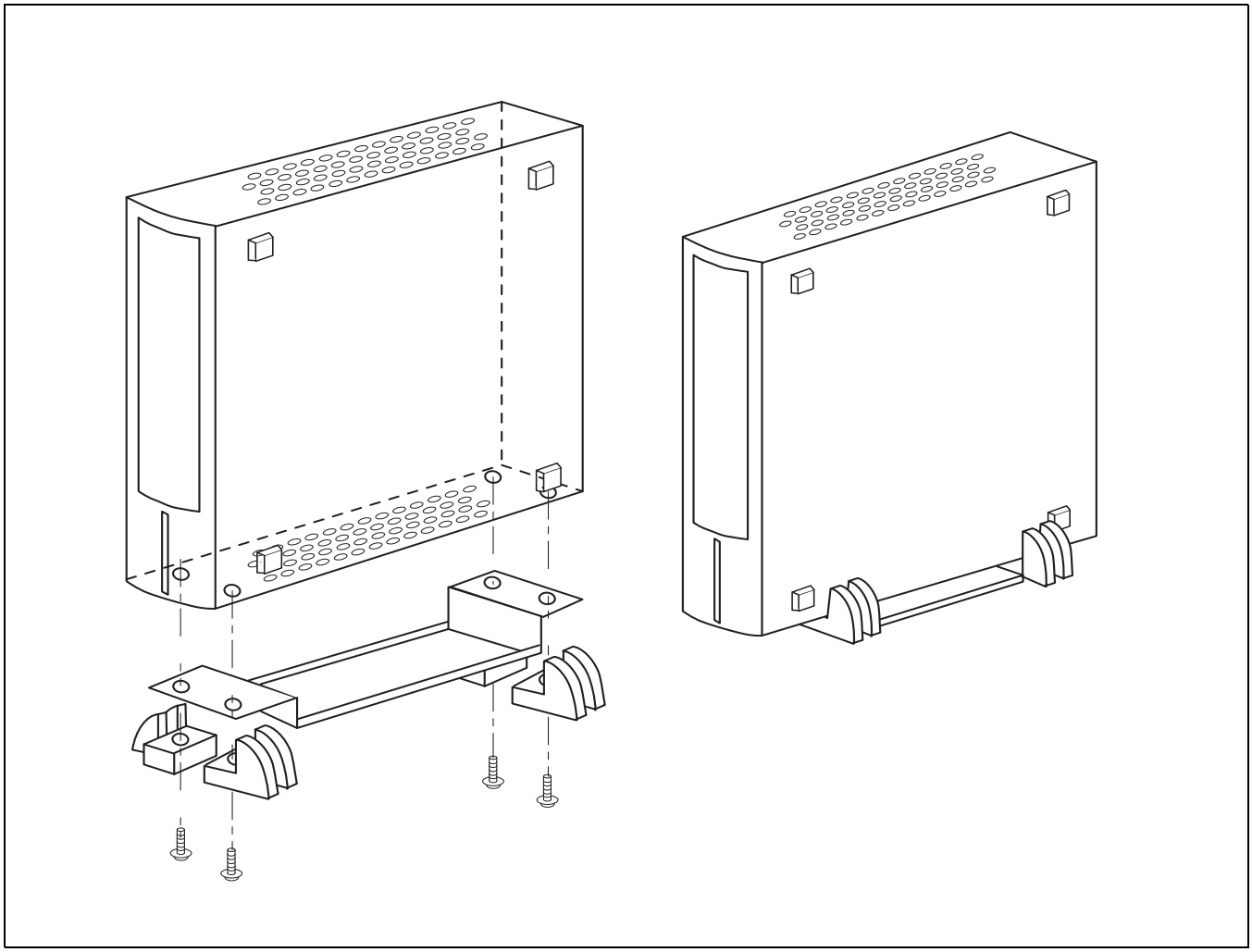
Note: In the figure below, SN8029 MCEC-C is used as an example.

Analog 2MC Horizontal Setting



- Desktop vertical setting with stand

Analog 2MC Vertical Setting with Stand



Note: Use four screws on the stand.

2.3 Cable Connection

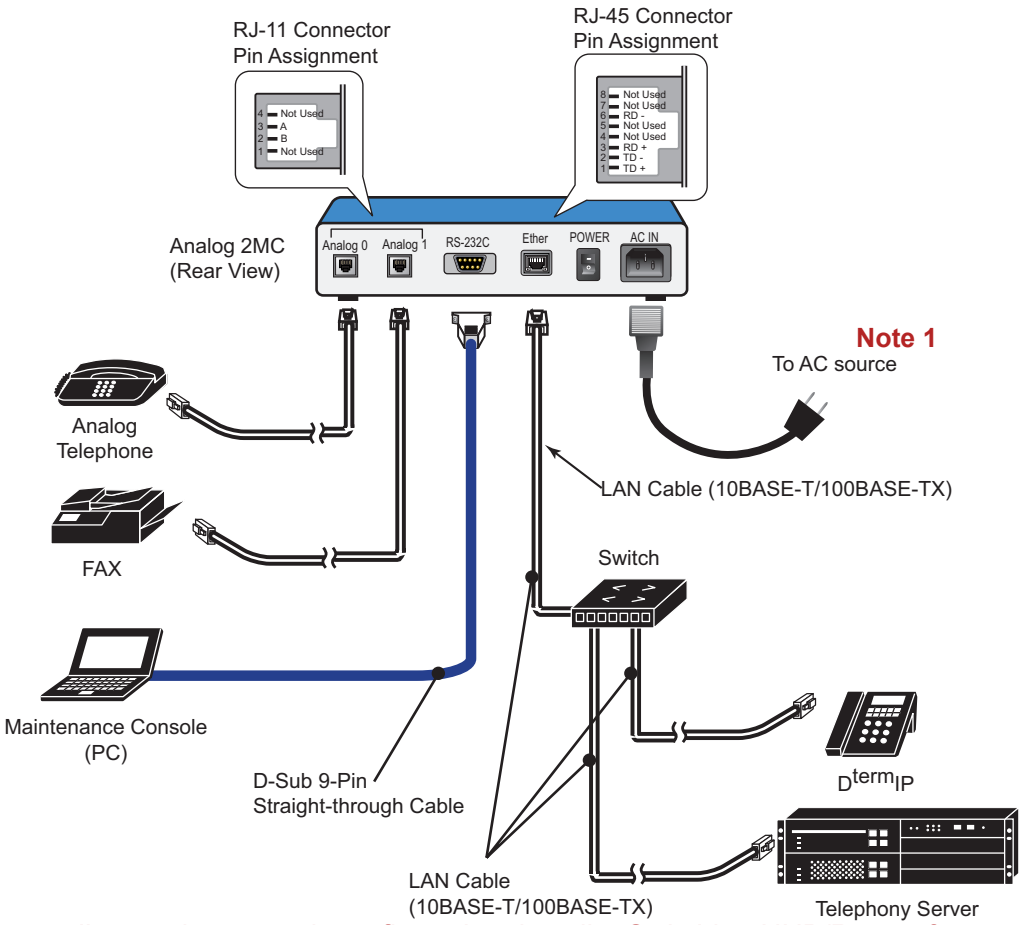
Analog 2MC Cable Connection

This section shows the cable connection to the Analog 2MC. The MC provides the following interface types:

- Connection to LAN
- Connection of Analog Telephone/G3 Fax Machine
- Power Supply
- Serial Port Connection to Maintenance Console

Connect the required cables according to the system configuration as shown in the following figure.

Analog 2MC Cable Connection

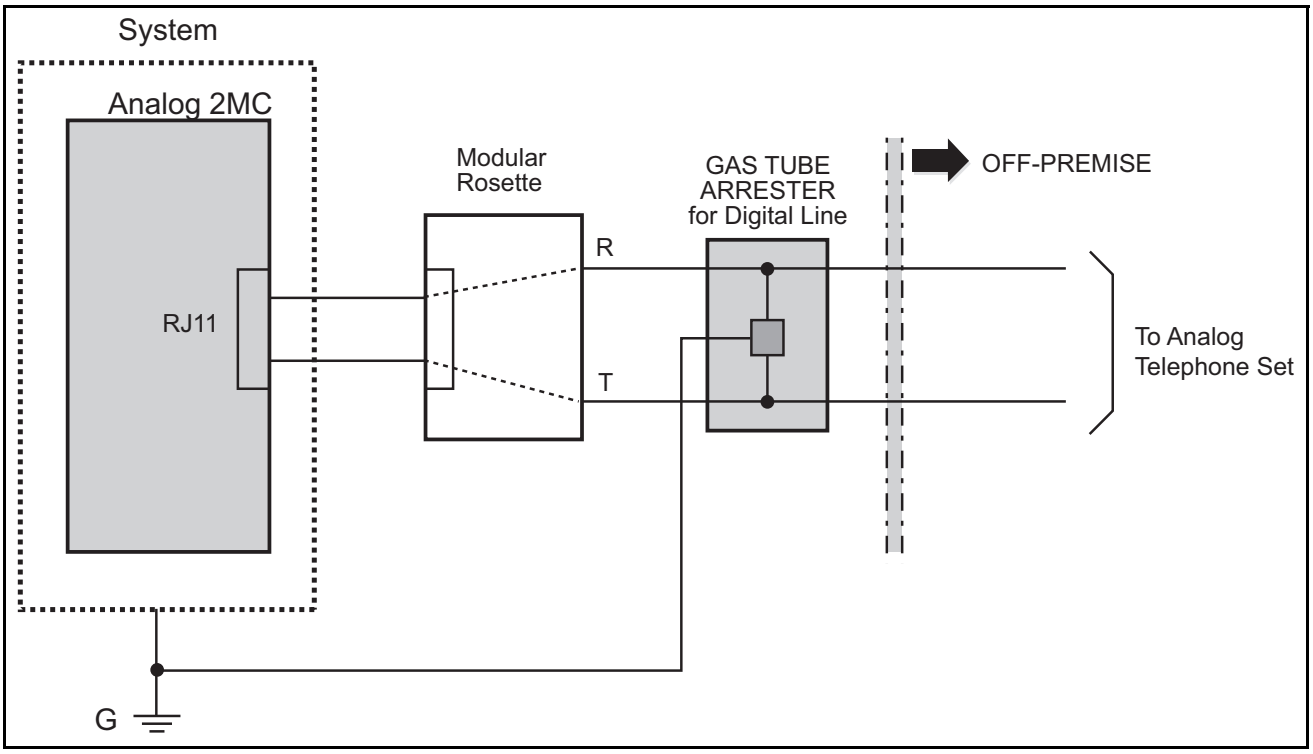


Note: Depending on the network configuration, install a Switching HUB/Router for connecting the MC to an IP network

Note 1: To connect to AC source, use an attached three-polar grounded AC power cable. (Cable Length: 3 m [9.8 ft.])

2.4 Safety Instruction

When installing the Analog 2MC for providing the analog telephone interface that is connected to off-premise site, connect gas tube arrester across the line shown in Figure below.



- Specifications

  Specifications of the gas tube arrester for analog line to be provided are as follows.

PARAMETER	SPECIFICATIONS
Nominal DC sparkover voltage	204V - 276V (100V/S) (1mA, DC200V)
Impulse sparkover voltage	300V (10/1000μs)
Nominal discharge current	100A (10/1000μs)
Nominal decoupling resistance	26 ohm (max)

2.5 Switch Settings

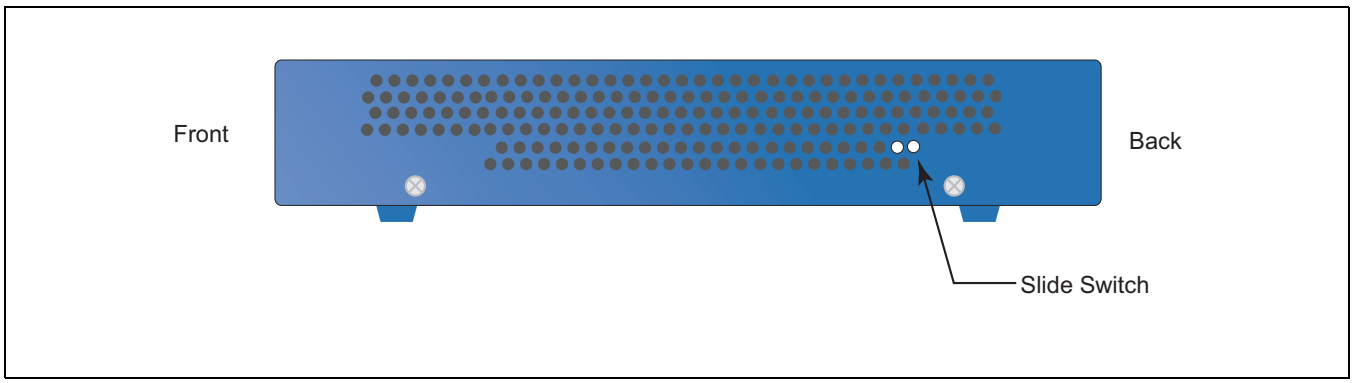
Switch Settings on the Analog 2MC

On the right side of an Analog 2MC, a slide switch is provided to select an Operation Mode. Push either of the switches according to system requirements.

Left (front): Reverse
Right (back): Momentary Open

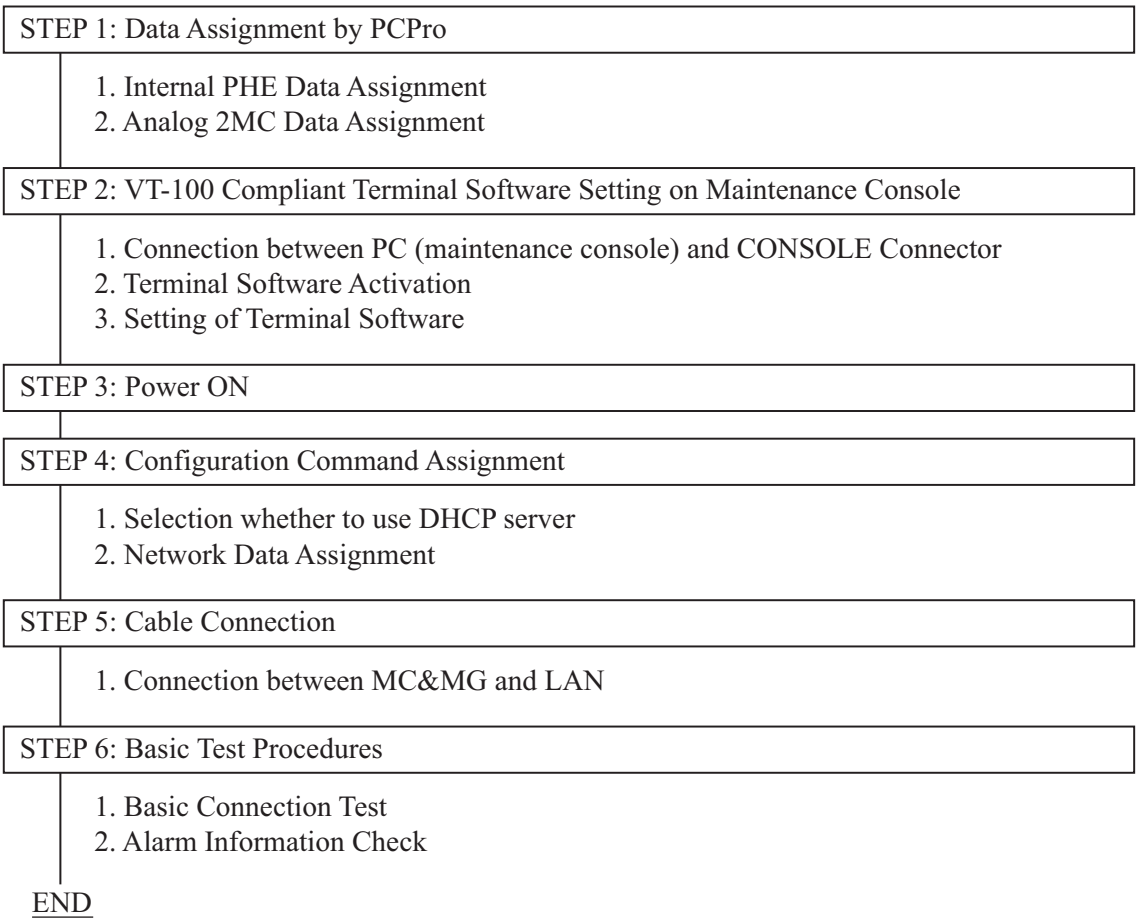
Note: Both modes correspond to two analog ports.

Analog 2MC Side View



3 Startup Analog 2MC and Basic Tests

This section explains procedures for startup and basic tests. Follow the procedure below.



3.1 Data Assignment by PCPro

This section shows how to assign basic data via PCPro. By this data assignment, analog terminals connected to the MC can be used as IP terminals.

[1] Internal PHE Data Assignment

When you use Analog 2MC, control signals between Analog 2MC and the Telephony Server are handled by Internal PHE, which is embedded in the Telephony Server. So Internal PHE data assignment is necessary.

[2] Analog 2MC Data Assignment

Assign the system data, according to the station numbering plan. Refer to the following for the prerequisite minimum data.

ASYDL:Assignment of System Data (LDM)

SYS1, INDEX 811
Assign the Tone Code by countries. For more information, refer to the Command Manual.

ANPD:Assignment of Numbering Plan

Assign the Access Code (ACC) for station access, by using the combination of ANPD and ASPA commands.

1st DC: Assign the 1st DC of the station numbers.
NND: Assign the total station number digits.

ASPA:Assignment of Special Access Code

ACC: Assign the access code using the 1st DC specified by the ANPD command.

AISTL:Assignment of IP Station Data (LDM)

Assign the IP Station Data of each analog terminal connected to Analog 2MC.

TN: Tenant Number [1-63]
IP STN: Station number of IP Station (assign the station number for each analog terminal connected to the Analog 2MC)
KIND: Kind of IP Terminal, select the terminal kind Analog 2MC from the combo box
TEC: Telephone Equipment Class [2,3,14] **Note 1**
RSC: Route Restriction Class [0-15]
SFC: Service Feature Restriction Class [0-15]
LENS: IP Station Equipment Numbers as Virtual LENS. Allocate the IP station to the Virtual LENS within Virtual PIR, or to the LENS of a vacant slot that Station/Trunk is not mounted (an IP station cannot be assigned to a registered station multiple times.) **Note 2**
MC-ID: ID of the MC (enter the fixed MAC Address of the Analog 2MC)
MC-CH: Channel Number of the MC (assign “0” [Port 0] or “1” [Port 1] for each analog terminal connected to the Analog 2MC)
FAX Data Setting: Click the check box to ON when manual data setting is required for Fax communication.
JITSIZ: Enter the Jitter Buffer size in the range 1-30 (×10ms) for Fax controlling.

PAYTYP x:Select the Payload Type G.711/G.726/T.30 in the combo box.
PAYSIZ x: Select the Payload Size 10ms-40ms (required for G.711 and G.726).

Note 1: Analog 2MC supports PB signal only. (DP signal is not supported).

Note 2: For a detailed explanation of data assignment for a Virtual PIR, see Virtual PIR Data in the Data Programming Manual.

AIVCL:Assignment of IP Service Voice Control Data (LDM)

Assign voice control data on Location ID basis (assigned by ALOCL command).

A LOC-ID:Location ID of the self-location [0-4095]
B LOC-ID:Location ID of the destination location [0-4095]
Setting of Jitter Buffer: Select the check box to assign the Jitter Buffer data.
JB MIN: Jitter Buffer minimum value [0-30 (× 10 milliseconds)]
JB MAX: Jitter Buffer maximum value [0-30 (× 10 milliseconds)]

Note: Default settings (JB MIN=1 (10 ms), JB MAX=30 (300 ms)) is applied when the check box is not selected.

Setting Type of Voice Packet Service: Select the check box to assign the ToS data for voice packet.
IP PRECEDENCE/DIFFSERV: Choose either from the drop-down list box.
<When IP PRECEDENCE is selected>
Priority (PRECEDENCE/DSCP):Specify the precedence in the range of 0-7 (low-high).
Low Delay: Place a check mark to set Low Delay to ON.
Through Put: Place a check mark to set High Throughput to ON.
Reliability: Place a check mark to set High Reliability to ON.
MIN Cost: Place a check mark to set Cost Precedence to ON.
<When DIFFSERV is selected>
Priority (PRECEDENCE/DSCP):Specify the DiffServ Code Point in the range of 0-63.

Note: Default settings (IP PRECEDENCE, Priority (PRECEDENCE/DSCP) = 5, Low Delay = OFF, Through Put = OFF, Reliability = OFF, Min Cost = OFF) is applied when the check box is not selected.

Setting of Payload: Select the check box to assign the Payload data. Specify a payload type (TYPE) and payload size (SIZE) in the order of priority 1 to 4 (PRI1 through PRI4).
TYPE: Select a payload type from the combo box.
•No data
•G.711
•G.729a
•G.723.1 (5.3K → 6.3K)
•G.723.1 (6.3K → 5.3K)
SIZE: Select a payload size from the combo box according to the payload type.
•No data
•10 milliseconds
•20 milliseconds
•30 milliseconds
•40 milliseconds
•60 milliseconds

Note:

- If payload type G.711 is specified to more than two priorities in PRI1 through PRI4, assign different payload size to each priority.
- When payload types G.723.1 (5.3K → 6.3K) and G.723.1 (6.3K → 5.3K) are to be assigned on the same terminal, specify the same value to the payload size of both types.
- It is not necessary to assign the payload type/size to the whole priorities. Specifying the first priority only is allowed.
- For available payload type/payload size, refer to "Payload Setting for Each IP Equipment" in the System Description.

Setting of PAD: Select the check box to assign the PAD data manually. If not checked, default value 0 is applied.

KIND2: Specify the PAD value of Analog 2MC in the range of 0-3.

- •No PAD control (determined by ASYD, SYS1, INDEX 4, bit5 (5 dB PAD))
- •PAD OFF (0 dB)
- •3 dB
- •6 dB

KIND3: Specify the PAD No. of IPPAD in the range of 0-15.
PAD value is determined by this PAD No. (0-15) and the setting of SW10-6/7 on IPPAD card. Refer to the Circuit Card Description for more details.

Setting of Echo Canceller: Select the check box to assign the Echo Canceller data, and select one of the radio buttons.

Note: EC is always set to ON for Analog 2MC.

3.2 VT-100 Compliant Terminal Software Setting on Maintenance Console



Note: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data.

STEP 1: Connect a PC (maintenance console) to the RS-232C connector.

STEP 2: Run VT-100 compliant terminal software (e.g. HyperTerminal) on the Maintenance Console.

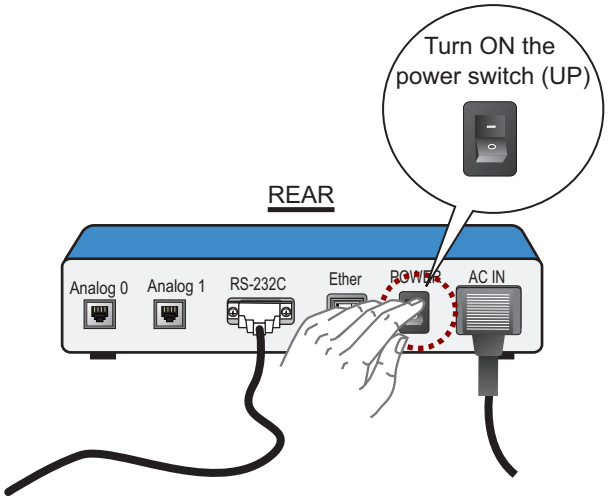
STEP 3: Set the parameter of the terminal software as follows:

- Port: *COM1 (depending on PC setting)*
- Baud Rate: *9600 bps*
- Data: *8 bits*
- Parity: *None*
- Stop Bit: *1*
- Flow Control: *None*

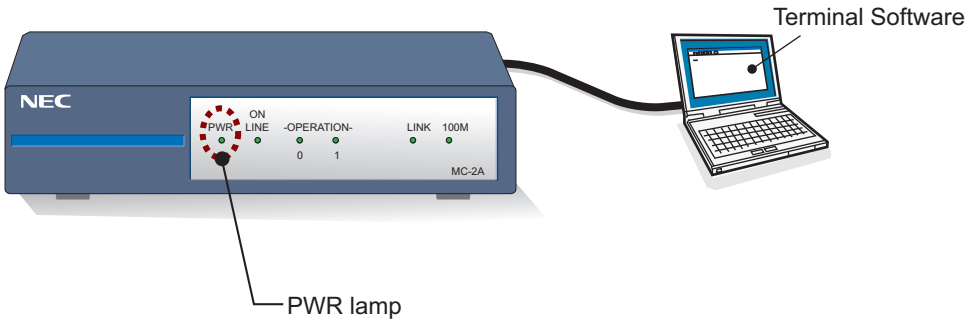
3.3 Power ON

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

STEP 1: Turn ON the power switch (UP) on the rear panel of Analog 2MC.



STEP 2: Make sure the LED indicate normal status.
- PWR lamp lights green (*Boot program automatically starts)



3.4 Configuration Command Assignment

Assign the configuration data by command operation on maintenance console. For more information about procedure for the command operation, refer to "4.5 How to Use Maintenance Command".

Note: "DRS (Device Registration Server)" used in this section refers to the Telephony Server. The Telephony Server acts as DRS for Analog 2MC using Proprietary Protocol.

There are two ways to set the network data;

- When DHCP server is used
- When DHCP server is NOT used

- **When DHCP server is used**

As MC automatically gets IP address from DHCP server, IP address setting is not required on MC. Assign the IP address listed below on DHCP server side. **Note 1**, **Note 2**

- IP address of Default Gateway
- IP address of DRS **Note 3**

Assign the following data on MC from the maintenance terminal:

1. Change DHCP setting to ENABLE. (`SET DHCP ENABLE`)
2. Assign other data to be changed from the default such as PAD value.
3. Save the data change to the Flash ROM (`SAVE CONFIGDATA`)
4. Reboot the MC. (`REBOOT`)
5. Exit from the maintenance command.

Note 1: Check the number of IP addresses saved in DHCP server is sufficient so as to get IP address of MC any time.

Note 2: Assign DHCP option on DHCP server as follows.
Name:Not specified, but do not enter the same option name in duplicate
Data:IP address
Array:Checked
Code:161

Note 3: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

- **When DHCP server is NOT used**

Assign the following data from the maintenance terminal:

1. Change DHCP setting to DISABLE. (`SET DHCP DISABLE`)
2. Assign IP Address and Subnet Mask of MC.(`SET IPADDRESS x.x.x.x y.y.y.y`)
3. Assign Default Gateway address of MC. (`SET DEFAULTROUTE x.x.x.x`)
4. Assign IP Address and Port Number of DRS. (`SET DRSADDRESS`) **Note 1**
5. Assign other data to be changed from the default such as PAD value.
6. Save the data change to the Flash ROM (SAVE CONFIGDATA)
7. Reboot the MC. (REBOOT)
8. Exit from the maintenance command.

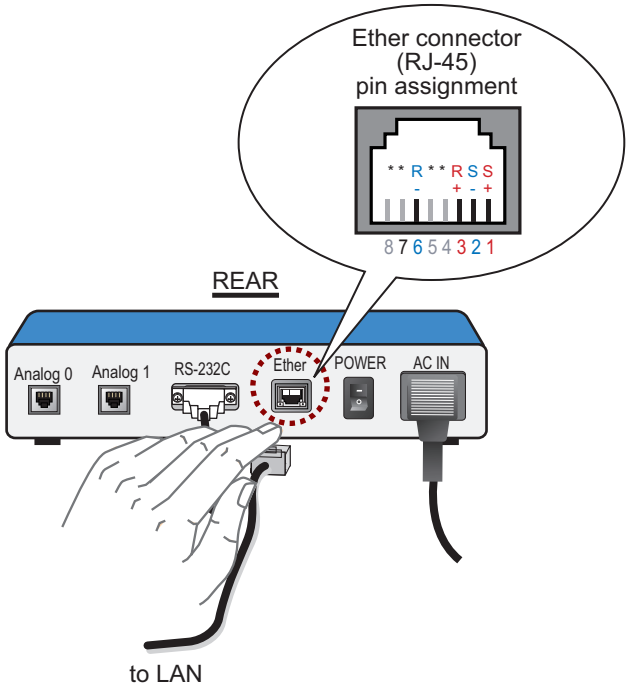
Note 1: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

3.5 Cable Connection

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

STEP 1: Connect Analog 2MC to the LAN by using an appropriate LAN cable.

Note: Before connecting the 8LC Card to network, be sure to execute “ping” command to check the following:
- Is there other device having the same IP address overlapped?
- Is the new IP address assigned correct?



STEP 2: Check the lamp indication on the front panel of Analog 2MC.

- PWR lamp: lights green
- ON LINE lamp: lights green

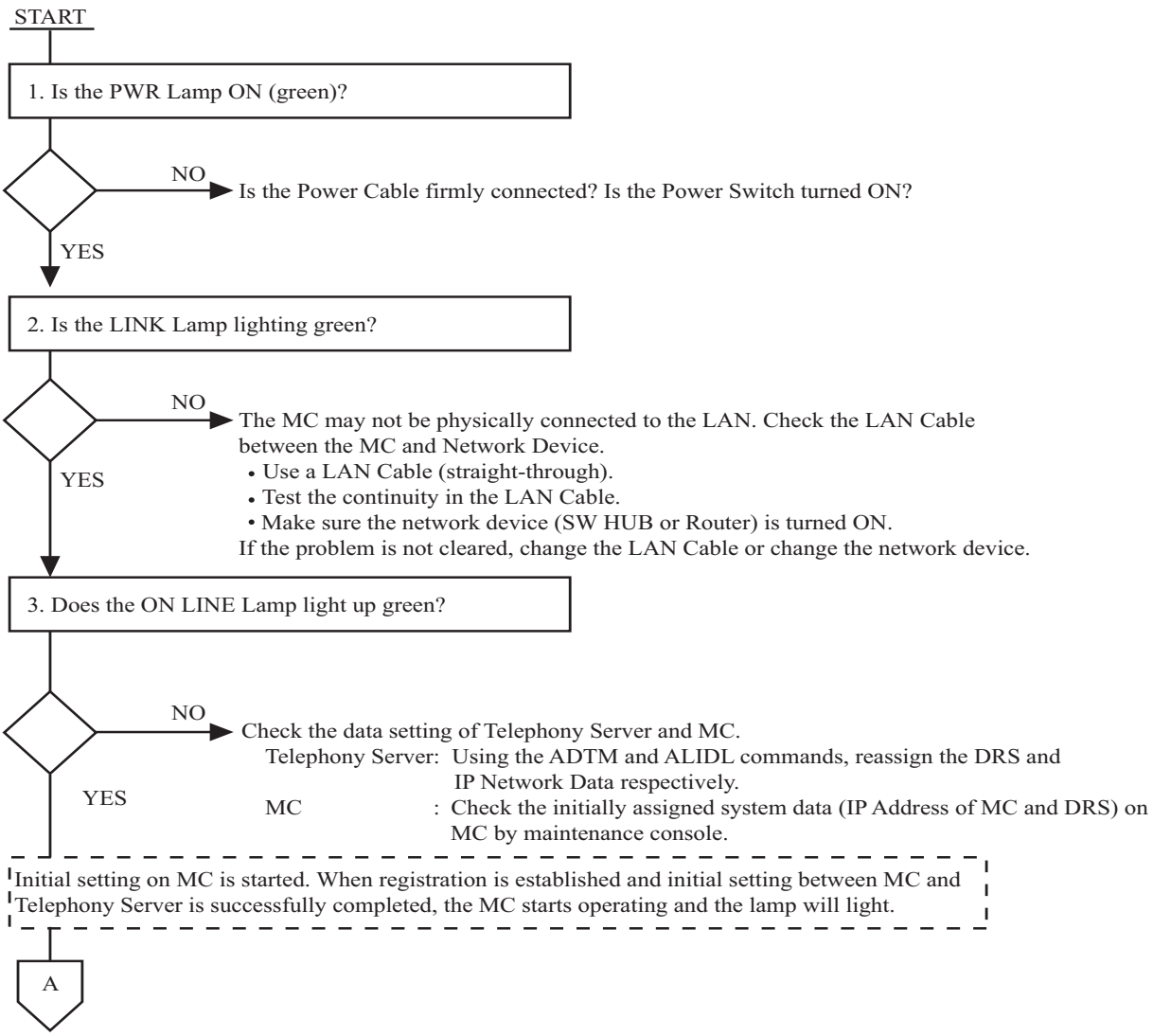
3.6 Basic Test Procedures

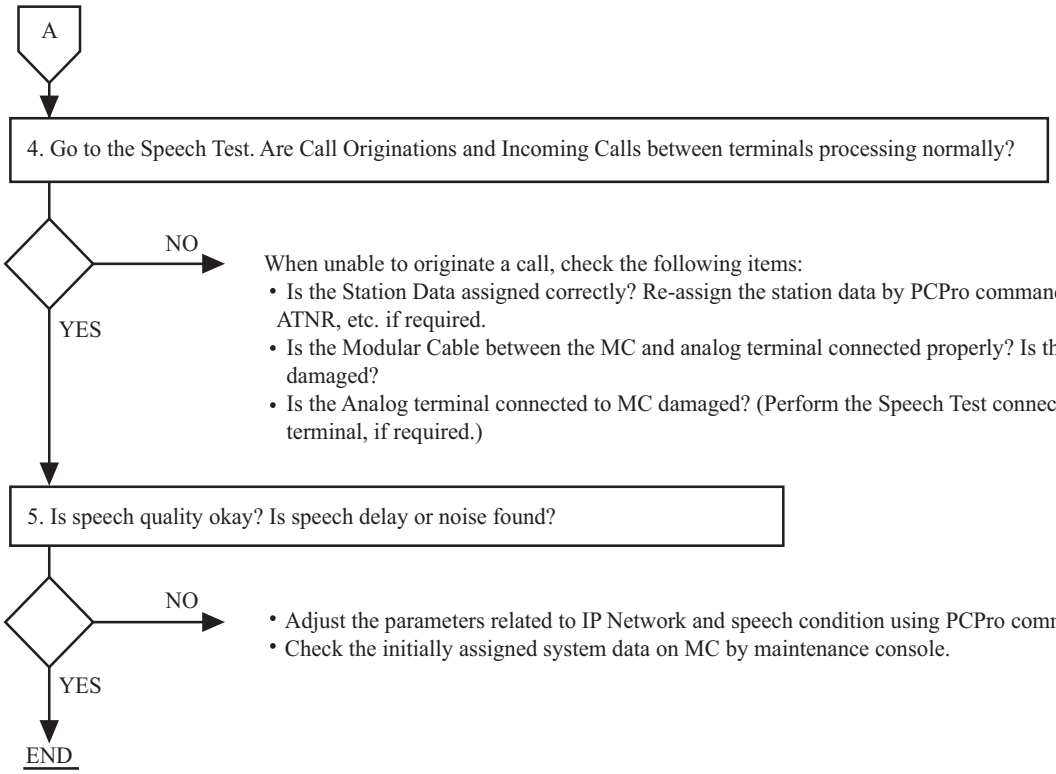
When installation and necessary data assignment have been completed, perform the following operation tests.

[1] Basic Connection Test

Perform the connection test according to the following procedure. Before starting the connection test, be sure to confirm that the Telephony Server is operating as follows:

- No alarm is indicated on the Telephony Server.
- Normal call processing can be activated.




A
4. Go to the Speech Test. Are Call Originations and Incoming Calls between terminals processing normally?
NO
YES
When unable to originate a call, check the following items:
• Is the Station Data assigned correctly? Re-assign the station data by PCPro commands AISTL, ARSC, ATNR, etc. if required.
• Is the Modular Cable between the MC and analog terminal connected properly? Is the cable damaged?
• Is the Analog terminal connected to MC damaged? (Perform the Speech Test connecting tp the test terminal, if required.)
5. Is speech quality okay? Is speech delay or noise found?
NO
YES
• Adjust the parameters related to IP Network and speech condition using PCPro command ALIDL.
• Check the initially assigned system data on MC by maintenance console.
END

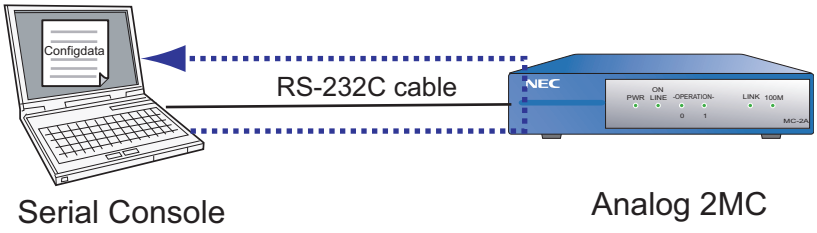
4 Operation and Maintenance

4.1 How to Back Up and Restore Config Data by Serial Connection (Local Download)

This config download/upload is performed one by one, connecting a PC to each Analog 2MC with a RS-232C and a LAN cable.Prepare the following:

- RS-232C cable is required.
- LAN cable (crossover) is required for restoring config data.
- Serial terminal emulation program (such as HyperTerminal) is required
- PCPro has to be installed in advance.

• Backing Up Config Data By Serial Connection



STEP 1 Power off Analog 2MC and disconnect it from the network.

STEP 2 Connect PC to Analog 2MC by using RS-232C cable.

STEP 3 Power on Analog 2MC.

STEP 4 Activate HyperTerminal and set the following:
Bit per second:9600bps
Data bits:8bit
Parity:None
Stop bit:1bit
Flow control:None

STEP 5 Select **[Transfer]** -> **[Capture File...]**.

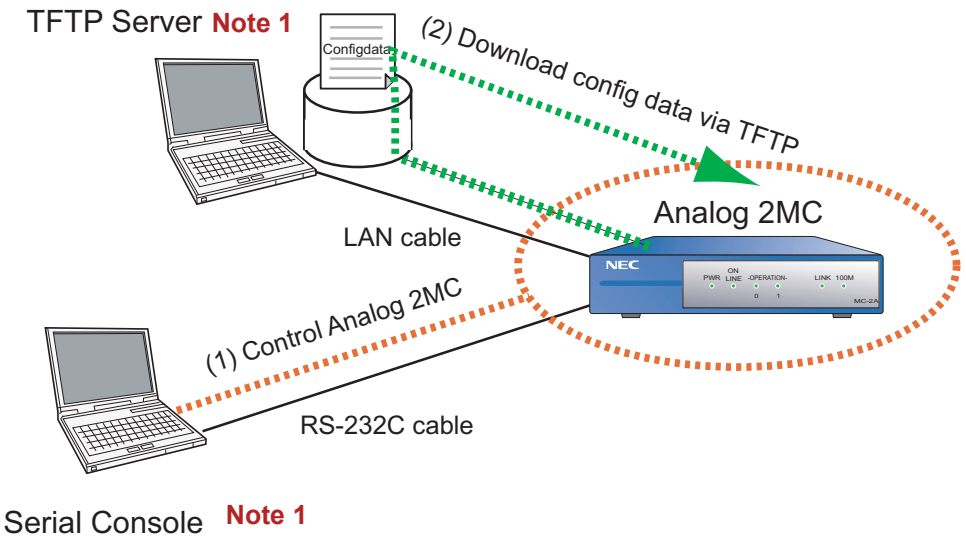
STEP 6 Send File screen is displayed. Specify a file name to be saved, and then click the Start button.

STEP 7 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 8 After a prompt (`2A-MC>`) is displayed, enter "`show config`" to display configuration data of Analog 2MC.

STEP 9 Select **[Transfer]** -> **[Capture Text]** -> **[Stop]** to save the config file shown in screen.

- Restoring Config Data By Serial Connection And TFTP Connection



Note 1: TFTP server and Serial Console both can be performed using a single Personal Computer.

STEP 1 Power off Analog 2MC and disconnect it from the network.

STEP 2 Connect Serial Console to Analog 2MC by using a RS-232C cable.

STEP 3 Connect TFTP server to Analog 2MC by using a LAN cable.

<Data Assignment on TFTP Server>

STEP 4 If the name of the backup config file is not sysdata, rename it to “sysdata”.

STEP 5 Put the file in the root folder of TFTP server, and then start the TFTP server program.

STEP 6 Permit read behavior of this folder. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on Serial Console>

STEP 7 Power on Analog 2MC.

STEP 8 Activate HyperTerminal and set the following:
Bit per second:9600bps
Data bits:8bit
Parity:None
Stop bit:1bit
Flow control:None

STEP 9 After a prompt (->) is displayed, enter “`usrConsole`”.

STEP 10 After a prompt (2A-MC>) is displayed, enter "get configdata <TFTP's IP Address>" to download configuration data into Analog 2MC.

STEP 11 Confirm that "successfully completed" is displayed in the screen, indicating the upload to TFTP server is completed normally.

STEP 12 To reflect the configuration data that is downloaded from TFTP server, save it by entering "save config" and reboot Analog 2MC by entering "reboot".

STEP 13 Exit the HyperTerminal by selecting **[File]** -> **[Exit]**.

<Confirmation of Analog 2MC>

STEP 14 Connect the Analog 2MC to the network.

STEP 15 Confirm that Analog 2MC is normally registered in system after reboot. Use the DISD/FPTS commands in PCPro. For more information, refer to the Command Manual.

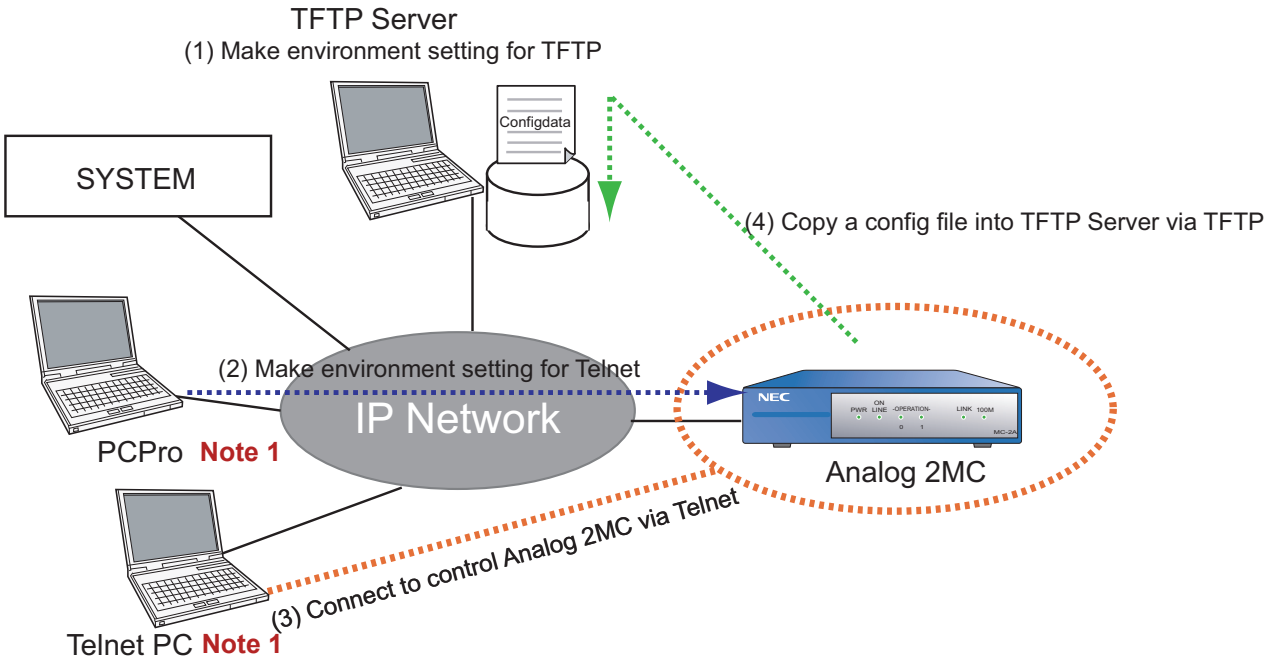
STEP 16 Check that calls via Analog 2MC can be made.

4.2 How to Back Up and Restore Config Data by TFTP Connection (Remote Download)

This config download/upload is performed via TFTP.
Prepare the following:

- PC that is capable of Telnet and TFTP features.
- All the PCs have to belong to the same segment with Analog 2MC.
- TFTP server has to be installed in advance.
- PCPro has to be installed in advance.
- Analog 2MC is already registered to system and it is operating normally.

• Backing Up Config Data via TFTP



Note 1: PCPro and Telnet both can be performed using a single Personal Computer.

<Data Assignment on TFTP Server>

STEP 1 Create a folder to back up configuration data.

STEP 2 Start the TFTP server program.

STEP 3 Assign the folder as root folder, and then permit write and read behavior of this directory. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on PCPro>

STEP 4 To search for the LENS of the target Analog 2MC, use the IPAN command.

STEP 5 To make environment setting for Telnet, use the ATUD command.
- Specify the LENS, which is belonging to the target Analog 2MC.
- Specify a user ID and a password, which are required for logging in to Analog 2MC via Telnet.
- Input any letter for USER LEVEL because Analog 2MC does not use USERLEVEL.
- For VALID TIME, input a total of time required for completing this procedures.

Note: A user ID and a password are temporary ones for download; you can specify them as you like

STEP 6 After completing the above, click the Set button.

<Data Assignment on Telnet PC>

STEP 7 Start a command prompt and enter "`telnet <Analog 2MC's IP Address>`" to connect Analog 2MC via Telnet.

STEP 8 Log in to the target Analog 2MC by entering the userID and the password, which are set in the AUTD command.

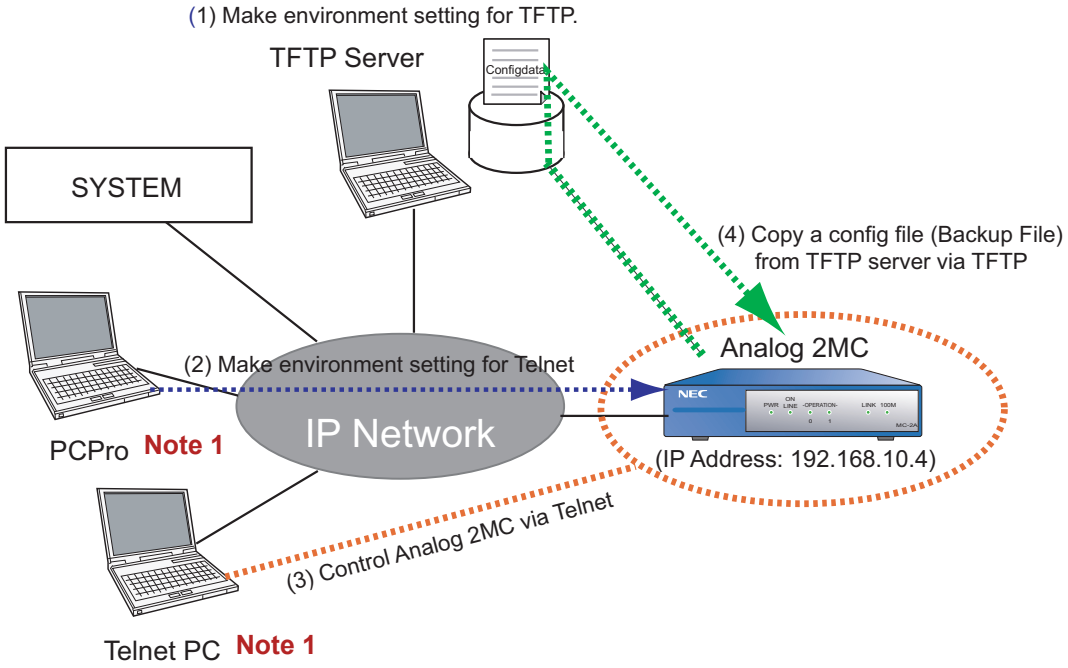
STEP 9 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 10 After a prompt (`2A-MC>`) is displayed, enter "`put configdata <TFTP's IP Address>`" to download configuration data to Analog 2MC.

STEP 11 Confirm that "successfully completed" is displayed in the command prompt, indicating the upload to TFTP server is completed normally.

STEP 12 Exit the HyperTerminal by selecting **[File]** -> **[Exit]**.

- Restoring Config Data via TFTP



Note 2: PCPro and Telnet both can be performed using a single Personal Computer.

<Data Assignment on TFTP Server>

STEP 1 If the name of the backup config file is not sysdata, rename it to “sysdata”.

STEP 2 Put the file in the root folder of TFTP server, and then start the TFTP server program.

STEP 3 Permit read behavior of this folder. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on PCPro>

STEP 4 To search for the LENS of the target Analog 2MC, use the IPAN command.

STEP 5 To make environment setting for Telnet, use the ATUD command.
- Specify the LENS, which is belonging to the target Analog 2MC.
- Specify a user ID and a password, which are required for logging in to Analog 2MC via Telnet.
- Input any letter for USER LEVEL because Analog 2MC does not use USERLEVEL.
- For VALID TIME, input a total of time required for completing this procedures.

Note: A user ID and a password are temporary ones for download; you can specify them as you like

STEP 6 After completing the above, click the Set button.

<Data Assignment on Telnet PC>

STEP 7 Start a command prompt and enter "`telnet <Analog 2MC's IP Address>`" to connect Analog 2MC via Telnet.

STEP 8 Log in to the target Analog 2MC by entering userID and password, which are set in the AUTD command.

STEP 9 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 10 After a prompt (`2A-MC>`) is displayed, enter "`get configdata <TFTP's IP Address>`" to download configuration data into Analog 2MC.

STEP 11 Confirm that "successfully completed" is displayed in the command prompt, indicating the upload to TFTP server is completed normally.

STEP 12 To reflect the configuration data that is downloaded from TFTP server, save it by entering "`save config`" and reboot Analog 2MC by entering "`reboot`".

STEP 13 Exit the HyperTerminal by selecting **[File]** -> **[Exit]**.

<Confirmation of Analog 2MC>

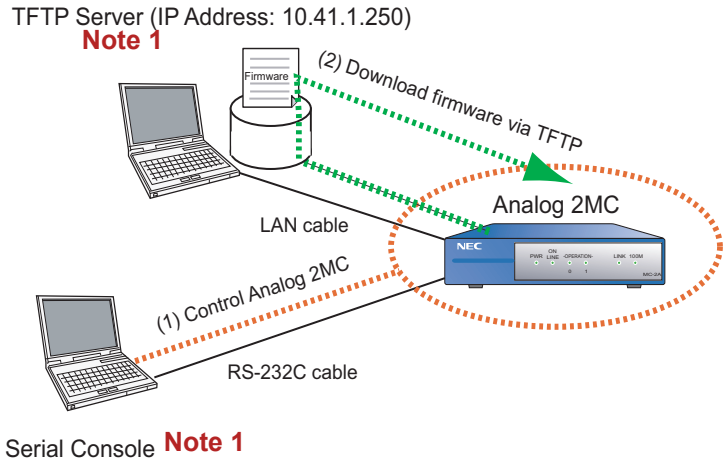
STEP 14 Confirm that Analog 2MC is normally registered in system after reboot. Use the DISD commands. For more information, refer to the Operation and Maintenance Manual.

STEP 15 Check that calls via Analog 2MC can be made.

4.3 How to Upgrade Firmware by Serial Connection (Local Download)

This firmware upgrade is performed one by one, connecting a PC to each Analog 2MC with a RS-232C and a LAN cable. Prepare the following:

- Firmware for upgrade
- RS-232C cable and LAN cable (crossover) are required.
- Serial terminal emulation program (such as HyperTerminal) is required
- TFTP server has to be installed in advance.



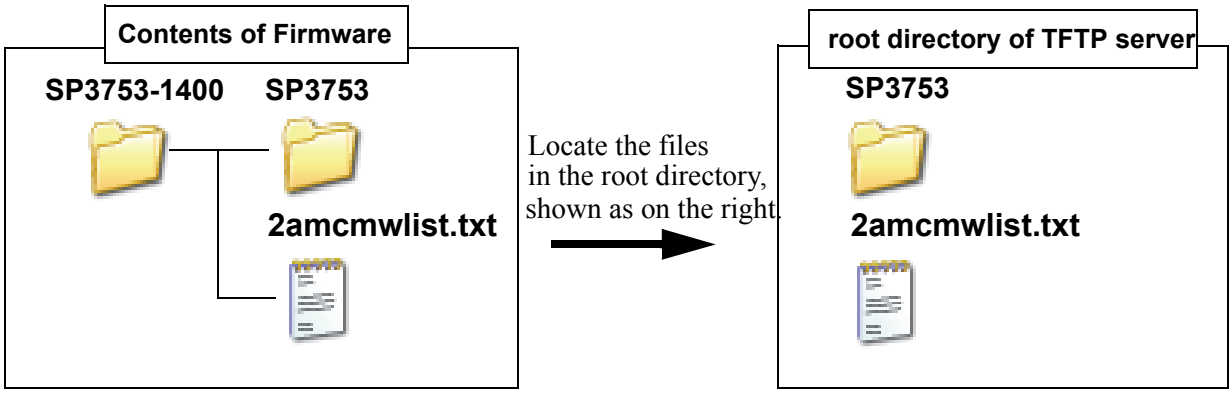
Note 1: TFTP server and Serial Console both can be upgraded using a single Personal Computer.

STEP 1 Disconnect the Analog 2MC from the network.

STEP 2 Connect PC(s) to Analog 2MC with LAN connector and RS-232C cable both.

STEP 3 Put the firmware file for upgrade in the root folder of TFTP server.

Note: The following files have to be located in the root folder.



EXAMPLE:

SP3753-1400
- **Issue Number (ISSUE14)**
- **Firmware Number**

STEP 4 Permit read behavior of this directory. For more information, refer to the appropriate manual attached to the TFTP server program.

STEP 5 Set network environment for the TFTP server.
IP Address: 10.41.1.250
Subnet mask: 255.255.255.0

STEP 6 Start the TFTP program.

STEP 7 Activate HyperTerminal and set the following:
Bit per second:9600bps
Data bits:8bit
Parity:None
Stop bit:1bit
Flow control:None

STEP 8 Power on Analog 2MC.

STEP 9 At the moment that boot programming is starting ("`Starting 2AMC boot program...`"), press the ESC key.

STEP 10 The boot mode main menu is displayed. Input "2" (Download of one program).

STEP 11 Input "n" (set IP address at present) for 2A-MC IP address set.

STEP 12 Input "n" (set IP address at present) for TFTP IP address set.

STEP 13 Make sure correct IP addresses are set in TFTP server and Analog 2MC. And then input "y".

STEP 14 Program download menu is displayed. Input "0" to download main program.
Main program is downloaded and written into Flash ROM. After that, system will reboot automatically.

STEP 15 At the moment that boot programming is starting ("`Starting 2AMC boot program...`"), press the ESC key.

STEP 16 The boot mode main menu is displayed. Input "2" (Download of one program)

STEP 17 Input "n" (set IP address at present) for 2A-MC IP address set.

STEP 18 Input "n" (set IP address at present) for TFTP IP address set.

STEP 19 Make sure correct IP addresses are set in TFTP server and Analog 2MC. And then input "y" if they are correct.

STEP 20 The Program download menu is displayed. Input "2" to download DSP program.
DSP program is downloaded and written into Flash ROM. After that, system will reboot automatically.

STEP 21 Activate HyperTerminal and connect to Analog 2MC.

STEP 22 Check version information by entering "`show version`".

STEP 23 Connect the Analog 2MC to a network.

STEP 24 To confirm Analog 2MC is operating properly with the upgraded firmware, make a call to the Analog 2MC. Check that you can hear RBT.

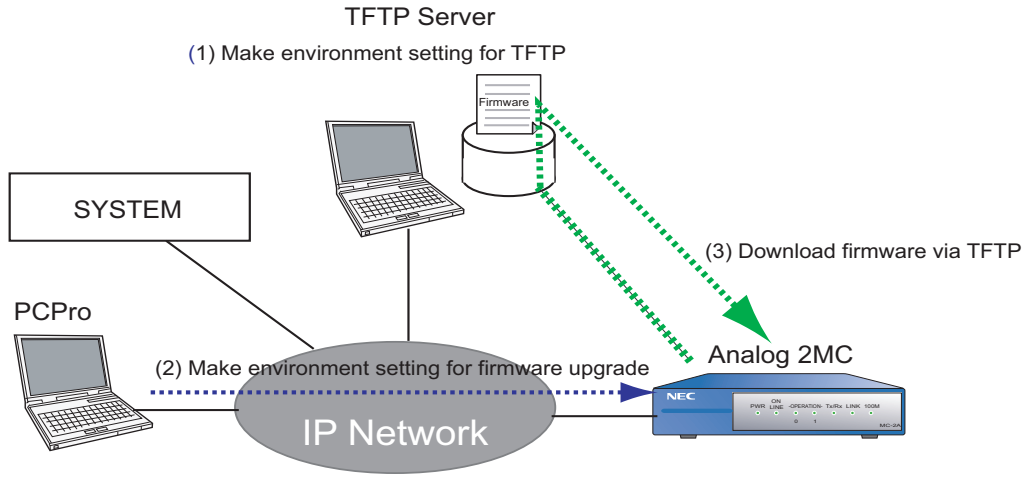
STEP 25 Receive a call via the Analog 2MC, and confirm that you can talk to each other.

STEP 26 After all the tasks are completed, write down/label the firmware version in the back of the Analog 2MC. For example, 2A is indicated for Version 2. 3A is indicated for Version 3.

4.4 How to Upgrade Firmware by FTP (Remote Download)

This firmware upgrade is performed up to eight Analog 2MCs at once.
Prepare the following:

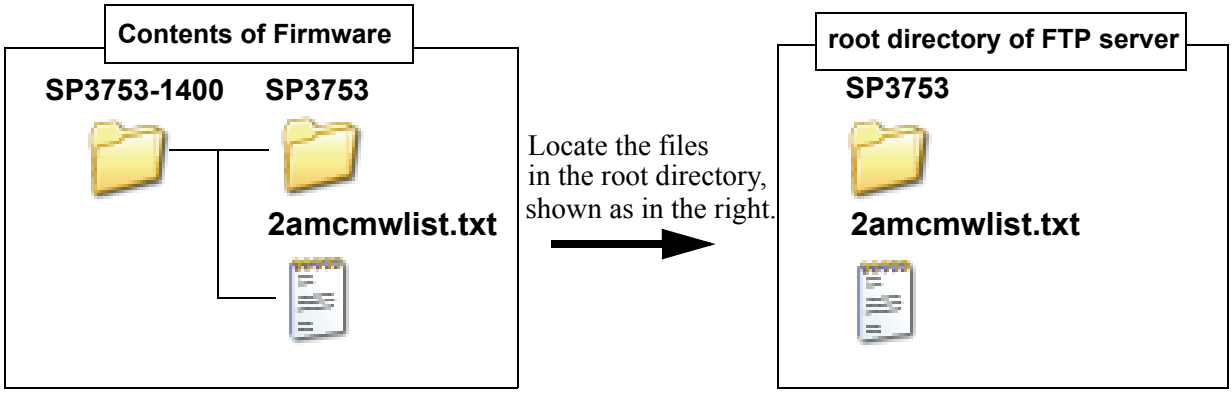
- Firmware for upgrade
- PCs have to belong to the same segment with Analog 2MC.
- FTP server has to be installed in advance.
- PCPro has to be installed in advance.
- Analog 2MC is already registered to system and it is operating normally.



<Data Assignment on FTP Server>

STEP 1 Put the firmware file for upgrade in the root folder of FTP server, and then start the FTP server program.

Note: The following files have to be located in the root folder.



EXAMPLE:

SP3753-1400
Issue Number (ISSUE14)
Firmware Number

STEP 2 Allow a read in this directory. For more information, refer to the appropriate manual attached to the FTP server program.

<Data Assignment on PCPro>

STEP 3 Activate the ATDL command.
Select Terminal Type in Terminal Specifying Type, and then select Analog 2MC.
Specify the Hardware Type in HWTP and Hardware Version in HWVER.
Set the File Name.

STEP 4 Click the Add to Terminal List button.

STEP 5 After the Analog 2MCs are displayed in the Terminal List, select the appropriate Analog 2MC to be upgraded the firmware.

STEP 6 Select an item of External Server from FTP Server Type in the Setting for Download field.
Input the IP address of FTP server.
Input Login Name and Password for logging in to FTP server if required.
Select an item of Parallel in Download Method.

Note: If you narrow them down by specifying Terminal Type in the ATDL command, Analog 2MCs will be displayed per registered channel. Analog 2MC is capable of two channels, therefore, when those channels are being used in an Analog 2MC, the same Analog 2MC is displayed twice in the box. To avoid setting upgrade task to the target Analog 2MC twice, select either one of the two channels used in the Analog 2MC by checking LENS.

STEP 7 Click the EXECUTE button to upgrade the firmware to the target Analog 2MCs.
"Upgrade is succeeded" is displayed. Note that version information in the screen is not updated at this time. If the upgrade is failed, click the Close button, and then go back to STEP3.

STEP 8 After upgrade is completed, click the Close button. In the main screen, click the Exit button to close the ATDL command.

STEP 9 To confirm the firmware, activate the DIPI command.

STEP 10 Select Media Converter in Functionality Type, and then click the Execute button.

STEP 11 Confirm that the firmwares in the appropriate ones are upgraded.

<Confirmation of Analog 2MC>

STEP 12 To confirm Analog 2MC is operating properly with the upgraded firmware, make a call to the Analog 2MC. Check that you can hear RBTs.

STEP 13 Receive a call via the Analog 2MC, and confirm that you can talk to each other.

STEP 14 After all the tasks are completed, write down/label the firmware version in the back of the Analog 2MC. For example, 2A is indicated for Version 2. 3A is indicated for Version 3.

4.5 How to Use Maintenance Command

Note: "DRS (Device Registration Server)" used in this section refers to the Telephony Server. The Telephony Server acts as DRS, where Analog 2MC is registered.

(1) Connect a PC to the MC using the RS-232C straight-through cable and run terminal software (e.g. HyperTerminal) on the PC.

(2) Set the parameter of the terminal software as follows:

- Port: COM1
- Baud Rate: 9600 bps
- Data: 8 bits
- Parity: None
- Stop Bit: 1
- Flow Control: None

(3) Enter *usrConsole* after the prompt. Then the following prompt appears.

`2A-MC>_` (Machine Name > : default)

Something similar to the following is displayed when Analog 2MC is turned on.

```
MC-ID: 00004c323232
Starting 2A-MC boot program.......


--- Online start --- (wait 30sec)
Attached TCP/IP interface to axDev unit 0
Attaching network interface lo0... done.
NFS client support not included.

Adding 4521 symbols for standalone.

------//----------------------------------------//---
        2 Port Analog Media Converter
              *Firmware SP-3753  ( 01.00 )
              *Compiled on Nov 2 2002 21:57:46
---//----------------------------------------//------
->
->
->
->
->usrConsole  Enter usrConsole at this prompt.

2A-MC Maintenance command Version 1.00  2001.07.19

2A-MC>_
```

The following maintenance commands can be used.

No.	SET COMMAND	REMARKS
1	SET BURSTPATTERN	Sets Burst Ringer Pattern.
2	SET CHANNELATTRIBUTE	Sets Channel Attribute.
3	SET COUNTRYCODE	Sets Country Code.
4	SET DEFAULTROUTE	Sets Default Gateway.**Note 1**
5	SET DHCP	Sets DHCP. **Note 1**
6	SET DRSADDRSS	Sets DRS Address. **Note 1**
7	SET DRSTOS	Sets ToS of DRS session.
8	SET FAXERRORDETECT	Sets Change Effective Timer of Fax.
9	SET FAXRECVPAD	Sets Fax receiver PAD value.
10	SET FAXSENDPAD	Sets Fax sender PAD value.
11	SET HEALTHCHECKTIMER	Sets Health Check timer value.
12	SET INTERFACE	Sets communication speed for LAN interface.
13	SET IPADDRESS	Sets IP Address and Subnet Mask. **Note 1**
14	SET MUSICTYPE	Sets Music-on-Hold.
15	SET OPEN	Sets Open/Reverse.
16	SET PAD	Sets default receiver PAD value. **Note 1**
17	SET PRERINGING	Sets Pre-Ringing.
18	SET RINGFREQ	Sets frequency of Ringer.
19	SET RINGVOLTAGE	Sets Ringer Voltage.
20	SET SENDPAD	Sets default sender PAD value.
21	SET STARTPORT	Sets RTP Start Port.
22	SET STUTTERDT	Sets Stutter Dial Tone.
23	SET SYNCRINGING	Sets Synchronous Ringer.
24	SET VALUE CHANNEL	Sets Balancing Network (BNW).
25	SET VLAN	Sets VLAN.

Note 1: Assign the Network Data to the MC according to the network environment.

No.	SHOW COMMAND	REMARKS
1	SHOW BURSTPATTERN	Shows Burst Ringer Pattern.
2	SHOW CHANNELATTRIBUTE	Shows the Circuit Attribute.
3	SHOW COUNTRYCODE	Shows Country Code.
4	SHOW DHCP	Shows DHCP.
5	SHOW DRSADDRESS	Shows IP Address and Port of DRS.
6	SHOW DRSTOS	Shows ToS of DRS session.
7	SHOW FAXERRORDETECT	Shows Change Effective Timer of FAX.
8	SHOW FAXRECVPAD	Shows FAX receiver PAD value.
9	SHOW FAXSENDPAD	Shows FAX sender PAD value.
10	SHOW HEALTHCHECKTIMER	Shows Health Check timer value.
11	SHOW INTERFACE	Shows communication speed for LAN interface.
12	SHOW IPADDRESS	Shows IP Address.
13	SHOW MUSICTYPE	Shows Music-on-Hold type.
14	SHOW OPEN	Shows Open/Reverse.
15	SHOW PAD	Shows default receiver PAD value.
16	SHOW PRERINGING	Shows Pre-Ringing.
17	SHOW RINGFREQ	Shows the frequency of Ringer.

18	SHOW RINGVOLTAGE	Shows Ringer Voltage.
19	SHOW SENDPAD	Shows default sender PAD value.
20	SHOW STARTPORT	Shows RTP Start Port.
21	SHOW STUTTERDT	Shows Stutter Dial Tone.
22	SHOW SYNCRINGING	Shows Synchronous Ringer mode.
23	SHOW VALUE CHANNEL	Shows Balancing Network (BNW).
24	SHOW VERSION	Shows the release version of firmware and hardware.
25	SHOW VLAN	Shows VLAN.

DELETE COMMAND	REMARKS
DELETE VLAN	Deletes VLAN

SAVE COMMAND	REMARKS
SAVE CONFIGDATA	Saves the configuration data in RAM drive to Flash ROM.

GET COMMAND	REMARKS
GET CONFIGDATA	Downloads Configuration Data from specified TFTP server.

PUT COMMAND	REMARKS
PUT CONFIGDATA	Uploads Configuration Data to specified TFTP server.

REBOOT COMMAND	REMARKS
REBOOT	Reboots the MC.

EXIT COMMAND	REMARKS
EXIT	Exits the maintenance command.

Enter the command, sub command and required parameters after the prompt (2A-MC>) is shown. Parameters vary depending on the kind of command specified. When the data (command name, sub command name, parameter) is specified correctly, the command executes the required data processing, and then displays the processed result on the screen. To finish this program, input EXIT after a prompt.

Note: When the maintenance command program is activated, it provides a Help Function for referring to available commands and sub commands. After a prompt is shown, request to list the Target Help by entering “?”, “command name + ?”, or “command name + sub command name + ?”, and press the Enter key.
The example below shows the screen when requesting a list of SET commands.

```
2A-MC>set ?
BURSTPATTERN        Setting Burst Ringer Pattern
CHANNELATTRIBUTE    Setting circuit attribute
COUNTRYCODE         Setting country code
DEFAULTROUTE        Setting Default Gateway
DHCP                Setting DHCP
DRSADDRESS          Setting DRS Address
  :
  :
```

SET COMMAND

1. SET BURSTPATTERN

   Specify Burst Ringer Pattern.

```
  2A-MC>SET BURSTPATTERN 5
  Burst Ringer Pattern setting succeed-
ed.

  2A-MC>_
```

Line 1: Select the Ringer Pattern from the following:
- 1: 0.35 seconds ON - 0.3 seconds OFF - 0.35 seconds ON (default)
- 2: 0.4 seconds ON - 0.2 seconds OFF - 0.4 seconds ON
- 3: 0.2 seconds ON - 0.2 seconds OFF - 0.2 seconds ON - 0.2 seconds OFF - 0.2 seconds ON
- 4: 0.2 seconds ON - 0.4 seconds OFF - 0.2 seconds ON - 0.2 seconds OFF
- 5: 0.25 seconds ON - 0.25 seconds OFF - 0.25 seconds ON - 0.25 seconds OFF

Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

2. SET CHANNELATTRIBUTE

   Specify Channel Attributes.

```
  2A-MC>SET CHANNELATTRIBUTE 0
  NLP (ON/OFF):ON

  2A-MC>_
```

Line 1: Enter the Channel Number 0 or 1 after the command name
0/1=CH0/CH1

Line 2: Select No Linear processor for echo canceller
ON/OFF=valid (default)/invalid

Line 3: Result is shown

Note: Data transmission (voice data for G.726 mode) is supported by using PCPro command AISTL.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

3. SET COUNTRYCODE

Specify your Country Code.

```
2A-MC>SET COUNTRYCODE AUTO
Country code setting succeeded.(0x0000)

2A-MC>_
```

Line 1: Enter the Country Code
JPN=Japan
USA=America
AUS=Australia
AUTO=Corresponding to MGC or default
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

4. SET DEFAULTROUTE

Specify the IP address of Default Gateway.

```
2A-MC>SET DEFAULTROUTE 10.4.128.254
The default gateway setting succeeded.

2A-MC>_
```

Line 1: Enter Default Gateway Address
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

5. SET DHCP

Enable/Disable DHCP.

```
2A-MC>SET DHCP ENABLE
DHCP setting succeeded.

2A-MC>_
```

Line 1: Enter ENABLE or DISABLE after the command name
ENABLE=DHCP is valid (default)
DISABLE=DHCP is invalid
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

6. SET DRSADDRSS

Specify IP address and port number of DRS.

```
2A-MC>SET DRSADDRSS
Please enter DRS unit (1: Primary/2: Secondary): 1
DRS server address (ex. 111.22.3.4): 10.12.0.254
DRS port number (ex. 3456): 3456

DRS server address complete.

2A-MC>_
```

Line 1:
Line 2: Select whether the applying DRS is Primary or Secondary (select 1: Primary in normal condition)
Line 3: Enter IP Address of DRS **Note 2**
Line 4: Enter Port Number of DRS (default = **3456**)
Line 5: Result is shown

Note 2: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

7. SET DRSTOS

Specify the settings of ToS of DRS session.

```
2A-MC>SET DRSTOS PRECEDENCE
PRECEDENCE (0-7)  : 6
DELAY (0/1)  : 0
THROUGHPUT (0/1)  : 0
RELIABILITY (0/1)  : 0
COST (0/1)  : 0

DRS TOS setting succeeded.(0xC0)

2A-MC>_
```

Line 1: Enter sub command name PRECEDENCE to set the parameters such as Delay, Throughput, Reliability, and Cost. Specify the value to each parameter.
Line 2: Precedence: 0-7 (low-high) (default=**6**)
Line 3: Delay: 0/1=**Normal** (default)/Low Delay ON
Line 4: Throughput:
0/1=**Normal** (default)/High Throughput ON
Line 5: Reliability:
0/1=**Normal** (default)/High Reliability ON
Line 6: Cost: 0/1=**Normal** (default)/Cost Precedence ON
Line 7: Result is shown

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

```
2A-MC>SET DRSTOS VALUE
TOS (00-FF)  : C0
DRS TOS setting succeeded. (0xC0)

2A-MC>_
```

Line 1: Enter the sub command name VALUE to set the DRS setting value directly.
Line 2: Specify the value in the range of 00-FF (default=**C0**)
Line 3: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

8. SET FAXERRORDETECT

Specify Change Effective Timer of Fax.

```
2A-MC>SET FAXERRORDETECT 0
Change effective time of FAX setting succeeded.

2A-MC>_
```

Line 1: Enter the Change Effective Timer
0=Invalid to change to Fax mode
1-5=Possible to change to Fax mode within 1-5 minutes (default=**1 minute**)
OFF=Always possible to change to Fax mode
Line 2: Result is shown

9. SET FAXRECVPAD

Specify Fax Receiver PAD value.

```
2A-MC>SET FAXRECVPAD 4
Fax Receiver PAD setting succeeded.

2A-MC>_
```

Line 1: Enter the Fax Receiver PAD value in the range of 0-15 after the command name (default=**4**)
Line 2: Result is shown

Note: The FAXRECVPAD command assigns the value to decrease the Fax signal level in the receiver (IP to analog terminal) direction when the Fax signal is detected.

Note: The total PAD value (Receiver PAD + Fax Receiver PAD) is limited to 15dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

10. SET FAXSENDPAD

Specify Fax Sender PAD value.

```
2A-MC>SET FAXSENDPAD 0
Fax Sender PAD setting succeeded.

2A-MC>_
```

Line 1: Enter the Fax Sender PAD value in the range of 0-15 after the command name (default=**0**)
Line 2: Result is shown

Note: The FAXSENDPAD command assigns the value to decrease the Fax signal level in the sender (analog terminal to IP) direction when Fax signal is detected.

Note: The total PAD value (Sender PAD + Fax Sender PAD) is limited to 15dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

11. SET HEALTHCHECKTIMER

Specify the Health Check Timer value.

```
2A-MC>SET  HEALTHCHECKTIMER 120
Health check timer setting succeeded.

2A-MC>_
```

Line 1: Enter the timer value in the range of 120-300 after the command name (default = 120).
Line 2: Result is shown.

Note: Available for SP-3753 2AMC PROG-B 8A or later.

Note: The action starts after the timer value that you set and the extra 30 seconds (150-330).

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

12. SET INTERFACE

Specify the communication speed for LAN interface.

```
2A-MC>SET  INTERFACE  axDev0
SPEED (AUTO/100M/10M):   10M
DUPLEX (FULL/HALF):   HALF

Ethernet Speed setting succeeded.

2A-MC>_
```

Line 1:
Line 2: Select the communication speed
AUTO=Auto Negotiation
100M=100 Mbps fixed mode
10M=10 Mbps fixed mode
Line 3: Select the Duplex mode
FULL=Full Duplex mode
HALF=Half Duplex mode
Line 4: Result is shown

Note: The DUPLEX setting is not shown when Auto Negotiation (AUTO) is selected in the Speed setting.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

13. SET IPADDRESS

Specify IP address and net mask for Analog 2MC.

```
2A-MC>SET IPADDRESS 10.4.128.5  255.255.255.0
IP address set complete.

2A-MC>_
```

Line 1: Enter the IP Address, then Subnet Mask after a space
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note: The designated IP address cannot be applied when the DHCP is set to ENABLE. Assign the DHCP setting to DISABLE before performing this IP address assignment. Setting Music-on-Hold type:

14. SET MUSICTYPE

Specify Music on Hold setting.

```
2A-MC>SET MUSICTYPE 1
Music on Hold setting succeeded.

2A-MC>_
```

Line 1: Select the Music-on-Hold type in the range of 1-4
1=Minuet (default)
2=Nocturne
3=Maiden's Prayer
4=For Elise
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

15. SET OPEN

Specify Open/Reverse mode.

```
2A-MC>SET OPEN ON
Open/Reverse setting succeeded.

2A-MC>_
```

Line 1: Enter ON or OFF after the command name
ON=Open valid/Reverse invalid
OFF=Open invalid/Reverse valid (default)
Line 2: Result is shown

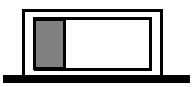
Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note: This assignment must correspond to the setting of the Slide Switch.

<Slide Switch setting>



Right side setting: Momentary Open Mode



Left side setting: Reverse Mode

16. SET PAD

Specify a default value of Receiver PAD:

```
2A-MC>SET PAD 3
Default Receiver PAD setting succeeded.

2A-MC>_
```

Line 1: Enter the PAD value in the range of 0-15 after the command name (default=**3**)
Line 2: Result is shown

Note: The PAD command assigns the value to decrease voice level in the receiver (IP to analog terminal) direction.

Note: The total PAD value (Receiver PAD + Fax Receiver PAD) is limited to 15dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

17. SET PRERINGING

Enable/Disable Pre-Ringing.

```
2A-MC>SET PRERINGING ON
Pre-ringing setting succeeded.

2A-MC>_
```

Line 1: Enter ON or OFF
ON=Pre-Ringing is valid (default)
OFF=Pre-Ringing is invalid
Line 2: Result is shown

18. SET RINGFREQ

Specify the frequency of Ringer.

```
2A-MC>SET RINGFREQ 0
Frequency of ringer setting succeeded.
(frequency is 20Hz.)

2A-MC>_
```

Line 1: Enter 0 or 1 to specify the Frequency of Ringer
0=20 Hz
1=25 Hz
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

19. SET RINGVOLTAGE

Specify Ringer voltage.

```
2A-MC>SET RINGVOLTAGE 1
Voltage of ringer setting succeeded.
(voltage is 75 Vrms)

2A-MC>_
```

Line 1: Enter 0 or 1 after the Sub Command to set Ringer Voltage
0=Ringer Voltage is 50 Vrms
1=Ringer Voltage is 75 Vrms (default)
Line 2: Result is shown

Note: This command is available for an Analog 2MC firmware Issue 3 or later.

Note: When Ringer Voltage is set to 50 Vrms and the lamp does not light (such as a neon type of incoming call indication lamp), set the Ringer Voltage to 75 Vrms to support the lamp of a neon type.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

20. SET SENDPAD

Specify a default value of sender PAD.

```
2A-MC>SET SENDPAD 0
Default Sender PAD setting succeeded.

2A-MC>_
```

Line 1: Enter the PAD value in the range of 0-15 after the command name (default=0)
Line 2: Result is shown

Note: The SENDPAD command assigns the value to decrease voice level in the sender (analog terminal to IP) direction.

Note: The total PAD value (Sender PAD + Fax Sender PAD) is limited to 15dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

21. SET STARTPORT

Specify the RTP start port number.

```
2A-MC>SET STARTPORT 1024
Number of RTP start port setting succeeded.

2A-MC>_
```

Line 1: Enter the number of RTP Start Port in the range of 1024-65534 (default=1024)
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

22. SET STUTTERDT

Enable/Disable Stutter Dial Tone.

```
2A-MC>SET STUTTERDT ENABLE
Stutter Dial Tone setting succeeded.

2A-MC>_
```

Line 1: Enter ENABLE or DISABLE
ENABLE=Stutter Dial Tone is valid
DISABLE=Stutter Dial Tone is invalid (default)
Line 2: result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

23. SET SYNCRINGING

Enable/Disable Synchronous Ringing.

```
2A-MC>SET SYNCRINGING OFF
Synchronous Ringing setting succeeded.

2A-MC>_
```

Line 1: Enter ON or OFF, whether the ringer of both channels ring simultaneously or not
ON=Ringer timing synchronizes
OFF=Ringer timing does not synchronize (default)
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

24. SET VALUE CHANNEL

Specify Balancing Network (BNW) value to each channel.

```
2A-MC>SET VALUE CHANNEL BNW00 1
```

Line 1: Enter the BNW value in the range 0-1 (default=0) after the parameters VALUE, CHANNEL, and BNW00/BNW01
BNW00: to channel 0
BNW01: to channel 1

Note: The BNW setting value is determined by the country and the kind of BNW for each channel as shown in the following table. (For the COUNTRYCODE, refer to the set command

COUNTRY	BNW SETTING VALUE	KIND OF BNW
North America/ countries applying μ-law interface	0	600Ω
	1	350+(1K//0.21μ)

COUNTRY	BNW SETTING VALUE	KIND OF BNW
Australia	0	600Ω
	1	220+(820//120n)
China	0	220+(560//100n)
	1	220+(560//100n)
Brazil	0	800//50n
	1	900Ω
countries applying A-law interface	0	600Ω
	1	350+(1K//0.21μ)

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

25. SET VLAN

Specify the attributes of VLAN.

```
2A-MC>SET VLAN
Please enter a parameter.

VLAN_ID: 1
COS: 0
IP Address: 172.16.1.1
Subnet mask: 255.255.255.0

VLAN device setting complete.

Is this setup made to reflect immediately?[Y/N]: Y

VLAN device setup complete.

2A-MC>_
```

Line 3: Enter the VLAN_ID in the range of 1-4095 (VLAN_ID=1 is standard setting)
Line 4: Enter the COS (Priority) in the range of 0-7 (5 is recommended)
Line 5: Enter the IP Address of VLAN
Line 6: Enter the Subnet Mask of VLAN
Line 7:
Line 8: Select Y or N, whether to apply the setting immediately
Line 9: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

<Examples for VLAN setting>

- Setting procedure when fixed IP address is used:
[1] Disable DHCP
[2] VLAN ID and IP address setting
[3] Existing LAN IP address setting
[4] Default Gateway setting
[5] DRS address setting **Note 3**

The screen shows the assignment of the following value as an example:
VLAN ID: 5
VLAN Priority: 3

VLAN IP Address: 10.10.10.1
Existing LAN IP Address 0.0.0.0 (Set to disabled, because the IP address of existing LAN is not used)
Default Gateway: 10.10.10.254
DRS Address: 10.41.207.217

```
->usrConsole
2A-MC Maintenance command Version 1.00   2001.07.19

2A-MC>SET DHCP DISABLE
DHCP setting succeeded.
Setting IP Address is required.

2A-MC>SET VLAN
Please enter a parameter.
VLAN_ID: 5
COS: 3
IP Address: 10.10.10.1
Subnet mask: 255.255.255.0
VLAN device setting complete.

2A-MC>SET IPADDRESS  0.0.0.0 255.255.255.255
IP address set complete.

2A-MC>SET DEFAULTROUTE  10.10.10.254
The default gateway setting succeeded.

2A-MC>SET DRSADDRESS
Please enter DRS unit (1: Primary/2: Secondary):   1
DRS server address (ex. 111.22.3.4): 10.41.207.217
DRS port number (ex. 3456):    33456
DRS server address set complete.

2A-MC>SAVE CONFIG
** Don't power off during save **
May I save? [Y/N]: Y
erase start...
erase OK!
write start...
write OK!
Checksum write. OK!
Preservation of configuration data was successful.
Re-starting is required for making a setup reflect!!

2A-MC>REBOOT
May I do reboot? [Y/N]: Y
```

Activate the usrConsole

DHCP.

Activate the VLAN setting command.
Enter the parameters.
VLAN_ID = 5
Priority (COS) = 3
IP Address of VLAN = 10.10.10.1
Subnet Mask of VLAN = 255.255.255.0

Set IP address and Subnet Mask of existing LAN
* If existing LAN is not used, enter “0.0.0.0” to the IP address.

Set Default Gateway

Set the parameters related to DRS server.
Usually set 1= Primary.
Enter the IP address of DRS server. **Note 3**
Enter the port number of DRS server (default = 3456).

Save the assigned data to Flash ROM.

Reboot the MC to make the setting effective.

- Setting procedure when DHCP is used:
[1] Existing LAN IP address setting
[2] VLAN ID and IP address setting
[3] Enable DHCP

Note: As DHCP server distributes Default Gateway and DRS address, manual setting is not required here.

The screen shows the assignment of the following value as an example:

VLAN ID:	5
VLAN Priority:	3
VLAN IP Address:	(distributed by DHCP)
Existing LAN IP Address	0.0.0.0 (Set to disabled, because the IP address of existing LAN is not used)
Default Gateway:	(distributed by DHCP)
DRS Address:	(distributed by DHCP)

Note: Default Gateway and DRS address are supposed to be set by the server correctly.

`->usrConsole` `2A-MC Maintenance command Version 1.00  2001.07.19`	Activate the usrConsole
`2A-MC>SET IP ADDRESS  0.0.0.0  255.255.255.255` `IP address set complete.`	Set IP address and Subnet Mask of existing LAN * If existing LAN is not used, enter “0.0.0.0” to the IP address.

`2A-MC>SET VLAN`
`Please enter a parameter.`
`VLAN_ID: 5`
`COS: 3`
`IP Address: 0.0.0.0`
`Subnet mask: 0.0.0.0`
`VLAN device setting complete.`
	Activate the VLAN setting command.
	Enter the parameters.
	VLAN_ID = 5
	Priority (COS) = 3
	IP Address of VLAN = 0.0.0.0
	Subnet Mask of VLAN = 0.0.0.0

`2A-MC>SET DHCP` `DHCP setting succeeded.`	Enable DHCP.

`2A-MC>SAVE CONFIG`
`** Don't power off during save **`
`May I save? [Y/N]: Y`
`erase start...`
`erase OK!`
`write start...`
`write OK!`
`Checksum write. OK!`
`Preservation of configuration data was successful.`
`Re-starting is required for making a setup reflect!!`
	Save the assigned data to Flash ROM.

`2A-MC>REBOOT` `May I do reboot? [Y/N]: Y`	Reboot the MC to make the setting effective.

<Precautions for VLAN setting>

- If the IP address of existing LAN is not used, assign IP address "0.0.0.0" and Netmask "255.255.255.255." Packet transmission to the existing LAN turns invalid by this setting.
- If fixed IP address setting to existing LAN is required, subnet of VLAN and existing LAN should be separated. When the IP addresses in the same subnet are set, the routing table is overlapped and the operation may go wrong.
- If the DRS address and the existing LAN of MC are configured in the same subnet, even if VLAN setting is assigned to MC, registration is activated via the existing LAN because the Telephony Server acknowledges the MC's IP address in the existing LAN side. Be sure to assign the IP address of either VLAN or existing LAN. Never use the both IP addresses simultaneously.

Note 3: About IP address of DRS (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

SHOW COMMAND

1. SHOW BURSTPATTERN

   This command shows Shows Burst Ringer Pattern.

```
2A-MC>SHOW BURSTPATTERN

Burst Ringer Pattern no.5 (0.25s ON-0.25s OFF-0.25s
ON-0.25s OFF)

2A-MC>_
```

Line 1:
Line 2: Currently registered Burst Ringer Pattern is shown
Line 3:

2. SHOW CHANNELATTRIBUTE

   This command shows the Circuit Attribute.

:

```
2A-MC>SHOW CHANNELATTRIBUTE 0
Circuit number 0:
NLP is ON


2A-MC>SHOW CHANNELATTRIBUTE
Circuit number 0:
NLP is ON

Circuit number 1:
NLP is ON

2A-MC_
```

Line 1: Enter the Channel Number after the Command Name
Line 2: Circuit Number
Line 3: The current setting of designated circuit is shown

When Circuit Number is not specified, the information of both circuits is shown

3. SHOW COUNTRYCODE

   This command shows Country Code.

```
2A-MC>SHOW COUNTRYCODE
Use country is JPN. (Japan code : 0x0001)

2A-MC>_
```

Line 1:
Line 2: The current setting is shown
Line 3:

4. SHOW DHCP

This command shows the setting of DHCP.

```
2A-MC> SHOW DHCP
DHCP is ENABLE

2A-MC>_
```

Line 1:
Line 2: The current setting is shown
Line 3:

5. SHOW DRSADDRESS

This command shows IP address and port of DRS.

```
2A-MC>SHOW DRSADDRESS
Primary DRS Address 10.41.1.100,  Port 3456
Secondary DRS Address 10.41.1.101,  Port 3457

2A-MC>_
```

Line 1:
Line 2: The current setting of DRS Address and Port Number is shown **Note 4**
Line 3:
Enter 1 (Primary DRS) or 2 (Secondary DRS) after the command name to show either data (if not specified, both data are shown)

Note 4: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

6. SHOW DRSTOS

This command shows ToS of DRS session.

```
2A-MC>SHOW DRSTOS
DRS TOS is 0xC0.

PRECEDENCE = 6
DELAY = 0
THROUGHPUT = 0
RELIABILITY = 0
COST = 0

2A-MC>_
```

Line 1:
Line 2: The current setting is shown
Line 3:
Line 4:
Line 5:
Line 6:
Line 7:

7. SHOW FAXERRORDETECT

This command shows Change Effective Timer of FAX.

```
2A-MC>SHOW FAXERRORDETECT
Change effective time of FAX is 1 minute.

2A-MC>_
```

Line 1:
Line 2: The current setting is shown
Line 3:

8. SHOW FAXRECVPAD

This command shows FAX receiver PAD value.

```
2A-MC> SHOW FAXRECVPAD
FAX Receiver PAD is 4.

2A-MC>_
```

Line 1:
Line 2: The current setting is shown
Line 3:

Note: The Fax Receiver PAD is inserted in the direction of the IP to the analog terminal.

9. SHOW FAXSENDPAD

This command shows FAX sender PAD value.

```
2A-MC>SHOW FAXSENDPAD
FAX Sender PAD is 0.

2A-MC>_
```

Line 1:
Line 2: The current setting is shown
Line 3:

Note: The Fax sender PAD is inserted in the direction of the analog terminal to the IP.

10. SHOW HEALTHCHECKTIMER

This command shows Health Check timer value.

```
2A-MC>SHOW HEALTHCHECKTIMER
Health check timer is 120 (sec).

2A-MC>_
```

Line 1:
Line 2: The current setting is shown
Line 3:

Note: Available for SP-3753 2AMC PROG-B 8A or later.

Note: The action starts after the timer value that you set and the extra 30 seconds (150-330).

11. SHOW INTERFACE

This command shows communication speed for LAN interface.

```
2A-MC>SHOW INTERFACE axDev0
Ethernet Speed: AUTO

2A-MC>_
```

Line 1:
Line 2: The current setting is shown
Line 3:

12. SHOW IPADDRESS

This command shows IP address of Analog 2MC.

```
2A-MC>SHOW IPADDRESS axDev0
IP Address10.4.128.5
Netmask255.255.255.0
Default Gateway10.4.128.254

2A-MC>_
```

Line 1: Enter the interface name (only “axDev0” is available now)
Line 2: IP Address is shown
Line 3: Netmask is shown
Line 4: Default Gateway is shown
Line 5:

13. SHOW MUSICTYPE

This command shows Music-on-Hold type.

```
2A-MC>SHOW MUSICTYPE
Music on hold type is 1.

2A-MC>_
```

Line 1:
Line 2: The current setting is shown
Line 3:

14. SHOW OPEN

This command shows Open/Reverse.

```
2A-MC>SHOW OPEN
Open is ON./Reverse is OFF.

2A-MC>_
```

Line 1:
Line 2: The current setting is shown
Line 3:

15. SHOW PAD

This command shows default receiver PAD value.

```
2A-MC>SHOW PAD
Default Receiver PAD is 3.

2A-MC>_
```

Line 1:
Line 2: The current setting is shown
Line 3:

Note: Receiver PAD is inserted in the direction of IP to analog terminal.

16. SHOW PRERINGING

This command shows Pre-Ringing.

```
2A-MC>SHOW PRERINGING
Pre-Ringing is ON.

2A-MC>_
```

Line 1:
Line 2: Registered setting is shown
Line 3:

17. SHOW RINGFREQ

This command shows the frequency of Ringer.

```
2A-MC>SHOW RINGFREQ
Frequency of ringer is 20Hz.

2A-MC>_
```

Line 1:
Line 2: The current setting is shown
Line 3:

18. SHOW RINGVOLTAGE

This command shows Ringer Voltage.

```
2A-MC>SHOW RINGVOLTAGE
Voltage of ringer is 75Vrms.

2A-MC>_
```

Line 1:
Line 2: The current setting is shown

Note: This command is available for Analog 2MC firmware Issue 3 or later.

19. SHOW SENDPAD

This command shows default sender PAD value.

```
2A-MC>SHOW SENDPAD
Default Sender PAD is 0.

2A-MC>_
```

Line 1:
Line 2: The current setting is shown
Line 3:

Note: The Sender PAD is inserted in the direction of the analog terminal to the IP.

20. SHOW STARTPORT

This command shows the RTP start port number.

```
2A-MC> SHOW STARTPORT
Number of RTP start port is 1024.

2A-MC>_
```

Line 1:
Line 2: The current setting is shown
Line 3:

21. SHOW STUTTERDT

This command shows the setting of Stutter Dial Tone.

```
2A-MC> SHOW STUTTERDT
Stutter Dial Tone is Enable.

2A-MC>_
```

Line 1:
Line 2: Registered setting is shown
Line 3:

22. SHOW SYNCRINGING

This command shows the setting of Synchronous Ringer mode.

```
2A-MC> SHOW SYNCRINGING
Synchronous Ringing is ON.

2A-MC>_
```

Line 1:
Line 2: Registered setting is shown

23. SHOW VALUE CHANNEL

This command shows Balancing Network (BNW).

```
2A-MC> SHOW  VALUE  CHANNEL  BNW00
       BNW00 = 0

2A-MC> SHOW  VALUE  CHANNEL  BNW01
       BNW01 = 0

2A-MC>_
```

Line 1:
Line 2: The current BNW setting of channel 0 is shown
Line 3:
Line 4: The current BNW setting of channel 1 is shown

24. SHOW VERSION

This command shows the release versions of firmware and hardware.

```
2A-MC>SHOW VERSION
2A-MC Maintenance command Version 1.00   2001.07.01 By NEC
Version information
Hardware             : PZ-CC152-2A
Boot program         : SP-3651 01.00
Firmware             : SP-3629 01.00

2A-MC>_
```

Line 1:
Line 2: Version information of hardware, boot program, and firmware is shown respectively

25. SHOW VLAN

This command shows the setting of VLAN.

```
2A-MC>SHOW VLAN
DEVICE    ID    COS        IPADDRESS      SUBNETMASK
VLAN1      1      0   10.123.123.123   255.255.255.0
VLAN2      2      0       10.124.1.2   255.255.255.0

2A-MC> SHOW VLAN 1
DEVICE    ID    COS        IPADDRESS      SUBNETMASK
VLAN1      1      0   10.123.123.123   255.255.255.0

2A-MC>_
```

Line 1:
Line 2:
Line 3: The current VLAN setting is shown. If VLAN_ID is not specified, the setting of all the registered VLAN_IDs is to be listed.
Line 4:
Line 5:
Line 6:
Line 7: When specifying the VLAN_ID (1-4095), only the requested data is shown
Line 8

DELETE COMMAND

1. DELETE VLAN

   This command deletes the setting of VLAN.

```
2A-MC> DELETE VLAN 1
VLAN device remove complete.
Is this setup made to reflect immediately?[Y/N]: Y
VLAN device delete complete.

2A-MC>_
```

Line 1: Specify the VLAN_ID to be deleted in the range of 1-4095
Line 2:
Line 3: Select Y or N, whether to apply the deleted data immediately
Line 4: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command

SAVE COMMAND

1. SAVE CONFIGDATA

   This command saves the configuration data in RAM drive to Flash ROM.

```
2A-MC>SAVE CONFIGDATA
May I save? [N/Y]: Y

erase start...
erase OK!
write start...
write OK!
Checksum write. OK!
Preservation of configuration data was successful.
Re-starting is required for making a setup reflect!!

2A-MC>SAVE CONFIGDATA
May I save? [N/Y]: N

Configuration data has not been saved.

2A-MC>_
```

Line 1:
Line 2: Select either, Y or N
Line 3: When Y is selected
Line 4:
Line 5:
Line 6:
Line 7:
Line 8: Result is shown

Line 1:
Line 2: When N is selected
Line 3: Result is shown
Line 4:

GET COMMAND

1. GET CONFIGDATA

   Specify an IP address tin which the configuration data is stored.

```
2A-MC> GET CONFIGDATA  111.222.33.4

The download of configuration data was successful.

2A-MC>_
```

Line 1: Specify the IP Address of TFTP Server after the Command Name
Line 2: Result is shown

PUT COMMAND

1. PUT CONFIGDATA

   Specify an IP address to be uploaded the configuration data in.

```
2A-MC>PUT CONFIGDATA 111.222.33.4

The upload of configuration data was successful.

2A-MC>_
```

Line 1: Specify the IP Address of TFTP Server after the Command Name
Line 2: Result is shown

REBOOT COMMAND

1. REBOOT

   This command reboots Analog 2MC.

```
2A-MC> REBOOT

May I do reboot? [Y/N]: Y
```

Line 1:
Line 2: Enter Y or N to confirm
Y=Reboot
N=Not reboot

EXIT COMMAND

1. EXIT

   This command exits the configuration mode.

In normal occasion:

```
2A-MC>EXIT
```

Line 1:
Line 2: Normal occasion

When SAVE command has not be executed after data change:

```
 2A-MC>EXIT

Configuration data is changed. Does it save and end?
Y: It saves and ends.
N: It ends without saving.
C: Cancel
[Y/N/C]:  Y
Configuration data has been changed!!
```

Line 1:
Line 2:
Line 3:
Line 4:
Line 5:
Line 6: Select Y to make the changed configuration data effective and exit the maintenance command
Line 7: Result is shown

Note: The screen returns to the prompt of the maintenance command (2A-MC, in default) if any error occurs when “Y” is selected after changing the configuration data.

5 Error Messages

When an error occurs using the maintenance commands, an error message is generated. This message will help find solutions for re-assignment of the required data.

List of Error Messages

ERROR MESSAGE	CAUSE
`Command not found.`	Command not found (a command other than the supported command is entered).
`Entered parameter is illegal.`	The entered parameter is illegal (a parameter other than expected is entered).
`It has made a mistake in the address form.`	The form of the entered address is different.
`Out of memory range.`	Out of memory range.
`Parameter is over digit.`	The specified memory address exceeds the number of digit.
`Please enter sub command.`	Required sub command has not been entered.
`Range is illegal.`	The specified range is illegal.
`Sub command not found.`	The entered sub command is not correct.
`The inputted command cannot be distinguished.`	The system cannot recognize the entered command.
`The inputted key name is not used.`	The entered key name is not correct.
`The inputted section name is not used.`	The entered section name is not correct.
`This character is not support.`	The entered command includes an unsupported character.
`This command cannot normal end.`	The command did not end correctly.
`This command needs a parameter.`	A required parameter has not been entered.
`This VLAN ID is registered already.`	The specified VLAN ID has already been registered.
`VLAN ID is not registered.`	The specified VLAN ID is not registered.

Alarm Information Check

Make sure that the Analog 2MC is operating normally by the lamp indication. The meaning of lamp indications on the Analog 2MC is shown below.

Note: "DRS (Device Registration Server)" used in this section refers to the Telephony Server. The Telephony Server acts as DRS, where Analog 2MC is registered.

Lamp Indications on Analog 2MC

LAMP NAME	LAMP STATE	MEANING OF INDICATION
POWER	Steady ON (Green)	Power ON
	OFF	Power OFF
ON LINE	Steady ON (Green)	Initial setting has been completed in the procedure: 1 Registration request to DRS 2 DRS sends PH Data to MC, while MC data is sent to the Telephony Server 3 UDP port open 4 MC receives initial setting command from the Telephony Server
	OFF	Remains OFF Initial setting has not been completed.
OPERATION 0	Steady ON (Green)	Lights when Line 0 is busy.
	Flashing (Green)	Flashes when Line 0 is in Make-busy State or Station Data has not been assigned.
	OFF	Remains OFF when Line 0 is idle.
OPERATION 1	Steady ON (Green)	Lights when Line 1 is busy.
	Flashing (Green)	Flashes when Line 1 is in Make-busy State or Station Data has not been assigned.
	OFF	Remains OFF when Line 1 is idle.
Tx/Rx **Note 1**	Steady ON (Green)	Flashes green (in 0.67-second cycle) when IP Packet are being sent/received (between MC and the Telephony Server while the connection is established, or between MC and distant terminal during a call).
	OFF	Remains OFF when there is no IP Packet sent/received
LINK	Steady ON (Green)	Lights when Layer 1 Link (a physical connection with the IP Network) is established. Lights when no IP Packets are being sent/received **Note 2**.
	Flashing (Green) **Note 2**	Flashes when IP Packets are being sent/received.
	OFF	Remains OFF when Layer 1 Link is not established.
100M	Steady ON (Green)	Lights when transmission speed is 100 Mbps.
	OFF	Remains OFF when transmission speed is 10 Mbps.

Note 1: This lamp is provided on SN8029 MCEC-A only.

Note 2: For SN8029 MCEC-C only.

8LC Card [SCA-8LCA/SCA-8LCA-EMEA/SCA-8LCC/SCA-8LCC-EMEA]

1 General

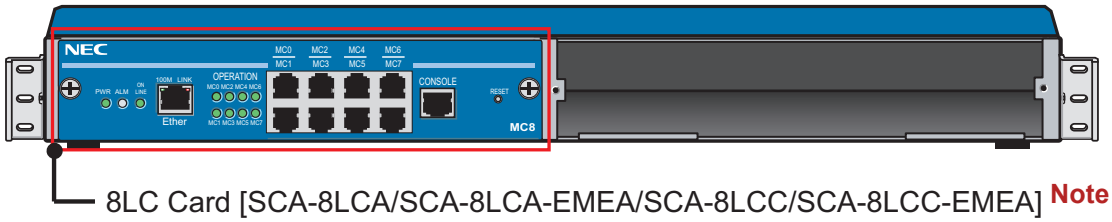
1.1 What is 8LC Card?

8LC Card is a Media Converter (MC), providing media converting function between Internet Protocol (LAN-side) and conventional Voice Data (MC-connected conventional terminal side). By using this converter, analog telephones can serve as IP stations under the control of the Telephony Server system. Media Data (voice/fax) is sent/received directly between IP terminals (MC-to-MC, MC-to-DtermIP, etc.) in Peer-to-Peer connection.

8LC Card has eight analog ports (modular jacks). Analog telephone and fax can be connected to the analog ports. The MC-connected terminals communicate by directly sending conventional Media Data (voice/fax) to MC. MC embeds the media in IP packets, which are sent to the destination IP terminals on the LAN.

Control signal between the Telephony Server and 8LC Card is handled by SP-PHI, which is embedded function of the Telephony Server to use Session Initiation Protocol (SIP), and control signal and voice packets are encrypted to ensure security feature.

Outerview of 8LC Card

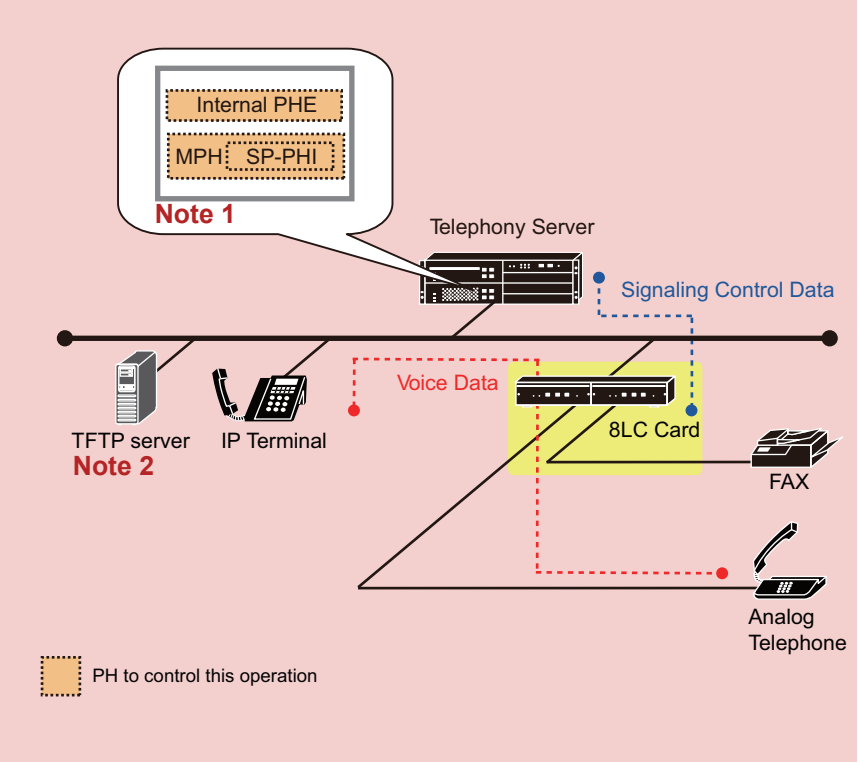


Note 1: 8LC Card is a slot-in type of line card mounted in 1U-MPC (Multi Purposes Chassis). A 1U-MPC can accommodate a maximum of two cards. There is no restriction on the combination of mounting card types, including MG card.

1.2 Function Overview

The general structure of this equipment is shown in the diagram below.

8LC Card in the System



Note: When a call is made to/from 8LC Card and the opposite party is a TDM-based station/trunk (that requires Time Division Switching), the system requires IPPAD card, which provides media conversion between LAN-side IP packets and TSW-side TDM signals. For more information on IPPAD, refer to the Circuit Card Guide.

Note 1: SP-PHI, which is accommodated in MPH (Multi Protocol Handler) of the Telephony Server, handles the control signal from/to 8LC Card. MPH is the interface for the control signal. Call control between SP-PHI and 8MC is executed via TCP/IP port of the Telephony Server.

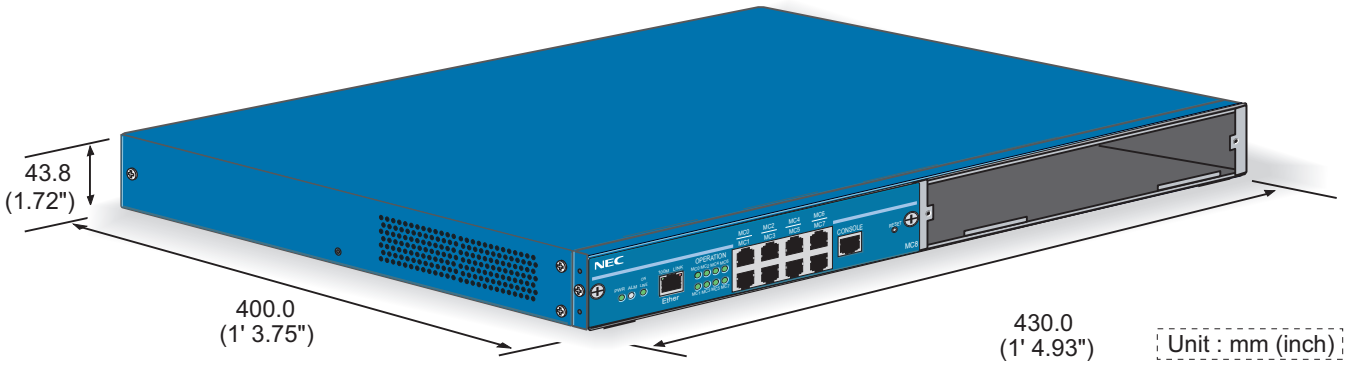
Note 2: TFTP server is required for file downloading. For details, refer to the Operations and Maintenance Manual.

1.3 Specifications

1. Dimension

   8LC Card is mounted in 1U-MPC module (19-inch rack mount, 1U-box).

Size of 8LC Card in 1U-MPC



2. Specifications

8LC Card Specifications (IP Interface/Function)

FUNCTION	SPECIFICATION	NOTE
Voice CODEC	G.711	64 k (bps): PCM μ-law/A-law Packet cycle: 10~40 msec (in 10 msec steps)
	G.729a	8 k (bps): CS-ACELP Packet cycle: 10~40 msec (in 10 msec steps)
	G.723.1	6.3 k (bps): MP-MLQ/ACELP Packet cycle: 30 or 60 msec
		5.3 k (bps): MP-MLQ/ACELP Packet cycle: 30 or 60 msec
Fax transmission	Data transmission as voice data	G.711/G.726 (ADPCM)
	Fax Relay (T.30)	
Fax auto-detect timer	Fax auto-detect is activated on timer timeout	Timer: 1min, 2min, 3min, 4min, 5min (0min=fixed to voice mode) No timer: always in automatic Fax detection mode
Jitter Buffer	Static	10~300 msec (in 10 msec steps)
	Dynamic	10~300 msec
Quality of Service (QoS)	ToS, IP Precedence	Supported
	DiffServ	Supported
VLAN	IEEE 802.1Q (Tagging VLAN)	
LAN Interface	100 Mbps/10 Mbps, auto-negotiation (Half/Full Duplex)	RJ-45 Connector 1 Port
IP Address Assignment	DHCP is supported	
Operation & Maintenance	Console	RJ-45 serial interface Connecting through CONSOLE cable (RJ-45 ⇔ RS-232C serial cable)
Audible Tone Generator	16 types	
DTMF detection/generation	Supported	
Holding Tone	Supported (Internal)	
Safety Standard	UL60950, ACA	
EMI	VCCI class B, FCC Part15, ACA	

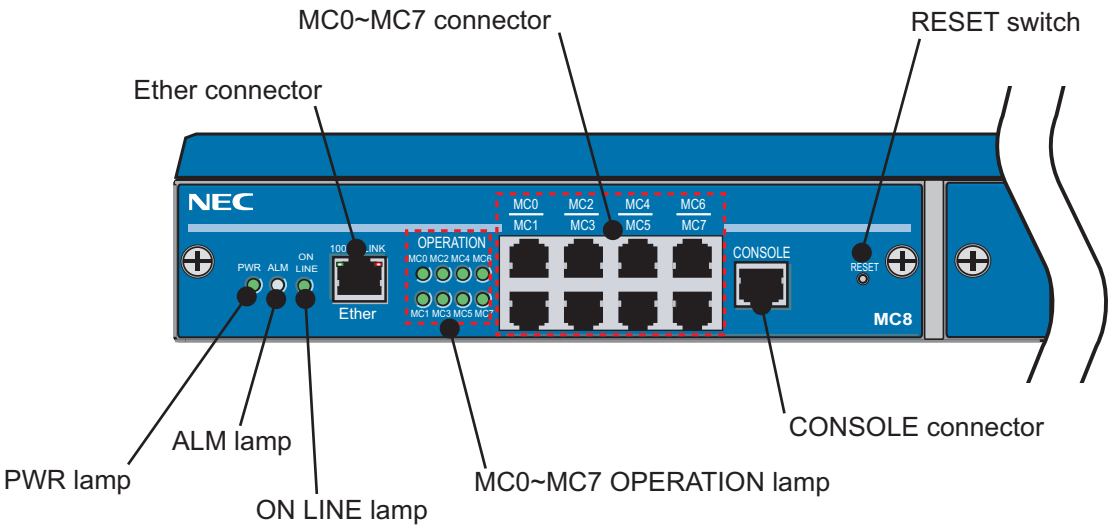
MC Specifications (Analog Interface/Function)

FUNCTION	SPECIFICATION	NOTE
Number of lines	8 lines	RJ-11 Modular Jack 8 ports
Supply Voltage	-38V (min)	
Loop Resistance	Maximum of 600 Ω	Including the terminal resistance
Distance to terminal	Maximum of 500 m	
Supply Current	33 mA (600 Ω)	Constant current
Ringing Voltage	63 Vrms	90V0-P, Balance Ringing
Ringing Frequency	20 Hz or 25 Hz	Select either of the frequencies (default: 20 Hz)
Connectable Terminal	1/line	Multi-connection is not available.
Selection Signal	DTMF only	DP is not supported
BNW	Default: 600Ω	Selectable depending on the countries.
PAD Control (for voice transmission)	-10dB ~ 20dB (1dB step)	Default value: analog → LAN = 0 dB LAN → analog = 0 dB
Stutter Dial Tone	Supported	
Caller ID	Supported (FSK only) For North America, the name is supported only if sent in the setup message.	ETSI 300 659-1 V1.3.1 (for EMEA) Bellcore (Telcordia) GR-30-COR (for North America)
Momentary Open/Reverse	Supported	Selectable
Grand Button Detection	Not supported	
A-wire Ground Detection/ Protection	Supported	
Howler Tone	PCM Howler Tone	
Switch Hook Flash Detection	Supported	One-digit hooking is not available
Timed Break Signal Detection	Supported for Australia only	
Message Waiting Lamp	Supported	Polarity Reverse and High Voltage are supported.
Echo Canceller	G.168/G.165 (NLP function available)	Tail Length is 64 milliseconds

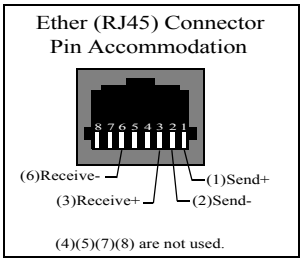
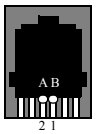
3. Layout of Connectors, Lamps, and Switches

Connectors, lamps, and switches indications are explained below.

Front View of 8LC Card [SCA-8LC]



Connectors and Switch on Front Panel

CONNECTOR NAME	FUNCTION	NOTE
Ether	LAN Interface	RJ-45 100Mbps/10Mbps, auto-negotiation (Half/Full Duplex) 
MC0~MC7	Interface for analog telephone or fax connection	RJ-11 (2-wire) RJ-11 connector pin assignment  A:RING B:TIP
CONSOLE	Interface for Maintenance Console	RJ-45 serial connection (CONSOLE cable RJ-45 ⇔ RS-232C is used)
RESET	Executes power-on reset	

Lamps on Front Panel

LAMP NAME		COLOR	MEANING OF INDICATION
PWR		Green	Power ON
		OFF	Power OFF
ALM		Red	Lights when power failure is detected
		OFF	Normal operation
ON LINE		Green	See Lamp Indication and Status.
		OFF	
Ether	100M	Green	Lights when transmission speed is 100 Mbps
		OFF	Remains OFF when transmission speed is 10 Mbps
	LINK	Green	Lights when establishing port link **Note:** Lights when physically connected to IP network.
		Flash	Flashes green (in 0.2-second cycle) when sending/receiving IP Packet
		OFF	Port link is not established
OPERATIONMC0~MC7		Green	See Lamp Indication and Status.
		Flash	
		OFF	

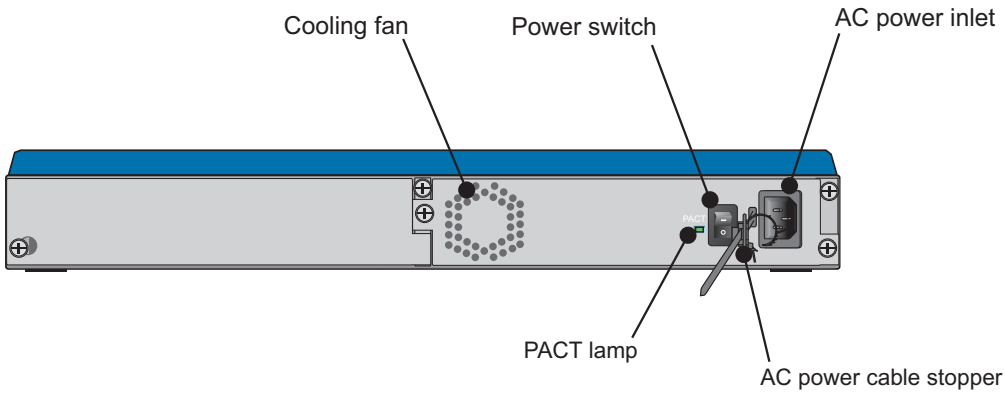
Lamp Indication and Status

LAMP INDICATION									DISCRIPTION OF STATUS
LEGEND L: Lights Fr: Flashes rapidly (60INT) Fs: Flashes slowly (30INT) ×: Remains OFF R: Rounds									
ON LINE	OPERATION								
	MC0	MC1	MC2	MC3	MC4	MC5	MC6	MC7	
×	×	×	×	×	×	×	×	×	Power ON
×	×	×	×	×	×	×	×	×	BOOT program starts
×	×	×	×	×	×	×	×	×	BOOT: waiting for entering of ESC key
×	R	R	R	R	R	R	R	R	Main program loading has been completed
×	Fs	Fs	Fs	Fs	Fs	Fs	Fs	Fs	Registration of MC starts
L	×	×	×	×	×	×	×	×	Registration of MC has been completed
L	×	-	-	-	-	-	-	-	MC CH0 is vacant
L	-	×	-	-	-	-	-	-	MC CH1 is vacant
L	-	-	×	-	-	-	-	-	MC CH2 is vacant
L	-	-	-	×	-	-	-	-	MC CH3 is vacant

LAMP INDICATION									DISCRIPTION OF STATUS
LEGEND L: Lights Fr: Flashes rapidly (60INT) Fs: Flashes slowly (30INT) ×: Remains OFF R: Rounds									
ON LINE	**OPERATION**								
	MC0	**MC1**	**MC2**	**MC3**	**MC4**	**MC5**	**MC6**	**MC7**	
L	-	-	-	-	×	-	-	-	MC CH4 is vacant
L	-	-	-	-	-	×	-	-	MC CH5 is vacant
L	-	-	-	-	-	-	×	-	MC CH6 is vacant
L	-	-	-	-	-	-	-	×	MC CH7 is vacant
L	Fs	-	-	-	-	-	-	-	MC CH0 is not registered
L	-	Fs	-	-	-	-	-	-	MC CH1 is not registered
L	-	-	Fs	-	-	-	-	-	MC CH2 is not registered
L	-	-	-	Fs	-	-	-	-	MC CH3 is not registered
L	-	-	-	-	Fs	-	-	-	MC CH4 is not registered
L	-	-	-	-	-	Fs	-	-	MC CH5 is not registered
L	-	-	-	-	-	-	Fs	-	MC CH6 is not registered
L	-	-	-	-	-	-	-	Fs	MC CH7 is not registered
L	Fr	-	-	-	-	-	-	-	MC CH0 is on the call
L	-	Fr	-	-	-	-	-	-	MC CH1 is on the call
L	-	-	Fr	-	-	-	-	-	MC CH2 is on the call
L	-	-	-	Fr	-	-	-	-	MC CH3 is on the call
L	-	-	-	-	Fr	-	-	-	MC CH4 is on the call
L	-	-	-	-	-	Fr	-	-	MC CH5 is on the call
L	-	-	-	-	-	-	Fr	-	MC CH6 is on the call
L	-	-	-	-	-	-	-	Fr	MC CH7 is on the call
L	L	-	-	-	-	-	-	-	MC CH0 is Make-Busy
L	-	L	-	-	-	-	-	-	MC CH1 is Make-Busy
L	-	-	L	-	-	-	-	-	MC CH2 is Make-Busy
L	-	-	-	L	-	-	-	-	MC CH3 is Make-Busy
L	-	-	-	-	L	-	-	-	MC CH4 is Make-Busy
L	-	-	-	-	-	L	-	-	MC CH5 is Make-Busy
L	-	-	-	-	-	-	L	-	MC CH6 is Make-Busy
L	-	-	-	-	-	-	-	L	MC CH7 is Make-Busy

Note: When 8LC Card repeats rebooting (ON LINE lamp does not light for a long time), there may be any problem in initial setting. Check the configuration data (especially IP related data) and cable connection to clear the problem.

Rear View of 8LC Card [SCA-8LC]



Note: This figure is an example when the 1U-MPC is in single power configuration. Prepare one more power unit for dual power configuration. See the Appliance Model Installation Manual for mounting procedure.

Connectors, Lamps, and Switches on Rear Panel

NAME	FUNCTION	
AC power inlet	Connected to AC-DC adapter with an attached three-polar grounded AC power cable (Cable Length: 3 m [9.8 ft.])	AC 100V (50/60 Hz) ± 10% AC 120V (50/60 Hz) ± 10% AC 230V (50/60 Hz) ± 10% AC 240V (50/60 Hz) ± 10%
Power switch	Power ON/OFF switching	
PACT lamp	Indicates the state in power unit	Lights green: Normal operation OFF: Power failure

Note: For the safety measures against static electricity, lightning strike, and other electrical surges, be sure to make proper connection to grounding (less than 10Ω). These might cause damage to 8LC Card and AC power unit without Ground connection.

4. Port Numbers

The following provides the port number to be used in the system including 8LC Card.

	Function	TP side			SP side	
		LAN Port (default)	Port Number (default)	Command to Change Setting	Port Number (default)	Command to Change Setting
TP ⇔ SP Note 1	Registration	LAN1	3456	ADTM (Port Number only)	22000	Cannot be changed
	iLP-PM	LAN1	60130	ADTM (Port Number only)	64105	ALIDL
SP Internal Control Port Note 2	iLP-PM	-	-	-	64010	ALIDL
					22001	ASPC
8LC Card ⇔ SP	SIP	-	-	-	5060	Cannot be changed
H.245 Negotiation	Ready	-	-	-	22002	ASPC
	H.245	-	-	-	22003 ~ 26000	ASPC

Note 1: The packet between TP and SP (“TP ⇔ SP” in the table) does not flow over the network because both of which are part of the Telephony Server.

Note 2: The packet related to SP internal control port does not flow over the network.

5. Available Channels

See VoIP Encryption [V-27] in Data Programming Manual - Business for the number of available channels on the encryption status of this component.

1.4 Requirements

1. Hardware Requirements

   To use 8LC Card for an analog terminal connection, the following hardware is required:

   - PC running Terminal Software (for Maintenance Console)
   - TFTP Server (required for file downloading)
   - Cables

     LAN cable: Use any of the following cables for connecting to LAN.
     10BASE-T:Unshielded Twisted-pair (UTP) Straight-through Cable Category 3 or higher, (a maximum of 100 m)
     100BASE-TX:Unshielded Twisted-pair (UTP) Straight-through Cable Category 5 or higher, (a maximum of 100 m)

     Line Cable: For the connection between an analog terminal and an MC0~MC7 line, use a Modular Cable with an RJ-11 Modular Jack.

     CONSOLE Cable: RJ-45 ⇔ RS-232C serial cable (for maintenance console)

2. Firmware Program

   The following program is installed in 8LC Card [SCA-8LC].

   - For SCA-8LCA/SCA-8LCA-EMEA: SP-3893 8MC PROG-A
   - For SCA-8LCC/SCA-8LCC-EMEA: SP-3983 8MC PROG-B

3. Environmental Requirements

   - Operational Temperature Range: 0°C to 40°C (32°F to 104°F)
   - Operational Humidity Range: 20% to 90% (not condensing)
   - Main Source Power: 100 VAC / 120 VAC / 230 VAC / 240 VAC (50/60 Hz) ±10%

1.5 Service Conditions

Before the use of 8LC Card, note the following conditions.

1. 8LC Card is controlled by SP-PHI. Internal PHE registration is required to activate SP-PHI. To turn SP-PHI and the Telephony Server (Signaling Processor) effective, assign the following system data. When the system data is changed, be sure to initialize the Internal PHI-BRI/Internal PHE module with the ADPM command
   - ASYDL, SYS 1, INDEX880, Bit1=1 (Internal PHI-PRI/BRI is available)
   - ASYDL, SYS 1, INDEX880, Bit3=1 (Internal PHE is available)
   - ASYDL, SYS 1, INDEX885, Bit7=1 (SP Implementation is available)
2. 8LC Card supports Location Diversity [L-55].
3. 8LC Card requests registration to SP-PHI, not to Internal PHE.
4. When SP-PHI has fewer than eight ports of vacant ports to the REGMAX, though 8LC Card can use the vacant ports up to the REGMAX, the system cannot assign the ports of 8LC Card exceeding the REGMAX.
5. Other Analog MC's station data can be assigned on the same Group of LENS, however, it is recommended to assign only the 8LC Card's station data on the same Group.
6. 8LC Card supports Hotel system.
7. 8LC Card supports PB only.
8. Conditions on fault monitoring:
   - SP-PHI and 8LC Card are connected via UDP/IP. So periodic diagnosis is activated in proprietary method. When any fault is detected in periodic diagnosis, System Message [33-S] IP PKG Warning: Health Check Error is output on the LENS of SP-PHI.
   - When communication error is detected in sending control packets between Internal PHE and SP-PHI, System Message [33-R] IP PKG Warning: Sending Timeout is output on the LENS of Internal PHE. The System Message is output when control packet sending timeout occurs continuously 8 times or more.
9. Use the following maintenance command to display the operating state related to 8LC Card:
   - IPAN: to display the connection status between the Telephony Server and 8LC Card.
     <IP terminal tab> Select "8MC [SIP]" under the category of SIP Media Converter.
     <Package> Select the LENS of SP-PHI. The number of registration/login on SP-PHI is displayed.
   - DIPI: to display IP equipment information. Select "8MC (SIP)" under the category of SIP Media Converter.
   - DISD: to display the registration status of IP stations.
     <View Type: Station> Specify the station number of target analog terminal. SP-PHI's LENS is displayed on PH LENS, and PHI is displayed as PH TYPE.
     <View Type: PH Control> Specify the LENS of SP-PHI to display the registration status on SP-PHI.

   Note: Other type of IP equipment (MG) is not displayed.

- DPHL: to display the registration status on each PH, counted on the number of registration/login on SP-PHI.

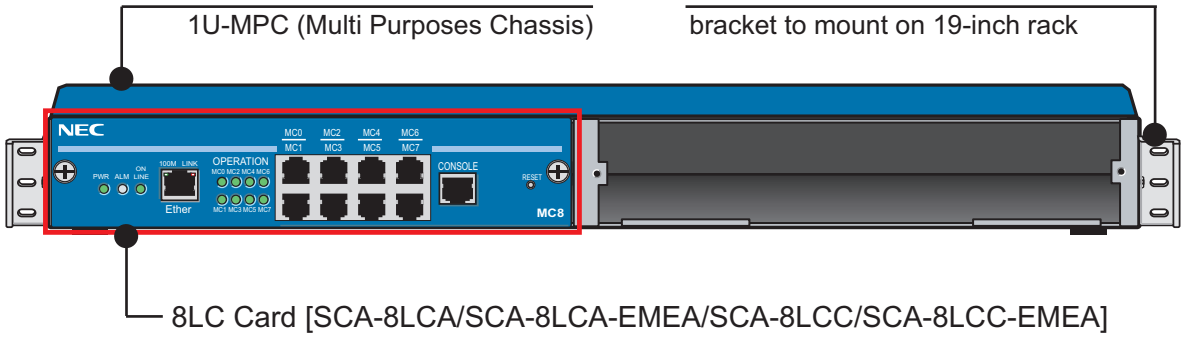
10. SR-MGC supports 8LC Card.
11. Modem connection using 8LC Card is not supported.
12. If connection to the Telephony Server is lost due to problems such as network failure, 8LC Card cannot exchange tone control signals. Thus no tone is heard on an analog telephone connected to the 8LC Card when it goes off-hook.

2 Installation

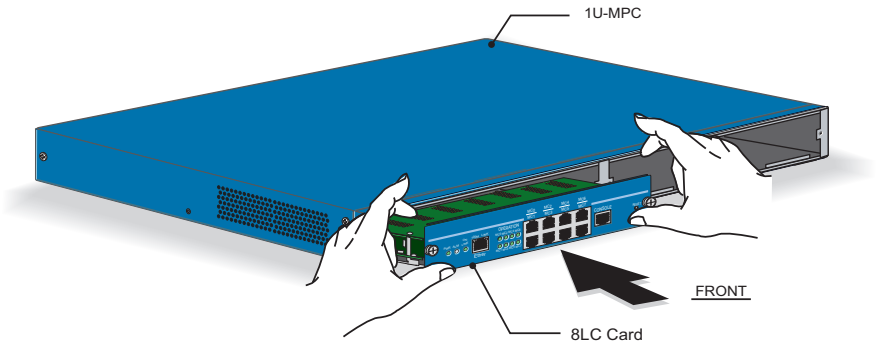
This section shows how to install the hardware required for using 8LC Card. Be sure to take measures to anti-static electricity.



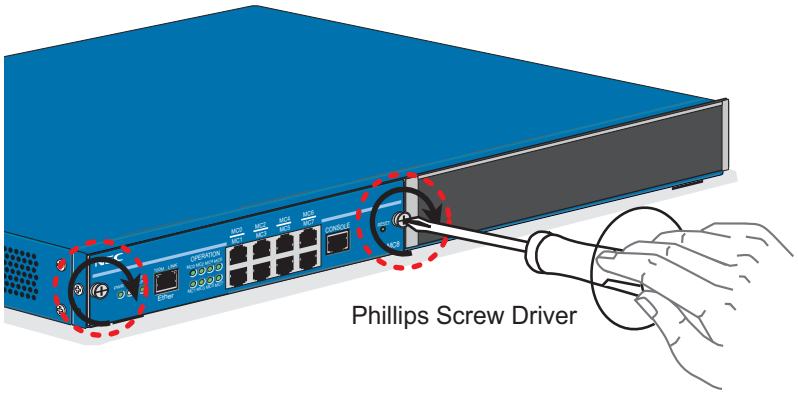
2.1 How to Set 8LC Card



STEP 1 Insert 8LC Card to 1U-MPC.



STEP 2 Secure the 8LC Card to 1U-MPC fixing two screws on right and left sides.



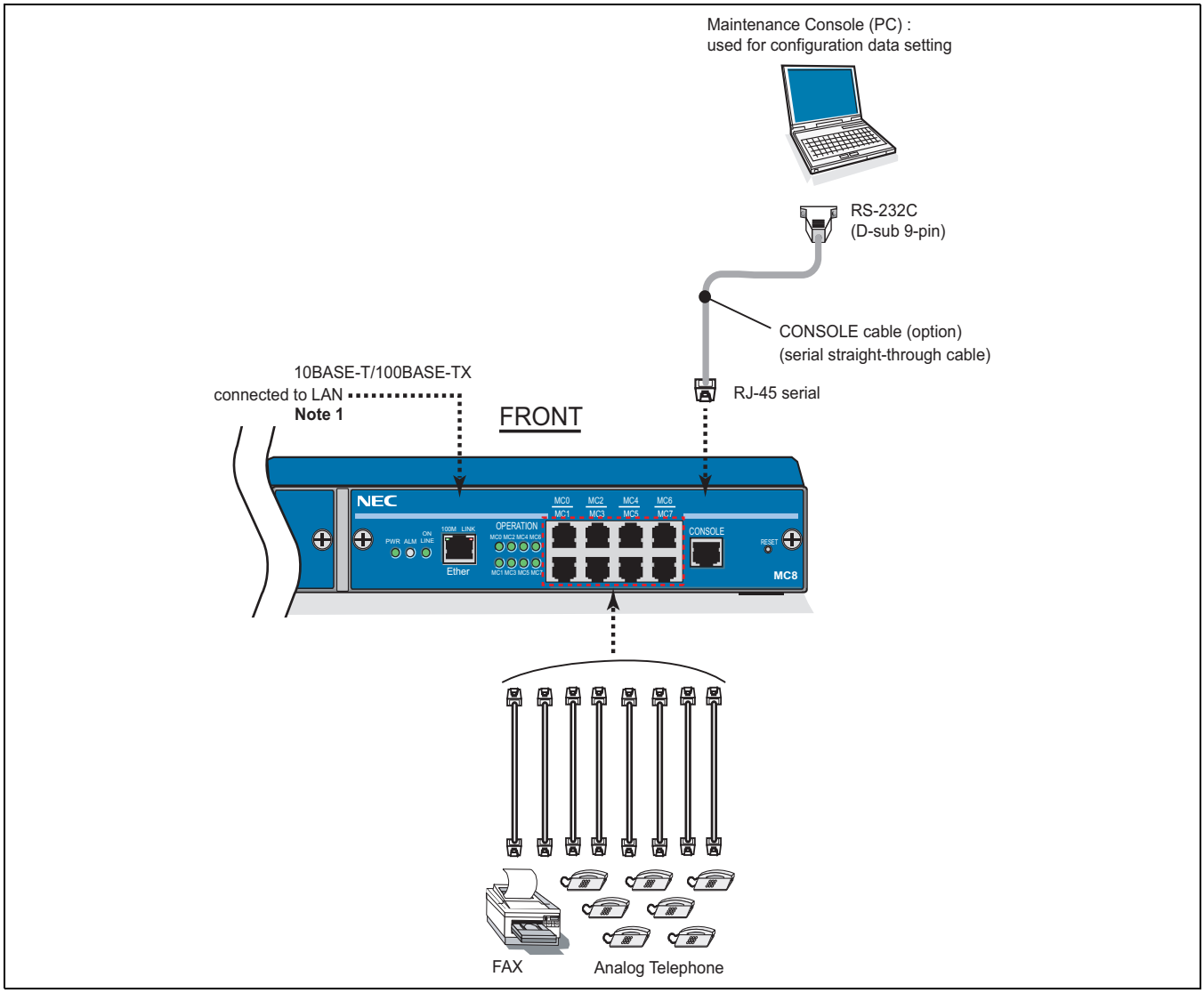
2.2 Cable Connection

This section shows the cable connection to the 8LC Card. 8LC Card provides the following interfaces:

- Connection to the LAN
- Connection of Analog Telephone/G3 Fax Machine
- Serial Port Connection to Maintenance Console
- Power Supply

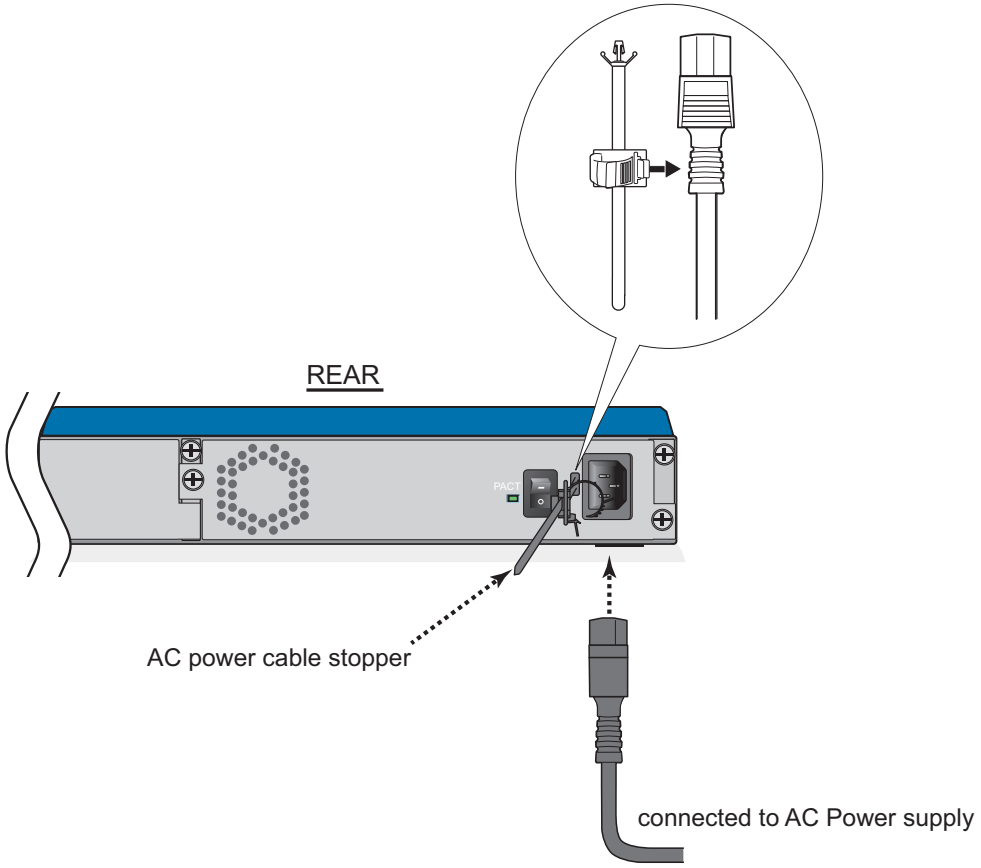
Connect the required cables according to the system configuration. The figure below shows general description of cable connection for 8LC Card.

8LC Card Cable Connection Diagram (Front)



STEP 1 AC power cable connection

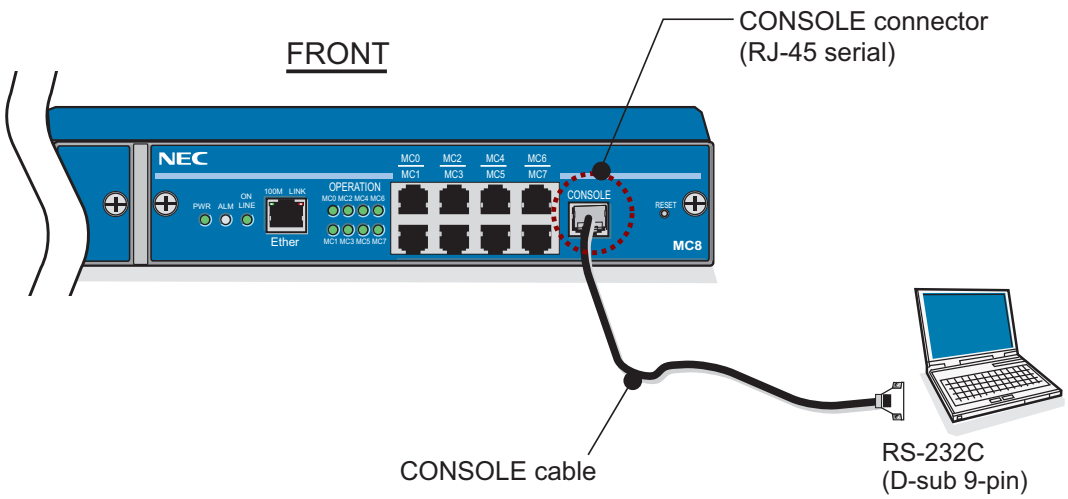
Connect AC power cable to AC Power Inlet on the rear panel of 8LC Card. Fix the AC power cable with the stopper.



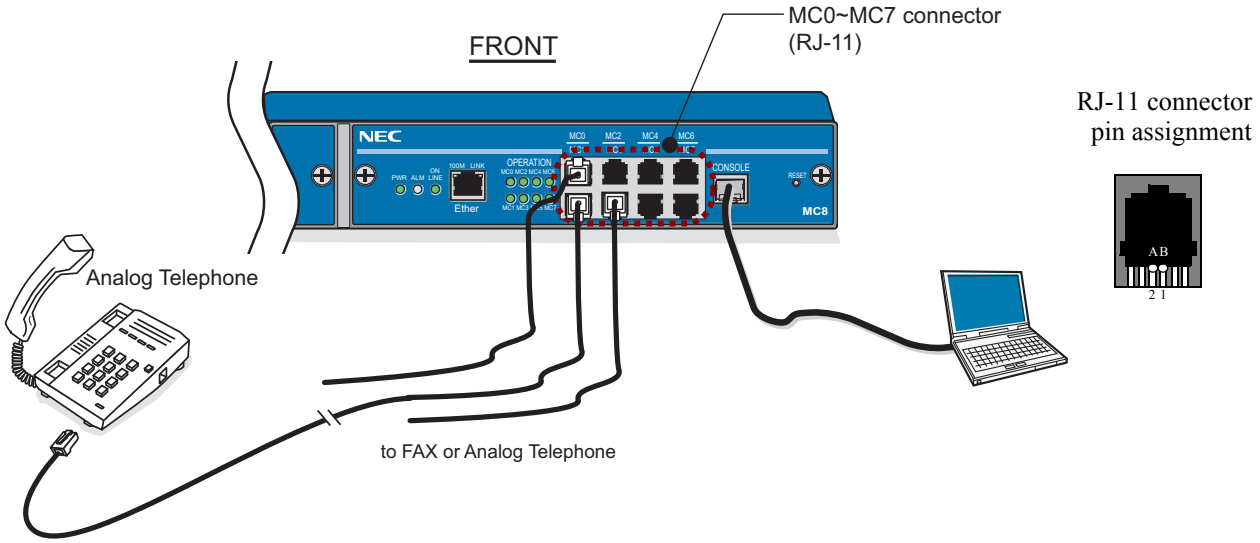
Connect the other end of the power cable to appropriate AC supply.

Note: For the safety measures against static electricity, lightning strike, and other electrical surges, be sure to make proper connection to grounding (less than 10 Ω). Lightning might cause damage to 8LC Card and AC power unit without Ground connection.

STEP 2 Connect a Maintenance Console (PC) to CONSOLE connector using CONSOLE cable.



STEP 3 Connect analog terminals to MC0 through MC7 connectors on the front panel.



Note: LAN cable is connected in 3 Startup 8LC Card and Basic Tests. Do not connect here.

3 Startup 8LC Card and Basic Tests

This section explains procedures for startup and basic tests. Follow the procedure below.

STEP 1: Data Assignment by PCPro

1. Internal PHE Data Assignment
2. SP-PHI Data Assignment
3. 8LC Card Data Assignment
4. Security Data Assignment

STEP 2: VT-100 Compliant Terminal Software Setting on Maintenance Console

1. Connection between PC (maintenance console) and CONSOLE Connector
2. Terminal Software Activation
3. Setting of Terminal Software

STEP 3: Power ON

STEP 4: Configuration Command Assignment

1. One Time Password Assignment
2. Selection whether to use DHCP/DNS server
3. Network Data Assignment

STEP 5: Cable Connection

1. Connection between 8LC Card and LAN

STEP 6: Basic Test Procedures

1. Basic Connection Test
2. Alarm Information Check

END

3.1 Data Assignment by PCPro

This section explains the data assignment procedures to the Telephony Server by PCPro.

[1] Internal PHE Data Assignment

8LC Card is controlled by SP-PHI which is embedded in, and controlled by MPH. For the use of MPH, it is required to make Internal PHE function valid. So Internal PHE data assignment is necessary.

[2] SP-PHI Data Assignment

8LC Card is controlled by SP-PHI. So SP-PHI data assignment is necessary.

[3] 8LC Card Data Assignment

ASYDL: Assignment of System Data (LDM)

SYS1, INDEX 811: Tone Code by countries. *See Command Manual for more details.*

ANPD: Assignment of Numbering Plan

Assign the Access Code (ACC) for station access, by using the combination of ANPD and ASPA commands.
1st DC: 1st DC of the station numbers
NND: Total station number digits

ASPA: Assignment of Special Access Code

ACC: Enter the Access Code using the 1st DC specified by the ANPD command.
SRV: Assign “STN: Station Number” for Kind of Service.

AISTL: Assignment of IP Station Data (LDM)

Assign the IP Station Data of each analog terminal connected to 8LC Card.

TN: Tenant Number [1-63]
IP STN: Station number of IP Station (assign the station number for each analog terminal connected to 8LC Card)
KIND: Kind of IP Terminal. Select the terminal kind “8MC (SIP)” in the combo box
TEC: Telephone Equipment Class [2, 3, 4]
RSC: Route Restriction Class [0-15]
SFC: Service Feature Restriction Class [0-15]
LENS: Allocate IP station to Virtual LENS within Virtual PIR.
MC-ID: MAC address of 8LC Card
MC-CH: Channel Number of 8LC Card for each analog terminal [0-7]
FAX Data Setting: Click the check box to ON when data setting is required for Fax communication. **Note 1**
JITSIZ: Enter the Jitter Buffer size in the range 1-30 (×10ms) for Fax controlling.
PAYTYP x: Select the Payload Type G.711/G.726/T.30 in the combo box.
PAYSIZ x: Select the Payload Size 10ms-40ms (required for G.711 and G.726).

Note 1: For more detailed explanation on fax data assignment and service conditions, see [I-44] IP Control-FAX feature in Data Programming Manual-Business.

AIVCL: Assignment of IP Service Voice Control Data (LDM)

Assign voice control data on Location ID basis (assigned by ALOCL command).

A LOC-ID: Location ID of the self-location [0-4095]
B LOC-ID: Location ID of the destination location [0-4095]
Setting of Jitter Buffer: Click the check box to assign the Jitter Buffer data.
JB MIN: Jitter Buffer minimum value [0-30 (× 10 milliseconds)]
JB MAX: Jitter Buffer maximum value [0-30 (× 10 milliseconds)]

Note: Default settings (JB MIN=1 (10 ms), JB MAX=30 (300 ms)) is applied when the check box is not selected.

Setting Type of Voice Packet Service: Select the check box to assign the ToS data for voice packet.
IP PRECEDENCE/DIFFSERV: Choose either from the drop-down list box.
<When IP PRECEDENCE is selected>
Priority (PRECEDENCE/DSCP):Specify the precedence in the range of 0-7 (low-high).
Low Delay: Place a checkmark to set Low Delay to ON.
Through Put: Place a checkmark to set High Throughput to ON.
Reliability: Place a checkmark to set High Reliability to ON.
MIN Cost: Place a checkmark to set Cost Precedence to ON.
<When DIFFSERV is selected>
Priority (PRECEDENCE/DSCP):Specify the precedence in the range of 0-63.

Note: Default settings (IP PRECEDENCE, Priority (PRECEDENCE/DSCP) = 5, Low Delay = OFF, Through Put = OFF, Reliability = OFF, Min Cost = OFF) are applied when the check box is not selected.

Setting of Payload: Select the check box to assign the Payload data. Specify a payload type (TYPE) and payload size (SIZE) in the order of priority 1 to 4 (PRI1 through PRI4).
TYPE: Select a payload type from the combo box.
- No data
- G.711
- G.729a
- G.723.1 (5.3K → 6.3K)
- G.723.1 (6.3K → 5.3K)

SIZE: Select a payload size from the combo box according to the Payload Type.
- No data
- 10 milliseconds
- 20 milliseconds
- 30 milliseconds
- 40 milliseconds
- 60 milliseconds

Note:
- If payload type G.711 is specified to more than two priorities in PRI1 through PRI4, assign different payload size to each priority.
- When payload types G.723.1 (5.3K → 6.3K) and G.723.1 (6.3K → 5.3K) are to be assigned on the same terminal, specify the same value to the payload size of both

types.
- It is not necessary to assign the payload type/size to the whole priorities. Specifying the first priority only is allowed.
- For available payload type/payload size, refer to “Payload Setting for Each IP Equipment” in the System Description.

Setting of PAD: Select the check box to assign the PAD data manually. If not checked, default value 0 is applied.

KIND2: Specify the PAD value of 8LC Card in the range of 0-3.
- No PAD control (determined by ASYD, SYS1, INDEX 4, bit5 (5 dB PAD))
- PAD OFF (0 dB)
- 3 dB
- 6 dB

KIND3: Specify the PAD No. of IPPAD in the range of 0-15.
PAD value is determined by this PAD No. (0-15) and the setting of SW10-6/7 on IPPAD card. Refer to the Circuit Card Description for more details.

Setting of Echo Canceller: Select the check box to assign the Echo Canceller data, and select one of the radio buttons.

- A EC-ON/B EC-ON
- A EC-ON/B EC-OFF
- A EC-OFF/B EC-ON
- A EC-OFF/B EC-OFF

Note: When the same value is assigned to both “A LOC-ID” and “B LOC-ID” parameters, select either “A EC-ON/B EC-ON” or “A EC-OFF/B EC-OFF.”

Note: 8LC Card needs to be rebooted after station data is assigned to reflect the changed data. Confirm that there is no conversation in progress when rebooting.

[4] Security Data Assignment

Assign authentication data.

ASECL: Assignment of Security Data (LDM)

ONE TIME PASSWORD: One Time Password to be used for authentication procedure in 8LC Card registration [4-10 digits with numerics, - (hyphen), . (period)] **Note 2**

AVAILABLE PERIOD: Expiration date of One Time Password (No limit/1-7 days)

Note 2: Assign the same One Time Password to 8LC Card by configuration command setting.

Note: One Time Password will be lost during a power reset.

3.2 VT-100 Compliant Terminal Software Setting on Maintenance Console



Note: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data.

STEP 1: Connect a PC (maintenance console) to the CONSOLE connector.

STEP 2: Run VT-100 compliant terminal software (e.g. HyperTerminal) on the Maintenance Console.

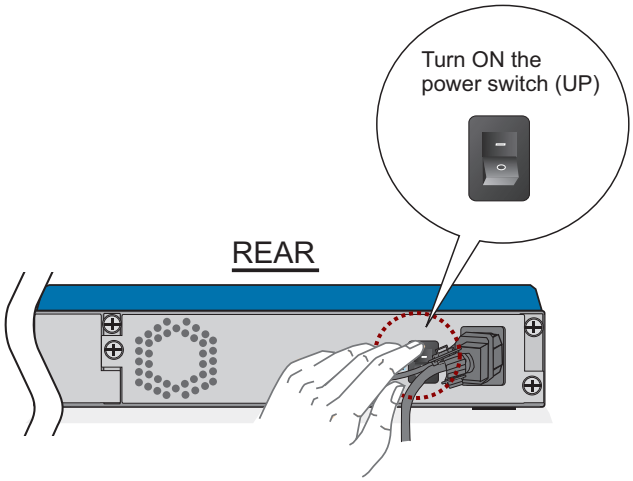
STEP 3: Set the parameter of the terminal software as follows:

- Port: *COM1 (depending on PC setting)*
- Baud Rate: *9600 bps*
- Data: *8 bits*
- Parity: *None*
- Stop Bit: *1*
- Flow Control: *None*

3.3 Power On

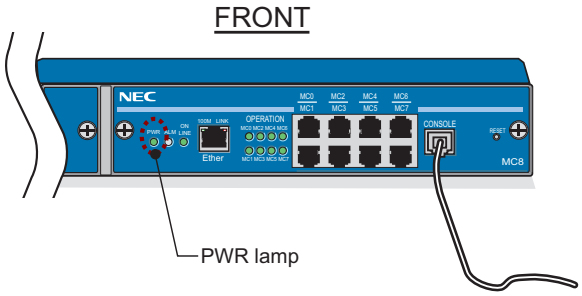


STEP 1: Turn ON the power switch (UP) on the rear panel of 8LC Card.



Note: When the 1U-MPC has already turned on, press “RESET” button on the front panel of 8LC Card to restart the card and start its boot program.

STEP 2: Make sure the LED indicate normal status.
- PWR lamp lights green (*Boot program automatically starts)



3.4 Configuration Command Assignment

Assign the configuration data by command operation on maintenance console.

Note: "SIP server" used in this section refers to the Telephony Server. The Telephony Server acts as SIP server for 8LC Card using SIP.

Note: The setting data here is an example. Assign the network data adjusting to your network configuration.

STEP 1: When the boot program is started, the initial display below is displayed on the screen.

```
DP OK [N]

MC-ID: xxxxxxxxxxxx


Starting Boot program.....
--- Online program Initial start (Wait for a while) ---
```

STEP 2: Following the boot program, main program launches and the initial display below is displayed on the screen.

```
-----//-------------------------------------//-----
     Analog Media Converter
         *Firmware SP-3893(xx.xx.xx.xx)
         *Compiled on xxx xx xxxx xx:xx:xx
---//-------------------------------------//-------
>>> RegistrationMode = 8MC(SIP)
[SP Mode] MC Initializing....
```

In factory default (system data is in initial setting), 8LC Card starts up with the setting of DHCP enabled. The display is shifted to OS prompt (->) when 8LC Card tries getting IP address from DHCP server.

Move on to one-time password (e.g. 12345#) setting after completing the IP address getting from DHCP or when asked to set one-time password in the state of DHCP disabled.

```
:
:
No One Time Password!!

Please input a one time password.
One Time Password: 12345#

One Time Password setting succeeded.
```

Note: When you want to assign one-time password later, enter "q" when requested to enter the password.

STEP 3: Type "usrConsole" following the OS prompt (->) and press ENTER key.

```
->
->
->usrConsole
```

STEP 4: 8LC Card command prompt "MC(SIP)>" appears as follows.

```
->
->usrConsole
MC(SIP) Maintenance command Version 1.00 2005.12.xx
MC(SIP)>
```

STEP 5: If one-time password has not been set in STEP 2, assign one-time password here using "SET ONE_-TIME_PASS" command.

```
MC(SIP)> SET ONE_TIME_PASS
One Time Password: 12345#
One Time Password setting succeeded.
MC(SIP)>
```

STEP 6: Set the basic data for connecting network by "SETUP SP" command depending on your LAN environment. Enter "SETUP SP" following the prompt.

```
MC(SIP)>
MC(SIP)> SETUP SP
```

(1) Assign whether to use DHCP server. The required setting differs whether to use DHCP server.

```
--- DHCP Interface set ---
Current DHCP Interface: ENABLE
Change DHCP Interface? [Y(change)/N(current)/Q(quit)]: Y
Input new DHCP Interface [E(enable)/D(disable)]: D
```

(2) Assign whether to use DNS server. The required setting differs whether to use DNS server.

```
--- DNS Interface set ---
Current DNS Interface: DISABLE
Change DNS Interface? [Y(change)/N(current)/Q(quit)]: Y
Input new DNS Interface [E(enable)/D(disable)]: E
```

(3) Assign network data according to the setting of DHCP server and DNS server.

- When DHCP server is used
- When DHCP server is NOT used & DNS server is used
- When DHCP server is NOT used & DNS server is NOT used

- **When DHCP server is used**

  In this setting, because 8LC Card automatically gets IP address from DHCP server, it is not required to set IP address and Default Gateway on 8LC Card. Set the Ethernet Speed as follows.

  1. Communication speed of LAN interface

```
--- Ethernet Speed set ---

Current LAN Speed: AUTO

Change LAN Speed? [Y(change)/N(current)/Q(quit)]: Y

Input new Speed [1(AUTO)/2(100M)/3(10M)]: 2

Input new DUPLEX [F(full)/H(half): F
```

  IP addresses listed below, however, need to be assigned on DHCP server side. **Note 1**

  - IP address of Default Gateway
  - IP address of SIP server **Note 2**

  Note: Check the number of IP addresses saved in DHCP server is sufficient so as to get IP address of 8LC Card anytime.

  Note 1: Assign DHCP option on DHCP server as follows:
  Class:Global
  Name:Not specified, but do not enter the same option name in duplicate (e.g. SP1)
  Data:IP address
  Array:Checked
  Code:162

  Note 2: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

- **When DHCP server is NOT used & DNS server is used**

  Set the following data on 8LC Card.

  - IP address of DNS server
  - IP address and subnet mask of 8LC Card (own address)
  - Host name of 8LC Card
  - IP address of Default Gateway
  - Host name of SIP server
  - Communication speed of LAN interface

  Note: When the DHCP is set to “ENABLE”, IP addresses assigned here cannot take effect. Be sure to assign “SET DHCP DISABLE” before starting the IP address setting.

  1. DNS server IP Address

```
--- DNS IP Address set ---

Current DNS IP Address: 0.0.0.0

Change DNS IP Address? [Y(change)/N(current)/Q(quit)]: Y

Input new DNS IP Address: 10.41.1.150
```

  2. IP Address and Subnet Mask of 8LC Card

```
--- IP Address & Subnetmask set ---

Current IP Address: 0.0.0.0
Current Subnetmask: 255.255.255.0

Change IP Address & Subnetmask? [Y(change)/N(current)/Q(quit)]: Y

Input new IP Address: 10.41.1.100
Input new Subnetmask: 255.255.255.0
```

  3. Host name of 8LC Card

```
--- Host Name set ---

Current Host Name: No Value

Is there the Host Name? [Y/N]: Y

Input new Host Name: mcsip.nec.com
```

  Note: Enter the host name in full-domain format.

4. Default Gateway IP Address

```
--- Default Gateway IP Address set ---
Current Default Gateway: 0.0.0.0
Change Default Gateway? [Y(change)/N(current)/Q(quit)]: Y
Input new Default Gateway: 10.41.1.254
```

5. Host Name of SIP Server

```
--- SIP Server Host Name set ---
Current SIP Server and Host Name:
SIP Server    Host Name
1
2
3
:
:
20
Change SIP Server Information? [Y(change)/N(current)/Q(quit)]: Y
Input new SIP Server (1-20): 1
Is there the Host Name? [Y/N]: Y
Input new Host Name: SVR1.nec.com
Continue? [Y(continue)/N(exit)]: N
```

6. Communication speed of LAN interface

```
--- Ethernet Speed set ---
Current LAN Speed: auto
Change LAN Speed? [Y(change)/N(current)/Q(quit)]: Y
Input new Speed [1(AUTO)/2(100M)/3(10M)]: 2
Input new DUPLEX [F(full)/H(half): F
```

- **When DHCP server is NOT used & DNS server is NOT used**

  Set the following data on 8LC Card.

  - IP address and subnet mask of 8LC Card (own address)
  - Host name of 8LC Card *(*optional)*
  - IP address of Default Gateway
  - IP Address, Port Number, and Host name of SIP server **Note 3 Note 4**
  - Communication speed of LAN interface

  Note: When the DHCP is set to “ENABLE”, IP addresses assigned here cannot take effect. Be sure to assign “SET DHCP DISABLE” before starting the IP address setting.

  Note 3: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

  Note 4: Host name setting is optional

  1. IP Address and Subnet Mask of 8LC Card

```
--- IP Address & Subnetmask set ---

Current IP Address: 0.0.0.0
Current Subnetmask: 255.255.255.0

Change IP Address & Subnetmask? [Y(change)/N(current)/Q(quit)]: Y

Input new IP Address: 10.41.1.100
Input new Subnetmask: 255.255.255.0
```

  2. Host name of 8LC Card

  Note: Host name setting is optional. Enter N if not required to set host name.

  Note: Enter the host name in full-domain format.

```
--- Host Name set ---

Current Host Name: No Value

Is there the Host Name? [Y/N]: Y

Input new Host Name: mcsip.nec.com
```

  3. Default Gateway IP Address

```
--- Default Gateway IP Address set ---

Current Default Gateway: 0.0.0.0
```

```
Change Default Gateway? [Y(change)/N(current)/Q(quit)]: Y

Input new Default Gateway: 10.41.1.254
```

4. IP Address, Port Number, and Host Name of SIP Server

Note: Host name setting is optional. Leave the Host Name field blank if not required.

```
--- SIP Server IP Address & Host Name set ---

Current SIP Server/IP Address/Port Number/Host Name:


SIP Server       IP Address       Port Number      Host Name
1                0.0.0.0          5060
2                0.0.0.0          5060
3                0.0.0.0          5060
:                :                :
:                :                :
20               0.0.0.0          5060

Change SIP Server Information? [Y(change)/N(current)/Q(quit)]: Y

Input new SIP Server (1-20): 1
Input new IP Address: 10.41.1.200
Input new Port Number: 5060
Is there the Host Name? [Y/N]: Y

Input new Host Name: SVR1.nec.com

Continue? [Y(continue)/N(exit)]: N
```

5. Communication speed of LAN interface

```
--- Ethernet Speed set ---

Current LAN Speed: auto

Change LAN Speed? [Y(change)/N(current)/Q(quit)]: Y

Input new Speed [1(AUTO)/2(100M)/3(10M)]: 2

Input new DUPLEX [F(full)/H(half): F
```

6. Save the assigned configuration data at the last of SETUP SP command to complete network setting.

```
**Don't power off in progress**
Do you save the configuration data? [N/Y]:Y


Configuration data has been saved.
Restarting is required for making a setup reflect!!
Sp mode setting succeeded.
The register mode will be changed to
SP mode after re-starting
```

STEP 7: Use SHOW command to see all the required configuration data is correctly assigned.

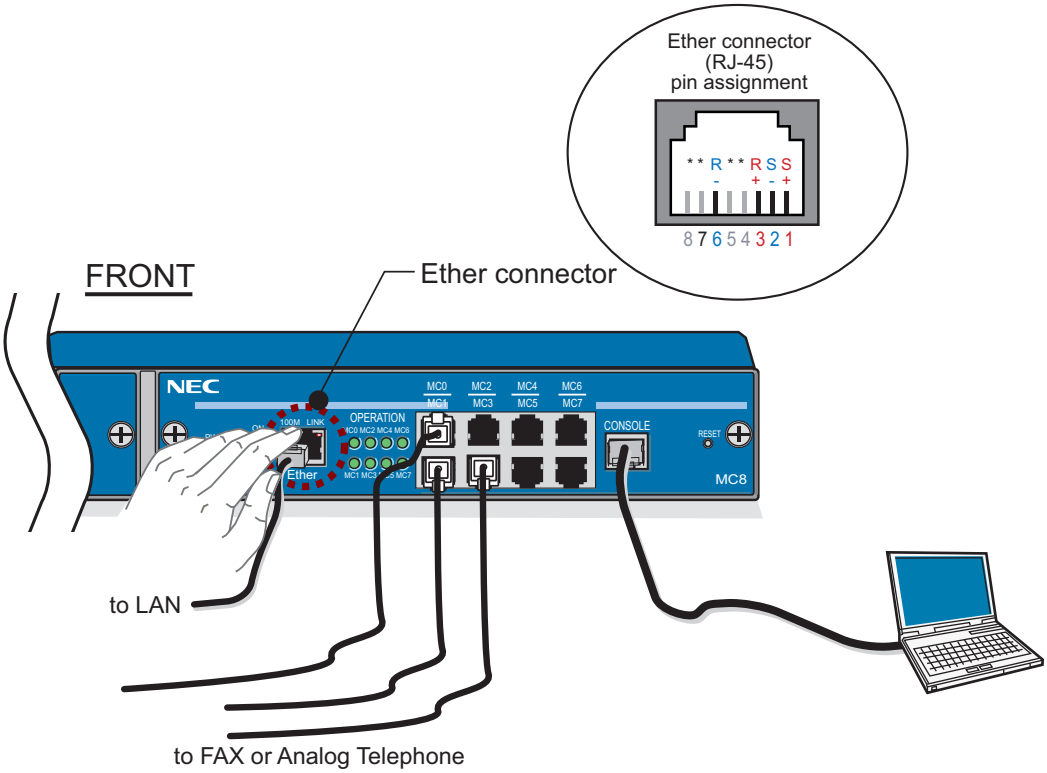
STEP 8: Reboot the 8LC Card by turning the power OFF→ON or pressing RESET button.

3.5 Cable Connection



STEP 1: Connect the 8LC Card to the LAN by using an appropriate LAN cable.

Note: Before connecting the 8LC Card to network, be sure to execute "ping" command to check the following:
- Is there other device having the same IP address overlapped?
- Is the new IP address assigned correct?



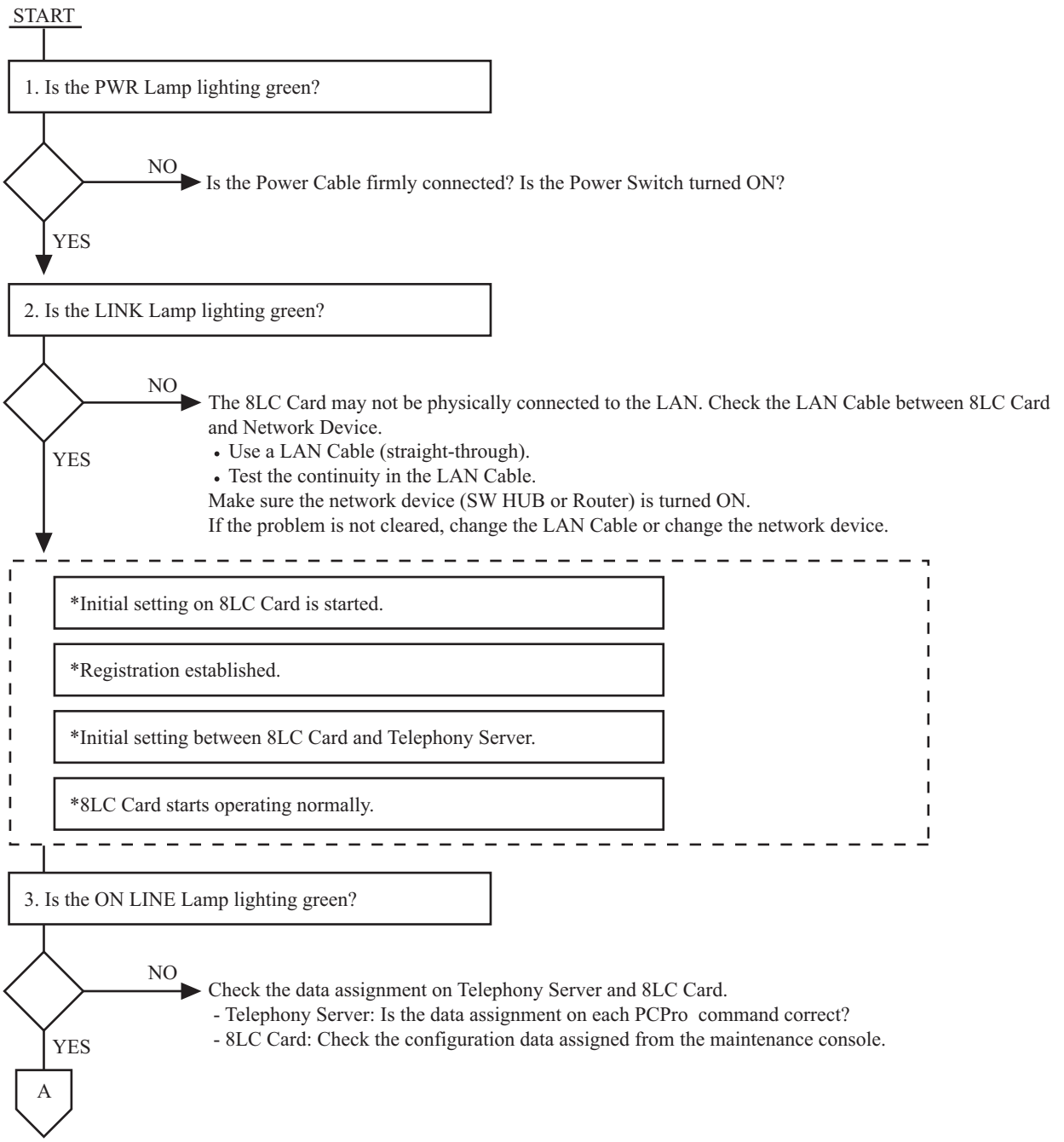
STEP 2: Check the lamp indication on the front panel of 8LC Card.

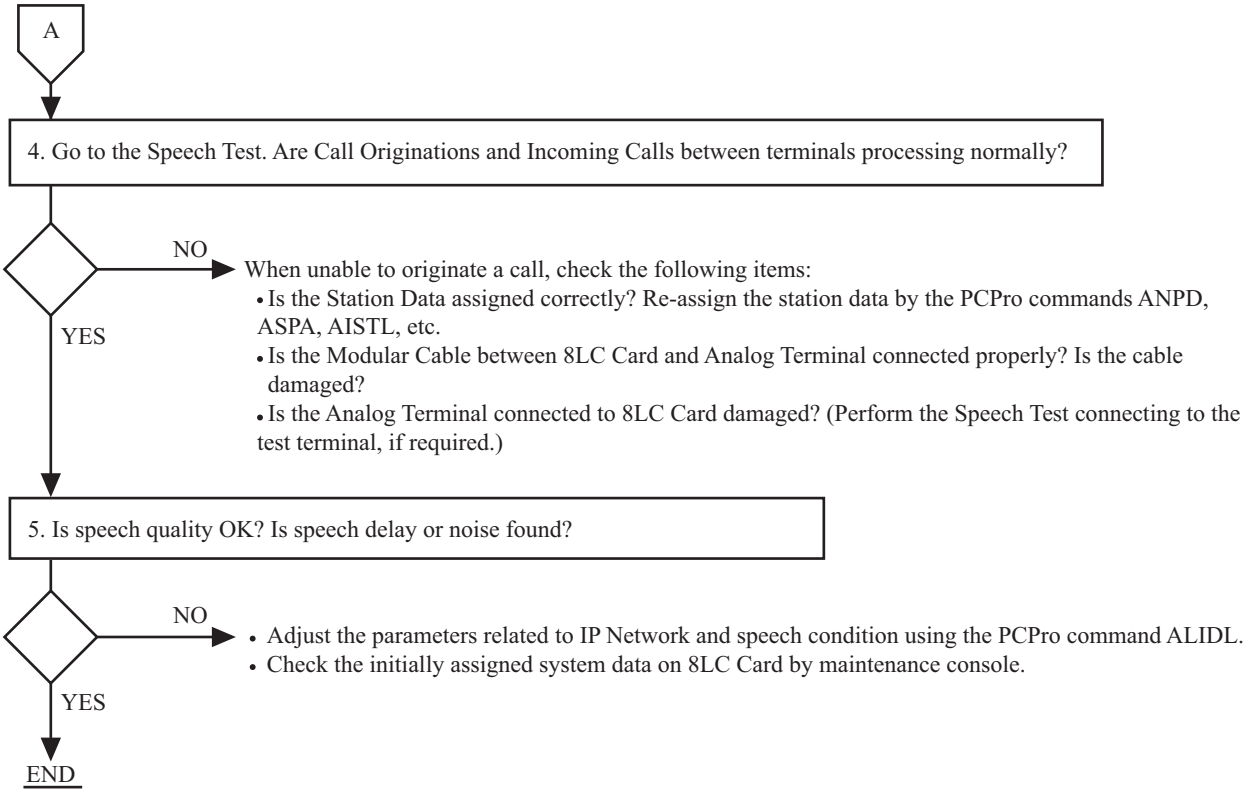
- PWR lamp: lights green
- ALARM lamp: OFF
- ON LINE lamp: OFF
- OPERATION MC0~MC7 lamp: flashes green

Note: After completing the data assignment (8LC Card entry, station data entry) on the Telephony Server side, ON LINE lamp lights green and the corresponding OPERATION MC0~MC7 lamp will go out.

3.6 Basic Test Procedures

[1] Basic Connection Test


START
1. Is the PWR Lamp lighting green?
NO
Is the Power Cable firmly connected? Is the Power Switch turned ON?
YES
2. Is the LINK Lamp lighting green?
NO
The 8LC Card may not be physically connected to the LAN. Check the LAN Cable between 8LC Card and Network Device.
• Use a LAN Cable (straight-through).
• Test the continuity in the LAN Cable.
Make sure the network device (SW HUB or Router) is turned ON.
If the problem is not cleared, change the LAN Cable or change the network device.
YES
*Initial setting on 8LC Card is started.
*Registration established.
*Initial setting between 8LC Card and Telephony Server.
*8LC Card starts operating normally.
3. Is the ON LINE Lamp lighting green?
NO
Check the data assignment on Telephony Server and 8LC Card.
- Telephony Server: Is the data assignment on each PCPro command correct?
- 8LC Card: Check the configuration data assigned from the maintenance console.
YES
A



[2] Alarm Information Check

- Check the Alarm Lamps. If the red lamp lights, search for the cause of fault and perform the appropriate operations.
- Check the system message.
  1. Display the system message using DFTD command.
  2. See the system message and confirm whether 8LC Card error occurs or not. If some error occurs, perform the fault repair. [(33-R IP PKG Warning), (33-S IP PKG Failure), (33-T IP PKG Restore)]

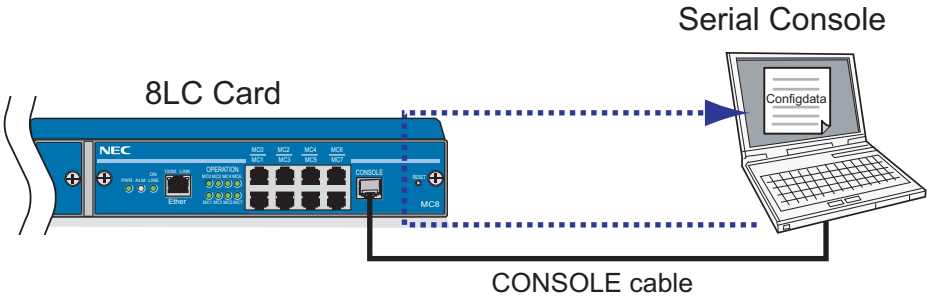
4 Operation and Maintenance

4.1 How to Back Up and Restore Config Data by Serial Connection (Local)

This config download/upload is performed one by one, connecting a PC to each 8LC Card with a CONSOLE cable and a LAN cable. Prepare the following:

- CONSOLE cable (RS-232C⇔RJ-45 serial cable) is required.
- LAN cable (crossover) is required for restoring config data.
- Serial terminal emulation program (such as HyperTerminal) is required.
- PCPro has to be installed in advance.

- Backing Up Config Data By Serial Connection



STEP 1 Power off 8LC Card and disconnect it from the network.

STEP 2 Connect PC to 8LC Card by using CONSOLE cable.

STEP 3 Power on 8LC Card.

STEP 4 Activate HyperTerminal and set the following:
Bit per second: 9600bps
Data bits: 8bit
Parity: None
Stop bit: 1bit
Flow control: None

STEP 5 Select **[Transfer]** → **[Capture File...]**.

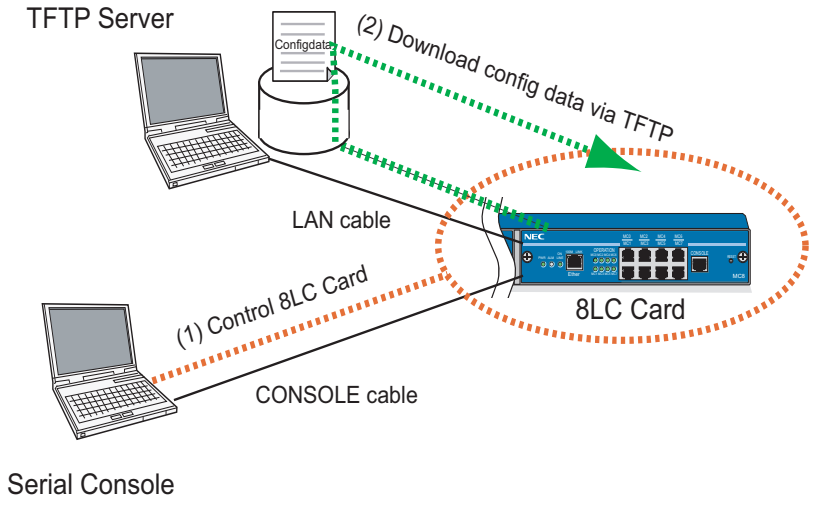
STEP 6 **Send File** screen is displayed. Specify a file name to be saved, and then click the **Start** button.

STEP 7 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 8 After a prompt (`MC(SIP)>`) is displayed, enter "`show configdata`" to display configuration data setting of 8LC Card.

STEP 9 Select **[Transfer]** → **[Capture Text]** → **[Stop]** to save the config file shown in screen.

- Restoring Config Data By Serial Connection And TFTP Connection



Note 1: TFTP server and Serial Console both can be performed by single Personal Computer.

STEP 1 Power off 8LC Card and disconnect it from the network.

STEP 2 Connect Serial Console to 8LC Card by using a CONSOLE cable.

STEP 3 Connect TFTP server to 8LC Card by using a LAN cable.

<Data Assignment on TFTP Server>

STEP 4 If the name of the backup config file is not sysdata, rename it to "mc8-sysdata.txt".

STEP 5 Put the file in the root folder of TFTP server, and then start the TFTP server program.

STEP 6 Permit read behavior of this folder. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on Serial Console>

STEP 7 Power on 8LC Card.

STEP 8 Activate HyperTerminal and set the following:
Bit per second: 9600bps
Data bits: 8bit
Parity: None
Stop bit: 1bit
Flow control: None

STEP 9 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 10 After a prompt (`MC(SIP)>`) is displayed, enter "`get configdata <TFTP's IP Address>`" to download configuration data into 8LC Card.

STEP 11 Confirm that "`successfully completed`" is displayed in the screen, indicating the upload to TFTP server is completed normally.

STEP 12 To reflect the configuration data that is downloaded from TFTP server, save it by entering "`save configdata`" and reboot 8LC Card by entering "`reboot`".

STEP 13 Exit the HyperTerminal by selecting **[File]** → **[Exit]**.

<Confirmation of 8LC Card>

STEP 14 Connect the 8LC Card to the network.

STEP 15 Confirm that 8LC Card is normally registered in system after reboot. Use the DISD command in PCPro. For more information, refer to the Operations and Maintenance Manual.

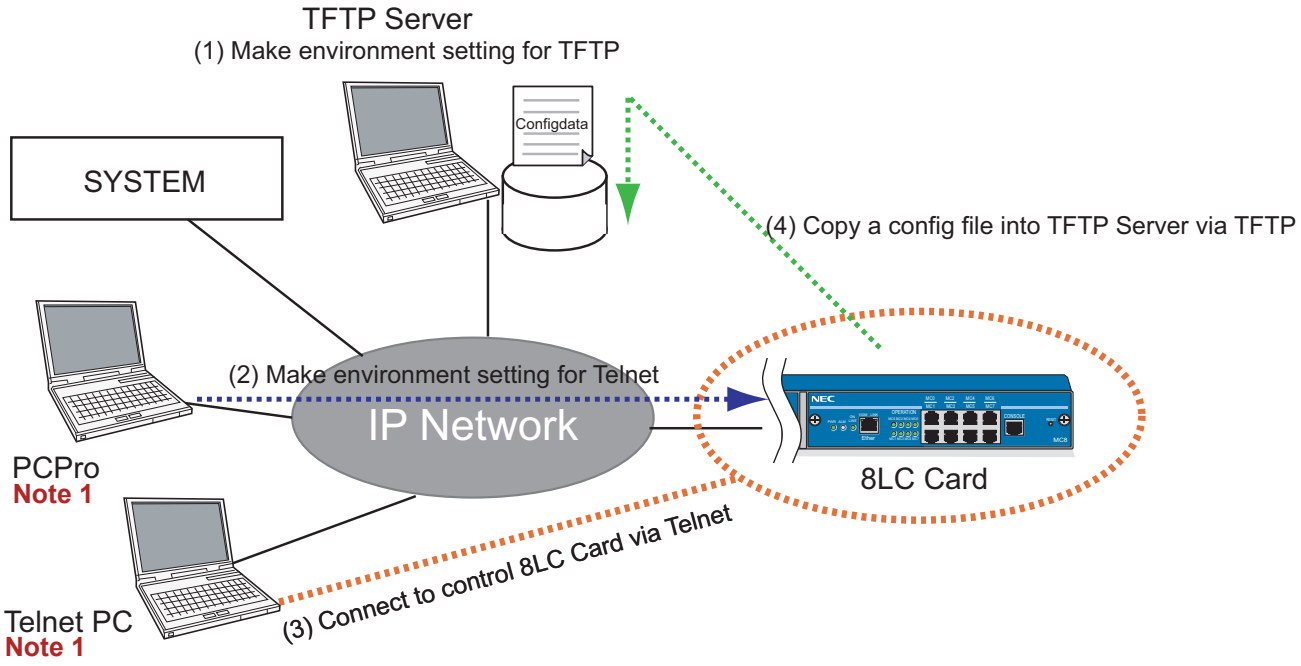
STEP 16 Check that calls via 8LC Card can be made.

4.2 How to Back Up and Restore Config Data by TFTP Connection (Remote)

This config download/upload is performed via TFTP.
Prepare the following:

- PC that is capable of Telnet and TFTP features.
- All the PCs have to belong to the same segment with 8LC Card.
- TFTP server has to be installed in advance.
- PCPro has to be installed in advance.
- 8LC Card is already registered to system and it is operating normally.

- Backing Up Config Data via TFTP



Note 1: PCPro and Telnet both can be performed by single Personal Computer.

<Data Assignment on TFTP Server>

STEP 1 Create a folder to back up configuration data.

STEP 2 Start the TFTP server program.

STEP 3 Assign the folder as root folder, and then permit write and read behavior of this directory. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on PCPro>

STEP 4 To search for the LENS of the target 8LC Card, use the IPAN command.

STEP 5 To make environment setting for Telnet, use the ATUD command.
- Specify the LENS, which belongs to the target 8LC Card.
- Specify a user ID and a password, which are required for logging in to 8LC Card via Telnet.
- Input any value from 0 to 255 for USER LEVEL because 8LC Card does not use USERLEVEL.
- For VALID TIME, input a total of time required for completing this procedures.

Note: A user ID and a password are temporary and used for download; you can specify them as you like providing the User ID is a max 20 ASCII characters and the Password is 8 - 20 ASCII characters.

STEP 6 After completing the above, click the Set button.

<Data Assignment on Telnet PC>

STEP 7 Start a command prompt and enter "`telnet <8LC Card's IP Address>`" to connect 8LC Card via Telnet.

STEP 8 Log in to the target 8LC Card by entering the userID and the password, which are set in the AUTD command.

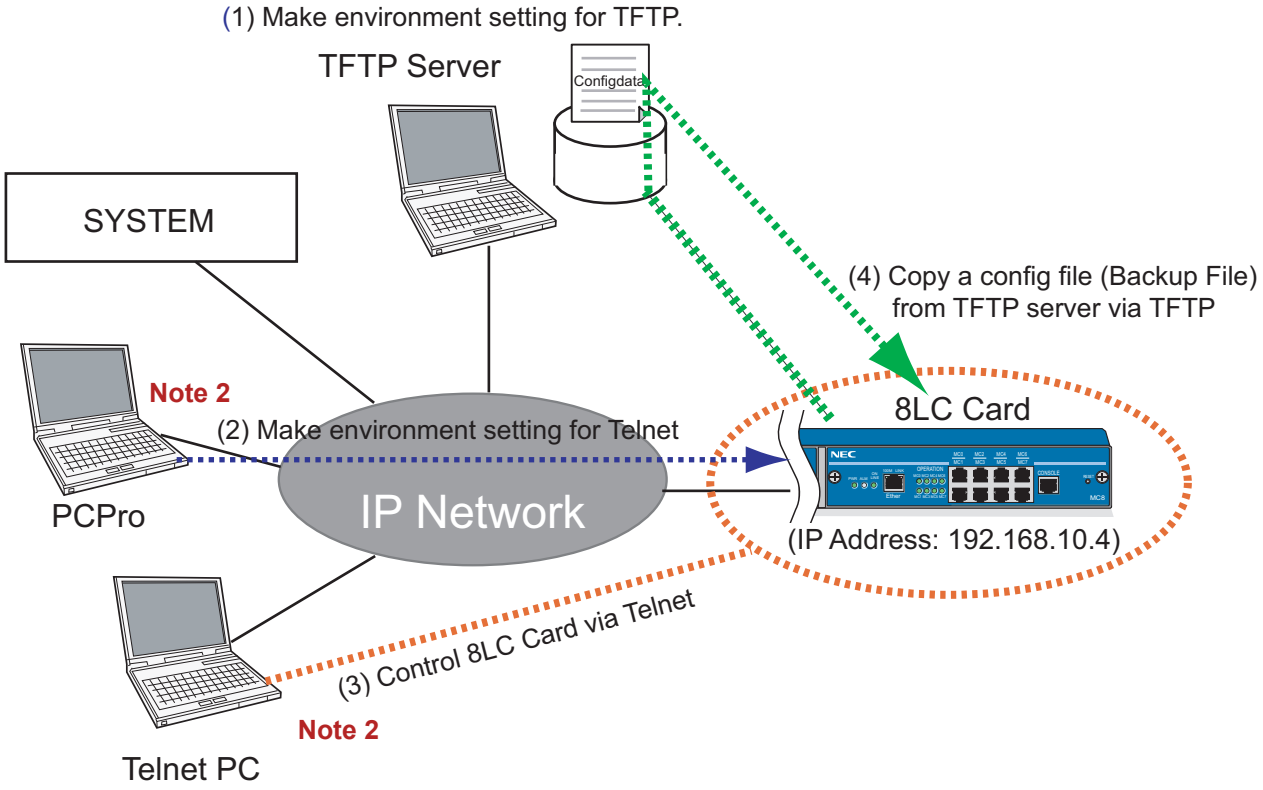
STEP 9 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 10 After a prompt (`MC(SIP)>`) is displayed, enter "`put configdata <TFTP's IP Address>`" to download configuration data to 8LC Card.

STEP 11 Confirm that "successfully completed" is displayed in the command prompt, indicating the upload to TFTP server is completed normally.

STEP 12 Exit the HyperTerminal by selecting **[File]** → **[Exit]**.

- Restoring Config Data via TFTP



Note 2: PCPro and Telnet both can be performed by single Personal Computer.

<Data Assignment on TFTP Server>

STEP 1 If the name of the backup config file is not sysdata, rename it to “mc8-sysdata.txt”.

STEP 2 Put the file in the root folder of TFTP server, and then start the TFTP server program.

STEP 3 Permit read behavior of this folder. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on PCPro>

STEP 4 To search for the LENS of the target 8LC Card, use the IPAN command.

STEP 5 To make environment setting for Telnet, use the ATUD command.
- Specify the LENS, which belongs to the target 8LC Card.
- Specify a user ID and a password, which are required for logging in to 8LC Card via Telnet.
- Input any value from 0 to 255 for USER LEVEL because 8LC Card does not use USERLEVEL.
- For VALID TIME, input a total of time required for completing this procedures.

Note: A user ID and a password are temporary and used for download; you can specify them as you like providing the User ID is a max 20 ASCII characters and the Password is 8 - 20 ASCII characters.

STEP 6 After completing the above, click the Set button.

<Data Assignment on Telnet PC>

STEP 7 Start a command prompt and enter "`telnet <8LC Card's IP Address>`" to connect 8LC Card via Telnet.

STEP 8 Log in to the target 8LC Card by entering userID and password, which are set in the AUTD command.

STEP 9 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 10 After a prompt (`MC(SIP)>`) is displayed, enter "`get configdata <TFTP's IP Address>`" to download configuration data into 8LC Card.

STEP 11 Confirm that "successfully completed" is displayed in the command prompt, indicating the upload to TFTP server is completed normally.

STEP 12 To reflect the configuration data that is downloaded from TFTP server, save it by entering "`save configdata`" and reboot 8LC Card by entering "`reboot`".

STEP 13 Exit the HyperTerminal by selecting **[File]** → **[Exit]**.

<Confirmation of 8LC Card>

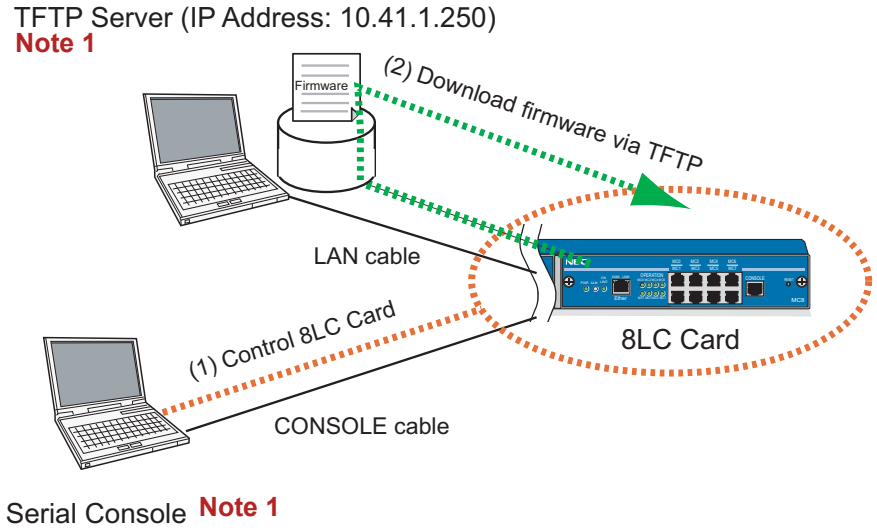
STEP 14 Confirm that 8LC Card is normally registered in system after reboot. Use the DISD commands. For more information, refer to the Operation and Maintenance Manual.

STEP 15 Check that calls via 8LC Card can be made.

4.3 How to Upgrade Firmware by Serial Connection (Local)

This firmware upgrade is performed one by one, connecting a PC to each 8LC Card with a CONSOLE cable and a LAN cable. Prepare the following:

- Firmware for upgrade
- CONSOLE cable (RS-232C⇔RJ-45 serial cable) and LAN cable (crossover) are required.
- Serial terminal emulation program (such as HyperTerminal) is required
- TFTP server has to be installed in advance.



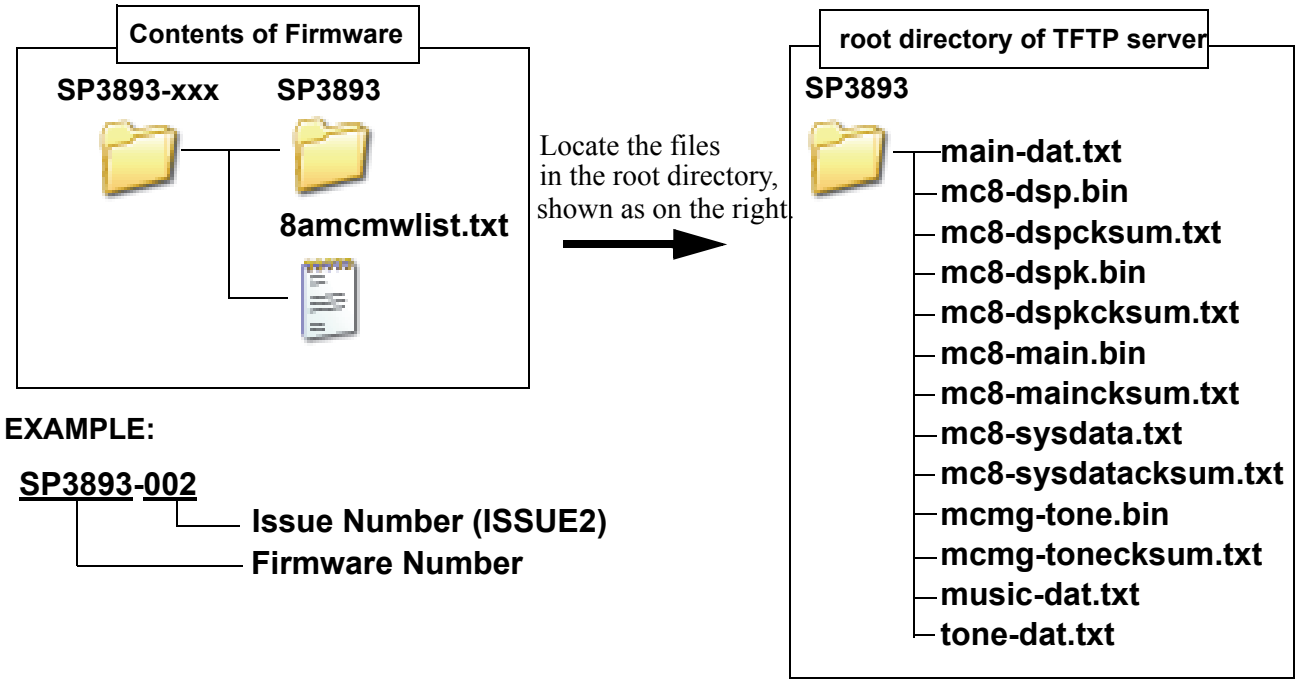
Note 1: TFTP server and Serial Console both can be used by single Personal Computer.

STEP 1 Disconnect the 8LC Card from the network.

STEP 2 Connect PC(s) to 8LC Card with LAN connector and CONSOLE cable both.

STEP 3 Put the firmware file for upgrade in the root folder of TFTP server.

Note: The following files have to be located in the root folder.



STEP 4 Permit read behavior of this directory. For more information, refer to the appropriate manual attached to the TFTP server program.

STEP 5 Set network environment for the TFTP server.
IP Address: 10.41.1.250
Subnet mask: 255.255.255.0

STEP 6 Start the TFTP program.

STEP 7 Power on 8LC Card.

STEP 8 Activate HyperTerminal and set the following:
Bit per second: 9600bps
Data bits: 8bit
Parity: None
Stop bit: 1bit
Flow control: None

STEP 9 Enter "`usrConsole`" following the OS prompt (`->`).

STEP 10 When the 8MC Card's prompt ("`8MC(SIP)>`") is displayed, enter "`download`".

STEP 11 When the message "`Do you need download?`" is displayed, enter "`y`".

STEP 12 The current setting of 8LC Card is displayed, and then the screen asks you to input TFTP server IP address. Enter the IP address of TFTP server.

STEP 13 The current setting of 8LC Card and TFTP server is displayed. Make sure the settings. If you need to modify the settings, select a number (1-4) to modify the item. If all the settings are correct, enter "y".

STEP 14 Download menu is displayed, and then select "1 (Download of all programs)."

STEP 15 IP address information setting is displayed, and then select "1 (Current setting)."

STEP 16 Other configuration setting is displayed, and then select "1 (Modified new default)."

STEP 17 Task execution mode is displayed, and then select "2 (Immediate)."

STEP 18 Turn off and on the power of the 8LC Card.

STEP 19 After a prompt (->) is displayed, enter "dispver" to display the firmware information of 8LC Card.

STEP 20 Make sure that new firmware has been installed. The following is an example:

```
->dispver

Boot program version     :SP3839 SH7751R CBOOT-1 PROG-A [03.00.00.00]
Main program version     :SP3839 8MC PROG-A [01.00.02.00]

DSP kernel version       :DSP-K-AC49kernel [01.07.06.00]
DSP Control version      :DSP-P-AC490012ae3-S [01.07.07.02]

Main PKG information     :CA-CC12 1A
Sub PKG information      :PZ-CC171 1A

Music0 information       :SM0576
Music1 information       :SM0589
Music2 information       :SM0571
Music3 information       :SM0584

System data information  :2005.12.16

MC-ID                    :00:00:4c:a4:01:01
```

STEP 21 Enter "usrConsole" again following the OS prompt (->).

STEP 22 Enter "SHOW CONFIGDATA" to confirm the config data.

<Confirmation of 8LC Card>

STEP 23 Connect the 8LC Card to a network.

STEP 24 To confirm 8LC Card is operating properly with the upgraded firmware, make a call to the 8LC Card. Check that you can hear RBT.

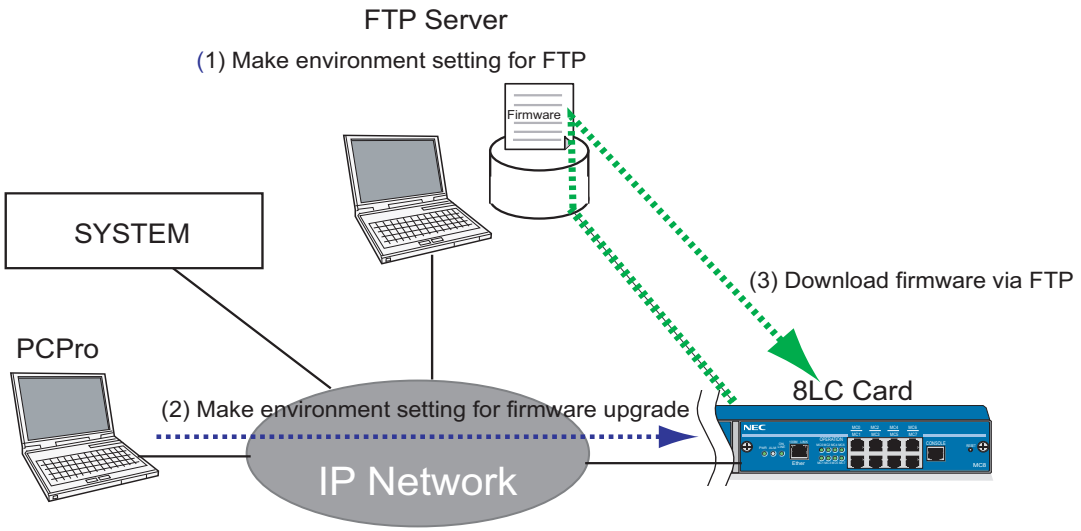
STEP 25 Receive a call via the 8LC Card, and confirm that you can talk to each other.

STEP 26 After all the tasks are completed, write down/label the firmware version in the front of the 8LC Card. For example, 2A is indicated for Version 2. 3A is indicated for Version 3.

4.4 How to Upgrade Firmware by FTP (Remote)

This firmware upgrade is performed up to eight 8LC Cards at once.
Prepare the following:

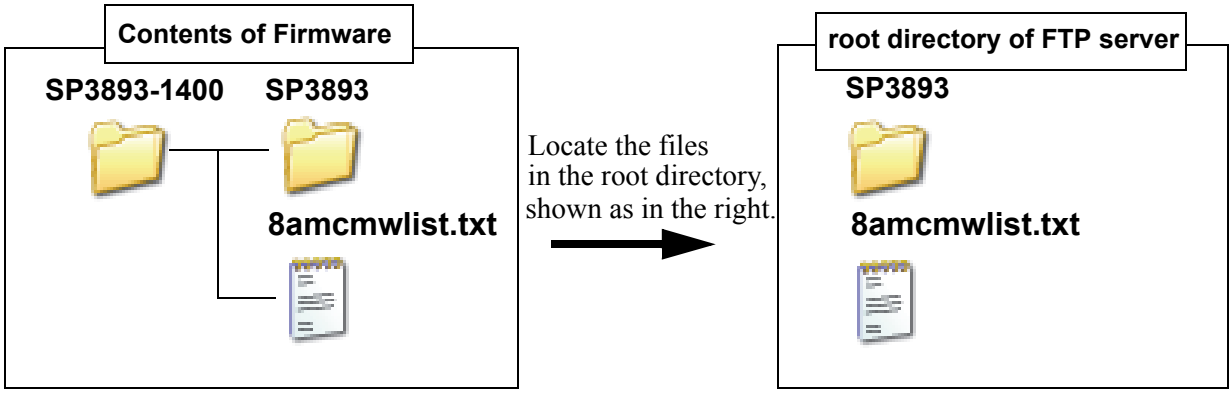
- Firmware for upgrade
- PCs have to belong to the same segment with 8LC Card.
- FTP server has to be installed in advance.
- PCPro has to be installed in advance.
- 8LC Card is already registered to system and it is operating normally.



<Data Assignment on FTP Server>

STEP 1 Put the firmware file for upgrade in the root folder of FTP server, and then start the FTP server program.

Note: The following files have to be located in the root folder.



EXAMPLE:

SP3893-002
- **Issue Number (ISSUE2)**
- **Firmware Number**

STEP 2 Permit read behavior of this directory. For more information, refer to the appropriate manual attached to the FTP server program.

<Data Assignment on PCPro>

STEP 3 Activate the ATDL command.
Select Terminal Type in Terminal Specifying Type, and then select 8LC Card.
Specify the Hardware Type in HWTP and Hardware Version in HWVER.
Set the File Name.

STEP 4 Click the Add to Terminal List button.

STEP 5 After the 8LC Cards are displayed in the Terminal List, select the appropriate 8LC Card to be upgraded the firmware.

STEP 6 Select an item of External Server from FTP Server Type in the Setting for Download field.
Input the IP address of FTP server.
Input Login Name and Password for logging in to FTP server if required.
Select an item of Parallel in Download Method.

Note: If you narrow them down by specifying Terminal Type in the ATDL command, 8LC Cards will be displayed per registered channel. 8LC Card is capable of eight channels, therefore, when those channels are being used in an 8LC Card, the same 8LC Card is displayed eight times in the box. To avoid setting upgrade task to the target 8LC Card eight times, select either one of the channels used in the 8LC Card by checking LENS.

STEP 7 Click the EXECUTE button to upgrade the firmware to the target 8LC Cards.
"Upgrade is succeeded" is displayed. Note that version information in the screen is not updated at this time. If the upgrade is failed, click the Close button, and then go back to STEP3.

STEP 8 After upgrade is completed, click the Close button. In the main screen, click the Exit button to close the ATDL command.

STEP 9 To confirm the firmware, activate the DIPI command.

STEP 10 Select SIP Media Converter in Functionality Type, and then click the Execute button.

STEP 11 Confirm that the firmwares in the appropriate ones are upgraded.

<Confirmation of 8LC Card>

STEP 12 To confirm 8LC Card is operating properly with the upgraded firmware, make a call to the 8LC Card. Check that you can hear RBT.

STEP 13 Receive a call via the 8LC Card, and confirm that you can talk to each other.

STEP 14 After all the tasks are completed, write down/label the firmware version in the front of the 8LC Card. For example, 2A is indicated for Version 2. 3A is indicated for Version 3.

4.5 How to Use Maintenance Command

On a serial connection client (e.g. HyperTerminal), start up the program and use maintenance command. Enter "usrConsole" after the OS prompt (->).
When the maintenance command is started, the following prompt is indicated on the screen:

```
MC(SIP)>_     ("machine name" + ">", usually)
```

Note: Note the following conditions:

- "SIP server" used in this section refers to the Telephony Server. The Telephony Server acts as SIP server for 8LC Card using Proprietary Protocol.
- When 8LC Card reboots itself due to such as an occurrence of Health Check timeout while maintenance commands are executed, it takes about five minutes to start rebooting.
- If you input "exit" after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

An example of indication is shown below:

```
MC-ID: 00301caf2c1d

Boot program version       :SP3839 SH7751R CBOOT-1 PROG-A [03.00.00.00]

Main program version       :SP3893 8MC PROG-A [01.00.00.00]

H/W PKG information        :CA-CC12 3A
H/W PKG information        :PZ-CC171 2A

DSP information            :DSP-K-AC49kernel [01.07.06.00]
DSP information            :DSP-P-AC490012ae3 [01.07.07.02]

Starting Boot program.......

--- Online program Initial start (Wait for a while) ---

Attached TCP/IP interface to dp unit 0
Attaching interface lo0... done

Adding 10292 symbols for standalone.
```

```
-----//-------------------------------------------//------
   Analog Media Converter
               *Firmware SP-3893  ( 01.00.00.00 )
               *Compiled on Jan 6 2006 17:04:27
-----//-------------------------------------------//------
>>>RegistrationMode = 8MC(SIP)
[SP Mode] MC Initializing...
->
->
->
-> usrConsole

MC Maintenance command

MC(SIP)>
```

The user input command above consists of a several components. The following describes these components using one of the ***SET*** commands.

```
MC(SIP)> SET IPADDRESS 123.201.18.45 255.255.255.0
          1      2           3            4
```

1: Command
2: Sub Command
3: Parameter 1 (*P1*)
4: Parameter 2 (*P2*)

Note: The number of parameters to be specified is different depending on the command.

MAINTENANCE COMMAND FOR 8LC Card

The Maintenance Console uses the commands listed in.

SETUP COMMAND	REMARKS
SETUP COMMAND	Sets up the basic data for SIP mode.

No.	SET COMMAND	REMARKS
1	SET BURSTPATTERN	Sets Burst Ringer Pattern.
2	SET CH_ATTRIBUTE	Sets Channel Attribute.
3	SET CID_SEND_WAIT	Sets Caller ID Send Wait Timer.
4	SET CODEC_COEF	Sets CODEC Coefficiency.
5	SET DEFAULTROUTE	Sets Default Gateway.
6	SET DEVICE_NAME	Sets Device Name.
7	SET DHCP	Sets DHCP.
8	SET DNS_SW	Sets DNS Server.
9	SET DSP_ECFB	Sets DSP echo canceller for FAX communication.
10	SET EC_TRAINING	Sets Training feature mode of echo canceller.
11	SET FAXERRORDETECT	Sets FAX enable timer.
12	SET FAXRECVPAD	Sets Fax receiver PAD value.
13	SET FAXSENDPAD	Sets Fax sender PAD value.
14	SET HC_TIMER	Sets Health Check Receive Timer
15	SET INTERFACE	Sets the communication speed for LAN interface.
16	SET IPADDRESS	Sets IP Address and Net Mask of 8LC Card.
17	SET MUSICTYPE	Sets Internal Music-on-Hold type.
18	SET MW_LAMP	Sets Message Waiting Lamp control type.
19	SET ONE_TIME_PASS	Sets One Time Password for security.
20	SET OPEN	Sets Open/Reverse mode.
21	SET OWN_NAME	Sets Host Name of 8LC Card.
22	SET PAD	Sets default receiver PAD value.
23	SET PRIRINGING	Sets Pre-Ringing.
24	SET RINGFREQ	Sets frequency of Ringer.
25	SET RTP_STOP_DETECT	Sets RTP Stop Detect Timer
26	SET SENDPAD	Sets default sender PAD value.
27	SET SIGNALING_PORT_NO	Sets signaling port number for SIP.
28	SET SIGNALING_QOS	Sets QoS for SIP signaling session.
29	SET SIPSV_IPADDRESS	Sets IP address, port number, and host name of SIP server.
30	SET SMOOTH_PAD	Sets DSP smooth PAD mode.
31	SET STARTPORT	Sets RTP Start Port.
32	SET STUTTERDT	Sets Stutter Dial Tone.
33	SET SYNCRINGING	Sets Synchronous Ringer mode.
34	SET VLAN	Sets VLAN.
35	SET WARNING_TONE	Sets the Warning Tone for LAN failure.

No.	SHOW COMMAND	REMARKS
1	SHOW BURSTPATTERN	Shows Burst Ringer Pattern setting.
2	SHOW CH_ATTRIBUTE	Shows Channel Attribute.
3	SHOW CID_SEND_WAIT	Shows Caller ID Send Wait Timer.
4	SHOW CODEC_COEF	Shows CODEC Coefficiency.
5	SHOW CONFIGDATA	Shows configuration data list.
6	SHOW DEVICE_NAME	Shows Device Name.
7	SHOW DHCP	Shows DHCP.
8	SHOW DNS_SW	Shows DNS Server.
9	SHOW DSP_ECFB	Shows DSP echo canceller for FAX communication.
10	SHOW EC_TRAINING	Shows echo canceller training.
11	SHOW FAXERRORDETECT	Shows FAX enable timer.
12	SHOW FAXRECVPAD	Shows Fax receiver PAD value.
13	SHOW FAXSENDPAD	Shows Fax sender PAD value.
14	SHOW HC_TIMER	Shows Health Check Receive Timer.
15	SHOW INTERFACE	Shows the communication speed for LAN interface.
16	SHOW IPADDRESS	Shows IP address, Subnet Mask, and Default Gateway of 8LC Card.
17	SHOW MUSICTYPE	Shows Internal Music-on-Hold type.
18	SHOW MW_LAMP	Shows Message Waiting Lamp control type.
19	SHOW ONE_TIME_PASS	Shows One Time Password for security.
20	SHOW OPEN	Shows Open/Reverse mode.
21	SHOW OWN_NAME	Shows Host Name of 8LC Card.
22	SHOW PAD	Shows default receiver PAD value.
23	SHOW PRIRINGING	Shows Pre-Ringing.
24	SHOW RINGFREQ	Shows Ringer Frequency.
25	SHOW RTP_STOP_DETECT	Shows RTP Stop Detect Timer.
26	SHOW SENDPAD	Shows default sender PAD value.
27	SHOW SIGNALING_PORT_NO	Shows signaling port number for SIP.
28	SHOW SIGNALING_QOS	Shows QoS setting for SIP signaling session.
29	SHOW SIPSV_IPADDRESS	Shows IP address, port number, and host name of SIP server.
30	SHOW SMOOTH_PAD	Shows DSP smooth PAD mode.
31	SHOW STARTPORT	Shows RTP Start Port.
32	SHOW STATUS	Shows operating status of 8LC Card.
33	SHOW STUTTERDT	Shows Stutter Dial Tone.
34	SHOW SYNCRINGING	Shows Synchronous Ringer mode.
35	SHOW VERSION	Shows firmware and hardware version.
36	SHOW VLAN	Shows VLAN.
37	SHOW WARNING_TONE	Shows Warning Tone for LAN failure.

PING COMMAND	REMARKS
PING	Checks the connection status of network.

DELETE COMMAND	REMARKS
DELETE VLAN	Deletes the VLAN setting.

SAVE COMMAND	REMARKS
SAVE CONFIGDATA	Saves the configuration data to Flash ROM.

GET COMMAND	REMARKS
GET CONFIGDATA	Downloads Configuration Data file from specified TFTP server.

PUT COMMAND	REMARKS
PUT CONFIGDATA	Uploads Configuration Data file to specified TFTP server.

INIT COMMAND	REMARKS
INIT CONFIGDATA	Initializes the configuration data to factory default value.

REBOOT COMMAND	REMARKS
REBOOT	Reboots the 8LC Card.

EXIT COMMAND	REMARKS
EXIT	Exits the configuration mode.

Enter the command, sub command and required parameters after the prompt (MC(SIP)>). Parameters vary depending on the kind of command specified. When the data (command name, sub command name, parameter) is specified correctly, the command executes the required data processing, and then displays the processed result on the screen. To finish this program, enter EXIT after a prompt.

Note: When the maintenance command program is activated, it provides a Help Function for referring to available commands and sub commands. After a prompt, request to list-up the Target Help by entering “?” or “command name (SET or SHOW) + ?”, and press the Enter key. The example below shows the screen when requesting a list of SET commands.

```
MC(SIP)> SET?

OWN_NAME              Setting Own Host Name
IPADDRESS             Setting IP Address
DEFAULTROUTE          Setting Default Gateway
SIGNALING_PORT_NO     Setting Signaling Port
SIPSV_IPADDRESS       Setting SIP Server IP Address & Port Number & Host Name
      :                              :
      :                              :
```

SETUP COMMAND

This command sets up the basic data for SIP mode. Setting display differs whether DHCP server and DNS server is used or not. Assign the required network data following the setting command shown in dialog form. Be sure to save the entered data at the last of SETUP command.

Note: When any abnormal data is entered, the dialog asks to enter proper data until three times. In the third time you enter abnormal data, the SETUP command quits discarding all the entered data.

Note: When you quit the SETUP command entry halfway through the setting, all the entered data is to be discarded.

- To start up SETUP SP:

`MC(SIP)>`	
`MC(SIP)> SETUP SP`	Enter “SETUP SP” following the prompt.

- Setting DHCP server enable/disable:

```
--- DHCP Interface set ---
Current DHCP Interface: ENABLE
Change DHCP Interface? [Y(change)/N(current)/Q(quit)]: Y
Input new DHCP Interface [E(enable)/D(disable)]: D
```

Line 2: The current setting is displayed.

Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Line 4: Specify whether to use DHCP server.
E=Use DHCP server (default)
D=Not use DHCP server

- Setting DNS server enable/disable:

```
--- DNS Interface set ---
Current DNS Interface: DISABLE
Change DNS Interface? [Y(change)/N(current)/Q(quit)]: Y
Input new DNS Interface [E(enable)/D(disable)]: E
```

Line 2: The current setting is displayed.

Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Line 4: Specify whether to use DNS server.
E=Use DNS server (default)
D=Not use DNS server

- Setting DNS server IP Address:

```
--- DNS IP Address set ---

Current DNS IP Address: 0.0.0.0

Change DNS IP Address? [Y(change)/N(current)/Q(quit)]: Y

Input new DNS IP Address: 10.41.1.150
```

Line 2: The current setting is displayed.

Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Line 4: Enter new IP address of DNS server (e.g. 10.41.1.150)

Note: This setting is required when DHCP server is “D (disable)” and DNS server is “E (enable)”.

- Setting IP Address and Subnet Mask of 8LC Card:

```
--- IP Address & Subnetmask set ---

Current IP Address: 0.0.0.0
Current Subnetmask: 255.255.255.0

Change IP Address & Subnetmask? [Y(change)/N(current)/Q(quit)]: Y

Input new IP Address: 10.41.1.100
Input new Subnetmask: 255.255.255.0
```

Line 2: The current setting is displayed.

Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Line 4: Enter new IP address of 8LC Card (e.g. 10.41.1.100)

Line 5: Enter new Subnet Mask (e.g. 255.255.255.0)

Note: This setting is required when DHCP server is “D (disable)”.

Note: Do not assign network address and broadcast address for 8LC Card setting. See the examples below:
(Example 1) Network address cannot be assigned as IP address of 8LC Card.
IP address: 192.168.1.0
Subnet mask: 255.255.255.0
(Example 2) Network address cannot be assigned as IP address of 8LC Card.
IP address: 172.16.0.0
Subnet mask: 255.255.0.0
(Example 3) Broadcast address cannot be assigned as IP address of 8LC Card.
IP address: 192.168.1.255
Subnet mask: 255.255.255.0
(Example 4) Broadcast address cannot be assigned as IP address of 8LC Card.
IP address: 172.16.255.255
Subnet mask: 255.255.0.0

- Setting Host name of 8LC Card:

`--- Host Name set ---`	
`Current Host Name: No Value`	Line 2: The current setting is displayed.
`Is there the Host Name? [Y/N]: Y`	Line 3: Asked whether to use host name. Y=Use host name N=Not use host name
`Input new Host Name: mcsip.nec.com`	Line 4: Enter new host name of 8LC Card in full-domain format.

Note: This setting is required when DHCP server is “D (disable)”.

- Setting Default Gateway IP Address:

```
--- Default Gateway IP Address set ---

Current Default Gateway: 0.0.0.0
```

```
Change Default Gateway? [Y(change)/N(current)/Q(quit)]: Y

Input new Default Gateway: 10.41.1.254
```

Line 2: The current setting is displayed.

Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Line 4: Enter new IP address of Default Gateway (e.g. 10.41.1.254)

Note: This setting is required when DHCP server is “D (disable)”.

Note: Make sure to set the Default Gateway to place on the same subnet with 8LC Card.

- Setting IP Address, Port Number, and Host Name of SIP server

(a) When DNS server is disable:

```
--- SIP Server IP Address & Host Name set ---

Current SIP Server/IP Address/Port Number/Host Name:

SIP Server      IP Address      Port Number     Host Name
1               0.0.0.0         5060
2               0.0.0.0         5060
3               0.0.0.0         5060
:               :               :
:               :               :
20              0.0.0.0         5060

Change SIP Server Information? [Y(change)/N(current)/Q(quit)]: Y

Input new SIP Server (1-20): 1

Input new IP Address: 10.41.1.200

Input new Port Number: 5060

Is there the Host Name? [Y/N]: Y

Input new Host Name: SVR1.nec.com

Continue? [Y(continue)/N(exit)]: N
```

Line 4~Line 9: The current setting of the Telephony Server information (IP address, port number, and host name) is displayed.
Line 10: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 11: Enter the number of SIP server [1-20]
Line 12: Enter the IP address of SIP server (e.g. 10.41.1.200) **Note 1**
Line 13: Enter the port number of SIP server (default=5060)
Line 14: Asked whether to use host name.
Y=Use host name
N=Not use host name
Line 15: Enter new host name of the Telephony Server in full-domain format.
Up to 63 characters of alphanumerics, ". (period)", and "- (hyphen)" is available.
Line 16: Asked whether to continue the setting of other SIP server.
Y=Continue to register other SIP server
N=Exit this command and move on to the next command setting

Note: This setting is required when DHCP server is "D (disable)" and DNS server is "D (disable)".

Note 1: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

(b) When DNS server is enable:

```
--- SIP Server Host Name set ---

Current SIP Server and Host Name:

SIP Server       Host Name
1
2
3
:
:
20

Change SIP Server Information? [Y(change)/N(current)/Q(quit)]: Y

Input new SIP Server (1-20): 1

Is there the Host Name? [Y/N]: Y

Input new Host Name: SVR1.nec.com

Continue? [Y(continue)/N(exit)]: N
```

Line 4~Line 9: The current setting of the Telephony Server information (host name) is displayed.
Line 10: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 11: Enter the number of SIP server [1-20]
Line 12: Asked whether to use host name.
Y=Use host name
N=Not use host name
Line 13: Enter new host name of the Telephony Server in full-domain format.
Up to 63 characters of alphanumerics, ". (period)", and "- (hyphen)" is available.
Line 14: Asked whether to continue the setting of other SIP server.
Y=Continue to register other SIP server
N=Exit this command and move on to the next command setting

Note: This setting is required when DHCP server is "D (disable)" and DNS server is "E (enable)".

- Setting Ethernet Speed

```
--- Ethernet Speed set ---

Current LAN Speed: AUTO

Change LAN Speed? [Y(change)/N(current)/Q(quit)]: Y

Input new Speed [1(AUTO)/2(100M)/3(10M)]: 2

Input new DUPLEX [F(full)/H(half)]: F
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Select the communication speed of LAN interface
1=Auto negotiation (default)
2=100Mbps fixed mode
3=10Mbps fixed mode
Line 5: Select the Duplex mode of LAN interface
F=Full duplex mode
H=Half duplex mode

- Save the assigned configuration data at the last of SETUP SP command to complete network setting.

Don't power off in progress Do you save the configuration data? (Y/N):Y	Line 2: Asked whether to save the assigned data. Y=Save N=Not save
Configuration data has been saved. Restarting is required for making a setup reflect!!	Line 3: Result is displayed.
SP mode setting succeeded. The register mode will be changed to SP mode after re-starting	

SET COMMAND

1. SET BURSTPATTERN

Specify Burst Ringer Pattern.

`MC(SIP)> SET BURSTPATTERN P1`	*P1*: Select Ringer Pattern [1-5] (default=1) 1 = 0.35 seconds ON - 0.3 seconds OFF - 0.35 seconds ON 2 = 0.4 seconds ON - 0.2 seconds OFF - 0.4 seconds ON 3 = 0.2 seconds ON - 0.2 seconds OFF - 0.2 seconds ON - 0.2 seconds OFF - 0.2 seconds ON 4 = 0.2 seconds ON - 0.4 seconds OFF - 0.2 seconds ON - 0.2 seconds OFF 5 = 0.25 seconds ON - 0.25 seconds OFF - 0.25 seconds ON - 0.25 seconds OFF
`Burst Ringer Pattern setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

2. SET CH_ATTRIBUTE

Specify Channel Attributes.

`MC(SIP)> SET CH_ATTRIBUTE P1`	*P1*: Enter the Line Number [0-7]
`FAX PROTOCOL (OFF/T30/BYPASS)[OFF]: OFF`	Select FAX protocol (default=OFF) OFF = FAX protocol is set to OFF (default) T30 = FAX Relay (T.30) is used BYPASS = Data Transmission as voice data
`ECM (ON/OFF)[OFF]: OFF`	Enable/Disable ECM (Error Correction Mode) ON = ECM is valid OFF = ECM is invalid (default)
`FAX RATE (2400/4800/7200/9600/12000/ 14400)[14400]: 14400`	Select maximum FAX speed (default =14400)
`CH Attribute (CH00) setting succeeded.`	Result is shown.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

3. SET CID_SEND_WAIT

Specify Caller ID Send Wait Timer.

`MC(SIP)> SET CID_SEND_WAIT`	
`CallerID Send Wait Timer (5-20)[6]:10`	Enter the Caller ID send wait timer [5-20] (default=6) *5-20 (×100 milliseconds)
`CallerID Send Wait Timer setting succeeded.`	Result is shown.

Note: The maximum value of Caller ID send wait timer for each specification is as follows:
- ETSI Caller ID 20 (2000 milliseconds)
- Bellcore Caller ID:15 (1500 milliseconds)

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

4. SET CODEC_COEF

Specify CODEC Coefficiency.

`MC(SIP)> SET CODEC_COEF`	
`CODEC Coefficient CH No. (0-7): 0`	Enter the Line Number [0-7]
`CODEC Coefficient (0-5)[0]: 0`	Enter the setting value [0-5] (default=0) **Note 2**
`CODEC Coefficient (CH00) setting succeeded.`	Result is shown.

Note 2: The setting values are shown in the following table.

- *North America*

RESISTER	KIND OF BNW	SETTING VALUE
600 Ω	600 Ω	0 (default)
600 Ω	350 Ω +(1000 Ω //210nF)	1

- *Australia*

RESISTER	KIND OF BNW	SETTING VALUE
220 Ω +(820 Ω //120nF)	600 Ω	0 (default)
220 Ω +(820 Ω //120nF)	220 Ω +(820 Ω //120nF)	1
600 Ω	600 Ω	2

- *UK*

RESISTER	KIND OF BNW	SETTING VALUE
300 Ω +(1000 Ω //220nF)	600 Ω	0 (default)
300 Ω +(1000 Ω //220nF)	370 Ω +(620 Ω //310nF)	1
600 Ω	600 Ω	2

- *Brazil*

RESISTER	KIND OF BNW	SETTING VALUE
900 Ω	600 Ω	0 (default)
900 Ω	900 Ω	1
900 Ω	800 Ω //50nF	2
600 Ω	600 Ω	3

- *China*

RESISTER	KIND OF BNW	SETTING VALUE
200 Ω +(560 Ω //100nF)	600 Ω	0 (default)
200 Ω +(560 Ω //100nF)	200 Ω +(560 Ω //100nF)	1
600 Ω	600 Ω	2
200 Ω +(560 Ω //100nF)	600 Ω	3
200 Ω +(560 Ω //100nF)	200 Ω +(560 Ω //100nF)	4
600 Ω	600 Ω	5

Note: *SETTING VALUE 0-2=Constant voltage mode
SETTING VALUE 3-5=Constant current mode

- *Other*

RESISTER	KIND OF BNW	SETTING VALUE
600 Ω	600 Ω	0 (default)
600 Ω	350 Ω +(1000 Ω //210nF)	1

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

5. SET DEFAULTROUTE

Specify the IP address of Default Gateway.

`MC(SIP)> SET DEFAULTROUTE P1`	*P1*: Enter the IP address of Default Gateway (e.g. 10.41.1.254)
`Default Gateway setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

6. SET DEVICE_NAME

Set a Device Name.

`MC(SIP)> SET DEVICE_NAME P1`	*P1*: Enter the Device Name (Up to 32 characters of ASCII Code)
`Device Name setting succeeded.`	Result is shown.

Note: This command is available only for SP-3983 8MC PROG-B Issue 8.0 or later.

Note: If the command is executed without enter the Device Name (*P1*), the registered Device Name will be erased.

Note: Allowable characters are:
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abc-defghijklmnopqrstuvwxyz{|}~

Note: Device Name must not consist of only spaces. Also, do not put an space at the end of a Device Name, it will be automatically deleted from the name entered.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

7. SET DHCP

Enable/Disable DHCP.

`MC(SIP)> SET DHCP P1`	*P1*: Enter ENABLE or DISABLE ENABLE=DHCP is valid (default) DISABLE=DHCP is invalid
`DHCP setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

8. SET DNS_SW

Specify the settings of DNS Server.

`MC(SIP)> SET DNS_SW`	
`DNS Interface (ENABLE/DISABLE) [ENABLE]: ENABLE`	ENABLE=DNS server is used DISABLE=DNS server is not used (default)
`DNS IP Address [0.0.0.0]: 10.41.2.101`	Enter the IP address of DNS server (e.g. 10.41.2.101)
`DNS setting succeeded.`	Result is shown.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: When DISABLE is selected, the setting line of DNS IP Address is not displayed.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

9. SET DSP_ECFB

Specify DSP echo canceler for FAX communication.

`MC(SIP)> SET DSP_ECFB` *P1*	*P1*: Select FAX echo canceller setting [0/1] 0 = FAX echo canceller is ON (default) 1 = FAX echo canceller is OFF
`DSP ECFB setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

10. SET EC_TRAINING

Enable/Disable training feature mode of echo canceler.

`MC(SIP)> SET EC_TRAINING` *P1*	*P1*: Select the Training feature mode of EC [ON/OFF] ON=Training function is valid OFF=Training function is invalid (default)
`EC Training setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

11. SET FAXERRORDETECT

Specify FAX enable timer.

`MC(SIP)> SET FAXERRORDETECT P1`	*P1*: Enter the Change Effective Timer [0-5/OFF] 0=Invalid to change to Fax mode 1-5=Possible to change to Fax mode within 1-5 minutes (default=1 minute) OFF=Always possible to change to Fax mode
`FAX Enable Timer setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

12. SET FAXRECVPAD

Specify Fax receiver PAD value.

`MC(SIP)> SET FAXRECVPAD P1`	*P1*: Enter the Fax Receiver PAD value [0-20] (default=3)
`Fax Receiver PAD setting succeeded.`	Result is shown.

Note: The FAXRECVPAD command assigns the value to decrease the Fax signal level in the receiver (IP to analog terminal) direction when the Fax signal is detected.

Note: The total PAD value (Receiver PAD + Fax Receiver PAD) is limited to 20dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

13. SET FAXSENDPAD

Specify Fax sender PAD value.

`MC(SIP)> SET FAXSENDPAD P1`	*P1*: Enter the Fax Sender PAD value [0-20] (default=0)
`Fax Sender PAD setting succeeded.`	Result is shown.

Note: The FAXSENDPAD command assigns the value to decrease the Fax signal level in the sender (analog terminal to IP) direction when Fax signal is detected.

Note: The total PAD value (Sender PAD + Fax Sender PAD) is limited to 20dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

14. SET HC_TIMER

Specify Health Check Receive Timer.

`MC(SIP)> SET HC_TIMER P1`	*P1*: Enter the Health Check timer (second) [120-240 (at intervals of 30 seconds)] (default=150)
`Health-Check Timer Timeout setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

15. SET INTERFACE

Specify the communication speed for LAN interface.

`MC(SIP)> SET INTERFACE`	
`SPEED (AUTO/100M/10M)[AUTO]: 100M`	Select the communication speed AUTO=Auto Negotiation (default) 100M=100 Mbps fixed mode 10M=10 Mbps fixed mode
`DUPLEX (FULL/HALF)[HALF]: FULL`	Select the Duplex mode FULL=Full Duplex mode HALF=Half Duplex mode
`Ethernet Speed setting succeeded.`	Result is shown.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: DUPLEX setting is not shown when Auto Negotiation (AUTO) is selected in the Speed setting.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

16. SET IPADDRESS

Specify IP address and net mask of 8LC Card.

`MC(SIP)> SET IPADDRESS P1 P2`	*P1*: Enter the IP Address (e.g. IP address: 150.10.1.101 *P2*: Enter the Subnet Mask (e.g. Subnet mask: 255.255.255.0)
`IP Address setting succeeded.`	Result is shown.

Note: The designated IP address cannot be applied when the DHCP is set to Enabled. Assign the DHCP setting to Disable before executing this IP address setting.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

17. SET MUSICTYPE

Specify internal Music-on-Hold type.

`MC(SIP)> SET MUSICTYPE P1`	*P1*: Select the Internal Music-on-Hold type [0/1] 0=Minuet (default) 1=For Elise
`Music on Hold Type setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

18. SET MW_LAMP

Specify Message Waiting Lamp control type.

MC(SIP)> SET MW_LAMP	
Control method (0:RELAY/1:RVS)[0]: 0	Select the control method of Message Waiting Lamp 0=Relay control 1=Reverse control
Mode (0:Follow/1:FixedBlink/2:FixedLighting)[0]: 0	Select the operation of Message Waiting Lamp 0=Follows the Telephony Server setting 1=Flashes 2=Steady lights
Music on Hold Type setting succeeded.	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

19. SET ONE_TIME_PASS

Specify one-time password for security.

MC(SIP)> SET ONE_TIME_PASS	
One Time Password: 123456#	Enter the password in numeric [4~10 digits (0-9, *, # can be used)]
One Time Password setting succeeded.	Result is shown.

20. SET OPEN

Specify open/reverse mode.

MC(SIP)> SET OPEN *P1*	*P1*: Enter ON or OFF after the command name ON=Open valid/Reverse invalid OFF=Open invalid/Reverse valid (default)
Open/Reverse setting succeeded.	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

21. SET OWN_NAME

Specify a host name of 8LC Card.

`MC(SIP)> SET OWN_NAME P1`	*P1*: Enter the host name of 8LC Card in full-domain format within 63 characters of alphanumerics, ". (period)", and "- (hyphen)".
`Own name setting succeeded.`	Result is shown.

Note: Host name cannot be used when DHCP is assigned ENABLE or DNS is assigned DISABLE. Before assigning the host name, be sure to execute "SET DHCP DISABLE" and "SET DNS_SW".

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

22. SET PAD

Specify a default receiver PAD value.

`MC(SIP)> SET PAD P1`	*P1*: Enter the receiver PAD value [-10 ~ 20 (dB)] (default=0)
`Default Receiver PAD setting succeeded.`	Result is shown.

Note: The PAD command assigns the value to decrease voice level in the receiver (IP to analog terminal) direction.

Note: The total PAD value (Receiver PAD + Fax Receiver PAD) is limited to 20dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

23. SET PRIRINGING

Enable/Disable Pre-Ringing.

`MC(SIP)> SET PRIRINGING P1`	*P1*: Select whether to use Pre-Ringing [ON/OFF] ON=Pre-Ringing is valid (default) OFF=Pre-Ringing is invalid
`Pre-Ringing setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

24. SET RINGFREQ

Specify frequency of Ringer.

`MC(SIP)> SET RINGFREQ P1`	*P1*: Select the Ringer Frequency [0/1] 0=20 Hz (default) 1=25 Hz
`Frequency of Ringer setting succeeded. (frequency is 20Hz.)`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

25. SET RTP_STOP_DETECT

This parameter is one of the criteria to stop maintaining the current call connection in the MG Based Call Retention feature. If receiving no RTP data within a time period defined by the parameter, the MG determines that the call has ended.:

`MC(SIP)> SET RTP_STOP_DETECT P1`	*P1*: Enter RTP Stop Detect Timer Effective range: 3-32 seconds (default=3 seconds)
`RTP Stop Detect Timer setting succeeded.`	Result is shown.

Note: This command is available for SP-3893 8MC PROG-A Issue 11.0 or later, or SP-3983 8MC PROG-B Issue 5.0 or later.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

26. SET SENDPAD

Specify RTP Stop Detect Timer.

`MC(SIP)> SET SENDPAD P1`	*P1*: Enter the sender PAD value [-10 ~ 20 (dB)] (default=0)
`Default Sender PAD setting succeeded.`	Result is shown.

Note: The SENDPAD command assigns the value to decrease voice level in the sender (analog terminal to IP) direction.

Note: The total PAD value (Sender PAD + Fax Sender PAD) is limited to 20dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

27. SET SIGNALING_PORT_NO

Specify a signaling port number for SIP.

`MC(SIP)> SET SIGNALING_PORT_NO P1`	*P1*: Enter the Port Number used for SP-PHI. [1024-65535] (default=5060)
`Signaling Port Number setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

28. SET SIGNALING_QOS

Specify Quality of Service for SIP signaling session.

- When TOS is selected in QoS setting type:

`MC(SIP)> SET SIGNALING_QOS`	
`QOS (TOS/DIFFSERV) [TOS]: TOS`	Select QoS setting type [TOS/DIFFSERV] (default=TOS)
`PRECEDENCE (0-7) [6]: 6`	Precedence: 0-7 (low-high) (default=6)
`DELAY (0/1) [0]: 0`	Delay: 0/1=Normal (default)/Low Delay ON
`THROUGHPUT (0/1) [0]: 0`	Throughput: 0/1=Normal (default)/High Throughput ON
`RELIABILITY (0/1) [0]: 0`	Reliability: 0/1=Normal (default)/High Reliability ON
`COST (0/1) [0]: 0`	Cost: 0/1=Normal (default)/Cost Precedence ON
`Signaling QoS setting succeeded. (0xC0)`	Result is shown.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

- When DIFFSERV is selected in QoS setting type:

`MC(SIP)> SET SIGNALING_QOS`	
`QOS (TOS/DIFFSERV) [TOS]: DIFFSERV`	Select QoS setting type [TOS/DIFFSERV] (default=TOS)
`DSCP (0-63) [48]: 48`	Enter the setting value directly [0-63] (default=48)
`Signaling QoS setting succeeded. (0xC0)`	Result is shown.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



DSCP = Differentiated Service Code Point (6 bits)

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

29. SET SIPSV_IPADDRESS

Specify IP address, port number, and host name of SIP server.

`MC(SIP)> SET SIPSV_IPADDRESS`	
`SIP Server (1-20): 1`	Enter the SIP server's number [1-20] Up to 20 SIP servers can be used in one network.
`IP Address [0.0.0.0]: 10.41.2.100`	Enter the IP address of SIP server **Note 3** e.g. 10.41.2.100 (default=0.0.0.0)
`Port Number [5060]: 5060`	Enter the port number [1024-65535] (default=5060)
`Is there the Host Name? (Y/N) [N]: Y`	Select whether to use host name [Y/N]
`Host Name: SVR1.nec.com`	Enter the host name in the full-domain format, within 63-byte of alphanumerics, ". (period)", and "- (hyphen)". 63. (*This line is displayed when "Y" is selected above.)
`SIP Server setting succeeded.`	Result is shown.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note:

- When DHCP setting is ENABLE, the specified IP address cannot be used. Execute "SET DHCP DISABLE" before setting IP address.
- When DHCP setting is ENABLE or DNS setting is DISABLE, the specified host name cannot be used. Execute "SET DHCP DISABLE" and "SET DNS_SW" before setting host name.

Note 3: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

30. SET SMOOTH_PAD

Specify DSP smooth PAD mode.

`MC(SIP)> SET SMOOTH_PAD P1`	*P1*: Enter a value of smooth PAD [1-5, OFF] OFF=Set smooth PAD mode to OFF 1=2.0dBm (default) 2=-5.2dBm 3=-2.1dBm 4=0dBm 5=-4.2dBm
`Smooth PAD Mode setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

31. SET STARTPORT

Specify the RTP Start Port number.

`MC(SIP)> SET STARTPORT P1`	*P1*: Enter the number of RTP Start Port [1024-64510] (default=1024)
`RTP Start Port Number setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note: Assign even-numbered port number to the RTP start port. The specified port number + 1 (the next odd-numbered port number) is automatically allocated as the RTCP port number.

32. SET STUTTERDT

Enable/Disable stutter dial tone.

`MC(SIP)> SET STUTTERDT P1`	*P1:* Select whether to use Stutter Dial Tone ENABLE=Stutter Dial Tone is valid DISABLE=Stutter Dial Tone is invalid (default)
`Stutter Dial Tone setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

33. SET SYNCRINGING

Enable/Disable Synchronous Ringer mode.

`MC(SIP)> SET SYNCRINGING P1`	*P1*: Select whether the ringer of both channels ring simultaneously or not ON=Ringer timing synchronizes OFF=Ringer timing does not synchronize (default)
`Synchronous Ringing setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

34. SET VLAN

Specify VLAN ID and CoS for VLAN.

`MC(SIP)> SET VLAN`	
`Please enter a parameter.`	
`VLAN ID (1-4094) : 1`	Enter the VLAN_ID [1-4094]
`COS (0-7) : 0`	Enter the COS setting [0-7]
`VLAN setting succeeded.`	Result is shown.

Note: The maximum number of VLAN is one.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

35. SET WARNING_TONE

Specify the Warning Tone for LAN failure.

`MC(SIP)> SET WARNING_TONE P1`	*P1*: Specify the mode (default=3) 0=Warning Tone is not sent 1=Warning Tone is sent to IP Network 2=Warning Tone is sent to TDM 3=Warning Tone is sent to IP Network and TDM
`Warning Tone Control setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

SHOW COMMAND

1. SHOW BURSTPATTERN

The command shows Burst Ringer Pattern setting.

`MC(SIP)> SHOW BURSTPATTERN`	
`Burst Ringer Pattern is 1` `(0.35s ON - 0.3s OFF - 0.35s ON)`	The current setting of Burst Ringer Pattern is shown.

2. SHOW CH_ATTRIBUTE

The command shows Channel Attribute.

`MC(SIP)> SHOW CH_ATTRIBUTE`				
`CH`	`FAX PROTOCOL`	`ECM`	`FAX RATE`	
`CH00`	`OFF`	`OFF`	`14400`	The current setting is shown.
`CH01`	`OFF`	`OFF`	`14400`	
`CH02`	`OFF`	`OFF`	`14400`	
`CH03`	`OFF`	`OFF`	`14400`	
`CH04`	`OFF`	`OFF`	`14400`	
`CH05`	`OFF`	`OFF`	`14400`	
`CH06`	`OFF`	`OFF`	`14400`	
`CH07`	`OFF`	`OFF`	`14400`	

3. SHOW CID_SEND_WAIT

This command shows Caller ID Send Wait Timer.

`MC(SIP)> SHOW CID_SEND_WAIT`	
`CallerID Send Wait Timer is 600ms.`	The current setting is shown.

4. SHOW CODEC_COEF

This command shows CODEC Coefficiency.

MC(SIP)> SHOW CODEC_COEF	
CH00=0 CH01=0 CH02=0 CH03=0 CH04=0 CH05=0 CH06=0 CH07=0	The current setting is shown.

5. SHOW CONFIGDATA

This command shows configuration data list.

MC(SIP)> SHOW CONFIGDATA	
[SYSTEM] REGISTER_MODE=SP FILE_INFO=2005.11.11 [IP] OWN_NAME= OWN_ADDR=0.0.0.0 SUBNET_MASK=255.255.255.255 DEFAULT_GATEWAY=0.0.0.0 DNS_ADDR=0.0.0.0 SIGNALING_PORT=5060 [SIP] SIPSV_ADDR1=0.0.0.0 : :	The current setting is shown.

6. SHOW DEVICE_NAME

This command shows the Device Name.

MC(SIP)> SHOW DEVICE_NAME	
Device Name: P1	Device Name is shown.

Note: This command is available only for SP-3983 8MC PROG-B Issue 8.0 or later.

7. SHOW DHCP

This command shows DHCP.

`MC(SIP)> SHOW DHCP`	
`DHCP is DISABLE.`	The current setting is shown.

8. SHOW DNS_SW

This command shows DNS Server.

`MC(SIP)> SHOW DNS_SW`	
`DNS interface: ENABLE` `DNS IP Address: 10.40.2.101`	The current setting is shown.

9. SHOW DSP_ECFB

This command shows DSP echo canceller for FAX communication.

`MC(SIP)> SHOW DSP_ECFB`	
`DSP ECFB Mode is 0.`	The current setting is shown.

10. SHOW EC_TRAINING

This command shows echo canceller training.

`MC(SIP)> SHOW EC_TRAINING`	
`EC Training is OFF.`	The current setting is shown.

11. SHOW FAXERRORDETECT

This command shows FAX enable timer.

`MC(SIP)> SHOW FAXERRORDETECT`	
`FAX Enable Timer is 1 minute.`	The current setting is shown.

12. SHOW FAXRECVPAD

This command shows Fax receiver PAD value.

`MC(SIP)> SHOW FAXRECVPAD`	
`Fax Receiver PAD is 0.`	The current setting is shown.

13. SHOW FAXSENDPAD

This command shows Fax sender PAD value.

`MC(SIP)> SHOW FAXSENDPAD`	
`Fax Sender PAD is 3.`	The current setting is shown.

14. SHOW HC_TIMER

This command shows Health Check Receive Timer.

`MC(SIP)> SHOW HC_TIMER`	
`Health-Check Timer Timeout is 150 seconds.`	The current setting is shown.

15. SHOW INTERFACE

This command shows the communication speed for LAN interface.

`MC(SIP)> SHOW INTERFACE`	
`Setting: 100Mbps Full Duplex`	Current setting of communication state is shown.
`Status: Speed is 100Mbps, Half Duplex, Link Up`	Actual operating state is shown.

16. SHOW IPADDRESS

This command shows IP address, Subnet Mask, and Default Gateway of 8LC Card.

`MC(SIP)> SHOW IPADDRESS`	

`IP Address: 10.40.218.87`
`Netmask: 255.255.255.0`
`Default Gateway: 10.40.218.1`
	The current setting is shown.

17. SHOW MUSICTYPE

This command shows Internal Music-on-Hold type.

`MC(SIP)> SHOW MUSICTYPE`	
`Music on Hold Type is 0.`	The current setting is shown.

18. SHOW MW_LAMP

This command shows Message Waiting Lamp control type.

`MC(SIP)> SHOW MW_LAMP`	
`Control method is RELAY. (Follow Mode)`	The current setting is shown.

19. SHOW ONE_TIME_PASS

This command shows One Time Password for security.

`MC(SIP)> SHOW ONE_TIME_PASS`	
`One Time Password: 123456`	The current setting is shown.

20. SHOW OPEN

This command shows Open/Reverse mode.

`MC(SIP)> SHOW OPEN`	
`Open is OFF./Reverse is ON.`	The current setting is shown.

21. SHOW OWN_NAME

This command shows the host name of 8LC Card.

`MC(SIP)> SHOW OWN_NAME`	
`Own Name: name1`	The current setting is shown.

22. SHOW PAD

This command shows default receiver PAD value.

`MC(SIP)> SHOW PAD`	
`Default Receiver PAD is 0.`	The current setting is shown.

23. SHOW PRIRINGING

This command shows the setting of Shows Pre-Ringing.

`MC(SIP)> SHOW PRIRINGING`	
`Pre-Ringing is ON.`	The current setting is shown.

24. SHOW RINGFREQ

This command shows Ringer Frequency.

`MC(SIP)> SHOW RINGFREQ`	
`Frequency of Ringer is 20Hz.`	The current setting is shown.

25. SHOW RTP_STOP_DETECT

This command shows RTP Stop Detect Timer.

`MC(SIP)> SHOW RTP_STOP_DETECT`	

`RTP Stop Detect Timer is 3 sec.`	The current setting is shown.

26. SHOW SENDPAD

This command shows default sender PAD value.

`MC(SIP)> SHOW SENDPAD`	
`Default Sender PAD is 0.`	The current setting is shown.

27. SHOW SIGNALING_PORT_NO

This command shows the signaling port number for SIP.

`MC(SIP)> SHOW SIGNALING_PORT_NO`	
`Signaling Port Number is 5060.`	The current setting is shown.

28. SHOW SIGNALING_QOS

This command shows QoS setting for SIP signaling session.

`MC(SIP)> SHOW SIGNALING_QOS`	

`Signaling QoS is 0xC0. (QOS = TOS)`
`PRECEDENCE = 6`
`DELAY = 0`
`THROUGHPUT = 0`
`RELIABILITY = 0`
`COST = 0`
	The current setting is shown.
	*[*This display is an example when TOS (IP PRECEDENCE) type is selected.]*

29. SHOW SIPSV_IPADDRESS

This command shows IP address, port number, and host name of SIP server.

`MC(SIP)> SHOW SIPSV_IPADDRESS`				
`SIP Server`	`IP Address`	`Port Number`	`Host Name`	
`1`	`10.41.1.150`	`5060`	`SVR1.nec.com`	The current setting is shown.
`2`	`0.0.0.0`	`5060`		
`3`	`0.0.0.0`	`5060`		
`:`	`:`	`:`		
`:`	`:`	`:`		
`20`	`0.0.0.0`	`5060`		

Note: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

30. SHOW SMOOTH_PAD

This command shows DSP smooth PAD mode.

`MC(SIP)> SHOW SMOOTH_PAD`	
`Smooth PAD Mode is 1.`	The current setting is shown.

31. SHOW STARTPORT

This command shows the RTP start port number.

`MC(SIP)> SHOW STARTPORT`	
`RTP Start Port Number is 1024.`	The current setting is shown.

32. SHOW STATUS

This command shows operating status of 8LC Card.

`MC(SIP)> SHOW STATUS`	

`Register Mode : SP`
`MAC Address : 00:00:4c:a4:9c:d3`
`Link State : Up`
`Speed : 100Mbps`
`Duplex : Half`
`VLAN Mode : Disable`
`DHCP Mode : Enable`
`IP Address : 10.41.1.100`
`Subnet Mask : 255.255.255.0`
`Default Gateway : 10.41.1.254`
`DNS Mode : Enable`
`DNS Server Address : 10.41.2.101`
`Host Name : name1`
`Current Sipsv Name : sip_sv1`
`Current Sipsv Address : 10.41.1.150`
`Encryption :`
	The current setting is shown.

`+-- SIP Encrypt : --` `+-- RTP Encrypt : --`	
`Registration Status : Online`	

33. SHOW STUTTERDT

This command shows the setting of Stutter Dial Tone.

MC(SIP)> SHOW STUTTERDT	
Stutter Dial Tone is DISABLE.	The current setting is shown.

34. SHOW SYNCRINGING

This command shows the setting of Synchronous Ringer mode.

MC(SIP)> SHOW SYNCRINGING	
Synchronous Ringing is OFF.	The current setting is shown.

35. SHOW VERSION

This command shows firmware and hardware versions.

MC(SIP)> SHOW VERSION	
MC maintenance Command	
Version Information Hardware (Main) :CA-CC12-1A Hardware (Sub) :PX-CC171-1A Boot program :SP-3839 SH7751R CBOOT-1 PROG-A [03.00.00.00] Firmware :SP-3893 8MC PROG-A [01.00.00.00]	8LC Card's firmware and hardware version information is listed.

Note: For an example, the above screen indicates the firmware for SCA-8LCA/SCA-8LCA-EMEA.

36. SHOW VLAN

This command shows the setting of VLAN.

MC(SIP)> SHOW VLAN	
VLAN is ENABLE	
DEVICE ID COS IPADDRESS SUBNETMASK VLAN1 1 0 10.40.218.87 255.255.255.0	The current setting is shown.

37. SHOW WARNING_TONE

This command shows the setting of Warning Tone for LAN failure.

MC(SIP)> SHOW WARNING_TONE	
Warning Tone Control of IP Network is 3 (IP&TDM side)	The current setting is shown.

PING COMMAND

- PING

  Specify an IP address to check connectivity from 8LC Card.

`MC(SIP)> PING P1`	*P1*: Enter the IP address of the system to access.

`MC(SIP)> PING 100.100.100.4`
`PING 100.100.100.4: 56 data bytes`
`64 bytes from 100.100.100.4: icmp_seq=0. time=0. ms`
`64 bytes from 100.100.100.4: icmp_seq=1. time=0. ms`
`64 bytes from 100.100.100.4: icmp_seq=2. time=0. ms`
`64 bytes from 100.100.100.4: icmp_seq=3. time=0. ms`
`----100.100.100.4 PING Statistics----`
`4 packets transmitted, 4 packets received, 0% packet loss`
`round-trip (ms) min/avg/max = 0/0/0`
	Connection status of the accessing system is displayed 4 lines.

`MC(SIP)> PING 100.100.100.4`
`PING 100.100.100.4: 56 data bytes`
`ping: timeout`
`no answer from 100.100.100.4`
	When the 8LC Card cannot connect to network, “no answer” is displayed.

DELETE COMMAND

- DELETE VLAN

  This command deletes the VLAN setting.

`MC(SIP)> DELETE VLAN`	
`VLAN deleting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

SAVE COMMAND

- SAVE CONFIGDATA

  This command saves the configuration data to Flash ROM.

`MC(SIP)> SAVE CONFIGDATA`	
`** Don't power off in progress **` `Do you need save? (Y/N): Y`	Enter "Y" to save the assigned configuration data to Flash ROM.
`Configuration data has been saved.` `Re-starting is required for making a setup reflect!`	Result is shown.

Note: When any error occurs during the process, configuration data cannot be saved.

GET COMMAND

- GET CONFIGDATA

  Specify an IP address of TFTP server in which configuration is stored.

`MC(SIP)> GET CONFIGDATA` *P1*	*P1*: Enter the IP address of TFTP server.
`Configuration data has been downloaded.`	Result is shown.

Note: Configuration data file is downloaded from the specified TFTP server.

PUT COMMAND

- PUT CONFIGDATA

  Specify an IP address of TFTP server to be uploaded the configuration data in.

`MC(SIP)> PUT CONFIGDATA` *P1*	*P1*: Enter the IP address of TFTP server.
`Configuration data has been uploaded.`	Result is shown.

Note: Configuration data file is uploaded to the TFTP server.

INIT COMMAND

- INIT CONFIGDATA

  This command Initializes the configuration data to factory default value.

MC(SIP)> INIT CONFIGDATA	
*** Warning !! *** This command is for initialize config data. If this command is executed, your configuration is deleted!! OK ? (Y/N) : Y	Asked whether to execute initialization. Y=Initialize N=Not execute
It's recommended to back up your configuration !! really OK ? (Y/N) : Y	Asked again for confirmation. Y=Initialize N=Not execute
Initialize of configuration data was successful. You need to setup config data!!	Result is shown.
MC(SIP)>	

Note: Use this command only when required to initialize all the configuration data to factory default value.

REBOOT COMMAND

- REBOOT

  This command reboots the 8LC Card.

MC(SIP)> REBOOT	
Do you need reboot? (Y/N): Y	Enter “Y” to reboot the 8LC Card.

Note: The screen returns to the prompt of the configuration command (MC(SIP)>) if any error occurs after selecting “Y”.

EXIT COMMAND

- EXIT

  This command exits the configuration mode.

  [Normal occasion]

MC(SIP)> EXIT	
Finished! ->	

[When configuration data is changed]

MC(SIP)> EXIT	
Configuration data was changed. ** Don't power off in progress **	
Y: Save and Exit. N: Exit without saving. C: Cancel (Y/N/C): Y	Enter "Y" to save the changed configuration data.
Configuration data has been saved.	
Finished! ->	

Note: The screen returns to the prompt of the configuration command (MC(SIP)>) if any error occurs after selecting "Y".

4.6 Error Messages

When an error occurs in using the maintenance command, an error message is indicated showing the cause, to help in the reassignment of required data.

List of Error Messages

MESSAGE	CAUSE
File not found on the TFTP server.	Download file of system data is not found on the TFTP server.
Command not found.	Not supported command is entered when entering command.
Invalid parameter.	Invalid parameter is entered when entering command.
IP address form is incorrect.	IP address is entered in incorrect form.
VLAN ID is no more registered.	VLAN ID cannot be registered because the number of VLAN exceeds the maximum.
Sub command is missing.	Sub command is not entered when entering command.
Invalid parameter value.	The range of entered parameter is incorrect.
Invalid sub command.	Entered sub command is incorrect.
Command is abnormally terminated.	Command is terminated illegally.
Parameter(s) are missing.	Parameter is not entered when entering command.
Entered VLAN ID is already registered.	Entered VLAN ID has already been registered.
Entered VLAN ID is not registered.	Entered VLAN ID does not exist.
This command is not supported in a present operation mode.	The entered command is not supported in the currently working operation mode.

MCMG [SCA-4LC2COTA/MG-4LC2COTA]

1 General

1.1 What is MCMG?

MCMG has two functions, Media Converter and Media Gateway. Media Converter (MC) is an interface providing media conversion between internet protocol (LAN-side) and conventional voice data (the MC-connected conventional terminal-side). Media Gateway (MG) is an interface between IP network and Analog PSTN line.

MC side <Analog Terminal Interface>

MC has four analog ports. Analog terminal and fax can be connected to the analog ports. Service conditions are the same as Analog 2MC.

MG side <Analog PSTN Interface>

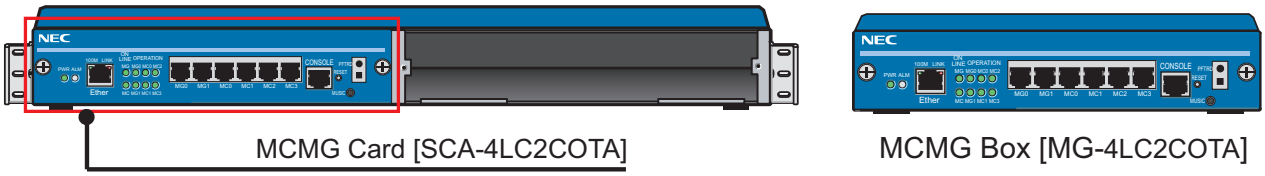
MG has two analog ports and connects IP Network and PSTN. Any IP terminal can originate and receive call to/from analog PSTN line.

MC and MG usually work independently. In the case of some failure of MCMG, Power Failure Transfer (PFT) connects C.O. lines and analog terminals directly and provides emergency line. **Note 1**

Note 1: For the PFT service on the UG50, a station line connected to the PFT port cannot be used as a station line for the system. Be sure to connect a terminal that can be used as telephone to the PFT port. Terminals such as a FAX terminal are not allowed.

There are following two shapes for MCMG such as Card Type and Box Type.

Outerview of MCMG



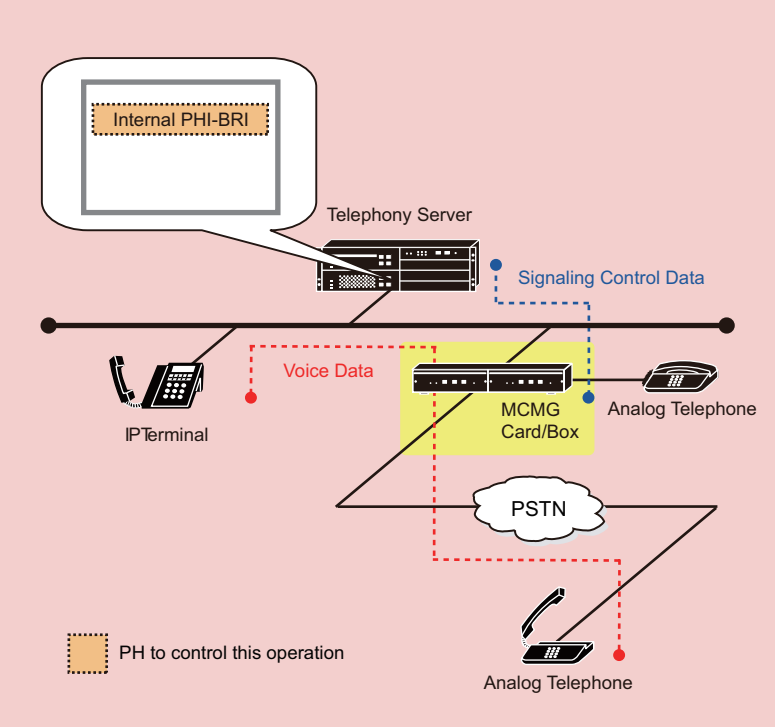
Note: MCMG Card is mounted in 1U-MPC (Multi Purpose Chassis) module. One unit of 1U-MPC module can accommodate a maximum of two cards. MCMG Card is mounted in the left slot in this figure.

1.2 Function Overview

The general structure of this equipment is shown in the diagram below.

Basic Connection

MCMG in the System



Note: Internal PHI-BRI controls the signaling data, which is accommodated in Telephony Server. Call control between Internal PHI-BRI and MCMG is executed via TCP/IP port of the system.

Power Failure Transfer (PFT)

MCMG has four MC ports and two MG (COT) ports. PFT connects two MC ports to two MG ports directly when some failure has occurred. Therefore, analog terminal is connected to PSTN network and then call origination to C.O. line becomes available. PFT is activated in following cases. **Note 1**

- Power failure of MCMG → immediately switched to PFT, available as PFT line.

Note: If each port of MG and MC assigned by PFT function are talking to separate parties immediately before a power failure, since PFT connects MG port and MC port directly after a power failure, the calling parties of the MG and MC may suddenly change places. When MC and MG have incoming calls respectively, the target parties of the MC and MG may change places as well.

- IP link failure → depending on the connection status when Health Check time-out timer (150 seconds) expires on MG side

  (a) when both MG side and MC side are not used: immediately switched to PFT → available as PFT line.

  (b) when any calls are in progress on MG side and MC side is not used: switched to PFT after cutting off MG side → available as PFT line.

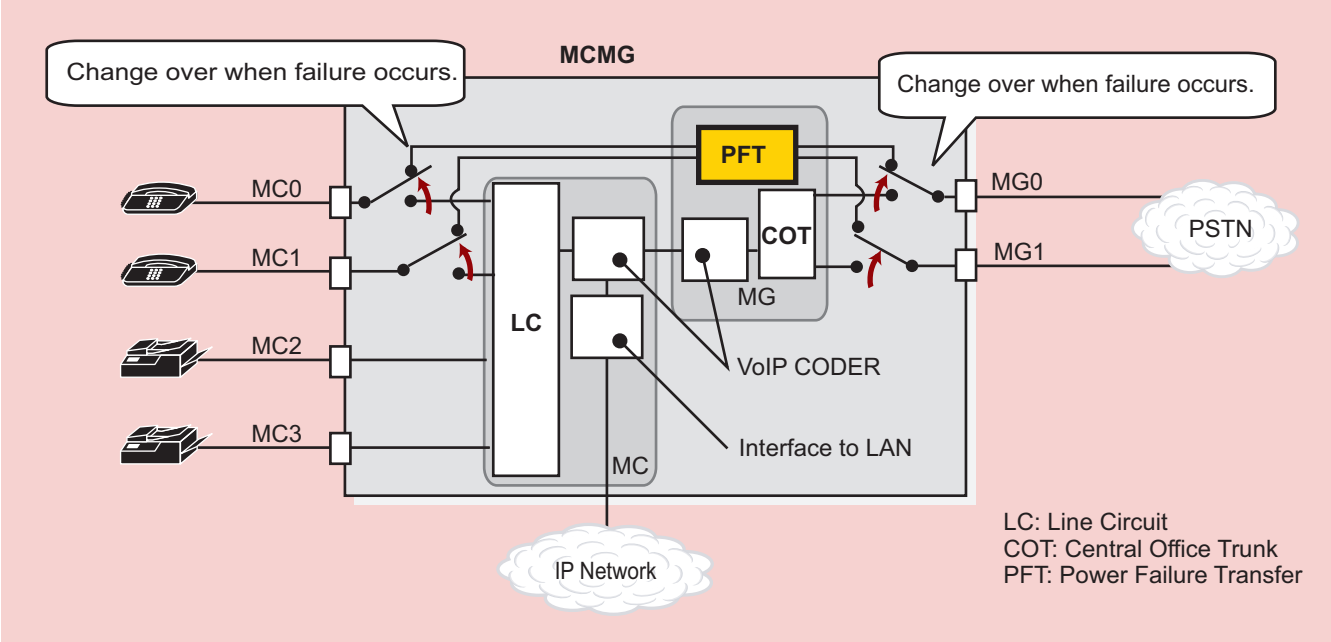
  (c) when MG side is not used and any calls are in progress on MC side: switched to PFT after rebooting on detecting the call completion supervising the lines' recovery on MC side → available as PFT line.

  (d) when any call is in progress on both MG side and MC side, switched to PFT after rebooting on detecting the call completion supervising the lines' recovery on MC side, and disconnecting the calls on MG side → available as PFT line.

Note 1: The PFT service is not available for the UG50.

Note: During supervising the lines' recovery on MC side, MCMG cannot receive any call from PSTN line.
All MC ports (other than PFT line), after supervising the lines' recovery on MC side, may not be used until another IP Link with a Telephony Server is established. MCMG reboots after all MC and MG ports recover.

Connecting Diagram of PFT Function



Release of PFT

PFT is released under the following conditions:

- After rebooting, IP link with Telephony Server is established
- Release of the lines activating over PFT function are supervised.
- PFT is canceled, starting from the recovered lines activated by PFT function.

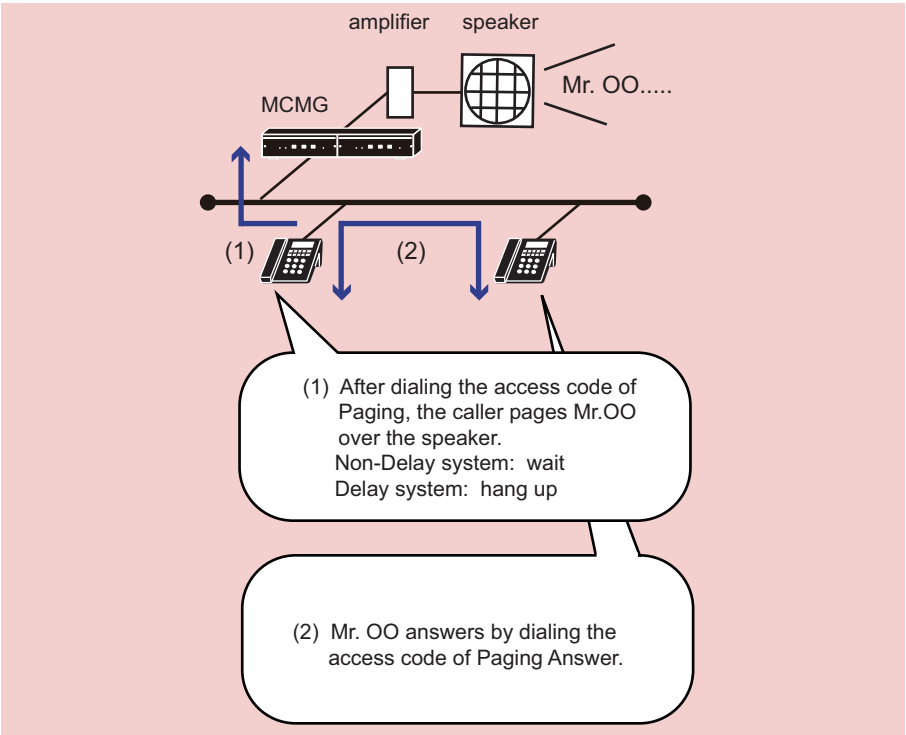
Paging

Station and Attendant Console can page anyone over the speaker connected to MCMG. Paging equipment is configured as the Paging Trunk and connected using an interface on MCMG.

Three types of paging feature are supported by MCMG's paging. For operation procedures refer to service conditions of PAGING ACCESS [P-1] and PAGING TRANSFER [P-10] in Data Programming Manual - Business.

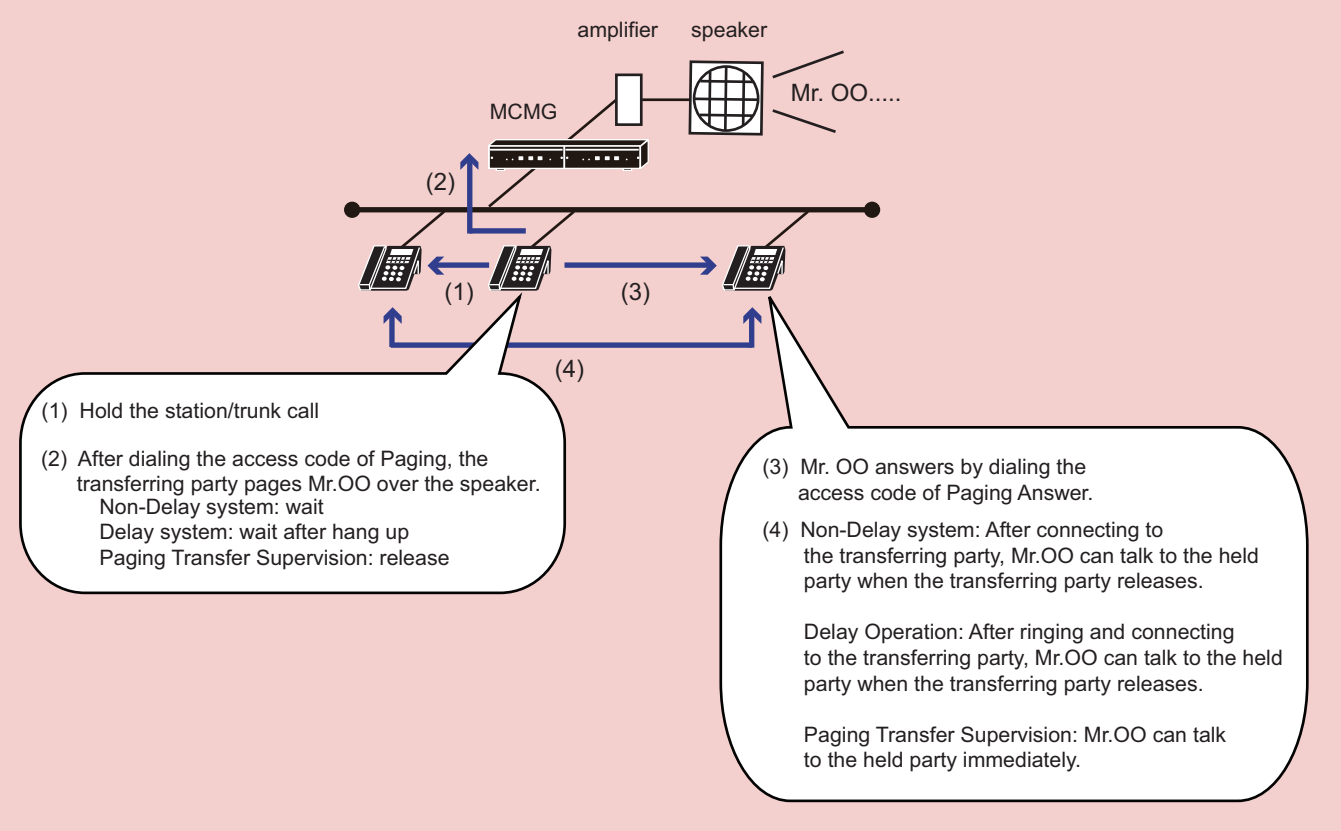
<Paging Access>

Dialing the access code of Paging Access on station/ATTCON, the caller can access the paging equipment to page anyone over the speaker. The paged person can answer the call by dialing the Paging Answer access code on any station.



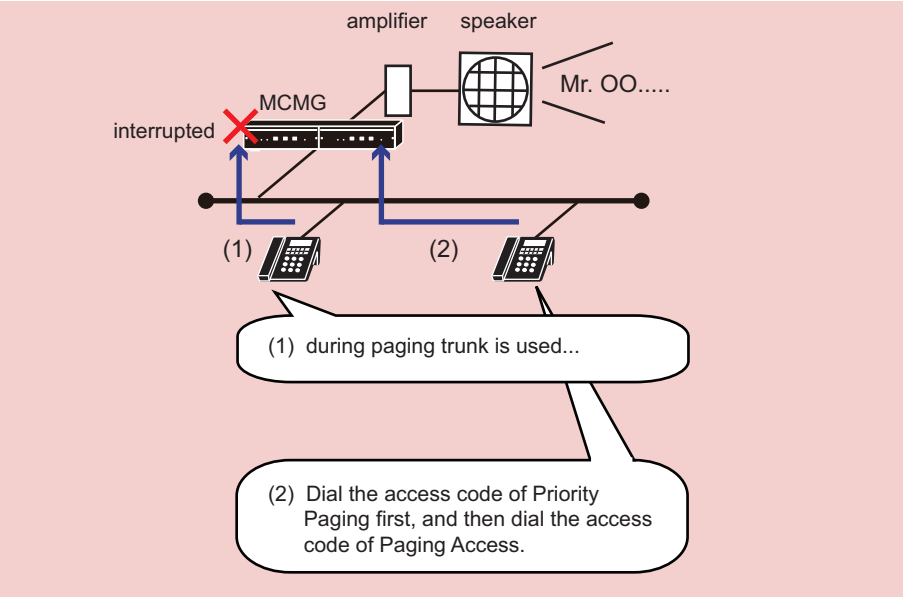
<Paging Transfer>

After holding a station/trunk call, the holding party can page anyone over the speaker to transfer the call. Non-Delay system, Delay system, and Paging Transfer Supervision are available.



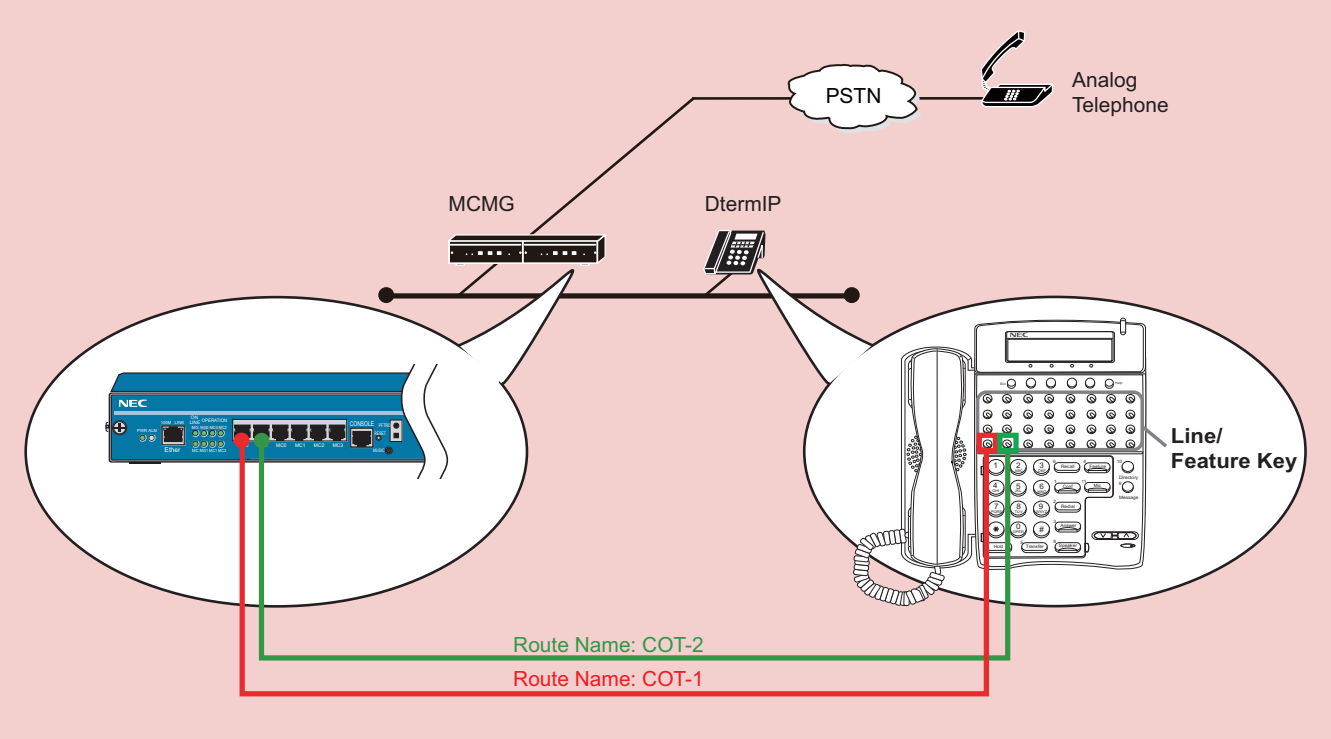
<Priority Paging>

By dialing the access code of Priority Paging, the station/ATTCON is allowed to access paging trunk interrupting other user's paging in progress.



Trunk Line Appearance-D

Connecting an analog C.O. trunk and a virtual line one-to-one, this feature allows DtermIP user to directly access C.O. line of MCMG by pressing corresponding Line key on DtermIP station, without dialing access code. DtermIP station can also answer incoming calls from C.O. line by pressing the Line key.



Follow the service conditions below to use this feature by MCMG:

(a) System data assignment for Trunk Answer from Any Station (TAS) is required for this feature, but the TAS service is not activated.

(b) Whether the Trunk Answer from Any Station (TAS) feature is available or not is determined by the Service Feature Restriction Class (SFC: 34) setting to each station.

(c) When Trunk Line Appearance-D station does not answer the incoming call and Call Forwarding-Don't Answer is activated, the LCD on the DtermIP does not display to inform the execution of call forwarding.

(d) Analog C.O. line corresponding to PB signal is only applicable.

(e) DtermIP stations must assign a My Line on Line/Feature Key beforehand.

(f) All the virtual lines of C.O. trunk, excepting My Line, can be assigned as Trunk Line Appearance-D lines on one DtermIP station. (e.g. On 16-button type of DtermIP station, a maximum of 15 lines can be accommodated as Trunk Line Appearance-D. The remaining one line is the My Line.)

(g) Up to 128 of C.O. lines can be accommodated as Trunk Line Appearance-D per system.

(h) Distinctive Ringing is not activated when incoming call terminates.

(i) Analog Telephone cannot answer the incoming call of Trunk Line Appearance-D.

(j) When DtermIP station answers and holds the incoming call of Trunk Line Appearance-D, Analog Telephone station cannot answer the held call. DtermIP stations belong to multiple-line group can answer the held call.

(k) Call termination is informed to the user only by the Message Waiting Lamp indication on DtermIP.

(l) This feature is not applied to the outside call via ISDN line.

(m) To send out Hooking signal to the destination party, assign the Route Class data of COT route to HKS=1.

(n) When originating a call, DtermIP station hears dummy tone from the own system. Assign the dummy tone by the 2nd DT parameter of ASPA command.

ASPA 2nd DT: 0: -
Second DT is not sent.
1: 2nd DT
Second DT is sent.

(o) Numbering plan data for the call origination via COT must be assigned by the LCR setting of ASPA command.

(p) MCMG can send out Hooking signal to outside in this feature.

Note: Refer to the Data Programming Manual - Business for the data assignment and operating procedure of this feature.

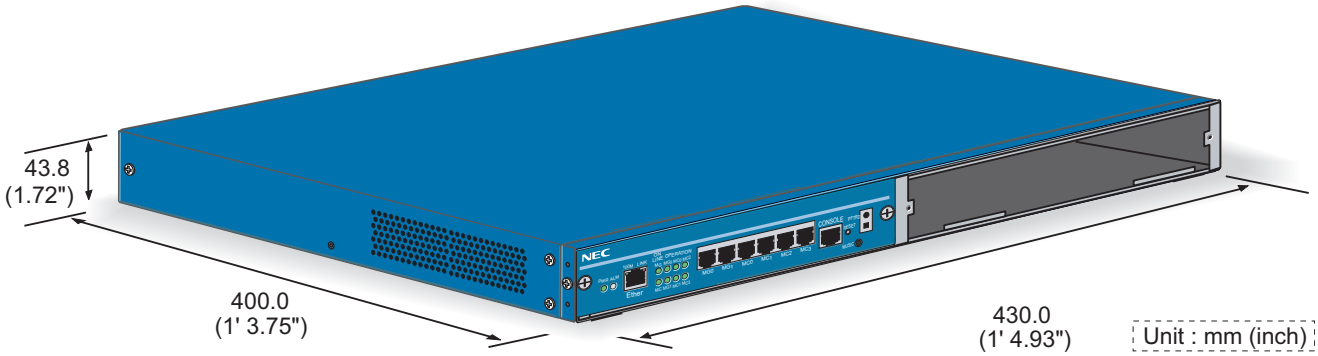
1.3 Specifications

1. Dimension

- MCMG Card [SCA-4LC2COTA]

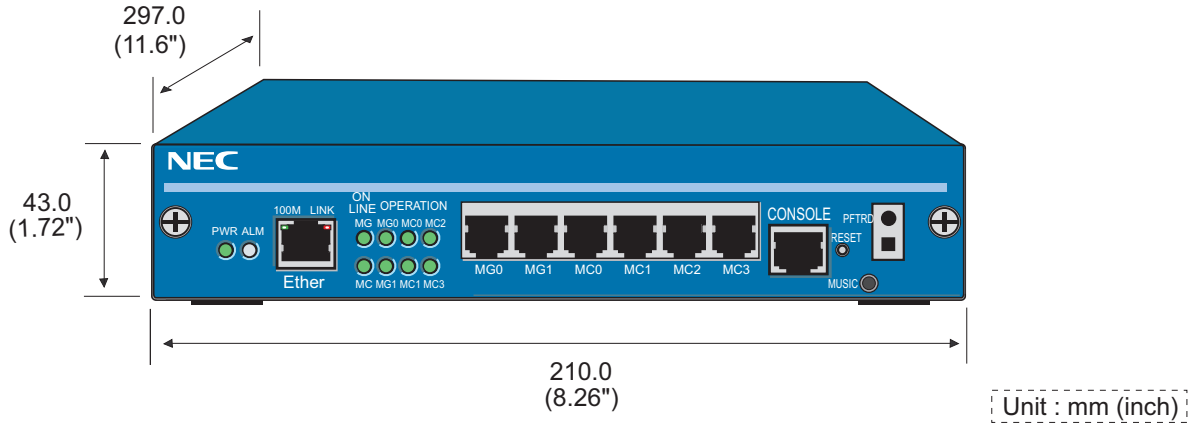
  MCMG Card is mounted in 1U-MPC module (19-inch rack mount, 1U-box).

Size of MCMG Card in 1U-MPC



- MCMG Box [MG-4LC2COTA]

Size of MCMG Box



2. Specifications

MCMG Specifications

FUNCTION	SPECIFICATION	NOTE
Voice CODEC	G.711	64 k (bps): PCM μ-law/A-law Packet cycle: 10~40 msec (in 10 msec steps)
	G.729a	8 k (bps): CS-ACELP Packet cycle: 10~40 msec (in 10 msec steps)
	G.723.1	6.3 k (bps): MP-MLQ/ACELP Packet cycle: 30 or 60 msec
		5.3 k (bps): MP-MLQ/ACELP Packet cycle: 30 or 60 msec
FAX	Data transmission as voice data	G.711/G.726 (ADPCM)
	FAX Relay (T.30)	FRF.11
	FAX Relay (T.38)	Not supported
FAX auto-detect timer	FAX auto-detect is activated on timer timeout	Timer: 1M, 2M, 3M, 4M, 5M (0M=fixed to voice mode)
Jitter Buffer	Static	10~300 msec (in 10 msec steps)
	Dynamic	10~300 msec
Quality of Service (QoS)	ToS, IP Precedence	Supported
	DiffServ	Supported
VLAN	IEEE 802.1Q (Tagging VLAN), VLAN bit, Priority bit	
LAN Interface	100 Mbps/10 Mbps, auto-negotiation (Half/Full Duplex)	RJ-45 Connector 1 Port
IP Address Assignment	DHCP is supported	
Operation & Maintenance	Console	RJ-45 serial interface Connecting through CONSOLE cable (RJ-45 ⇔ RS-232C serial cable)
Audible Tone Generator	16 types	
DTMF detection/generation	Supported	
Holding Tone	Supported (Internal and External)	
Safety Standard	UL60950, ACA	
EMI	VCCI class B, FCC Part15, ACA	

MC Specifications (Analog Interface/Function)

FUNCTION	SPECIFICATION	NOTE
Number of lines	Four lines	RJ-11 Modular Jack 4 Ports (Two ports are connected to C.O. lines if PFT is activated) **Note 1**
Supply Voltage	-38V (min)	
Loop Resistance	Maximum of 600 Ω	Including the terminal resistance
Distance to terminal	Maximum of 500 m	
Supply Current	33 mA (600 Ω)	Constant current
Ringing Voltage	63 Vrms	Balance Ringing
Ringing Frequency	20 Hz or 25 Hz	Select either of the frequencies (Default = 20 Hz)
Connectable Terminal	1/line	Multi-connection is not available.
Selection Signal	DTMF only	DP is not supported
BNW	600Ω (Default setting)	Available for North America, Australia, China, and Brazil.
PAD Control (for voice transmission)	-10-20 dB (1dB step)	Default value: analog → LAN = 0 dB LAN → analog = 0 dB
FAX PAD (for data transmission as voice data)	0-20 dB (1 dB step) FAX PAD value is added to Voice PAD. The sum of FAX PAD and Voice PAD is limited to 15 dB.	Default value: analog → LAN = 0 dB LAN → analog = 3 dB
Stutter Dial Tone	Supported	
Caller ID (Only for North America)	Not supported	
Momentary Open	Supported	Selectable
Grand Button Detection	Not Supported	
A-wire Ground Defection/ Protection	Supported	
Howler Tone	PCM Howler Tone	
Switch Hook Flash Detection	Supported	One-digit hooking is not available
Timed Break Signal Detection	Supported for Australia only	
Message Waiting Lamp	Not supported	
Echo Canceller	G.168/G.165 (NLP function available)	Tail Length is 64 milliseconds
Echo Canceller Training Tone sending	Supported	Selectable
Smooth PAD	Supported LAN → analog only	Default value: 1 = Threshold +2.0dBm

Note 1: Available terminals are ANALOG(PB) telephone and FAX.
DP telephone can not be used and “Calling Number Display” feature is not supported. If you connect ANALOG telephone that has “Calling Number Display” feature, the feature must be set off by the terminal side.

MG Specifications (PSTN Interface/Function)

FUNCTION	SPECIFICATION	NOTE
Number of lines	Two lines	RJ-11 Modular Jack 2 Ports **Note 2**
Signaling Method	Loop Start (Ground Start is not supported) **Note 3**	
Reverse Detection	Supported	Available in idle or loop closing state.
Caller ID (for North America)	Not Supported	
Call Metering Pulse Detection (for Australia)	Not Supported	
Line Fault Detection (for Australia)	Not Supported	
AC Clearing (for Australia)	Not Supported	
Selection Signal	DTMF only	DP is not supported
Automatic Polarity Reverse	Supported except for North America	
REVERSAL ON IDLE	Not Supported	
REVERSAL ON ANSWER REVERSAL ON SEIZURE	Supported for Australia only	Function for Australia: AS/ACIF S003
PROCEED-TO-SEND-WIND START (LOOP-OUT CALLS)	Not supported	
Terminal Impedance and BNW	600Ω (Default setting)	
PAD Control (for voice transmission)	-10dB ~ +20dB	Default value: analog → LAN = 0 dB LAN → analog = 0 dB
Echo Canceller	G.168/G165 (NLP function available)	Tail Length is 64 milliseconds
Echo Canceller Training Tone sending	Supported	Selectable
Smooth PAD	Supported LAN → analog only	Default value: 1 = Threshold +2.0dBm

Note 2: PB only.

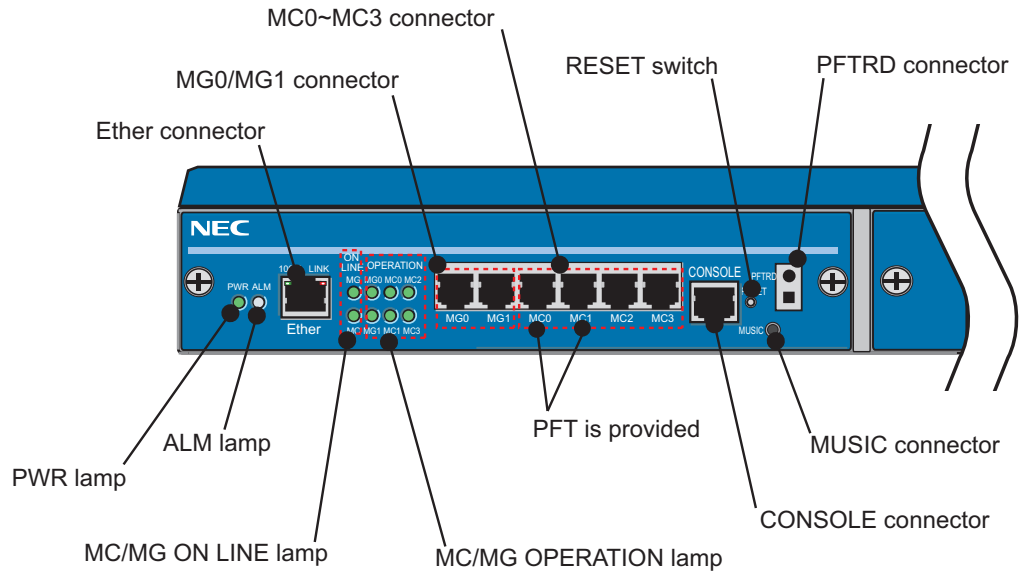
Note 3: Grounding less than 10Ω is desirable for Signaling Method. If the grounding is not available, the interface functions as a ringdown trunk.

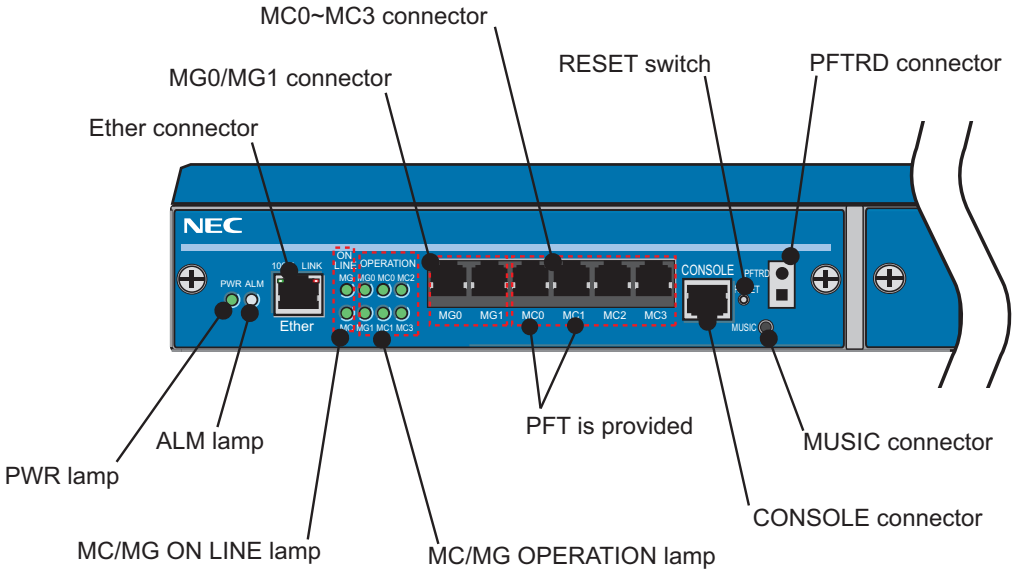
3. Layout of Connectors, Lamps, and Switches

Connectors, lamps, and switches indications are explained below.

Front View of MCMG Card [SCA-4LC2COTA]

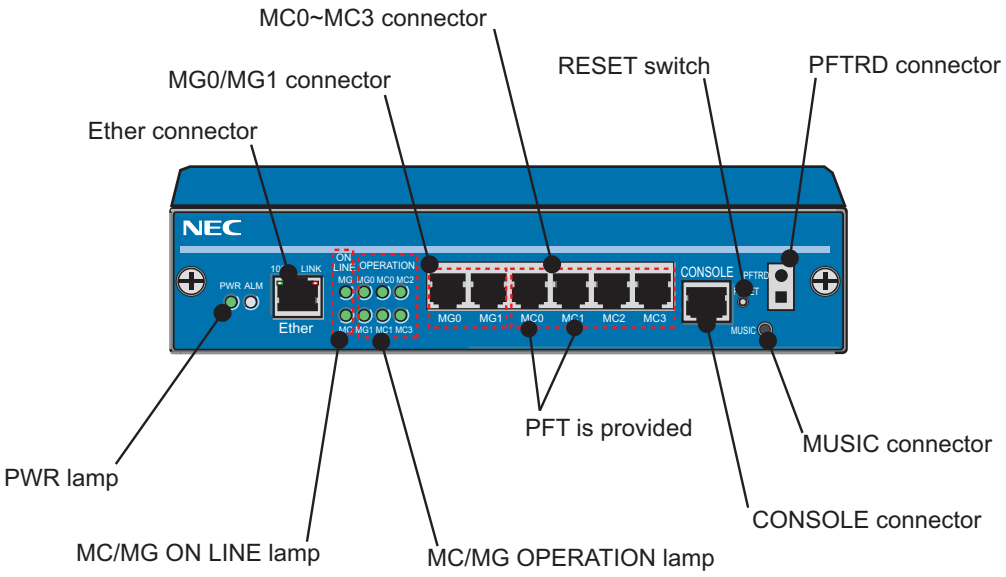
Note: MCMG cards/boxes manufactured after a certain date have the female RJ-11 connectors (MG0 and MG1; MC0 through MC3) mounted upside down, as shown in the illustration below.

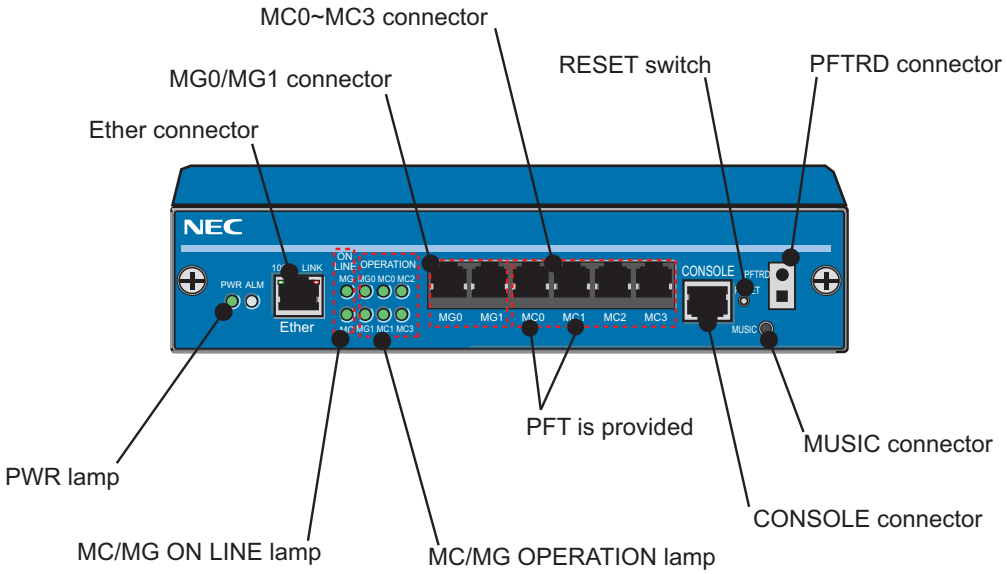




Front View of MCMG Box [MG-4LC2COTA]

Note: MCMG cards/boxes manufactured after a certain date have the female RJ-11 connectors (MG0 and MG1; MC0 through MC3) mounted upside down, as shown in the illustration below.





Connectors on Front Panel

CONNECTOR	FUNCTION	NOTE
Ether	LAN Interface	RJ-45 100Mbps/10Mbps, auto-negotiation (Half/Full Duplex)
MG0	PSTN Interface	RJ-11 Connected to Analog Line (MC0/MC1) when PFT is activated.
MG1		
MC0	Analog terminal or fax is connected.	RJ-11 Connected to C.O. line when PFT is activated.
MC1		
MC2		RJ-11
MC3		
CONSOLE	Interface for Maintenance Console	RJ-45 serial connection (CONSOLE cable RJ-45 ⇔ RS-232C is used)
MUSIC	External Music-On-Hold connection	3.5 ϕ mini-jack (monaural type)
PFTRD	-	Not used

Lamps on the Front Panel

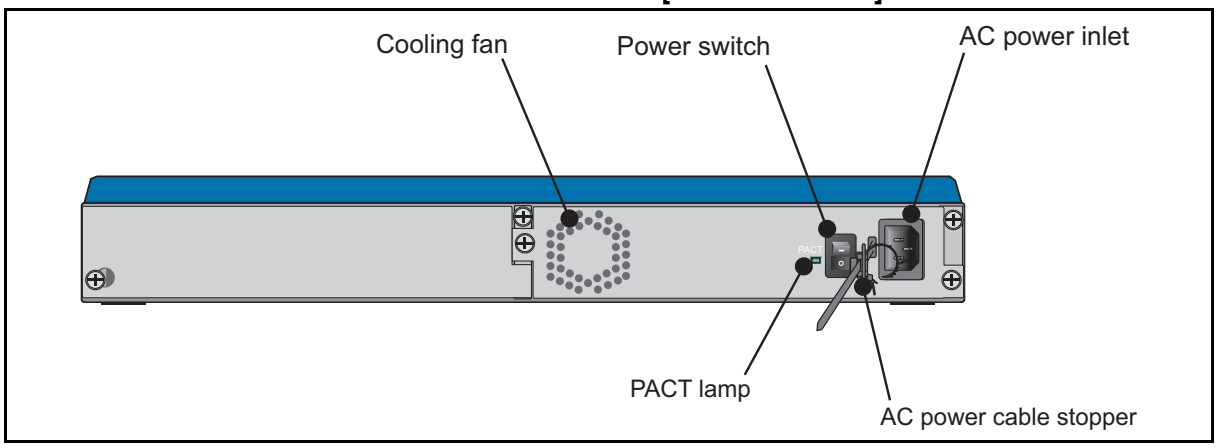
LAMP NAME		COLOR	MEANING OF INDICATION
PWR		Green	Power ON
		OFF	Power OFF
ALM **Note 4**		Red	Lights when power failure is detected
		OFF	Normal operation
Ether	LINK	Green	Lights when establishing port link **Note:** Lights when physically connected to IP network.
		Flash	Flashes green (in 0.67-second cycle) when sending/receiving IP Packet
		OFF	Port link is not established
	100M	Green	Lights when transmission speed is 100 Mbps
		OFF	Remains OFF when transmission speed is 10 Mbps
MC	ON LINE MC	Green	See Lamp Indication and Status for the detail explanations of the lamp indication.
	OPERATION MC0	Green	
	OPERATION MC1	Green	
	OPERATION MC2	Green	
	OPERATION MC3	Green	
MG	ON LINE MG	Green	
	OPERATION MG0	Green	
	OPERATION MG1	Green	

Note 4: For ALM lamp on MG-4LC2COTA, it always remains OFF.

Lamp Indication and Status

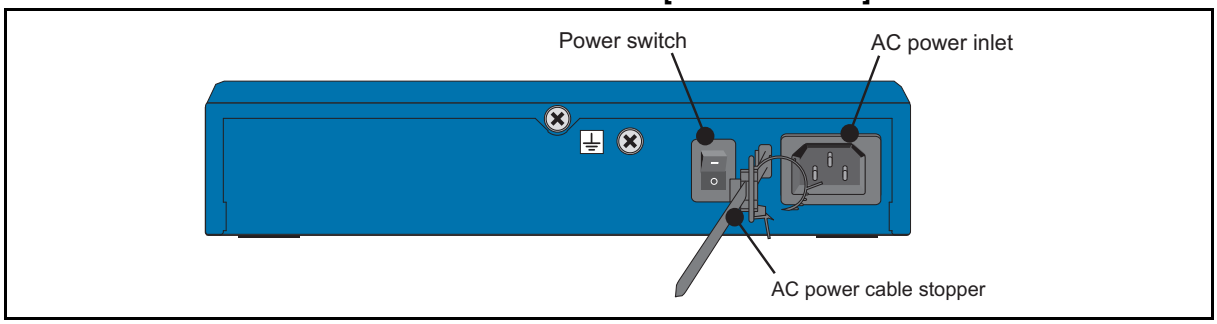
LAMP INDICATION								DESCRIPTION OF STATUS
LEGEND L: Lights Fr: Flashes rapidly (60INT) Fs: Flashes slowly (30INT) ×: Remains OFF								
MC					MG			
ON LINE	OPERATION				ON LINE	OPERATION		
	MC0	MC1	MC2	MC3		MG0	MG1	
×	L	×	×	×	-	-	-	Start the BOOT program
×	L	L	×	×	-	-	-	BOOT: OS initialization has been completed
×	L	L	L	×	-	-	-	BOOT: Waiting for entering of ESC key
×	L	L	L	L	-	-	-	BOOT has been completed
×	Fs	Fs	Fs	Fs	-	-	-	Registration of MC has started
-	-	-	-	-	×	Fs	Fs	Registration of MG has started
L	Fs	Fs	Fs	Fs	-	-	-	Registration of MC has been completed
-	-	-	-	-	L	Fs	Fs	Registration of MG has been completed
L	×	-	-	-	-	-	-	CH0 (MC) is vacant
L	-	×	-	-	-	-	-	CH1 (MC) is vacant
L	-	-	×	-	-	-	-	CH2 (MC) is vacant
L	-	-	-	×	-	-	-	CH3 (MC) is vacant
-	-	-	-	-	L	×	-	CH0 (MG) is vacant
-	-	-	-	-	L	-	×	CH1 (MG) is vacant
L	Fr	-	-	-	-	-	-	CH0 (MC) is Make-Busy
L	-	Fr	-	-	-	-	-	CH1 (MC) is Make-Busy
L	-	-	Fr	-	-	-	-	CH2 (MC) is Make-Busy
L	-	-	-	Fr	-	-	-	CH3 (MC) is Make-Busy
-	-	-	-	-	L	Fr	-	CH0 (MG) is Make-Busy
-	-	-	-	-	L	-	Fr	CH1 (MG) is Make-Busy

Rear View of MCMG Card [SCA-4LC2COTA]



Note: This figure is an example when the 1U-MPC is in single power configuration. Prepare one more power unit for dual power configuration.

Rear View of MCMG Box [MG-4LC2COTA]



Connectors, Lamps, and Switches on Rear Panel

NAME	FUNCTION	
AC power inlet	Connected to AC-DC adapter with an attached three-polar grounded AC power cable (Cable Length: 3 m [9.8 ft.])	AC 100V (50/60 Hz) ± 10% AC 120V (50/60 Hz) ± 10% AC 230V (50/60 Hz) ± 10% AC 240V (50/60 Hz) ± 10%
Power switch	Power ON/OFF switching	
PACT lamp **Note 5**	Indicates the state in power unit	Lights green: Normal operation OFF: Power failure

Note 5: PACT lamp is only for MCMG Card [SCA-4LC2COTA]. MCMG Box [MG-4LC2COTA] does not have PACT lamp.

Note: For the safety measures against static electricity, lightning strike, and other electrical surges, be sure to make proper connection to grounding (less than 10Ω). As MCMG has PSTN interface, if the line cable is struck by lightning directly, the lightning might cause damage to MCMG and AC power adapter without Ground connection.

4. Port Number

The following provides the port number to be used in this system.

PORT NO.	PATH	FUNCTION	NOTE
3456/UDP	DRS (Telephony Server LAN1)	Registration	Changing an initial value by using ADTM command.
3456/UDP	MCMG (MC side)	Registration	-
3457/UDP	MCMG (MG side)	Registration	-
50000/UDP	MCMG (MC side)	iLP-PM	-
50001/UDP	MCMG (MG side)	iLP-PM	-
10001/UDP	Peer to Peer (MC side)	Pre-H.245 negotiation	-
10002/UDP	Peer to Peer (MG Side)	Pre-H.245 negotiation	-
1024~ /TCP	Peer to Peer	H.245	Allocated by Operating System
1024~64510/UDP	Peer to Peer	RTP	Changing an initial value by using the configuration command. [SET STARTPORT] from a local console.

1.4 Requirements

(1) Hardware Requirements

To use the MCMG for an analog terminal and PSTN connection, the following hardware is required:

- PC running Terminal Software (for Maintenance Console)
- Cables

LAN cable: Use any of the following cables for connecting to LAN.
10BASE-T:Unshielded Twisted-pair (UTP) Straight-through cable Category 3 or higher, (a maximum of 100 m)
100BASE-TX:Unshielded Twisted-pair (UTP) Straight-through Cable Category 5 or higher, (a maximum of 100 m)

Line Cable: For the connection between an Analog terminal and an MC, use a Modular Cable with an RJ-11 Modular Jack.
For the connection to PSTN network, use a Modular Cable with an RJ-11 Modular Jack.

CONSOLE Cable: RJ-45 ⇔ RS-232C serial cable (for maintenance console)

Audio Cable: Microphone Input (for external Music-On-Hold source)
3.5 ϕ mini-jack (monaural type)

(2) Firmware Program

The following program is installed in MCMG [SCA-4LC2COTA/MG-4LC2COTA].

- Installed Firmware: SP-3778 MCMG PROG-A/SP-3927 MCMG PROG-B

(3) Environmental Requirements

- Operational Temperature Range: 0°C to 40°C (32°F to 104°F)
- Operational Humidity Range: 20% to 90% (not condensing)
- Main Source Power: 100 VAC / 120 VAC / 230 VAC / 240 VAC (50/60 Hz) ±10%

1.5 Service Conditions

Before the use of MCMG, note the following conditions.

Note: The following conditions are based on the assumption that MCMG is registered to Internal PHI-BRI though MCMG can be registered to SP-PHI instead of Internal PHI-BRI. Please make sure details of "Consideration for SP-PHI Data Assignment" in Chapter 2 of Data Programming Manual - Business as well as conditions here.

Service conditions related to MC and MG

(1) Although MG function can be used alone, MC function must always be used together with MG function. Be sure to enable MG function prior to programming the MC function.

Note: Be sure to enable MG0 function prior to programming the MC0 function.
Be sure to enable MG1 function prior to programming the MC1 function.

(2) When the setting of ASYDL, SYS1, INDEX880, Bit 1 (Internal PHI-PRI/BRI)/Bit 3 (Internal PHE) is modified, initialize the Internal PHI-BRI/Internal PHE module with the ADPM command.

(3) The connection via NAT and dial-up access is not available.

(4) Internal PHI-BRI performs the Health Check of MCMG between Internal PHI-BRI and MCMG.

(5) PFT connects the following port.
MC0 ⇔ MG0
MC1 ⇔ MG1
PFT does not connect MC2 and MC3 to any port.

(6) PFT operation is released when registration of MG has been completed and call origination is ready.

(7) The MC part cannot be used until registration of the MG part has been completed; the MG part can be used alone.

(8) MCMG will not reboot when MC is in use.

(9) Modem connection using MCMG is not supported.

Service conditions related to MG

(1) Virtual Trunk for MG occupies one group. Therefore, the group to which Virtual Channel of MG has been assigned cannot be used for other Trunk. The Virtual Trunk can be assigned for Virtual PIR.

(2) Number of MGs in one system depends on the maximum number of IP terminals that are controlled by Internal PHI-BRI. Maximum Channel number that can be operated by 1 LP is 460 channels including other ISDN channels and MG-PRI.

(3) Only Push Button signal is sent to Trunk Line. Dial Pulse is not used.

(4) MG does not supervise the condition such as Trunk failure. Therefore, MG can originate a call regardless of Trunk failure. (As far as MG works correctly.) This condition is the same as conventional COT.

(5) Internal PHI-BRI and MG is connected via UDP/IP. Therefore, Routine Diagnosis is performed by Proprietary Protocol procedure. System Message [33-R] is output if failure is detected.

(6) System Message [33-R] is output if control packet is sent and connection failure is detected. The message is output when timeout of control packet transmission timer occurred eight times or more continuously. The transmission timer value is changed/modified by ASYDL command (SYS 1, INDEX 884, bit0 PHI Retransmission timer). After modifying the data, reset the buffer or initialize the data by ADPM command.

(7) When LCR data has been assigned, LCR is activated if any failure that is described in conditions 5 and 6 occurs.

(8) IP address and Subnet Mask of Internal PHI-BRI are LAN1 IP address (ACT) of Telephony Server. Port number is modified by ADTM command (default is 64000, shown as “Internal PHI-BRI”). Modified data is automatically reflected on System Data (**Note 1**). Port number of “Internal PHI-BRI” is shared with that of “Internal PHI-PRI”.

Note 1: After modifying the data, initialize the data or reset the buffer by ADPM command. Data is reflected to System Data after this assignment.

(9) Assign Quality of Service (QoS) setting for Internal PHI-BRI in ALOCL command. (LOC-ID=0) Assign QoS of signaling packet for MG in AMGIL command, and QoS of voice packet in AMGVL/AIVCL command.

(10) PAD value and Echo Canceler data assigned in APDIL/APDCL command has priority. When assigning the Echo Canceler per location ID, use AMGVL command. PAD settings towards MCMG can be assigned in the SETTING OF PAD.

(11) Assign CODEC in AMGVL command (If AMGVL data is not assigned, AIVCL data is applied). For available payload type/payload size, refer to "Payload Setting for Each IP Equipment" in the System Description. When both command data are not assigned, default setting is applied (default setting is G.711- 40ms).

(12) When Payload Type is specified by AMGVL/AIVCL, A/μ-law setting assigned by AMGIL is applied. System Data is not applied (ASYD SYS1 INDEX 63 bit 0 A/μ-law for TSW). When A-law MG and μ-law MG are connected, A-law is applied.

(13) Route Number can be shared by multiple MGs.

(14) Assign each LENS for MG line (0-1) and CH (Fixed to 0) in AMGIL command. (MG0: Even Number Level, MG1: Level of MG0 + 1)

(15) Guard Timer for Originating Call is performed by Telephony Server side. Assign the Timer value by ASYD (SYS 1, INDEX 474) to change the value. Default value is 3072 milliseconds.

(16) When digit conversion is required for the digits received from the public network, use ARTD, CDN66 (DC) and ACDD. A maximum of seven digits can be converted, counting from the last.

(17) There are the following restrictions when using REMOTE ACCESS TO SYSTEM [R-2] or AUTOMATED ATTENDANT [A-82].
- If any virtual registers cannot be seized, other registers (**Note 2**) are seized.
- When any registers cannot be seized, calling party hears busy tone.
- The sum total of virtual registers and other registers (**Note 2**) per LP cannot exceed 64 channels.

Note 2: In this context, other registers are:
- Originating register trunk (RT: 902)
- Incoming register trunk (RT: 903)
- PBR for Automated Attendant Service (RT: 906)
- CRT (RT: 933)

- Assign "2" to EQP of AAED to make calling party hear some announcement. The announcement can be sent only once. **Note 3**

Note 3: "8" or "9" must not be assigned to EQP.

(18) System Messages ([33-R], [33-T]) are output when packet transmission failure is detected in Internal PHI-BRI.

(19) Assign the following parameters in ARTI command when using fax via MG.
- CDN 71: IP FAX data
- CDN 72: Jitter Buffer Size for IP FAX
- CDN 73: Payload Type for IP FAX
- CDN 74: Payload Size for IP FAX

(20) When analog terminal is connected to outside via MG, the terminal user can send external/internal music resources as Music-on-Hold. External/internal Music-on-Hold data is assigned by AMGIL command per MG.

(21) MCMG does not support Caller ID Display (Number Display). When connecting a terminal that has Caller ID Display to MC, disable the function on the terminal.

(22) When Trunk Soft Hold Timer is effective, the call originating party will be charged when the timer expires.

(23) A Conference cannot be established until the False Answer Timer expires.

(24) SMDR cannot be collected until the False Answer Timer expires.

(25) Adding a pause when originating to Central Office Line is available. The conditions are below:
- The required firmware is the following: SP-3778 MCMG PROG-A Issue 16 or later/SP-3927 MCMG PROG-B Issue 5 or later. **Note 4**
- The features which can be added a pause are the followings:

  (1) Speed Calling - System [S-3] / Speed Calling Override - System [S-61]

  (2) Speed Calling - Station [S-21]

  (3) All features which use the additional digits information by AACD command.

  (4) Last Number Called - D [L-6D] **Note 5**

Note 4: Available since the first version for UG50.

Note 5: This feature is available when (1), (2), or (3) is stored in a Desktop terminal.

(26) A pause which is inserted per one pause is about three seconds.

(27) Multiple pauses can be inserted. For the number of the digit which can be inserted, see each feature conditions.

Interaction with other features

(1) When using Preset Conference/Progressive Conference

If conference leader will use line connected to MCMG, use a line that can send release signal.

(2) When using Blind Transfer

If you transfer a call to a line connected to MCMG, the following are required to perform call transfer:
- The destination responds to the call
- The destination receives polarity inversion signal.

(3) When using Location Diversity

MG data need to be assigned to all channels although physical connection with lines is not necessary.

2 Installation

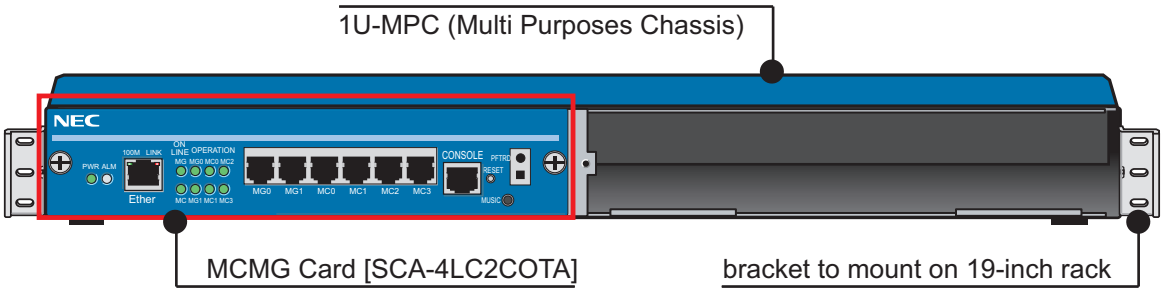
This section shows how to install the hardware required for using MCMG. Be sure to take measures to anti-static electricity.



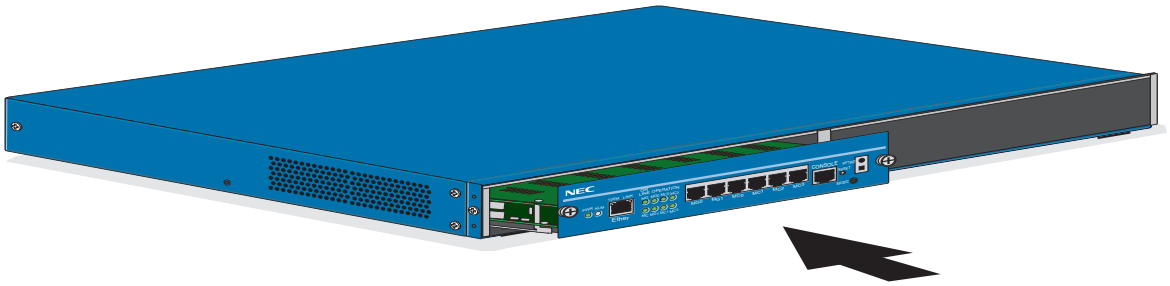
2.1 How to Set MCMG

- MCMG Card [SCA-4LC2COTA]

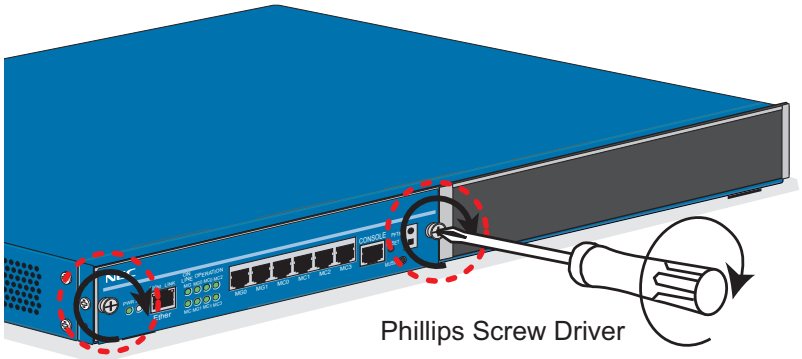
Note: The figure below, where MCMG Card is accommodated in the left slot of 1U-MPC,.is just an example.



STEP 1 Insert MCMG Card to 1U-MPC.

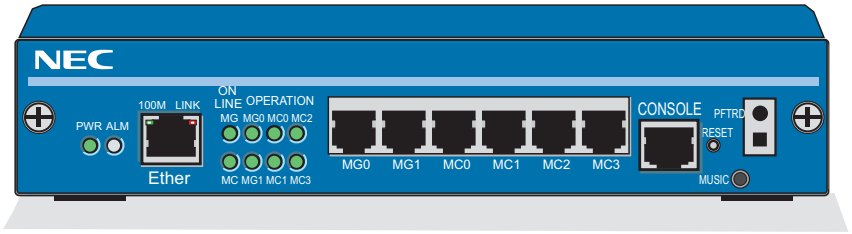


STEP 2 Secure the MCMG Card to 1U-MPC fixing two screws on right and left sides.



- MCMG Box [MG-4LC2COTA]

  MCMG Box is set as the following. Be sure to place MCMG Box on the flat surface.



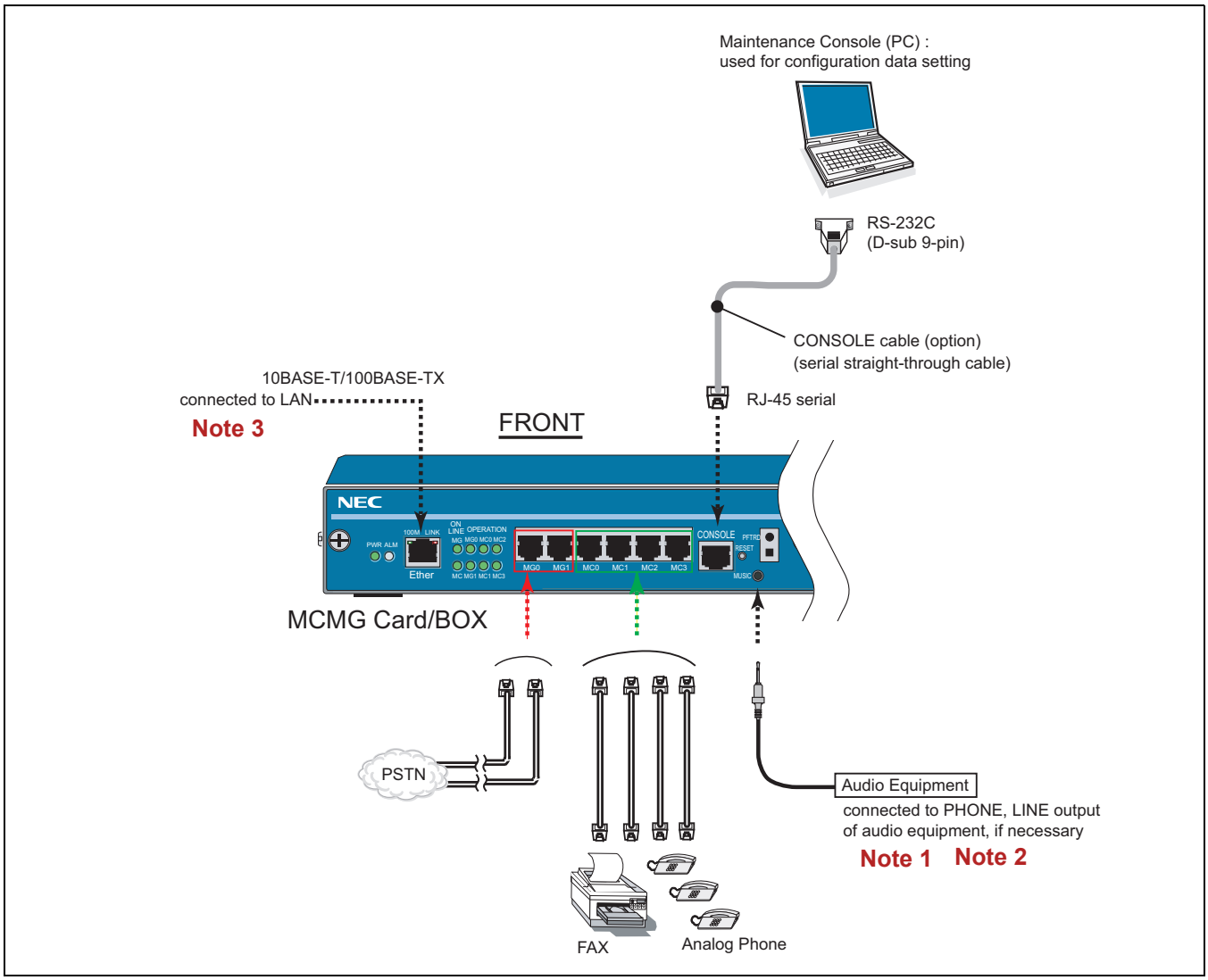
2.2 Cable Connection

This section shows the cable connection to the MCMG Card/Box. MCMG Card/Box provides the following interfaces:

- Connection to LAN
- Connection to PSTN
- Connection of Analog Telephone/G3 Fax Machine
- Serial Port Connection to Maintenance Console
- Connection to Audio Equipment for external music
- Power Supply

Connect the required cables according to the system configuration. The figure below shows general description of cable connection for MCMG.

MCMG Cable Connection Diagram (Front)



Note 1: Cable of external hold tone source needs to be conformed with all-purpose 3.5ϕ mono-aural ear phone jack. Adjustment of output level for external hold tone source needs to be started from low and to higher to avoid over-current. The tuning of volume level sent is to be done by monitoring from the telephone terminal connected over PSTN and tuning the output level of external hold tone source. Input impedance from the external hold tone source needs to be within the ranges of 8Ω - 50kΩ. Make sure not to exceed this range.

Note 2: If audio equipment has a ground terminal, be sure to make proper connection to grounding of audio equipment.

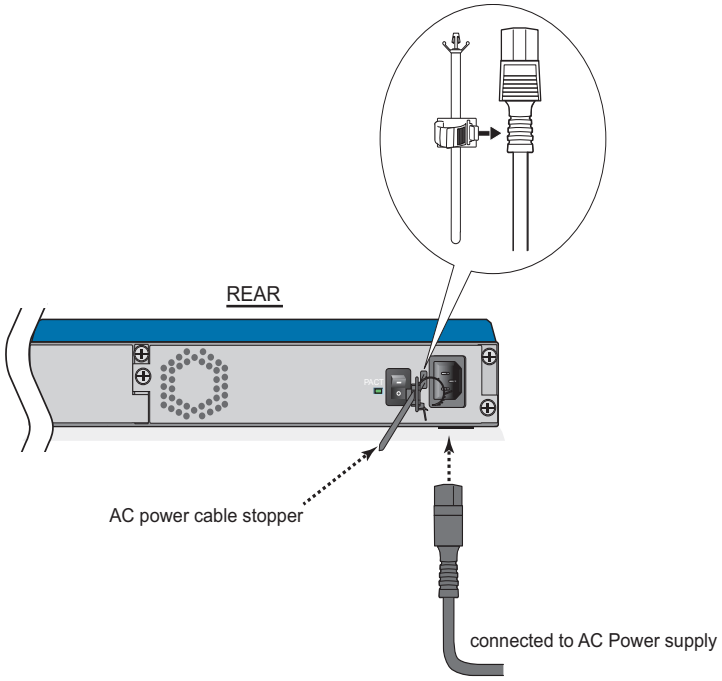
Note 3: Do not connect LAN and PSTN line here. These cables are connected in 3 Startup MCMG and Basic Tests.

The procedure for cable connection is as the following.

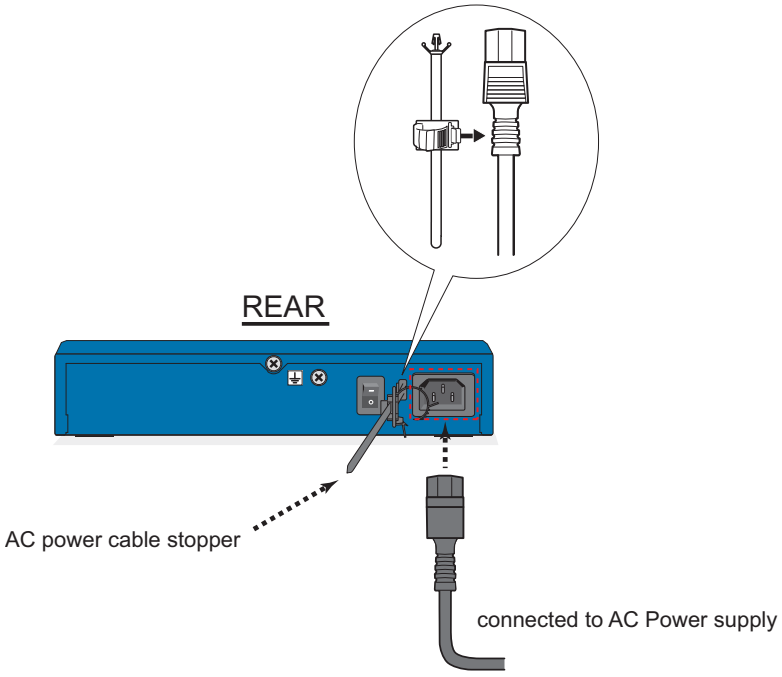
STEP 1 AC power cable connection

Connect AC power cable to AC Power Inlet on the rear panel of MCMG. Fix the AC power cable with the stopper.

- MCMG Card [SCA-4LC2COTA]



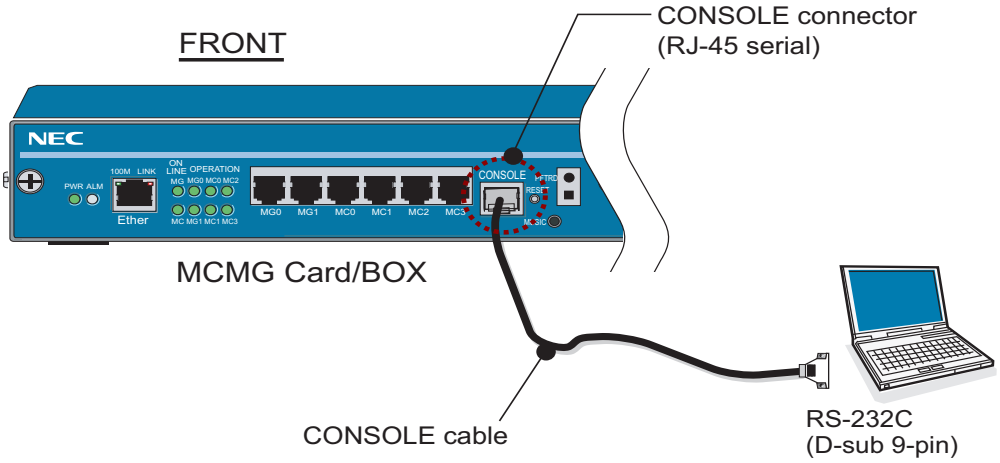
- MCMG Box [MG-4LC2COTA]



Connect the other end of the power cable to appropriate AC supply.

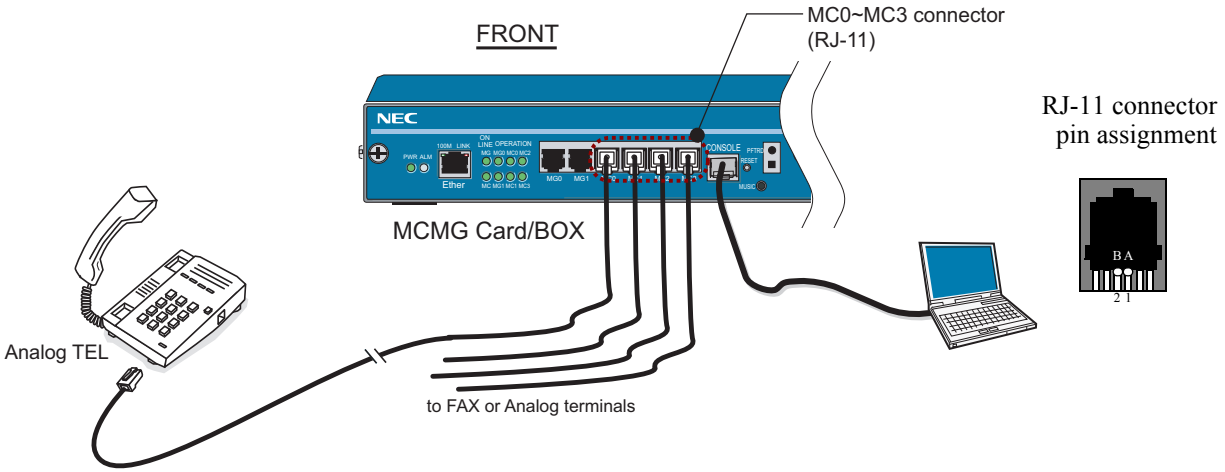
Note 4: For the safety measures against static electricity, lightning strike, and other electrical surges, be sure to make proper connection to grounding (less than 10 Ω). As MCMG has PSTN interface, if the line cable is struck by lightning directly, the lightning might cause damage to MCMG and AC power cable without Ground connection.

STEP 2 Connect a Maintenance Console (PC) to CONSOLE connector using CONSOLE cable.



STEP 3 Connect analog terminals to MC0 through MC3 connectors on the front panel.

Note that MC0 and MC1 provides PFT function



Note: PSTN lines and LAN cables are connected in 3 Startup MCMG and Basic Tests. Do not connect these cables here.

3 Startup MCMG and Basic Tests

This section explains procedures for startup and basic tests. Follow the procedure below depending on the registration destination.

STEP 1: Data Assignment by PCPro

When registering to Internal PHI-BRI
1. Internal PHI-BRI Data Assignment
2. MG Data Assignment **Note 1**
3. Internal PHE Data Assignment
4. MC Data Assignment

When registering to SP-PHI
1. Internal PHE Data Assignment
2. SP-PHI Data Assignment
3. MG Data Assignment **Note 1**
4. MC Data Assignment

STEP 2: VT-100 CompliantTerminal Software Setting on Maintenance Console

1. Connection between PC (maintenance console) and CONSOLE Connector
2. Terminal Software Activation
3. Setting of Terminal Software

STEP 3: Power ON

STEP 4: Configuration Command Assignment

1. Selection whether to use DHCP server
2. Network Data Assignment

STEP 5: Cable Connection

1. Connection between MCMG and LAN
2. Connection between C.O. lines and MG

STEP 6: Basic Test Procedures

1. Basic Connection Test
2. Alarm Information Check
3. PFT Switching Test

END

Note 1: Be sure to assign MG data before assigning MC data.

3.1 Data Assignment by PCPro

This section explains the data assignment procedures to the Telephony Server by PCPro.

Note: This equipment needs to be considered beforehand either Internal PHI-BRI or SP-PHI is set as the registration destination. Please make sure details of "Consideration for SP-PHI Data Assignment" in Chapter 2 of Data Programming Manual - Business before data assignment.

Note: For UG50, refer to the Peripheral Equipment Description (UG50).

<When registering to Internal PHI-BRI>

MG part of MCMG can be registered to either Internal PHI-BRI or SP-PHI. The following explains MCMG data assignment for registering to Internal PHI-BRI. When registering to SP-PHI, refer to page 204.

[1] Internal PHI-BRI Data Assignment

When MG part of MCMG is registered to Internal PHI-BRI embedded in the Telephony Server, Internal PHI-BRI data assignment is necessary.

[2] MG Data Assignment

Assign the necessary System Data for using the MG.

ASYD: Assignment of System Data

SYS1
INDEX 186, b6=1 (ISDN/MG (COT) is in service)
INDEX 187=00 (Fixed)
INDEX 474 Guard Timer For Originating Call (MTC × TC)
bit 0-3 (MTC)
bit 4-6 (TC) **Note 1**

Note 1: When assigning 1H, TC = 64 msec.

ARTD: Assignment of Route Class Data

Assign the Route Class Data for Virtual Speech Channel. The following data setting is necessary besides Analog C.O BWT setting.

CDN1	OSGS = 0	CCIS
CDN60	TC/EC = 1	Echo Canceler is available
CDN114	DCH = 1	Unify the channel
CDN125	MGCOT = 1	MG (COT) is available

When digits conversion is required for the received digits, assign the following data.

CDN66 (DC): Dialed Number Confirmation

Note: Assign the number of digits for identifying the incoming line. Count the digits from the last one of the received number.

<Related to MF>

CDN 72 MFSP	Sending Speed (0-15)
CDN 73 KPPT	Duration of KP sending (0-15)
CDN 74 KPST	Pause after KP sending (0-15)
CDN 75 MT	Step Code (0/1)

ARTI: Assignment of Trunk Application Data

Assign Trunk Application Data for Virtual Speech Channel.

CDN68	VIR = 2	MG connection

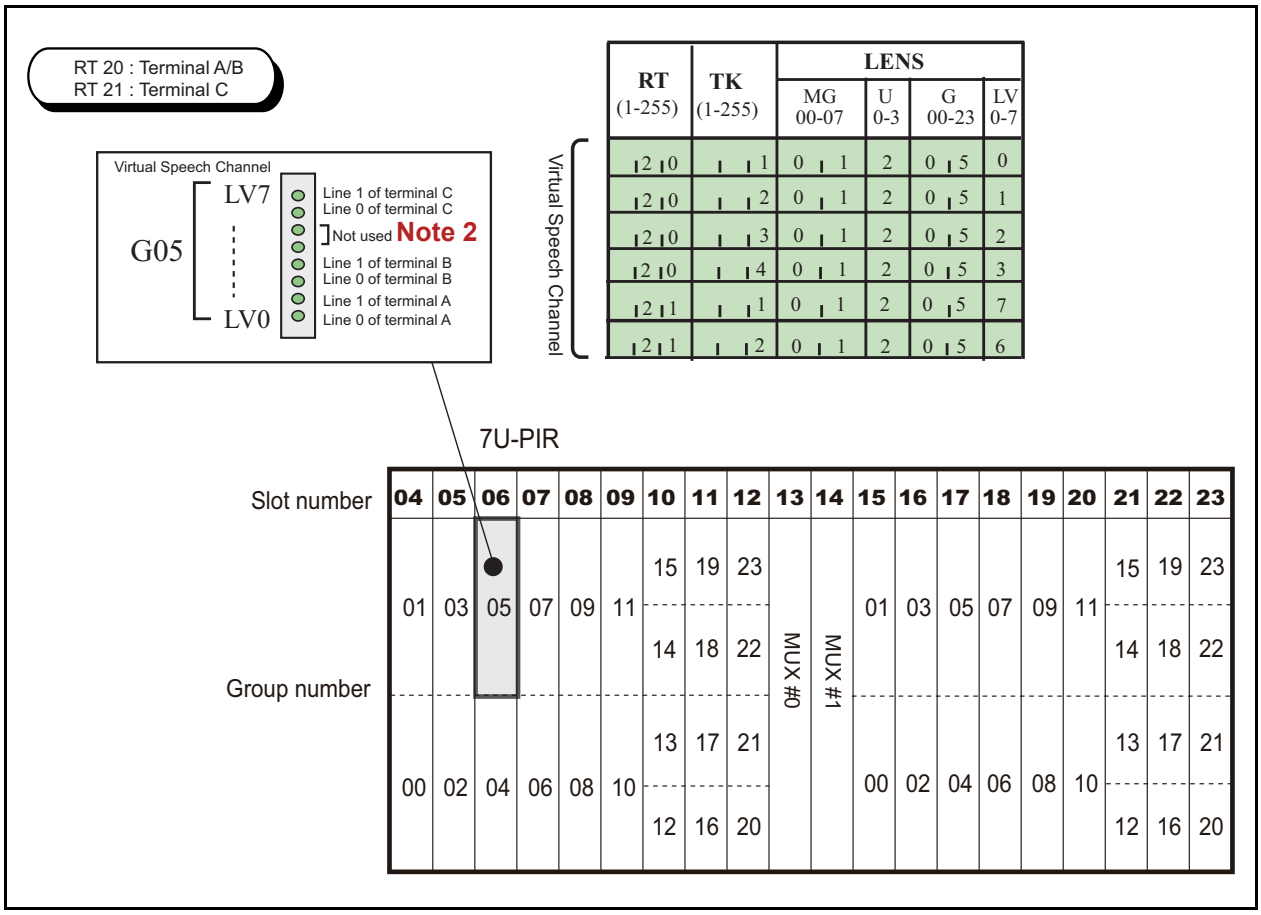
When using fax connection via MG, following assignment is necessary.
CDN 71 IP FAX data
CDN 72 Jitter Buffer Size for IP FAX
CDN 73 Payload Type for IP FAX
CDN 73 Payload Size for IP FAX

ATRK: Assignment of Trunk Data

Assign the Trunk Data for Virtual Speech Channel.
The example of data setting procedure is shown below.

Note: Virtual trunk occupies one group. For example, if even one channel is registered for Virtual Trunk, the group is occupied exclusively for the Virtual Trunk.

Note: Do not assign any trunk data to Group 0 of Unit 0 in even number Module group because it cannot be used with MCMG.



Note 2: It is not required to register Virtual Speech Channels to consecutive LV Numbers, like this example.

MBTK: Make-Busy of Trunk

Assign the IDLE/BUSY status of trunks for Virtual Speech Channel.

RT Route Number
TK Trunk Number
MB Make-Busy Information
MB = 0 (Make Idle)

AMGIL: Assignment of Media Gateway Information for LDM

Assign the information of MCMG.

Note: When assigning/deleting the data in this command with MCMG working, the terminal is reset.

Note: Verify that ATRK data is assigned to LENS prior to assigning AMGIL data.

MG-ID MAC Address of MCMG
** MAC address is labeled on the left front of MCMG (below PWR lamp).*

KIND Kind of MG Trunk
Select MC-MG (COT)

UG50 Multi-Slot Mode
Select this check box if registering UG50 in Multi-slot mode.

LINE MG Line Number [0/1]

CH MG Channel Number
Assign “0”.

LENS Assign Virtual Speech Channel for MCMG.

Setting Type of Signaling Packet Service
Type of Service for MCMG

Music On Hold Exists
External Music on hold (default setting)
Internal Music on hold1
Internal Music on hold2

External Music On Hold Input Gain Adjustment
0: 0dB
1: -10dB (gain)
2: -15dB (gain)
3: -20dB (gain)
4-15: Not used

Country Code Australia
Brazil
China
Hong Kong
Japan
Korea
Malaysia
Mexico
New Zealand
North America
Singapore
Sri Lanka
Taiwan
Thailand
Thailand (EGAT)
U.K
Other

Law of A/D conversion

Australia	A law
Hong Kong	μ law
Japan	μ law
Korea	μ /A law
Malaysia	A law
Mexico	A law
New Zealand	A law
North America	μ law
Singapore	A law
Taiwan	μ law

U.K	A law
Other	μ /A law

PB Receive Complete Timing of Dial-In [0-15]
Default value is 0.
False Answer Timing [0-15]
Default value is 0.

AMGVL: Assignment of Media Gateway Voice Control for LDM

Assign the voice control data for terminal that is connected to MCMG. When AMGVL data is not assigned, AIVCL data setting is applied.
A RT (MG Storing)
Physical Route Number for Virtual Speech Channel of MG (COT)
TYPE
Choose either of the following:
- Route Specified
- Location ID Specified

B RT (MG Storing)
Displayed when TYPE = Route Specified is selected.
Physical Route Number for Virtual Speech Channel of terminal connected to MG
B LOC-ID: Location ID of IP terminal connected to MG (COT)
Displayed when TYPE = Location ID Specified is selected.
Setting of Jitter Buffer
JB MIN: Jitter Buffer minimum value
JB MAX: Jitter Buffer maximum value
Setting Type of Voice Packet Service
Type of service for MG (COT)
Setting of Payload
TYPE
SIZE
Setting of PAD
Select this check box when setting data for PAD value of MG.
PAD Information
This parameter is available only when the check box of “Setting of PAD” is ON.
No = 1: The PAD value of MG when DtermIP/Soft Phone/INASET is connected
No = 2: The PAD value of MG when Analog MC/Digital MC is connected
No = 3: The PAD value of MG when IPPAD is connected
No = 4: The PAD value of MG when MG is connected

Note: The PAD value of MG(COT) is valid only when you select “Setting” from the drop-down box of “Setting of Detail” to specify the detail PAD value.

AIVCL: Assignment of IP Service Voice Control Data for LDM

Assign the voice packet control data for terminal that is connected to MG (COT).

A LOC-ID	Location ID of MG (COT) or IP terminal
B LOC-ID	Location ID of MG (COT) or IP terminal

Setting of Jitter Buffer
JB MIN: Jitter Buffer minimum value
JB MAX: Jitter Buffer maximum value
Setting Type of Voice Packet Service
Type of Service for MG (COT)
Setting of Payload
TYPE
SIZE

[3] Internal PHE Data Assignment

MC part of MCMG is controlled by Internal PHE which is embedded in the Telephony Server.

[4] MC Data Assignment

Assign the system data, according to the station numbering plan. Refer to the following for the prerequisite minimum data.

ASYD: Assignment of System Data

SYS1, INDEX 4, b2-b3
Assign the Releasing Method for Station-to-Station Calling Service
00 = Calling Party release
01 = Called Party release
10 = First Party release
11 = Both Party release
Normally, "10" = First Party release is assigned.

SYS1, INDEX 16
Assign the number level on station number composition
b0: 0/1 = 1-digit station number is not used/used
b1: 0/1 = 2-digit station number is not used/used
b2: 0/1 = 3-digit station number is not used/used
b3: 0/1 = 4-digit station number is not used/used
b4: 0/1 = 5-digit station number is not used/used

SYS3, INDEX 0
Assign the ringing pattern when a call from the C.O. line terminates to a station. Normally, "21" is assigned in hexadecimal (1 second ringing, 2 second pause).
For details, refer to Command Manual.

SYS3, INDEX 1
Assign the ringing pattern when a station is called from another station (Ringing Pattern 1).
Normally, "42" is assigned in hexadecimal (2 second ringing, 4 second pause).
For details, refer to Command Manual.

SYS3, INDEX 2
Assign Station Release Timer (LT: Long Timer, ST: Short Timer). Normally, in North America, "91" is set in hexadecimal (LT = 1,080 milliseconds, ST = 120 milliseconds). Refer to the Command Manual for details.

ASYDL: Assignment of System Data (LDM)

SYS1, INDEX 811

Assign the Tone Code by countries. For more information, refer to the Command Manual.

SYS1, INDEX 813

Assign the PAD value of MC

00 = No PAD control (conforms to the setting on ASYD, SYS1, INDEX 4, b5)
01 = PAD OFF (0dB)
02 = 3dB
03 = 6dB

AUNT: Assignment of Unit Data

MG: Module Group Number
TYPE: 1 (Select 1 for Unit data assignment)
UNIT0: 1/2 (Unit 0 is used/not used).
UNIT1: 1/2 (Unit 1 is used/not used).
UNIT2: 1/2 (Unit 2 is used/not used).
UNIT3: 1/2 (Unit 3 is used/not used).

ANPD: Assignment of Numbering Plan

1st DC: Assign the 1st DC of the station numbers.

NND: Assign the total station number digits.

ASPA: Assignment of Special Access Code

ACC: Assign the Access Code using the 1st DC specified by the ANPD command.

ATNR: Assignment of Tenant Restriction Class Data

Assign the Connection Restriction Data between Originating Tenant (OGTN) and Terminating Tenant (TMTN). When ASYD, SYS1, INDEX 94, b0=0 is assigned (Multiple Tenant Service is in-service), assign the respective Tenant Number of OGTN and TMTN. If not (when the data is "1"), assign the fixed Tenant Number of "1" for both OGTN and TMTN.

TRI: "0" for Station-to-Station Calling
OGTN: Number of Originating Tenant
TMTN: Number of Terminating Tenant
RES: "0" for restriction/"1" for permission

Note: For a Station-to-Outgoing trunk connection, allow the Route Restriction for each trunk by the ARSC command.

AISTL: Assignment of IP Station Data (LDM)

Assign the IP Station Data of each terminal connected to the MC by the AISTL command.

TN: Tenant Number [1-63]
IP STN: Station number of IP Station (assign the station number for each analog terminal connected to the MCMG)
KIND: Kind of IP Terminal. Select the terminal kind MC-MG (COT) in the combo box
TEC: Telephone Equipment Class [2, 3, 14]
RSC: Route Restriction Class [0-15]
SFC: Service Feature Restriction Class [0-15]
LENS: IP Station Equipment Numbers as Virtual LENS. Allocate the IP station to the Virtual LENS within Virtual PIR, or to the LENS of a vacant slot that the Station/Trunk is not mounted (an IP station cannot be assigned to a registered station multiple times.)

Note: For a detailed explanation of data assignment for a Virtual PIR, see the Data Programming Manual.

MC-ID: ID of the MCMG (enter the fixed MAC Address of the MCMG)
MC-CH: Channel Number of the MC (assign 0-3 (Port 0-3)) for each analog terminal connected to the MCMG)
FAX Data Setting: Click the check box to ON when manual data setting is required for Fax communication.
JITSIZ: Enter the Jitter Buffer size in the range 1-30 (×10ms) for Fax controlling.
PAYTYP x: Select the Payload Type G.711/G.726/T.30 in the combo box.
PAYSIZ x: Select the Payload Size 10ms-40ms (required for G.711 and G.726).

ALOCL: Assignment of Location ID Data (LDM)

Each IP terminal is allocated a Location ID to identify its location within the network on Network Address basis. By using the Location ID, IP services such as Bandwidth Control and ToS Control are provided for each IP terminal.
TYPE: Select "Network Address".
IP ADDRESS: Enter the IP Address. For the Telephony Server (IPPAD), assign "0.0.0.0".
MASK BIT: Enter the Mask Bit in the range of 1-31 except when IP Address 0.0.0.0 is determined. Mask Bit=32 is automatically set when IP Address=0.0.0.0
NETWORK ADDRESS: Display only.
LOC-ID: Assign the Location ID in the range of 0-4095, associated with the IP Address. When IP Address=0.0.0.0, LOC-ID=0 is automatically set (the value cannot be changed).

Note: LOC-ID=0 is predetermined to the Location ID of the Telephony Server (i.e. IPPAD).

Setting Type of Signaling Packet Service: Click the check box to assign the ToS for signaling packet.
IP PRECEDENCE/DIFFSERV:
<When IP PRECEDENCE is selected>

Priority: Specify the precedence in the range of 0-7 (low-high).
Low Delay: Place a checkmark to set Low Delay to ON.
Through Put: Place a checkmark to set High Throughput to ON.
Reliability: Place a checkmark to set High Reliability to ON.
MIN Cost: Place a checkmark to set Cost Precedence to ON.

<When DIFFSERV is selected>

Priority: Specify the DiffServ Code Point in the range of 0-63.

Note: Default settings (IP PRECEDENCE, Priority = 6, Low Delay = OFF, Throughput = OFF, Reliability = OFF, Min Cost = OFF) is applied when the check box is not clicked.

AIVCL: Assignment of IP Service Voice Control Data (LDM)

A LOC-ID:Location ID of the self-location [0-4095]
B LOC-ID:Location ID of the destination location [0-4095]
Setting of Jitter Buffer: Select the check box to assign the Jitter Buffer data.
JB MIN: Jitter Buffer minimum value [0-30 (× 10 milliseconds)]
JB MAX: Jitter Buffer maximum value [0-30 (× 10 milliseconds)]

Note: Default settings (JB MIN=1 (10 ms), JB MAX=30 (300 ms)) are applied when the check box is not clicked.

Setting Type of Voice Packet Service: Select the check box to assign the ToS data for voice packet.
IP PRECEDENCE/DIFFSERV: Choose either from the drop-down list box.

<When IP PRECEDENCE is selected>

Priority (PRECEDENCE/DSCP):Specify the precedence in the range of 0-7 (low-high).
Low Delay: Place a checkmark to set Low Delay to ON.
Through Put: Place a checkmark to set High Throughput to ON.
Reliability: Place a checkmark to set High Reliability to ON.
MIN Cost: Place a checkmark to set Cost Precedence to ON.

<When DIFFSERV is selected>

Priority (PRECEDENCE/DSCP):Specify the DiffServ Code Point in the range of 0-63.

Note: Default settings (IP PRECEDENCE, Priority (PRECEDENCE/DSCP) = 5, Low Delay = OFF, Through Put = OFF, Reliability = OFF, Min Cost = OFF) are applied when the check box is not selected.

Setting of Payload: Select the check box to assign the Payload data. Specify the Payload Type and Payload Size in the order of priority 1 to 4 (PRI1 through PRI4).

TYPE: Select a payload type from the combo box.
- •No data
- •G.711
- •G.729a
- •G.723.1 (5.3K → 6.3K)
- •G.723.1 (6.3K → 5.3K)

SIZE: Select a payload size from the combo box according to the Payload Type.
- •No data
- •10 milliseconds
- •20 milliseconds
- •30 milliseconds
- •40 milliseconds
- •60 milliseconds

Note:

- If payload type G.711 is specified to more than two priorities in PRI1 through PRI4, assign different payload size to each priority.
- When payload types G.723.1 (5.3K → 6.3K) and G.723.1 (6.3K → 5.3K) are to be assigned on the same terminal, specify the same value to the payload size of both types.
- It is not necessary to assign the payload type/size to the whole priorities. Specifying the first priority only is allowed.
- For available payload type/payload size, refer to "Payload Setting for Each IP Equipment" in the System Description.

Setting of PAD: Select the check box to assign the PAD data manually. If not checked, default value 0 is applied.

KIND2: Specify the PAD value of Analog MC in the range of 0-3.

- •No PAD control (determined by ASYD, SYS1, INDEX 4, bit5 (5 dB PAD))
- •PAD OFF (0 dB)
- •3 dB
- •6 dB

KIND3: Specify the PAD No. of IPPAD in the range of 0-15.
PAD value is determined by this PAD No. (0-15) and the setting of SW10-6/7 on IPPAD card. Refer to the Circuit Card Description for more details.

Setting of Echo Canceller: Select the check box to assign the Echo Canceller data, and select one of the radio buttons.

- •A EC-ON/B EC-ON
- •A EC-ON/B EC-OFF
- •A EC-OFF/B EC-ON
- •A EC-OFF/B EC-OFF

Note: When the same value is assigned to both “A LOC-ID” and “B LOC-ID” parameters, select either “A EC-ON/B EC-ON” or “A EC-OFF/B EC-OFF.”

Note: MC-MG needs to be rebooted after station data is assigned to reflect change. Confirm that there is no conversation in progress when rebooting.

<When registering to SP-PHI>

MG part of MCMG can be registered to either Internal PHI-BRI or SP-PHI. The following explains MCMG data assignment for registering to SP-PHI. When registering to Internal PHI-BRI, refer to page 194.

[1] Internal PHE Data Assignment

When MG part of MCMG is registered to SP-PHI, MPH is used to control SP-PHI. For the use of MPH, it is required to make Internal PHE function valid. So Internal PHE data assignment is necessary.

[2] SP-PHI Data Assignment

When MG part of MCMG is registered to SP-PHI, SP-PHI data assignment is necessary.

[3] MG Data Assignment

Assign the necessary System Data for using the MG.

ASYD: Assignment of System Data

SYS1
INDEX 186, b6=1 (ISDN/MG (COT) is in service)
INDEX 187=00 (Fixed)
INDEX 474 Guard Timer For Originating Call (MTC × TC)
bit 0-3 (MTC)
bit 4-6 (TC) **Note 3**

Note 3: When assigning 1H, TC = 64 msec.

ARTD: Assignment of Route Class Data

Assign the Route Class Data for Virtual Speech Channel. The following data setting is necessary besides Analog C.O BWT setting.

CDN1	OSGS = 0	CCIS
CDN60	TC/EC = 1	Echo Canceler is available
CDN114	DCH = 1	Unify the channel
CDN125	MGCOT = 1	MG (COT) is available

When digits conversion is required for the received digits, assign the following data.

CDN66 (DC): Dialed Number Confirmation

Note: Assign the number of digits for identifying the incoming line. Count the digits from the last one of the received number.

<Related to MF>

CDN 72 MFSP	Sending Speed (0-15)
CDN 73 KPPT	Duration of KP sending (0-15)
CDN 74 KPST	Pause after KP sending (0-15)
CDN 75 MT	Step Code (0/1)

ARTI: Assignment of Trunk Application Data

Assign Trunk Application Data for Virtual Speech Channel.
CDN68 VIR = 2 MG connection

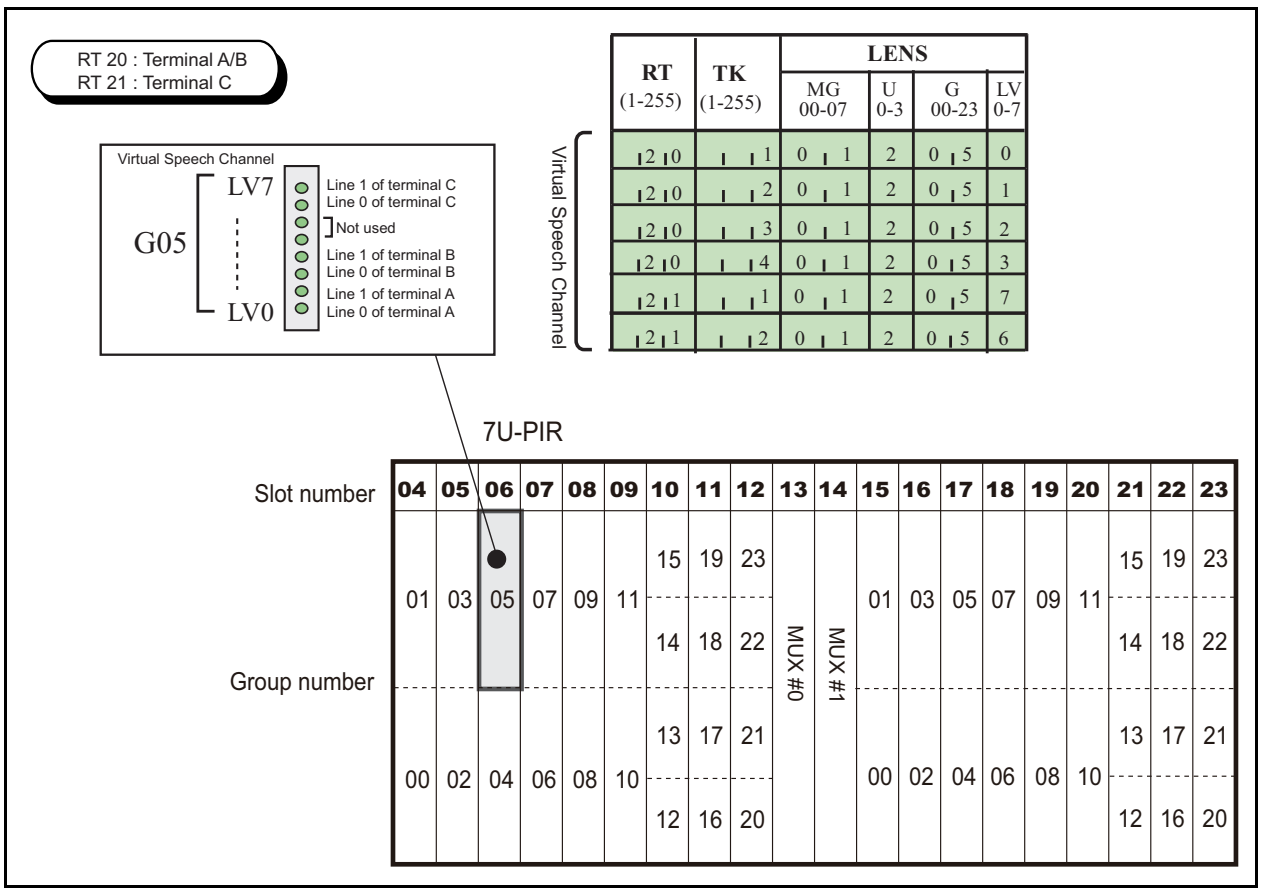
When using fax connection via MG, following assignment is necessary.
CDN 71 IP FAX data
CDN 72 Jitter Buffer Size for IP FAX
CDN 73 Payload Type for IP FAX
CDN 73 Payload Size for IP FAX

ATRK: Assignment of Trunk Data

Assign the Trunk Data for Virtual Speech Channel.
The example of data setting procedure is shown below.

Note: Virtual trunk occupies one group. For example, if even one channel is registered for Virtual Trunk, the group is occupied exclusively for the Virtual Trunk.

Note: Do not assign any trunk data to Group 0 of Unit 0 in even number Module group because it cannot be used with MCMG.



RT (1-255)	TK (1-255)	LENS MG 00-07	U 0-3	G 00-23	LV 0-7
210	1	01	2	05	0
210	2	01	2	05	1
210	3	01	2	05	2
210	4	01	2	05	3
211	1	01	2	05	7
211	2	01	2	05	6

Slot number	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Group number	01	03	05	07	09	11	15	19	23	MUX #0	MUX #1	01	03	05	07	09	11	15	19	23
							14	18	22									14	18	22
	00	02	04	06	08	10	13	17	21			00	02	04	06	08	10	13	17	21
							12	16	20									12	16	20

MBTK: Make-Busy of Trunk

Assign the IDLE/BUSY status of trunks for Virtual Speech Channel.

RT Route Number
TK Trunk Number
MB Make-Busy Information
MB = 0 (Make Idle)

AMGIL: Assignment of Media Gateway Information for LDM

Assign the information of MCMG.

Note: When assigning/deleting the data in this command with MCMG working, the terminal is reset.

Note: Verify that ATRK data is assigned to LENS prior to assigning AMGIL data.

MG-ID MAC Address of MCMG
** MAC address is labeled on the left front of MCMG (below PWR lamp).*
KIND Kind of MG Trunk
Select MC-MG (COT)
UG50 Multi-Slot Mode
Select this check box if registering UG50 in Multi-slot mode.
LINE MG Line Number [0/1]
CH MG Channel Number
Assign "0".
LENS Assign Virtual Speech Channel for MCMG.
Setting Type of Signaling Packet Service
Type of Service for MCMG
Music On Hold Exists
External Music on hold (default setting)
Internal Music on hold1
Internal Music on hold2
External Music On Hold Input Gain Adjustment
0: 0dB
1: -10dB (gain)
2: -15dB (gain)
3: -20dB (gain)
4-15: Not used

Country Code Australia
Brazil
China
Hong Kong
Japan
Korea
Malaysia
Mexico
New Zealand
North America

Singapore
Sri Lanka
Taiwan
Thailand
Thailand (EGAT)
U.K
Other

Law of A/D conversion

Australia	A law
Hong Kong	μ law
Japan	μ law
Korea	μ /A law
Malaysia	A law
Mexico	A law
New Zealand	A law
North America	μ law
Singapore	A law
Taiwan	μ law
U.K	A law
Other	μ /A law

PB Receive Complete Timing of Dial-In [0-15]
Default value is 0.
False Answer Timing [0-15]
Default value is 0.

AMGVL: Assignment of Media Gateway Voice Control for LDM

Assign the voice control data for terminal that is connected to MCMG. When AMGVL data is not assigned, AIVCL data setting is applied.
A RT (MG Storing)
Physical Route Number for Virtual Speech Channel of MG (COT)
TYPE
Select one of the followings:
- Route Specified
- Location ID Specified

B RT (MG Storing)
Displayed when TYPE=Route Specified is selected.
Physical Route Number for Virtual Speech Channel of terminal connected to MG
B LOC-ID:Location ID of IP terminal connected to MG (COT)
Displayed when TYPE=Location ID Specified is selected.
Setting of Jitter Buffer
JB MIN: Jitter Buffer Minimum
JB MAX: Jitter Buffer Maximum
Setting Type of Voice Packet Service
Type of service for MG (COT)
Setting of Payload

TYPE
SIZE

Setting of PAD
Click this check box when setting data for PAD value of MG.

PAD Information
This parameter is available only when the check box of "Setting of PAD" is ON.
No = 1: The PAD value of MG when DtermIP/Soft Phone/INASET is connected
No = 2: The PAD value of MG when Analog MC/Digital MC is connected
No = 3: The PAD value of MG when IPPAD is connected
No = 4: The PAD value of MG when MG is connected

Note: The PAD value of MG(COT) is valid only when you select "Setting" from the drop-down box of "Setting of Detail" to specify the detail PAD value.

AIVCL: Assignment of IP Service Voice Control Data for LDM

Assign the voice packet control data for terminal that is connected to MG (COT).
A LOC-ID Location ID of MG (COT) or IP terminal
B LOC-ID Location ID of MG (COT) or IP terminal
Setting of Jitter Buffer
JB MIN: Jitter Buffer minimum value
JB MAX: Jitter Buffer maximum value
Setting Type of Voice Packet Service
Type of Service for MG (COT)
Setting of Payload
TYPE
SIZE

[4] MC Data Assignment

Assign the system data, according to the station numbering plan. Refer to the following for the prerequisite minimum data.

ASYD: Assignment of System Data

SYS1, INDEX 4, b2-b3
Assign the Releasing Method for Station-to-Station Calling Service
00 = Calling Party release
01 = Called Party release
10 = First Party release
11 = Both Party release
Normally, "10" = First Party release is assigned.

SYS1, INDEX 16
Assign the number level on station number composition
b0: 0/1 = 1-digit station number is not used/used

b1: 0/1 = 2-digit station number is not used/used
b2: 0/1 = 3-digit station number is not used/used
b3: 0/1 = 4-digit station number is not used/used
b4: 0/1 = 5-digit station number is not used/used

SYS3, INDEX 0
Assign the ringing pattern when a call from the C.O. line terminates to a station. Normally, "21" is assigned in hexadecimal (1 second ringing, 2 second pause).
For details, refer to the Command Manual.

SYS3, INDEX 1
Assign the ringing pattern when a station is called from another station (Ringing Pattern 1).
Normally, "42" is assigned in hexadecimal (2 second ringing, 4 second pause).
For details, refer to the Command Manual.

SYS3, INDEX 2
Assign Station Release Timer (TS - release timing when connected to an ORT) and Hooking Timer (TL - SHF maximum timing). Normally, "91" is set in hexadecimal (TS = 120 milliseconds, TL = 1,080 milliseconds).
For details, refer to the Command Manual.

ASYDL: Assignment of System Data (LDM)

SYS1, INDEX 811

Assign the Tone Code by countries. For more information, refer to the Command Manual.

SYS1, INDEX 813

Assign the PAD value of MC

00 = No PAD control (conforms to the setting on ASYD, SYS1, INDEX 4, b5)
01 = PAD OFF (0dB)
02 = 3dB
03 = 6dB

AUNT: Assignment of Unit Data

MG: Module Group Number
TYPE: 1 (Select 1 for Unit data assignment)
UNIT0: 1/2 (Unit 0 is used/not used).
UNIT1: 1/2 (Unit 1 is used/not used).
UNIT2: 1/2 (Unit 2 is used/not used).
UNIT3: 1/2 (Unit 3 is used/not used).

ANPD: Assignment of Numbering Plan

1st DC: Assign the 1st DC of the station numbers.

NND: Assign the total station number digits.

ASPA: Assignment of Special Access Code

ACC: Assign the access code using the 1st DC specified by the ANPD command.

ATNR: Assignment of Tenant Restriction Class Data

Assign the Connection Restriction Data between Originating Tenant (OGTN) and Terminating Tenant (TMTN). When ASYD, SYS1, INDEX 94, b0=0 is assigned (Multiple Tenant Service is in-service), assign the respective Tenant Number of OGTN and TMTN. If not (when the data is "1"), assign the fixed Tenant Number of "1" for both OGTN and TMTN.

TRI: "0" for Station-to-Station Calling
OGTN: Number of Originating Tenant
TMTN: Number of Terminating Tenant
RES: "0" for restriction/"1" for permission

Note: For a Station-to-Outgoing trunk connection, allow the Route Restriction for each trunk by the ARSC command.

AISTL: Assignment of IP Station Data (LDM)

Assign the IP Station Data of each terminal connected to the MC by the AISTL command.

TN: Tenant Number [1-63]
IP STN: Station number of IP Station (assign the station number for each analog terminal connected to the MCMG)
KIND: Kind of IP Terminal. Select the terminal kind MC-MG (COT) in the combo box
TEC: Telephone Equipment Class [2, 3, 14]
RSC: Route Restriction Class [0-15]
SFC: Service Feature Restriction Class [0-15]
LENS: IP Station Equipment Numbers as Virtual LENS. Allocate the IP station to the Virtual LENS within Virtual PIR, or to the LENS of a vacant slot that the Station/Trunk is not mounted (an IP station cannot be assigned to a registered station multiple times.)

Note: For a detailed explanation of data assignment for a Virtual PIR, see the Data Programming Manual.

MC-ID: ID of the MCMG (enter the fixed MAC Address of the MCMG)
MC-CH: Channel Number of the MC (assign 0-3 (Port 0-3)) for each analog terminal connected to the MCMG)
FAX Data Setting: Click the check box to ON when manual data setting is required for Fax communication.
JITSIZ: Enter the Jitter Buffer size in the range 1-30 (×10ms) for Fax controlling.
PAYTYP x: Select the Payload Type G.711/G.726/T.30 in the combo box.
PAYSIZ x: Select the Payload Size 10ms-40ms (required for G.711 and G.726).

ALOCL: Assignment of Location ID Data (LDM)

Each IP terminal is allocated a Location ID to identify its location within the network on Network Address basis. By using the Location ID, IP services such as Bandwidth Control and ToS Control are provided for each IP terminal.
TYPE: Select “Network Address”.
IP ADDRESS: Enter the IP Address. For the Telephony Server (IPPAD), assign “0.0.0.0”.
MASK BIT: Enter the Mask Bit in the range of 1-31 except when IP Address 0.0.0.0 is determined. Mask Bit=32 is automatically set when IP Address=0.0.0.0
NETWORK ADDRESS: Display only.
LOC-ID: Assign the Location ID in the range of 0-4095, associated with the IP Address. When IP Address=0.0.0.0, LOC-ID=0 is automatically set (the value cannot be changed).

Note: LOC-ID=0 is predetermined to the Location ID of the Telephony Server (i.e. IPPAD).

Setting Type of Signaling Packet Service: Click the check box to assign the ToS for signaling packet.
IP PRECEDENCE/DIFFSERV:
<When IP PRECEDENCE is selected>
Priority: Specify the precedence in the range of 0-7 (low-high).
Low Delay: Place a checkmark to set Low Delay to ON.
Through Put: Place a checkmark to set High Throughput to ON.
Reliability: Place a checkmark to set High Reliability to ON.
MIN Cost: Place a checkmark to set Cost Precedence to ON.
<When DIFFSERV is selected>
Priority: Specify the DiffServ Code Point in the range of 0-63.

Note: Default settings (IP PRECEDENCE, Priority=6, Low Delay = OFF, Throughput = OFF, Reliability = OFF, Min Cost = OFF) is applied when the check box is not selected.

AIVCL: Assignment of IP Service Voice Control Data (LDM)

A LOC-ID:Location ID of the self-location [0-4095]
B LOC-ID:Location ID of the destination location [0-4095]
Setting of Jitter Buffer: Select the check box to assign the Jitter Buffer data.
JB MIN: Jitter Buffer minimum value [0-30 (× 10 milliseconds)]
JB MAX: Jitter Buffer maximum value [0-30 (× 10 milliseconds)]

Note: Default settings (JB MIN=1 (10 ms), JB MAX=30 (300 ms)) are applied when the check box is not selected.

Setting Type of Voice Packet Service: Select the check box to assign the ToS data for voice packet.
IP PRECEDENCE/DIFFSERV: Choose either from the drop-down list box.
<When IP PRECEDENCE is selected>
Priority (PRECEDENCE/DSCP):Specify the precedence in the range of 0-7 (low-high).
Low Delay: Place a checkmark to set Low Delay to ON.
Through Put: Place a checkmark to set High Throughput to ON.
Reliability: Place a checkmark to set High Reliability to ON.
MIN Cost: Place a checkmark to set Cost Precedence to ON.
<When DIFFSERV is selected>
Priority (PRECEDENCE/DSCP):Specify the DiffServ Code Point in the range of 0-63.

Note: Default settings (IP PRECEDENCE, Priority (PRECEDENCE/DSCP) = 5, Low Delay = OFF, Through Put = OFF, Reliability = OFF, Min Cost = OFF) are applied when the check box is not selected.

Setting of Payload: Select the check box to assign the Payload data. Specify the Payload Type and Payload Size in the order of priority 1 to 4 (PRI1 through PRI4).

TYPE: Select a payload type from the combo box.
- •No data
- •G.711
- •G.729a
- •G.723.1 (5.3K → 6.3K)
- •G.723.1 (6.3K → 5.3K)

SIZE: Select a payload size from the combo box according to the Payload Type.
- •No data
- •10 milliseconds
- •20 milliseconds
- •30 milliseconds
- •40 milliseconds
- •60 milliseconds

Note:

- If payload type G.711 is specified to more than two priorities in PRI1 through PRI4, assign different payload size to each priority.
- When payload types G.723.1 (5.3K → 6.3K) and G.723.1 (6.3K → 5.3K) are to be assigned on the same terminal, specify the same value to the payload size of both types.
- It is not necessary to assign the payload type/size to the whole priorities. Specifying the first priority only is allowed.
- For available payload type/payload size, refer to "Payload Setting for Each IP Equipment" in the System Description.

Setting of PAD: Select the check box to assign the PAD data manually. If not checked, default value 0 is applied.

KIND2: Specify the PAD value of Analog MC in the range of 0-3.
- •No PAD control (determined by ASYD, SYS1, INDEX 4, bit5 (5 dB PAD))
- •PAD OFF (0 dB)
- •3 dB
- •6 dB

KIND3: Specify the PAD No. of IPPAD in the range of 0-15.
PAD value is determined by this PAD No. (0-15) and the setting of SW10-6/7 on IPPAD card. Refer to the Circuit Card Description for more details.

Setting of Echo Canceller: Select the check box to assign the Echo Canceller data, and select one of the radio buttons.

- A EC-ON/B EC-ON
- A EC-ON/B EC-OFF
- A EC-OFF/B EC-ON
- A EC-OFF/B EC-OFF

Note: When the same value is assigned to both “A LOC-ID” and “B LOC-ID” parameters, select either “A EC-ON/B EC-ON” or “A EC-OFF/B EC-OFF.”

Note: MCMG needs to be rebooted after station data is assigned to reflect change. Confirm that there is no conversation in progress when rebooting.

3.2 VT-100 Compliant Terminal Software Setting on Maintenance Console



Note: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data.

STEP 1: Connect a PC (maintenance console) to CONSOLE connector.

STEP 2: Run the VT-100 compliant terminal software (e.g. HyperTerminal) on the Maintenance Console.

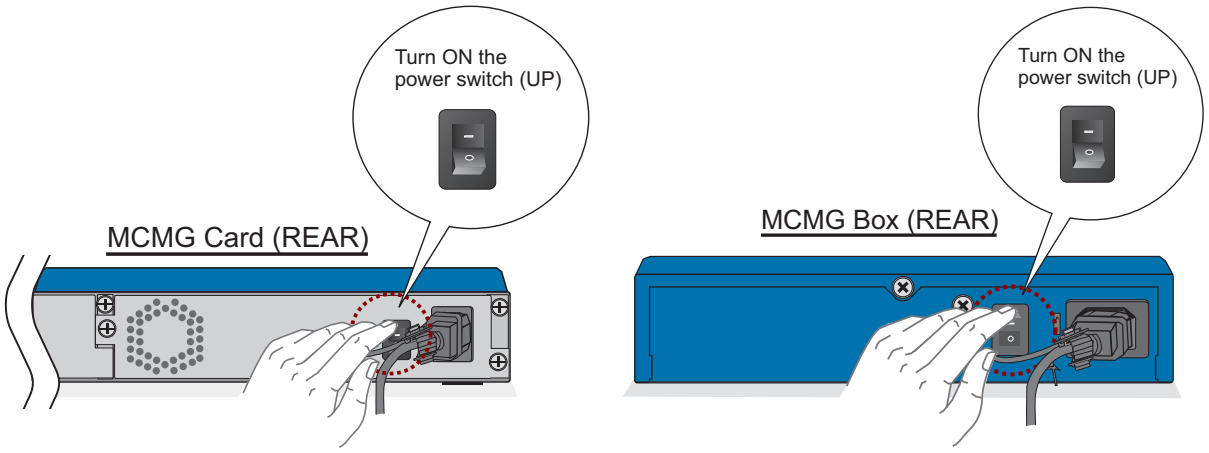
STEP 3: Set the parameter of the terminal software as follows:

- Port: *COM1 (depending on PC setting)*
- Baud Rate: *9600 bps*
- Data: *8 bits*
- Parity: *None*
- Stop Bit: *1*
- Flow Control: *None*

3.3 Power On

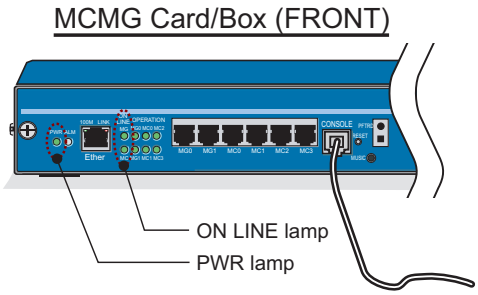


STEP 1: Turn ON the power switch (UP) on the rear panel of MCMG.



Note: When the 1U-MPC has already turned on, press “RESET” button on the front panel of MCMG Card to restart the card and start its boot program.

STEP 2: Make sure the LEDs indicate normal status.
- PWR LED lights green.
- (Boot program automatically starts.)
- ON LINE LED light green when the sequence is completed.



3.4 Configuration Command Assignment

Assign the configuration data by command operation on maintenance console.

Note: "DRS (Device Registration Server)" used in this section refers to the Telephony Server. The Telephony Server acts as DRS for MCMG using Proprietary Protocol.

Note: The setting data here is an example. Assign the network data according to your network configuration.

STEP 1: When the boot program is started, the initial display below is displayed on the screen.

```
MCMG-ID: xxxxxx

Starting MC-MG(COT) Bootprogram......
--- Online program Initial start --- (wait 30sec)
:
:
:
->
->
->
```

STEP 2: Type "usrConsole" at the indicated OS prompt and press the ENTER key.

```
->
->
->usrConsole
```

STEP 3: MCMG command prompt appears as follows.

```
->
->usrConsole
MC-MG Maintenance command Version 1.00 2005.5.16
MC-MG>
```

STEP 4: Set the network data depending on your LAN environment.

There are two ways to set the network data; DHCP server is used or not used.

- When DHCP server is used
- When DHCP server is NOT used

- **When DHCP server is used**

  Use SET DHCP ENABLE command to set the data and move on to STEP 5.

```
MC-MG> SET DHCP ENABLE

DHCP setting succeeded.
```

  Note: Assign the IP address of default gateway and DRS to DHCP server in this case.

  Note: Confirm IP address saved in DHCP server as to get IP address of MCMG anytime.

- **When DHCP server is NOT used**

  Set the following data on MCMG.
  - IP address of MCMG (own address)
  - IP address of Default Gateway
  - IP address and port number of DRS **Note 1**

  Note: When the DHCP is set to “ENABLE”, IP addresses assigned here cannot take effect. Be sure to assign “SET DHCP DISABLE” before starting the IP address setting.

  Note 1: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

  Use SET IPADDRESS command to set the data IP address and Subnet mask of MCMG.

```
MC-MG> SET IPADDRESS 192.168.0.11 255.255.255.0

IP Address setting succeeded.
```

  Use SET DEFAULTROUTE command to set the IP address of default gateway.

```
MC-MG> SET DEFAULTROUTE 192.168.0.254

Default Gateway setting succeeded.
```

  Use SET DRSADDRESS command to set the IP address and port number of DRS (Telephony Server).

```
MC-MG> SET DRSADDRESS

DRS Unit (1:Primary/2:Secondary/3:Tertiary/4:Fourth):1
DRS IP Address: 192.168.0.1
DRS Port Number: 3456

DRS setting succeeded.
```

STEP 5: Save the assigned data using SAVE CONFIGDATA command.

```
MC-MG> SAVE CONFIGDATA
**Don't power off in progress**
Do you need save? [N/Y]:Y

erase start...
erase OK!
write start...
write OK!
Checksum write. OK!
Configuration data has been saved.
Restarting is required for making a setup reflect!!

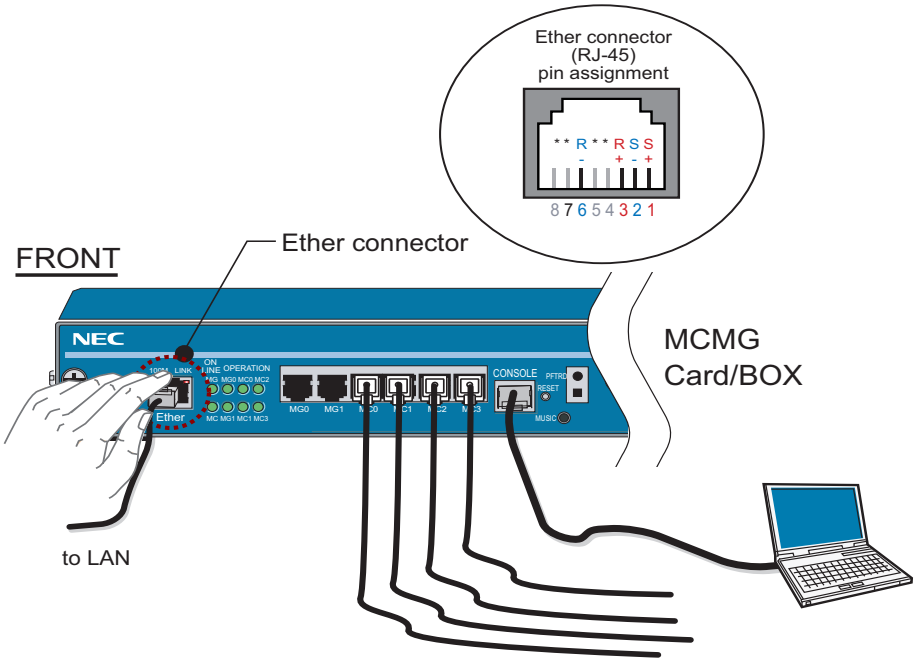
MC-MG>
```

3.5 Cable Connection

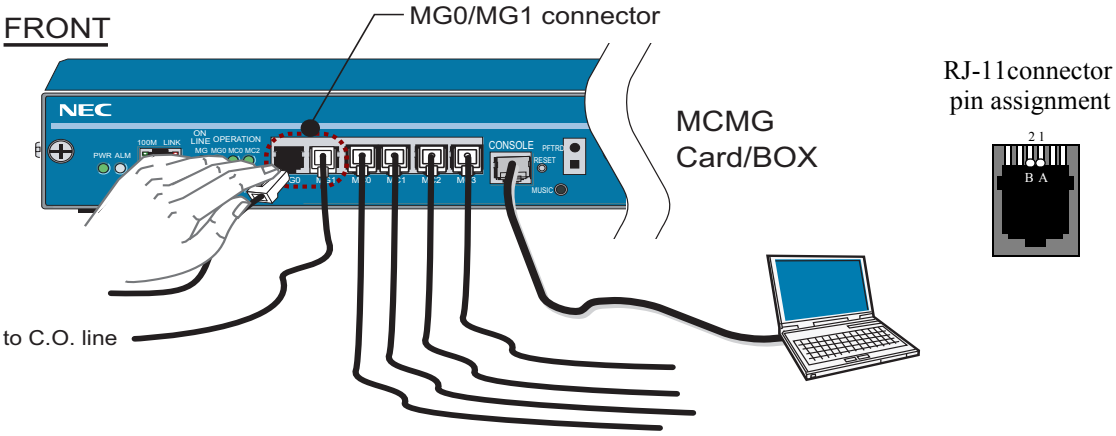
ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

STEP 1: Connect the MCMG to the LAN by using an appropriate LAN cable.

Note: Before connecting the MCMG to network, be sure to execute "ping" command to check the following:
- Is there other device having the same IP address overlapped?
- Is the new IP address assigned correct?



STEP 2: Connect C.O. lines to MG0 and MG1.



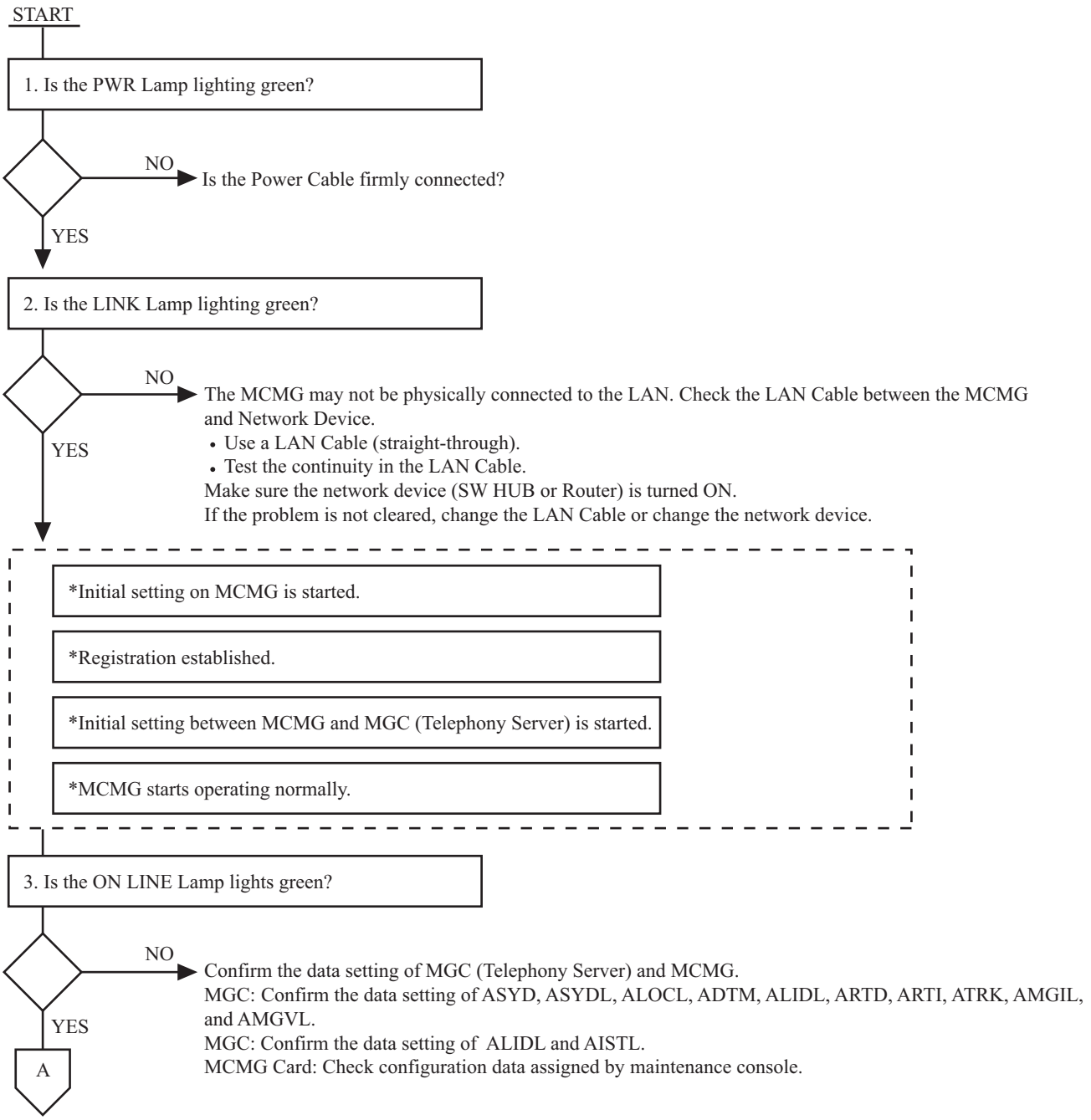
STEP 3: Check the lamp indication on the front panel of MCMG.

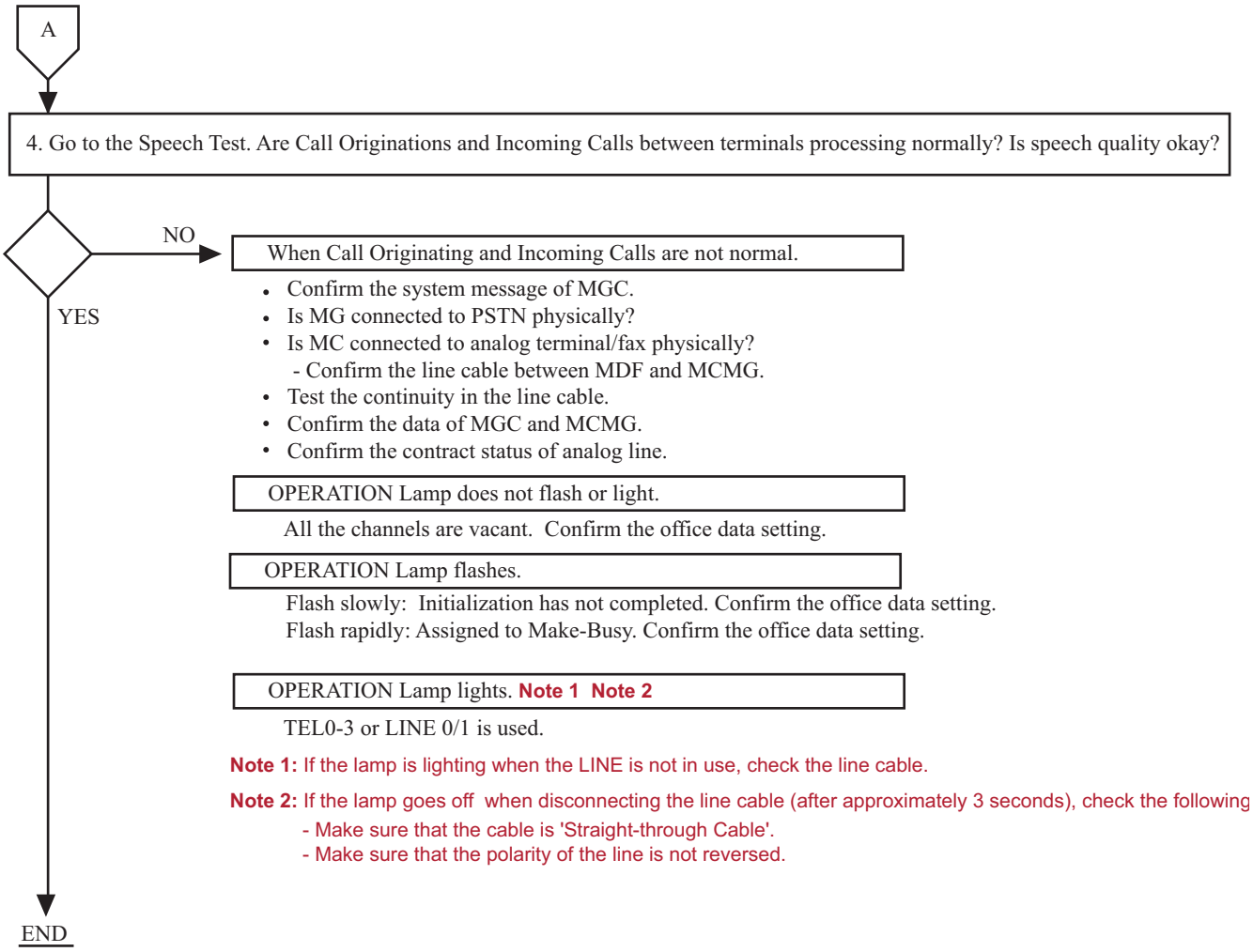
- PWR lamp: lights green
- ALARM lamp: OFF *(*used for MCMG Card only)*
- ON LINE MC lamp: OFF
- ON LINE MG lamp: OFF
- OPERATION MC lamp: flashes green
- OPERATION MG0~MG6: flashes green

Note: After the data assignment (MCMG entry, incoming/originating outside call data) on the Telephony Server side has been completed, the corresponding ON LINE MC/MG lamp lights green and OPERATION MC/MG lamp will go out.

3.6 Basic Test Procedures

[1] Basic Connection Test





[2] Alarm Information Check

- Check the Alarm Lamps. If the red lamp lights, search for the cause of fault and perform the appropriate operations.

- Check the system message.
  1. Display the system message using DFTD command.
  2. See the system message and confirm whether MCMG error occurs or not. If some error has occurred, perform the fault repair. ([33-R IP PKG Warning], [33-S IP PKG Failure], [33-T IP PKG Restore])

[3] PFT Switching Test

The test procedure of PFT function change is described below. PFT function is described in Power Failure Transfer (PFT) of this section.
PFT function connects the following ports.

MC0 ⇔ MG0
MC1 ⇔ MG1
MC2 [PFT function is not provided]
MC3 [PFT function is not provided]

Before the test, connect C.O. lines to MG0/MG1 and analog terminals to MC0/MC1.

(a) Perform this test before MCMG initialization has been completed.

STEP 1: Turn off the MCMG by switching off the Power Switch (DOWN) on the rear panel of MCMG.

STEP 2: Perform the following operation.
Can analog terminal connected to MC0/MC1 originate a call to PSTN connected to MG0/MG1?
Can analog terminal connected to MC0/MC1 perform the incoming call from PSTN connected to MG0/MG1?

(b) Perform this test when WAN error occurs.

STEP 1: Turn on the MCMG by switching on the Power Switch (UP) on the rear panel of MCMG. And then confirm that initialization has been completed and ON LINE lamp lights on.

STEP 2: Disconnect the LAN cable and then wait until MCMG detects WAN error. (about three minutes)

STEP 3: Perform the following operation.
Can analog terminal connected to MC0/MC1 originate a call to PSTN connected to MG0/MG1?
Can analog terminal connected to MC0/MC1 perform the incoming call from PSTN connected to MG0/MG1?

Note: PFT function is available from MCMG power is ON / start of initialization until ON LINE status.

4 Operation and Maintenance

4.1 How to Use Maintenance Command

On a serial connection client (e.g. HyperTerminal), start up the program and use maintenance command. Enter "usrConsole" after the OS prompt (->).

When the maintenance command is started, the following prompt is indicated on the screen:

```
MC-MG>_
```
("machine name" + ">", usually)

Note: Note the following conditions:

- "DRS (Device Registration Server)" used in this section refers to the Telephony Server. The Telephony Server acts as DRS for MCMG using Proprietary Protocol.
- When MCMG reboots itself due to such as an occurrence of Health Check timeout while maintenance commands are executed, it takes about five minutes to start rebooting.
- If you input "exit" after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

An example of indication is shown below:

```
MC-ID: 00004ca41cfd

Boot program version: SP3777 MCMG BOOT PROG-A [05.00.00.00]
Main program version: SP3778 MCMG PROG-A [10.00.00.00]

DSP kernel version:  DSP-K-AC48104ak [03.10.00.00]
DSP program version:  DSP-P-AC48104ae3 [03.10.00.00]

DSP kernel version:  DSP-K-AC48302ck [03.10.00.00]
DSP program version:  DSP-P-AC48302ce6[03.10.00.00]

MUSIC information:  SM0901 0900 0000 0000

H/W information:    TEST-PKG-MC
H/W information:    TEST-PKG-MG

Starting MC-MG Boot program.......

--- Online program Initial start --- (wait 30sec)

Attached TCP/IP interface to axDev unit 0
Attaching interface lo0... done.

Adding 7914 symbols for standalone.

-----//-----------------------------------------//------
   Media Converter - Media Gateway (COT Interface)
              *Firmware SP-3778  ( 10.00.00.00 )
              *Compiled on Aug 22 2003 11:46:56
-----//-----------------------------------------//------
->
->
->
-> usrConsole

MC-MG Maintenance command Version 1.00  2001.07.19

MC-MG >
```

The user input command above consists of several components. The following describes these components using one of the ***SET*** commands.

MC-MG> SET IPADDRESS 123.201.18.45 255.255.255.0
1 2 3 4

1: Command
2: Sub Command
3: Parameter 1
4: Parameter 2

Note: The number of parameters to be specified is different depending on the command.

MAINTENANCE COMMAND FOR MCMG

The Maintenance Console uses the commands listed in.

COMMAND	No.	SUB COMMAND	FUNCTION	REMARKS
SET (both MC and MG sides)	1	DEFAULTROUTE	Setting Default Gateway	
	2	DHCP	Setting DHCP	
	3	DRSADDRESS	Setting DRS Address	
	4	DRSTOS	Setting ToS of DRS session	
	5	HC_TIMER	Setting Health Check Receive Timer	
	6	INTERFACE	Setting communication speed for LAN interface	
	7	IPADDRESS	Setting IP Address and Subnet Mask	
	8	STARTPORT	Setting RTP Start Port number	
	9	VLAN	Setting VLAN	
	10	WARNING_TONE	Setting Warning Tone control	

COMMAND	No.	SUB COMMAND	FUNCTION	REMARKS
SET (MC side)	1	BURSTPATTERN	Setting Burst Ringer Pattern	
	2	CODEC_COEF	Setting CODEC coefficient	
	3	DSP_ECFB	Setting DSP echo canceller for FAX communication	
	4	EC_TRAINING	Setting Training feature mode of echo canceller	
	5	FAXERRORDETECT	Setting Fax enable timer	
	6	FAXRECVPAD	Setting Fax receiver PAD value	
	7	FAXSENDPAD	Setting Fax sender PAD value	
	8	MUSICTYPE	Setting Internal Music-on-Hold type	
	9	OPEN	Setting Open/Reverse mode	
	10	PAD	Setting default receiver PAD value	
	11	PRERINGING	Setting Pre-Ringing	
	12	RINGFREQ	Setting frequency of Ringer	
	13	SENDPAD	Setting default sender PAD value	
	14	SMOOTH_PAD	Setting DSP smooth PAD mode	
	15	STUTTERDT	Setting Stutter Dial Tone	
	16	SYNCRINGING	Setting synchronous Ringer mode	

COMMAND	No.	SUB COMMAND	FUNCTION	REMARKS
SET (MG side)	1	CALL_HOLD	Setting MG Based Call Retention	
	2	CAR_DETECT	Setting CAR Detection	
	3	CODEC_COEF_MG	Setting CODEC coefficient	
	4	DSP_ECFB_MG	Setting DSP echo canceller for FAX communication	
	5	DTMF_CUTOFF_TIME	Setting DTMF Cutoff Timer	
	6	EC_TRAINING_MG	Setting Training feature mode of echo canceller	
	7	FAXERRORDETECT_MG	Setting the FAX enable timer	
	8	FAXRECVPAD_MG	Setting FAX receiver PAD value	
	9	FAXSENDPAD_MG	Setting FAX sender PAD value	
	10	IC_ABANDON_TIME	Setting I/C call abandon timer	
	11	NO_LOOP_TIME	Setting Loop Prohibition timer	
	12	RELEASE_SIGNAL	Setting Release Signal	
	13	RTP_STOP_DETECT	Setting RTP Reception Timer	
	14	SMOOTH_PAD_MG	Setting DSP smooth PAD mode	
	15	RVS_AUST	Setting RVS mode (for Australia)	
	16	AUTO_POLARITY	Setting Auto Polarity	

COMMAND	No.	SUB COMMAND	FUNCTION	REMARKS
SHOW (both MC and MG sides)	1	DHCP	To show DHCP setting	
	2	DRSADDRESS	To show DRS Address and Port Number	
	3	DRSTOS	To show ToS setting of DRS session	
	4	HC_TIMER	To show Health Check Receive Timer	
	5	INTERFACE	To show communication speed for LAN interface	
	6	IPADDRESS	To show IP Address, Subnet Mask, and Default Gateway	
	7	STARTPORT	To show RTP Start Port	
	8	VERSION	To show the version information	
	9	VLAN	To show VLAN setting	
	10	WARNING_TONE	To show Warning Tone control	

COMMAND	No.	SUB COMMAND	FUNCTION	REMARKS
SHOW (MC side)	1	BURSTPATTERN	To show Burst Ringer Pattern	
	2	CODEC_COEF	To show CODEC coefficient	
	3	DSP_ECFB	To show DSP echo canceller for FAX communication	
	4	EC_TRAINING	To show Training feature mode of echo canceller	
	5	FAXERRORDETECT	To show FAX enable timer	
	6	FAXRECVPAD	To show FAX receiver PAD value	
	7	FAXSENDPAD	To show FAX sender PAD value	
	8	MUSICTYPE	To show Internal Music-on-Hold type	
	9	OPEN	To show Open/Reverse mode	
	10	PAD	To show default receiver PAD value	
	11	PRERINGING	To show Pre-Ringing	
	12	RINGFREQ	To show frequency of Ringer	
	13	SENDPAD	To show default sender PAD value	
	14	SMOOTH_PAD	To show DSP smooth PAD mode	
	15	STUTTERDT	To show Stutter Dial Tone	
	16	SYNCRINGING	To show synchronous Ringer	

COMMAND	No.	SUB COMMAND	FUNCTION	REMARKS
SHOW (MG side)	1	CALL_HOLD	To show MG Based Call Retention setting	
	2	CAR_DETECT	To show CAR Detection	
	3	CODEC_COEF_MG	To show CODEC coefficient	
	4	DSP_ECFB_MG	To show DSP echo canceller for FAX communication	
	5	DTMF_CUTOFF_TIME	To show DTMF Cutoff Timer	
	6	EC_TRAINING_MG	To show Training feature mode of echo canceller	
	7	FAXERRORDETECT_MG	To show FAX enable timer	
	8	FAXRECVPAD_MG	To show FAX receiver PAD value	
	9	FAXSENDPAD_MG	To show FAX sender PAD value	
	10	IC_ABANDON_TIME	To show I/C call abandon timer	
	11	NO_LOOP_TIME	To show Loop Prohibition timer	
	12	RELEASE_SIGNAL	To show Release Signal	
	13	RTP_STOP_DETECT	To show RTP Reception Timer	
	14	SMOOTH_PAD_MG	To show DSP smooth PAD mode	
	15	RVS_AUST	To show RVS mode (for Australia)	
	16	AUTO_POLARITY	To show Auto Polarity	

COMMAND	SUB COMMAND	FUNCTION	REMARKS
DELETE	VLAN	To delete VLAN	

COMMAND	SUB COMMAND	FUNCTION	REMARKS
SAVE	CONFIGDATA	To save the configuration data in RAM drive to Flash ROM	

COMMAND	SUB COMMAND	FUNCTION	REMARKS
GET	CONFIGDATA	To download Configuration Data from specified TFTP server	

COMMAND	SUB COMMAND	FUNCTION	REMARKS
PUT	CONFIGDATA	To upload Configuration Data to specified TFTP server	

COMMAND	SUB COMMAND	FUNCTION	REMARKS
REBOOT	-	To reboot the MCMG	

COMMAND	SUB COMMAND	FUNCTION	REMARKS
EXIT	-	To exit the maintenance command	

Enter the command, sub command and required parameters after the prompt (MC-MG>) appears. Parameters vary depending on the kind of command specified. When the data (command name, sub command name, parameter) are specified correctly, the command executes the required data processing, and then displays the processed result on the screen. To finish this program, input EXIT after a prompt.

Note: When the maintenance command program is activated, it provides a Help Function for referring to available commands and sub commands. After a prompt is shown, request to list the Target Help by entering “?” or “command name (SET or SHOW) + ?”, and press the Enter key.
The example below shows the screen when requesting a list of SET commands.

```
MC-MG> SET ?

BURSTPATTERN        Setting Burstpattern
CH_ATTRIBUTE        Setting CH attribute
DEFAULTROUTE        Setting Default Gateway
DHCP                Setting DHCP
DRSADDRESS          Setting DRS Address
:
:
```

SET COMMAND (both MC and MG sides)

1. SET DEFAULTROUTE

Specify the IP address of the Default Gateway.

```
MC-MG> SET DEFAULTROUTE 150.10.1.254

Default Gateway setting succeeded.
```

Line 1: Enter Default Gateway Address (e.g. 150.10.1.254)
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

2. SET DHCP ENABLE

Specify whether to use a DHCP server or not.

```
MC-MG> SET DHCP ENABLE

DHCP setting succeeded.
```

Line 1: Enter ENABLE or DISABLE after the command name
ENABLE=DHCP is valid (default)
DISABLE=DHCP is invalid
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

3. SET DRSADDRESS

Specify the IP address and port number of DRS (Telephony Server).

```
MC-MG> SET DRSADDRESS
DRS Unit (1: Primary/2: Secondary/3: Tertiary/4: Fourth): 1
DRS IP Address: 150.10.1.100
DRS Port Number: 3456

DRS setting succeeded.
```

Line 1: -
Line 2: Select “1” in normal condition.
Line 3: Enter IP Address of DRS **Note 1** (e.g. 150.10.1.100)
Line 4: Enter Port Number of DRS (1024-65535, default = 3456)
Line 5: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note 1: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

4. SET DRSTOS PRECEDENCE

Set up the ToS of DRS session.

```
MC-MG> SET DRSTOS PRECEDENCE
PRECEDENCE (0-7)  : 6
DELAY (0/1)  : 0
THROUGHPUT (0/1)  : 0
RELIABILITY (0/1)  : 0
COST (0/1)  : 0
DRS TOS setting succeeded. (0xC0)
```

Line 1: Enter sub command name PRECEDENCE to set the following parameters - Delay, Throughput, Reliability, and Cost - respectively. Specify the value to each parameter.
Line 2: Precedence: 0-7 (low-high) (default=6)
Line 3: Delay: 0/1=Normal (default)/Low Delay ON
Line 4: Throughput:
0/1=Normal (default)/High Throughput ON
Line 5: Reliability:
0/1=Normal (default)/High Reliability ON
Line 6: Cost: 0/1=Normal (default)/Cost Precedence ON
Line 7: Result is shown

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost
0=not used

```
MC-MG> SET DRSTOS VALUE
TOS (00-FF)  : C0

DRS TOS setting succeeded. (0xC0)
```

Line 1: Enter the sub command name VALUE to set the DRS setting value directly.
Line 2: Specify the value in the range of 00-FF (default=C0)
Line 3: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

5. SET HC_TIMER

Set Health Check Receive Timer.

```
MC-MG> SET HC_TIMER 150

Health-Check Timer Timeout setting succeeded.
```

Line 1: Enter the time (second) in the range of 120-240 (at intervals of 30 seconds) (default=150)

Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

6. SET INTERFACE

Set the communication speed for LAN interface.

```
MC-MG> SET  INTERFACE
SPEED (AUTO/100M/10M):  10M
DUPLEX (FULL/HALF):  HALF
Ethernet Speed setting succeeded.
```

Line 1: -
Line 2: Select the communication speed
AUTO=Auto Negotiation (default)
100M=100 Mbps fixed mode
10M=10 Mbps fixed mode
Line 3: Select the Duplex mode
FULL=Full Duplex mode
HALF=Half Duplex mode
Line 4: Result is shown

Note: The DUPLEX setting is not shown when Auto Negotiation (AUTO) is selected in the Speed setting.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

7. SET IPADDRESS

Specify the IP Address and Net Mask.

```
MC-MG> SET IPADDRESS 150.10.1.101 255.255.255.0

IP Address setting succeeded.
```

Line 1: Enter the IP Address, then Subnet Mask after a space
(e.g. IP address: 150.10.1.101
Subnet mask: 255.255.255.0)
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note: The designated IP address cannot be applied when the DHCP is set to Enabled. Assign the DHCP setting to Disable before performing this IP address assignment.

8. SET STARTPORT

Specify RTP Start Port.

```
MC-MG> SET STARTPORT 1024

RTP Start Port Number setting succeeded.
```

Line 1: Enter the number of RTP Start Port in the range of 1024-64510 (default=1024)

Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note: Port number must be the even number. RTCP port number is assigned to start port number + 1. (odd number)

9. SET VLAN

Enter the VLAN information.

```
MC-MG> SET VLAN
VLAN ID (1-4095) : 1
COS (0-7) : 0
IP Address : 172.16.1.1
subnet mask : 255.255.255.0

VLAN setting succeeded.
```

Line 1:
Line 2: Enter the VLAN_ID in the range of 1-4095.
Line 3: Enter the COS in the range of 0-7
Line 4: Enter the IP Address of VLAN
Line 5: Enter the Subnet Mask of VLAN
Line 6: Result is shown

Note: The maximum number of VLAN is one.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note: For SP-3778 MCMG PROG-A Issue 11/SP-3927 MCMG PROG-B Issue 1 or later firmware, set the IP Address and Subnet Mask by using “SET IPADDRESS” command.

10. SET WARNING_TONE

Set the Warning Tone for LAN failure.

```
MC-MG > SET WARNING_TONE 3

Warning Tone Control setting succeeded.
```

Line 1: Specify the mode (default=3)
0=Warning Tone is not sent
1=Warning Tone is sent to IP Network
2=Warning Tone is sent to PSTN
3=Warning Tone is sent to IP Network and PSTN
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

SET COMMAND (MC side)

1. SET BURSTPATTERN

   Set Burst Ringer Pattern.

```
MC-MG> SET BURSTPATTERN 1

Burst Ringer Pattern setting succeeded.
```

Line 1: Select the Ringer Pattern from the following:
- 1: 0.35 seconds ON - 0.3 seconds OFF - 0.35 seconds ON (default)
- 2: 0.4 seconds ON - 0.2 seconds OFF - 0.4 seconds ON
- 3: 0.2 seconds ON - 0.2 seconds OFF - 0.2 seconds ON - 0.2 seconds OFF - 0.2 seconds ON
- 4: 0.2 seconds ON - 0.4 seconds OFF - 0.2 seconds ON - 0.2 seconds OFF
- 5: 0.25 seconds ON - 0.25 seconds OFF - 0.25 seconds ON - 0.25 seconds OFF

Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

2. SET CODEC_COEF

   Specify CODEC coefficient.

```
MC-MG > SET CODEC_COEF 2 0

CODEC Coefficient (CH02) setting succeeded.
```

Line 1: Enter the Line Number 0-3. And then, enter the setting value (0-5: default=0) after a space.
Line 2: Result is shown

Note: The setting values are shown in the following table.

- *North America*

RESISTER	KIND OF BNW	SETTING VALUE
600 Ω	600 Ω	0 (default)
600 Ω	350 Ω +(1000 Ω //210nF)	1

- *Australia*

RESISTER	KIND OF BNW	SETTING VALUE
220 Ω +(820 Ω //120nF)	600 Ω	0 (default)
220 Ω +(820 Ω //120nF)	220 Ω +(820 Ω //120nF)	1

RESISTER	KIND OF BNW	SETTING VALUE
600 Ω	600 Ω	2

- *UK*

RESISTER	KIND OF BNW	SETTING VALUE
300 Ω +(1000 Ω //220nF)	600 Ω	0 (default)
300 Ω +(1000 Ω //220nF)	370 Ω +(620 Ω //310nF)	1
600 Ω	600 Ω	2

- *Brazil*

RESISTER	KIND OF BNW	SETTING VALUE
900 Ω	600 Ω	0 (default)
900 Ω	900 Ω	1
900 Ω	800 Ω //50nF	2
600 Ω	600 Ω	3

- *China*

RESISTER	KIND OF BNW	SETTING VALUE
200 Ω +(560 Ω //100nF)	600 Ω	0 (default)
200 Ω +(560 Ω //100nF)	200 Ω +(560 Ω //100nF)	1
600 Ω	600 Ω	2
200 Ω +(560 Ω //100nF)	600 Ω	3
200 Ω +(560 Ω //100nF)	200 Ω +(560 Ω //100nF)	4
600 Ω	600 Ω	5

**SETTING VALUE 0-2=Constant voltage mode*
SETTING VALUE 3-5=Constant current mode

- *Other*

RESISTER	KIND OF BNW	SETTING VALUE
600 Ω	600 Ω	0 (default)
600 Ω	350 Ω +(1000 Ω //210nF)	1

3. SET DSP_ECFB

Specify whether to use DSP echo canceler for FAX communication.

```
MC-MG > SET DSP_ECFB 0

DSP ECFB Mode setting succeeded.
```

Line 1: Enter 0 or 1
0=FAX echo canceler is ON (default)
1=FAX echo canceler is OFF
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

4. SET EC_TRAINING

Specify whether to use the Training feature mode of echo canceler.

```
MC-MG > SET EC_TRAINING ON

EC Training setting succeeded.
```

Line 1: Select the Training feature mode of EC
ON=Training function is valid
OFF=Training function is invalid (default)
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

5. SET FAXERRORDETECT

Set the FAX enable timer.

```
MC-MG> SET FAXERRORDETECT 0

FAX Enable Timer setting succeeded.
```

Line 1: Enter the Change Effective Timer
0=Invalid to change to Fax mode
1-5=Possible to change to Fax mode within 1-5 minutes (default=1 minute)
OFF=Always possible to change to Fax mode
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

6. SET FAXRECVPAD

Set Fax receiver PAD value.

```
MC-MG> SET FAXRECVPAD 3

Fax Receiver PAD setting succeeded.
```

Line 1: Enter the Fax Receiver PAD value in the range of 0-20 after the command name (default=3)
Line 2: Result is shown

Note: The FAXRECVPAD command assigns the value to decrease the Fax signal level in the receiver (IP to analog terminal) direction when the Fax signal is detected.

Note: The total PAD value (Receiver PAD + Fax Receiver PAD) is limited to 20dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

7. SET FAXSENDPAD

Set Fax sender PAD value.

```
MC-MG> SET FAXSENDPAD 0

Fax Sender PAD setting succeeded.
```

Line 1: Enter the Fax Sender PAD value in the range of 0-20 after the command name (default=0)
Line 2: Result is shown

Note: The FAXSENDPAD command assigns the value to decrease the Fax signal level in the sender (analog terminal to IP) direction when Fax signal is detected.

Note: The total PAD value (Sender PAD + Fax Sender PAD) is limited to 20dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

8. SET MUSICTYPE

Set Internal Music-on-Hold type.

```
MC-MG> SET MUSICTYPE 1

Music on Hold Type setting succeeded.
```

Line 1: Select the Music-on-Hold type in the range of 0/1
0=Minuet (default)
1=For Elise
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

9. SET OPEN

Set Open/Reverse mode.

```
MC-MG> SET OPEN ON

Open/Reverse setting succeeded.
```

Line 1: Enter ON or OFF after the command name
ON=Open valid/Reverse invalid
OFF=Open invalid/Reverse valid (default)
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

10. SET PAD

Set a default receiver PAD value.

```
MC-MG> SET PAD 3

Default Receiver PAD setting succeeded.
```

Line 1: Enter a PAD value in the range of -10dB ~ 20dB after the command name (default=0)
Line 2: Result is shown

Note: The PAD command assigns the value to decrease voice level in the receiver (IP to analog terminal) direction.

Note: The total PAD value (Receiver PAD + Fax Receiver PAD) is limited to 20dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

11. SET PRERINGING

Specify whether to use Pre-Ringing.

```
MC-MG> SET PRERINGING ON

Pre-Ringing setting succeeded.
```

Line 1: Enter ON or OFF
ON=Pre-Ringing is valid (default)
OFF=Pre-Ringing is invalid
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

12. SET RINGFREQ

Set the frequency of Ringer.

```
MC-MG> SET RINGFREQ 0

Frequency of Ringer setting succeeded. (frequency is 20Hz.)
```

Line 1: Enter 0 or 1 to specify the Frequency of Ringer
0=20 Hz (default)
1=25 Hz
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

13. SET SENDPAD

Set a default sender PAD value.

```
MC-MG> SET SENDPAD 0

Default Sender PAD setting succeeded.
```

Line 1: Enter the PAD value in the range of -10 dB ~ 20 dB after the command name (default=0)
Line 2: Result is shown

Note: The SENDPAD command assigns the value to decrease voice level in the sender (analog terminal to IP) direction.

Note: The total PAD value (Sender PAD + Fax Sender PAD) is limited to 20dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

14. SET SMOOTH_PAD

Set the DSP smooth PAD mode.

```
MC-MG> SET SMOOTH_PAD 1

Smooth PAD Mode setting succeeded.
```

Line 1: Enter a value of smooth PAD(1-5, OFF)
OFF=Set smooth PAD mode to OFF
1=2.0 dBm (default)
2=-5.2 dBm
3=-2.1 dBm
4=0 dBm
5=-4.2 dBm
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

15. SET STUTTERDT

Specify whether to use Stutter Dial Tone.

```
MC-MG> SET STUTTERDT ENABLE

Stutter Dial Tone setting succeeded.
```

Line 1: Enter ENABLE or DISABLE
ENABLE=Stutter Dial Tone is valid
DISABLE=Stutter Dial Tone is invalid (default)
Line 2: result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

16. SET SYNCRINGING

Specify whether to use synchronous Ringer.

```
MC-MG> SET SYNCRINGING OFF

Synchronous Ringing setting succeeded.
```

Line 1: Enter ON or OFF, whether the ringer of both channels ring simultaneously or not
ON=Ringer timing synchronizes
OFF=Ringer timing does not synchronize (default)
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

SET COMMAND (MG side)

1. SET CALL_HOLD

Specify whether to use MG Based Call Retention.

```
MC-MG> SET CALL_HOLD DISABLE

CALL HOLD setting succeeded.
```

Line 1: Select the MG Based Call Retention setting
DISABLE=MG Based Call Retention is disabled. (default)
ENABLE=MG Based Call Retention is enabled.
Line 2: Result is shown

Note: By setting "ENABLE" by this command, if a network failure occurred between the Telephony Server and MCMG, the call will be retained. The system will be rebooted automatically and re-registered to the Telephony Server after the call of all channels in MCMG are released.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

2. SET CAR_DETECT

Specify whether to use CAR Detection.

```
MC-MG> SET CAR_DETECT OFF

CAR Detecting setting succeeded.
```

Line 1: Select the Number Detection
OFF=Invalid (default)
ON=Valid
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

3. SET CODEC_COEF_MG

Specify CODEC coefficient.

```
MC-MG > SET CODEC_COEF_MG 1 2

CODEC Coefficient (CH01) setting succeeded.
```

Line 1: Enter the Line Number 0-3. And then, enter the setting value (default=2) after the space.
Line 2: Result is shown

Note: The setting values are shown in the following table. Setting value "2" is assigned when the product is shipped. Change the data if required.

- *North America*

RESISTER	KIND OF BNW	SETTING VALUE
600Ω+2.16μF	600Ω+2.16μF	0 (default)
600Ω+2.16μF	600Ω	1
600Ω+2.16μF	350Ω+(1000Ω//210nF)	2
600Ω+2.16μF	900Ω+2.16μF	3
600Ω+2.16μF	900Ω	4
600Ω+2.16μF	800Ω//(100Ω+50nF)	5

- *Australia*

RESISTER	KIND OF BNW	SETTING VALUE
220Ω+(820Ω//120nF)	220Ω+(820Ω//120nF)	0 (default)
220Ω+(820Ω//120nF)	600Ω	1
600Ω	600Ω	2

- *Brazil*

RESISTER	KIND OF BNW	SETTING VALUE
900Ω	800Ω//50nF	0 (default)
900Ω	900Ω	1

- *China*

RESISTER	KIND OF BNW	SETTING VALUE
200Ω+(680Ω//100nF)	200Ω+(680Ω//100nF)	0 (default)
200Ω+(680Ω//100nF)	200Ω+(680Ω//100nF)	1

Note: SETTING VALUE 0 = Constant voltage mode
SETTING VALUE 1 = Constant current mode

- *Other*

RESISTER	KIND OF BNW	SETTING VALUE
600Ω+2.16μF	600Ω+2.16μF	0 (default)
600Ω+2.16μF	600Ω	1
600Ω+2.16μF	350Ω+(1000Ω//210nF)	2
600Ω+2.16μF	370Ω+(620Ω//310nF)	3
600Ω	600Ω+2.16μF	4
600Ω	600Ω	5

RESISTER	KIND OF BNW	SETTING VALUE
600 Ω	350 Ω +(1000 Ω //210nF)	6
600 Ω	370 Ω +(620 Ω //310nF)	7
900 Ω +2.16 μ F	900 Ω +2.16 μ F	8
900 Ω +2.16 μ F	900 Ω	9
900 Ω +2.16 μ F	800 Ω //(100 Ω +50nF)	10
900 Ω	900 Ω +2.16 μ F	11
900 Ω	900 Ω	12
900 Ω	800 Ω //(100 Ω +50nF)	13
370 Ω +(620 Ω //310nF)	600 Ω	14
370 Ω +(620 Ω //310nF)	370 Ω +(620 Ω //310nF)	15

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

4. SET DSP_ECFB_MG

Specify whether to use DSP echo canceller for FAX communication.

```
MC-MG > SET DSP_ECFB_MG 0

DSP ECFB Mode setting succeeded.
```

Line 1: Enter 0 or 1
0=FAX echo canceller is ON (default)
1=FAX echo canceller is OFF
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

5. SET DTMF_CUTOFF_TIME

Set DTMF Cutoff Timer.

```
MC-MG > SET DTMF_CUTOFF_TIME 0

DTMF Cutoff Time setting succeeded.
```

Line 1: Select DTMF Cutoff Timer
0=20 ms (default)
1=10 ms
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

6. SET EC_TRAINING_MG

Specify whether to use Training feature mode of echo canceler.

```
MC-MG > SET EC_TRAINING_MG OFF

EC Training setting succeeded.
```

Line 1: Select the Training feature mode of EC
OFF=Training function is invalid (default)
ON=Training function is valid
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

7. SET FAXERRORDETECT_MG

Set FAX enable timer.

```
MC-MG > SET FAXERRORDETECT_MG 1

FAX Enable Timer setting succeeded.
```

Line 1: Enter the Change Effective Timer
0=Invalid to change to Fax mode
1-5=Possible to change to Fax mode within 1-5 minutes (default=1 minute)
OFF=Always possible to change to FAX mode
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

8. SET FAXRECVPAD_MG

Specify Fax receiver PAD value.

```
MC-MG> SET FAXRECVPAD_MG 0

Fax Receiver PAD setting succeeded.
```

Line 1: Enter the Fax Receiver PAD value in the range of 0-20 after the command name (default=0)

Line 2: Result is shown

Note: The FAXRECVPAD command assigns the value to decrease the Fax signal level in the receiver (PSTN to IP) direction when the Fax signal is detected.

Note: The total PAD value (Receiver PAD + Fax Receiver PAD) is limited to 20dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

9. SET FAXSENDPAD_MG

Specify Fax sender PAD value.

```
MC-MG> SET FAXSENDPAD_MG 3

Fax Sender PAD setting succeeded.
```

Line 1: Enter the Fax Sender PAD value in the range of 0-20 after the command name (default=3)
Line 2: Result is shown

Note: The FAXSENDPAD command assigns the value to decrease the Fax signal level in the sender (IP to PSTN) direction when Fax signal is detected.

Note: The total PAD value (Sender PAD + Fax Sender PAD) is limited to 20dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

10. SET IC_ABANDON_TIME

Set I/C call abandon timer.

```
MC-MG > SET IC_ABANDON_TIME 0

I/C Call Abandon Timer setting succeeded.
```

Line 1: Enter the Incoming call abandon timer (0-2)
0=6 seconds (default)
1=3 seconds
2=1 second
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

11. SET NO_LOOP_TIME

Set Loop Prohibition timer.

```
MC-MG > SET NO_LOOP_TIME 0

Loop Prohibition Timer setting succeeded.
```

Line 1: Enter the Loop Propitiation timer (0-15)
0=608 ms (default)
1=128 ms
2=176 ms
3=224 ms
4=272 ms
5=320 ms
6=368 ms
7=416 ms
8=464 ms
9=512 ms
10=560 ms
11=656 ms
12=704 ms
13=752 ms
14=800 ms
15=848 ms
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

12. SET RELEASE_SIGNAL

Specify whether to use Release Signal.

```
MC-MG > SET RELEASE_SIGNAL OFF

Release Signal setting succeeded.
```

Line 1: Select Release Signal Setting
OFF=Invalid (default)
ON=Valid
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

13. SET RTP_STOP_DETECT

Set RTP Stop Detect Timer.

```
MC-MG > SET RTP_STOP_DETECT 3

.
RTP Stop Detect Timer setting succeeded.
```

Line 1: Enter RTP Stop Detect Timer
Effective range: 3-32 seconds (default: 3 seconds)
Line 2: Result is shown

Note: Assign this value as one of the conditions for MG Based Call Retention to determine that the call is released. The call will be determined released if RTP is not received exceeding the assigned timer value during call retention.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

14. SET SMOOTH_PAD_MG

Select a value for DSP smooth PAD mode.

```
MC-MG > SET SMOOTH_PAD_MG 1

Smooth PAD Mode setting succeeded.
```

Line 1: Enter a value of smooth PAD(1-5, OFF)
OFF=Set smooth PAD mode to OFF
1=2.0dBm (default)
2=-5.2dBm
3=-2.1dBm
4=0dBm
5=-4.2dBm
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

15. SET RVS_AUST

Choose an RVS mode option (for Australia).

```
MC-MG > SET RVS_AUST
Reverse Watch (ROA/ROS): ROA

Reverse Watch (AU) setting succeeded.
```

Line 1:
Line 2: Enter RVS mode
ROA = Reversal on Answer (default)
ROS = Reversal on Seizure
Line 3: Result is shown

16. SET AUTO_POLARITY

Specify whether to use Auto Polarity.

```
MC-MG > SET AUTO_POLARITY OFF

Auto Polarity setting succeeded.
```

Line 1: Specify the auto polarity
OFF=Invalid (default)
ON=Valid
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

SHOW COMMAND (both MC and MG sides)

1. SHOW DHCP

   View the setting of DHCP.

```
MC-MG> SHOW DHCP

DHCP is ENABLE
```

The current setting is shown

2. SHOW DRSADDRESS

   View the settings of DRS Address and Port Number.

```
MC-MG> SHOW DRSADDRESS
             IP Address      Port Number
Primary      150.10.1.100    3456
Secondary    0.0.0.0         3456
Tertiary     0.0.0.0         3456
Forth        0.0.0.0         3456
```

The current setting of DRS Address and Port Number is shown

Note: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

3. SHOW DRSTOS

   View the setting of ToS of DRS session:

```
MC-MG> SHOW DRSTOS

DRS TOS is 0xC0.

PRECEDENCE=6
DELAY=0
THROUGHPUT=0
RELIABILITY=0
COST=0
```

The current setting is shown

4. SHOW HC_TIMER

View the setting of Health Check Receive Timer.

```
MC-MG> SHOW HC_TIMER

Health-Check Timer Timeout is 150 seconds.
```

The current setting is shown

5. SHOW INTERFACE

View the setting of communication speed for LAN interface.

```
MC-MG> SHOW INTERFACE
Ethernet Speed    DUPLEX
10Mbps            FULL
```

The current setting is shown

6. SHOW IPADDRESS

View the setting of IP Address, Net Mask, and Default Gateway.

```
MC-MG> SHOW IPADDRESS
IP Address          150.10.1.101
Netmask             255.255.255.0
Default Gateway     150.10.1.254
```

Line 1: Enter the interface name
Line 2: IP Address is shown
Line 3: Netmask is shown
Line 4: Default Gateway is shown

7. SHOW STARTPORT

View the setting of RTP Start Port.

```
MC-MG> SHOW STARTPORT

RTP Start Port Number is 1024.
```

The current setting is shown

8. SHOW VERSION

View the version information.

```
MC-MG> SHOW VERSION
MC-MG(COT) Maintenance command Version 1.00 2003.06.03
Version information
Hardware (Main): PZ-CC155-5A [00.00.00.00]
Hardware (Sub) : PZ-CC156-5A [00.00.00.00]
Boot program   : SP-3777 MCMG BOOT PROG-A [05.00.00.00]
Firmware       : SP-3778 MCMG PROG-A [10.00.00.00]
```

Line 4~7:Version information of hardware, boot program, and firmware is shown respectively

9. SHOW VLAN

View the setting of VLAN.

```
MC-MG> SHOW VLAN
    DEVICE     ID     COS     IPADDRESS       SUBNETMASK
    VLAN1      1       0     10.123.123.123    255.255.255.0
```

The current VLAN setting is shown.

Note: For SP-3778 MCMG PROG-A Issue 11/SP-3927 MCMG PROG-B Issue 1 or later firmware, the IP ADDRESS and SUBNETMASK are not displayed.

10. SHOW WARNING_TONE

View the setting of Warning Tone control.

```
MC-MG > SHOW WARNING_TONE

Warning Tone Control of IP Network is 3 (IP & TDM side)
```

The current setting is shown

SHOW COMMAND (MC side)

1. SHOW BURSTPATTERN

   View the setting of Burst Ringer Pattern.

```
MC-MG> SHOW BURSTPATTERN
Burst Ringer Pattern number is 5.
(0.25s ON-0.25s OFF-0.25s ON-0.25s OFF)
```

Currently registered Burst Ringer Pattern is shown

2. SHOW CODEC_COEF

   View the setting of CODEC coefficient.

```
MC-MG> SHOW CODEC_COEF
CH00=0
CH01=5
CH02=1
CH03=0
```

The current setting is shown

3. SHOW DSP_ECFB

   View the setting of DSP echo canceler for FAX communication.

```
MC-MG> SHOW DSP_ECFB

DSP ECFB Mode is 0.
```

The current setting is shown

4. SHOW EC_TRAINING

   View the setting of Training feature mode of echo canceler.

```
MC-MG > SHOW EC_TRAINING

EC Training is ON.
```

The current setting is shown

5. SHOW FAXERRORDETECT

View the setting of Fax enable timer.

```
MC-MG> SHOW FAXERRORDETECT

FAX Enable Timer is 1 minute.
```

The current setting is shown

6. SHOW FAXRECVPAD

View the setting of Fax receiver PAD value:

```
MC-MG> SHOW FAXRECVPAD

FAX Receiver PAD is 4.
```

The current FAX receiver PAD value (LAN → terminal direction) setting is shown

7. SHOW FAXSENDPAD

View the setting of Fax sender PAD value.

```
MC-MG> SHOW FAXSENDPAD

FAX Sender PAD is 0.
```

The current FAX sender PAD value (terminal → LAN direction) setting is shown

8. SHOW MUSICTYPE

View the setting of Internal Music-on-Hold type.

```
MC-MG> SHOW MUSICTYPE

Music on Hold Type is 1.
```

The current setting is shown

9. SHOW OPEN

View the setting of Open/Reverse mode.

```
MC-MG> SHOW OPEN

Open is OFF./Reverse is ON.
```

The current setting is shown

10. SHOW PAD

View the setting of default receiver PAD value.

```
MC-MG> SHOW PAD

Default Receiver PAD is 3.
```

The current receiver PAD value (LAN → terminal direction) setting is shown

11. SHOW PRERINGING

View the setting of Pre-Ringing:

```
MC-MG> SHOW PRERINGING

Pre-Ringing is ON.
```

The current setting is shown

12. SHOW RINGFREQ

View the setting of frequency of Ringer.

```
MC-MG> SHOW RINGFREQ

Frequency of Ringer is 20Hz.
```

The current setting is shown

13. SHOW SENDPAD

View the setting of default sender PAD value.

MC-MG> SHOW SENDPAD Default Sender PAD is 0.	The current sender PAD value (terminal → LAN direction) setting is shown

Note: The Sender PAD is inserted in the direction of the analog terminal to the IP.

14. SHOW SMOOTH_PAD

View the setting of DSP smooth PAD mode.

MC-MG> SHOW SMOOTH_PAD Smooth PAD Mode is 3.	The current setting is shown

15. SHOW STUTTERDT

View the setting of Stutter Dial Tone.

MC-MG> SHOW STUTTERDT Stutter Dial Tone is DISABLE.	Registered setting is shown

16. SHOW SYNCRINGING

View the setting of Synchronous Ringing.

MC-MG> SHOW SYNCRINGING Synchronous Ringing is ON.	Registered setting is shown

SHOW COMMAND (MG side)

1. SHOW CALL_HOLD

   View the setting of MG Based Call Retention.

```
MC-MG> SHOW CALL_HOLD

CALL HOLD is DISABLE.
```

The current setting is shown

2. SHOW CAR_DETECT

   View the setting of CAR Detection.

```
MC-MG> SHOW CAR_DETECT

CAR Detecting is ON.
```

The current setting is shown

3. SHOW CODEC_COEF_MG

   View the setting of CODEC coefficient.

```
MC-MG> SHOW CODEC_COEF_MG
CH00=0
CH01=3
```

The current setting is shown

4. SHOW DSP_ECFB_MG

   View the setting of DSP echo canceler for FAX communication.

```
MC-MG> SHOW DSP_ECFB_MG

DSP ECFB Mode is 0.
```

The current setting is shown

5. SHOW DTMF_CUTOFF_TIME

View the setting of DTMF Cutoff Timer.

```
MC-MG> SHOW DTMF_CUTOFF_TIME

DTMF Cutoff Timer is 0 (20ms).
```

The current setting is shown

6. SHOW EC_TRAINING_MG

View the setting of Training feature mode of echo canceler.

```
MC-MG> SHOW EC_TRAINING_MG

EC Training is ON.
```

The current setting is shown

7. SHOW FAXERRORDETECT_MG

View the setting of FAX enable timer.

```
MC-MG> SHOW FAXERRORDETECT_MG

FAX Enable Timer is 1 minute.
```

The current setting is shown

8. SHOW FAXRECVPAD_MG

View the setting of FAX receiver PAD value.

```
MC-MG> SHOW FAXRECVPAD_MG

FAX Receiver PAD is 4.
```

The current FAX receiver PAD value (PSTN → LAN direction) setting is shown

9. SHOW FAXSENDPAD_MG

View the setting of FAX sender PAD value.

```
MC-MG> SHOW FAXSENDPAD_MG

FAX Sender PAD is 0.
```

The current FAX sender PAD value (LAN → PSTN direction) setting is shown

10. SHOW IC_ABANDON_TIME

View the setting of I/C call abandon timer.

```
MC-MG> SHOW IC_ABANDON_TIME

I/C Call Abandon Timer is 0 (6sec).
```

The current setting is shown

11. SHOW NO_LOOP_TIME

View the setting of Loop Prohibition timer.

```
MC-MG> SHOW NO_LOOP_TIME

Loop Prohibition Timer is 0 (608ms).
```

The current setting is shown

12. SHOW RELEASE_SIGNAL

View the setting of Release Signal.

```
MC-MG > SHOW RELEASE_SIGNAL

Release Signal is ON.
```

The current setting is shown

13. SHOW RTP_STOP_DETECT

View the setting of RTP Stop Detect Timer.

MC-MG> SHOW RTP_STOP_DETECT RTP Stop Detect Timer is 3sec.	The current setting is shown

14. SHOW SMOOTH_PAD_MG

View the setting of DSP smooth PAD mode.

MC-MG> SHOW SMOOTH_PAD_MG Smooth PAD Mode is 3.	The current setting is shown

15. SHOW RVS_AUST

View the setting of RVS mode (for Australia).

MC-MG> SHOW RVS_AUST Reverse Watch (AU) is ROA.	The current setting is shown

16. SHOW AUTO_POLARITY

View the setting of Auto Polarity.

MC-MG> SHOW AUTO_POLARITY Auto Polarity is ON.	The current setting is shown

DELETE COMMAND

- DELETE VLAN

  Delete the VLAN setting.

```
MC-MG> DELETE VLAN 1

VLAN deleting succeeded.
```

Line 1: Specify the VLAN_ID to be deleted in the range of 1-4095
Line 2: Result is shown

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

SAVE COMMAND

- SAVE CONFIGDATA

  Save the configuration data to Flash ROM.

```
MC-MG> SAVE CONFIGDATA

* *  Don't power off in progress **
Do you need save? [Y/N]: Y
Configuration data has been saved.
Re-starting is required for making a setup reflect!!
```

Line 1:
Line 2:
Line 3: Select either, Y or N (i.e. Yes/No)
Line 4: Result is shown
Line 5:

Note: When the error occurs during saving, configuration data is not preserved.

GET COMMAND

- GET CONFIGDATA

  Download Configuration Data file from specified TFTP server.

```
MC-MG> GET CONFIGDATA 10.41.1.150

Configuration data has been downloaded.
```

Line 1: Specify the IP Address of TFTP Server after the Command Name. (e.g. 10.41.1.150)
Line 2: Result is shown

Note: Configuration data file is downloaded from the specified TFTP server. When the destination file name is not entered, file name of transferred folder is used automatically.

PUT COMMAND

- PUT CONFIGDATA

  Upload Configuration Data file to specified TFTP server.

```
MC-MG> PUT CONFIGDATA 10.41.1.150

Configuration data has been uploaded.
```

Line 1: Specify the IP Address of TFTP Server after the Command Name.
(e.g. 10.41.1.150)
Line 2: Result is shown

Note: Configuration data file is uploaded to the TFTP server.

REBOOT COMMAND

- REBOOT

  Reboot the MCMG.

```
MC-MG> REBOOT

Do you need reboot? [Y/N]: Y
```

Line 1:
Line 2: Enter Y or N to confirm
(i.e. Yes/No)

Note: The screen returns to the prompt of the maintenance command (MC-MG, in default) if any error occurs when “Y” is selected after changing the configuration data.

EXIT COMMAND

- EXIT

  Exit the maintenance command.

  [Normal occasion (without any change to be saved)]

```
MC-MG> EXIT
->
```

Line 1: Normal occasion
Line 2: Back to the OS prompt

[When configuration data is changed]

```
MC-MG> EXIT
Configuration data was changed.
* *  Don't power off in progress **
y: Save and Exit.
n: Exit without saving.
c: Cancel
[y/n/c]: y
Configuration data has been saved.
->
```

Line 1:
Line 2:
Line 3:
Line 4:
Line 5:
Line 6:
Line 7: Select Y to make the changed configuration data effective and exit the maintenance command
Line 8: Result is shown
Line 9: Back to the OS prompt

Note: The screen returns to the prompt of the maintenance command (MC-MG, in default) if any error occurs when "Y" is selected after changing the configuration data.

4.2 Error Messages

When an error occurs in using the maintenance command, error message is indicated to show the cause for helping the reassignment of required data.

List of Error Messages

MESSAGE	CAUSE
File not found on the TFTP server.	Download file of system data is not founded on the TFTP server.
Command not found.	Not supported command was entered when entering command.
Invalid parameter.	Invalid parameter was entered when entering command.
IP address form is incorrect.	IP address is entered in incorrect form.
VLAN ID is no more registered.	VLAN ID is not registered because entered value is over the maximum.
Sub command is missing.	Sub command is not entered when entering command.
Invalid parameter value.	Entered sub command value is incorrect.
Invalid sub command.	Entered sub command is incorrect.
Command is abnormally terminated.	Command is terminated illegally.
Parameter(s) are missing.	Parameter is not entered when entering command.
Entered VLAN ID is already registered.	Entered VLAN ID has been already registered.
Entered VLAN ID is not registered.	Entered VLAN ID does not exist.

MG-COT Card [SCA-6COTA/SCA-6COTC]

1 General

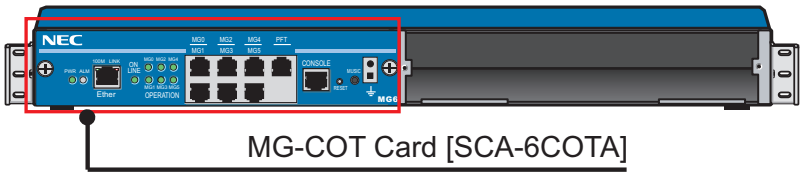
1.1 What is MG-COT?

MG-COT has a function of Media Gateway (MG) which is an interface between IP network and Analog PSTN line. Also an analog terminal for exclusive use of Power Failure Transfer (PFT) can be connected through a PFT connector on this card.

MG usually works independently. In the case of failure of MG-COT, PFT connects C.O. line and analog terminal directly and provides emergency line. **Note 1**

Note 1: For the PFT service on the UG50, a station line connected to the PFT port cannot be used as a station line for the system. Be sure to connect a terminal that can be used as telephone to the PFT port. Terminals such as a FAX terminal are not allowed.

Outerview of MG-COT



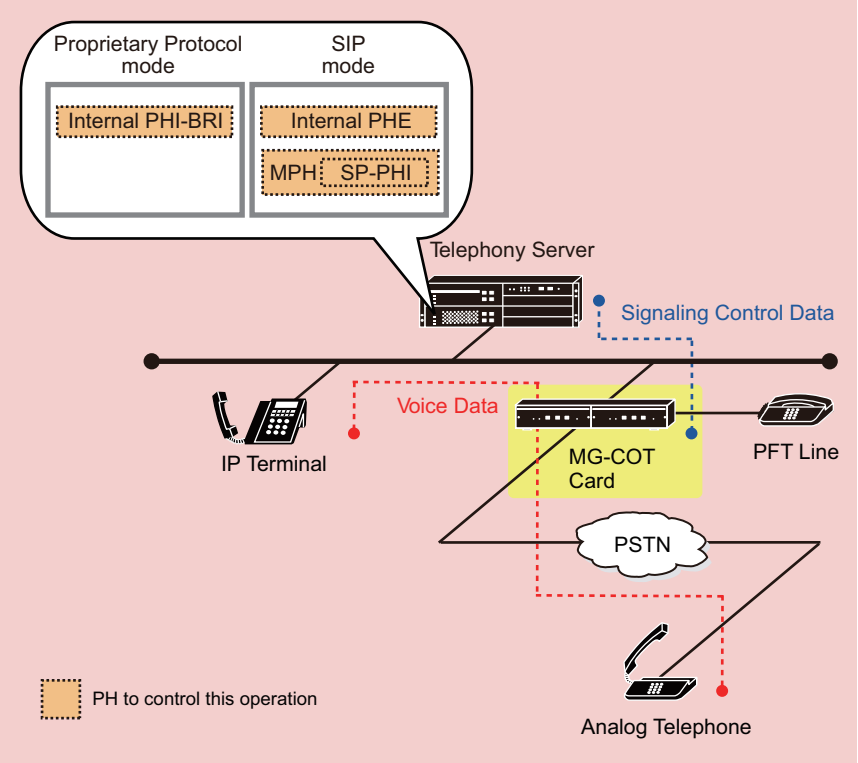
Note: MG-COT Card is mounted in 1U-MPC (Multi Purpose Chassis) module. One unit of 1U-MPC module can accommodate a maximum of two cards. MG-COT Card is mounted in the left slot in this figure.

1.2 Function Overview

Basic Connection

MG has six analog ports and connects IP Network and PSTN. Any IP terminal or SIP terminal can originate and receive call to/from analog PSTN line when MG-COT is accommodated in the System.

MG-COT in the System



Note: For Proprietary Protocol mode, Internal PHI-BRI controls the signaling data, which is accommodated in the Telephony Server. Call control between Internal PHI-BRI and MG-COT is executed via TCP/IP port of the system.
In some cases, signaling data can be controlled by SP-PHI even though MG-COT operates in Proprietary Protocol mode. For the detail, refer to “Consideration for SP-PHI Data Assignment” in Data Programming Manual - Business.

Note: For SIP mode, SP-PHI, which is accommodated in MPH (Multi Protocol Handler) of the Telephony Server, handles the control signal from/to MG-COT. MPH is the interface for the control signal. Call control between SP-PHI and MG-COT is executed via TCP/IP port of the system.

Power Failure Transfer (PFT)

MG-COT has six MG (COT) ports and one PFT port. PFT connects the PFT port to one MG port (MG0) directly when some failure has occurred. Therefore, analog terminal is connected to PSTN network and then call origination to C.O. line becomes available. PFT is activated in following cases. **Note 1**

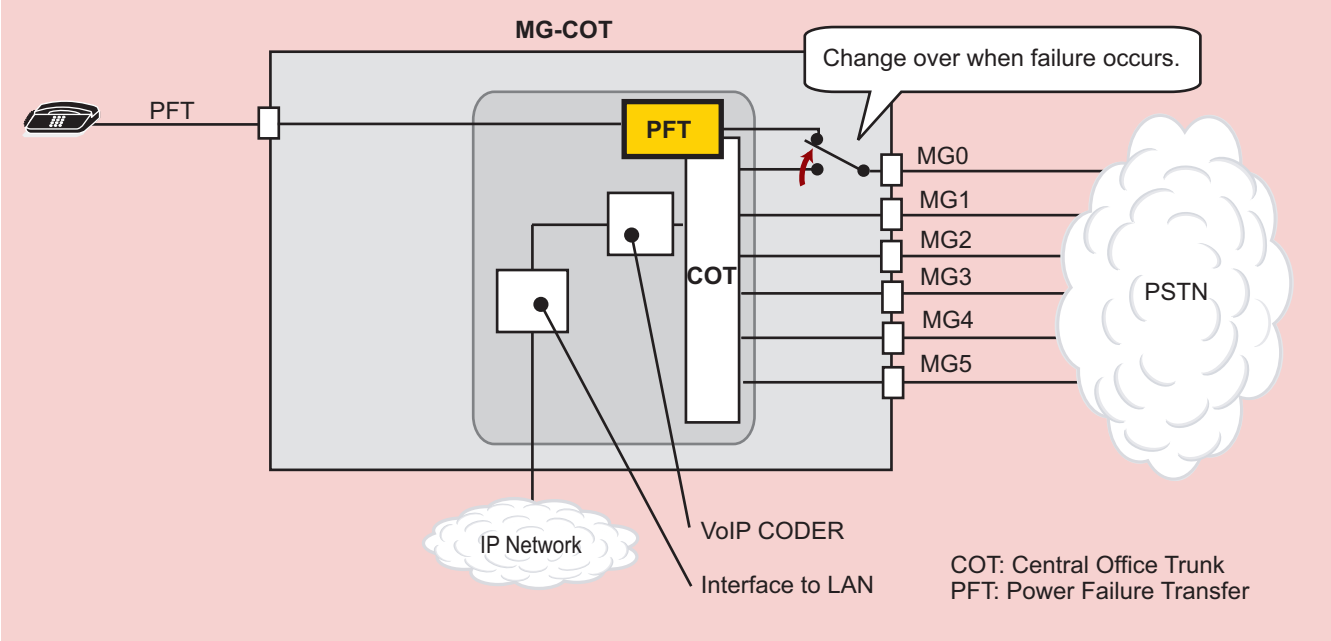
- Power failure of MG-COT → immediately switched to PFT, PFT line becomes available.
- IP link failure → depending on the connection status when Health Check time-out timer (150 seconds) expires;

  (a) when any calls are not in progress on MG-COT: immediately switched to PFT → PFT line becomes available.

  (b) when any calls are in progress on MG-COT: switched to PFT after cutting off MG side → PFT line becomes available.

Note 1: The PFT service is not available for the UG50.

Connecting Diagram of PFT Function



Release of PFT

PFT is released under the following conditions:

- After rebooting, IP link with the Telephony Server is established
- Release of the lines activating over PFT function are supervised.

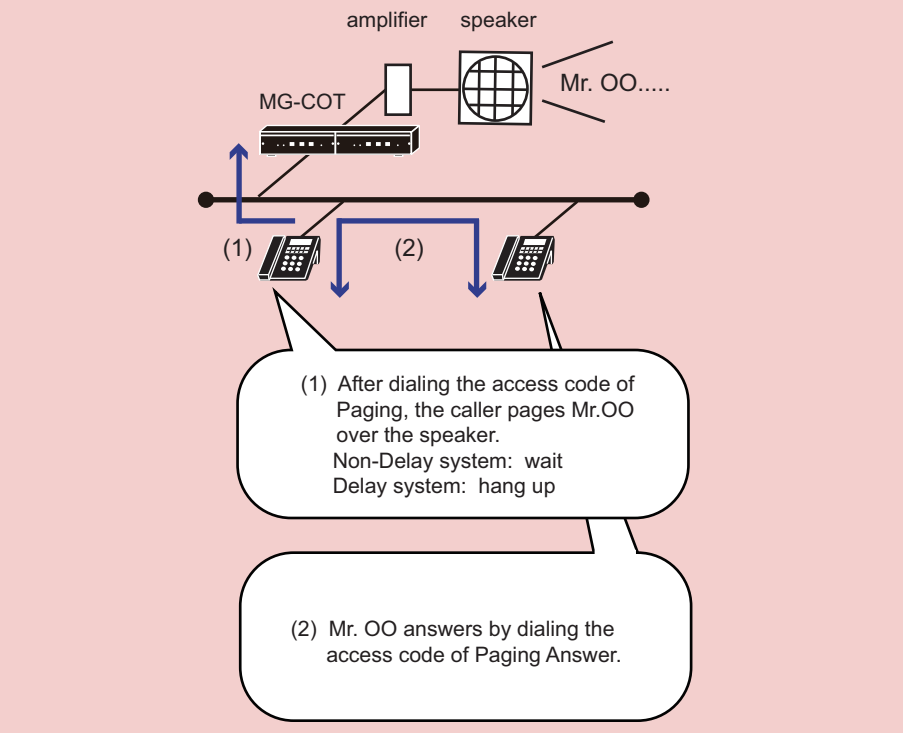
Paging

Stations can page anyone over the speaker connected to MG-COT. Paging equipment is configured as the Paging Trunk and connected using an interface on MG-COT.

Three types of paging features are supported by MG-COT's paging. For operation procedures refer to service conditions of PAGING ACCESS [P-1] and PAGING TRANSFER [P-10] in Data Programming Manual - Business.

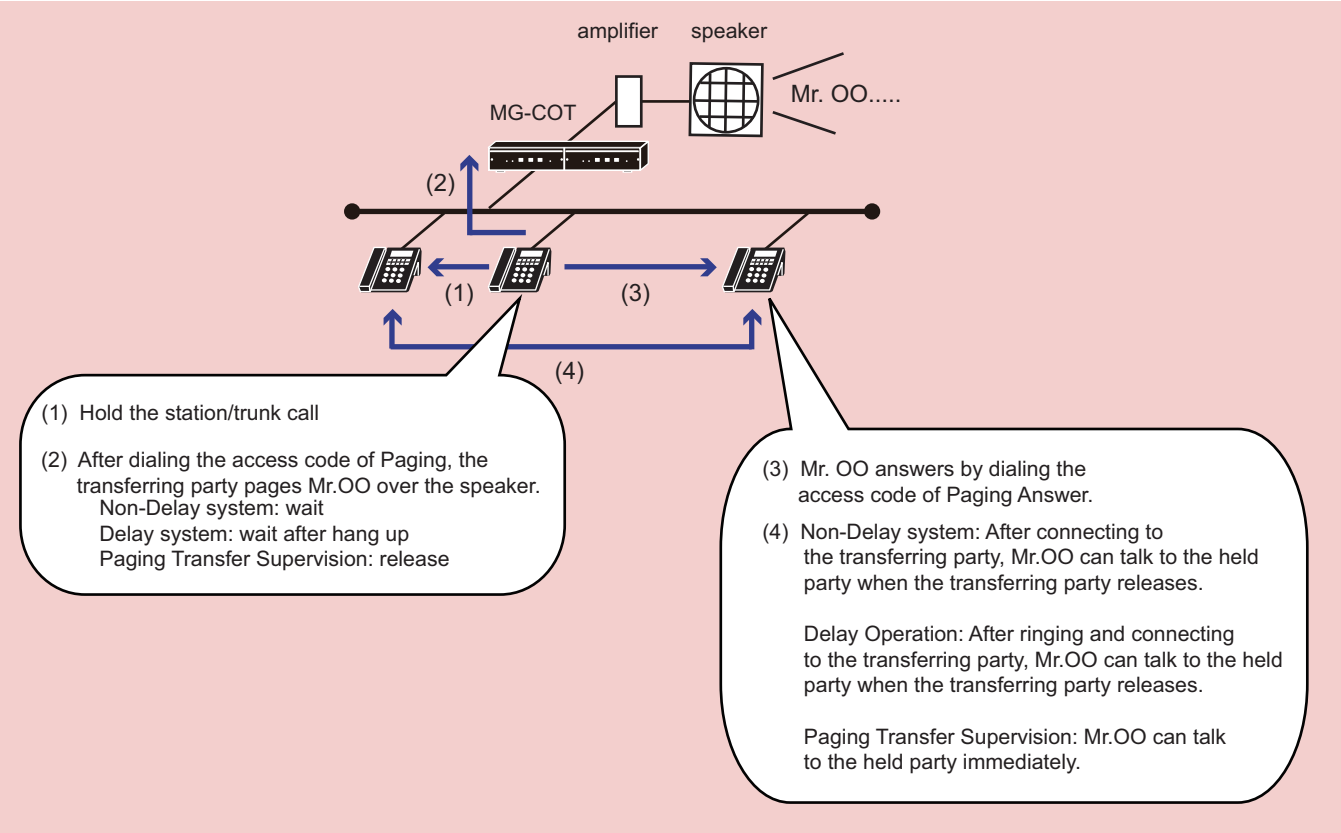
<Paging Access>

Dialing the access code of Paging Access on station, the caller can access the paging equipment to page anyone over the speaker. The paged person can answer the call by dialing the Paging Answer access code on any station.



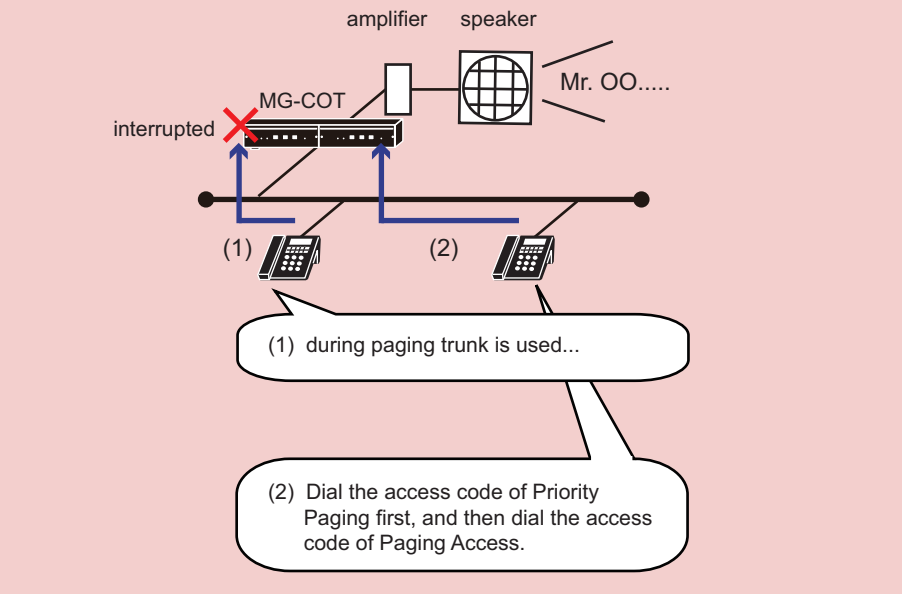
<Paging Transfer>

After holding a station/trunk call, the holding party can page anyone over the speaker to transfer the call. Non-Delay system, Delay system, and Paging Transfer Supervision is available.



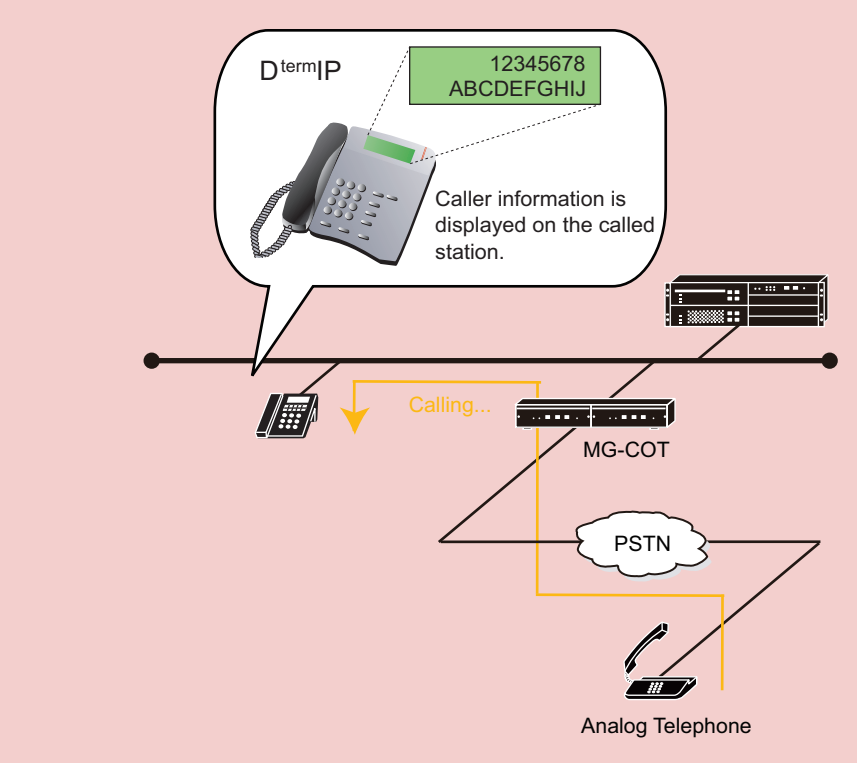
<Priority Paging>

By dialing the access code of Priority Paging, the station/ATTCON is allowed to access paging trunk interrupting other user's paging in progress.



Analog Caller ID

CALLER ID information (Calling Number and Calling Name) can be displayed on called terminals (Dterm and DtermIP stations with LCD) for the calls via CALLER ID-compliant analog C.O. line in North America.



Follow the service conditions below:

(a) Firmware SP3875 6MGCOT PROG-A Issue 2.0.0.0 or later version is required.

(b) Up to 24 characters of Calling Name can be displayed on the called terminal. When the informed Calling Name exceeds 24 characters, only the Calling Number is displayed. Any characters of Calling Name are not considered.

(c) The display on the called terminal is shown like below.
e.g.) When the Calling Name display takes priority:

	Calling Number [8 digits]
Calling Name [24 characters]	

Note: When the Calling Number display is assigned to take priority over Calling Name display, the displayed lines for the Calling Number and the Calling Name are inverted. In this case, the first eight characters of Calling Name (company name) can be displayed.

(d) Caller information display is available only for the incoming call from C.O. line terminated directly to each station. Caller information cannot be displayed when intermediate station exists by Call Forwarding. When the intermediate station hangs up, the Caller information can be displayed.

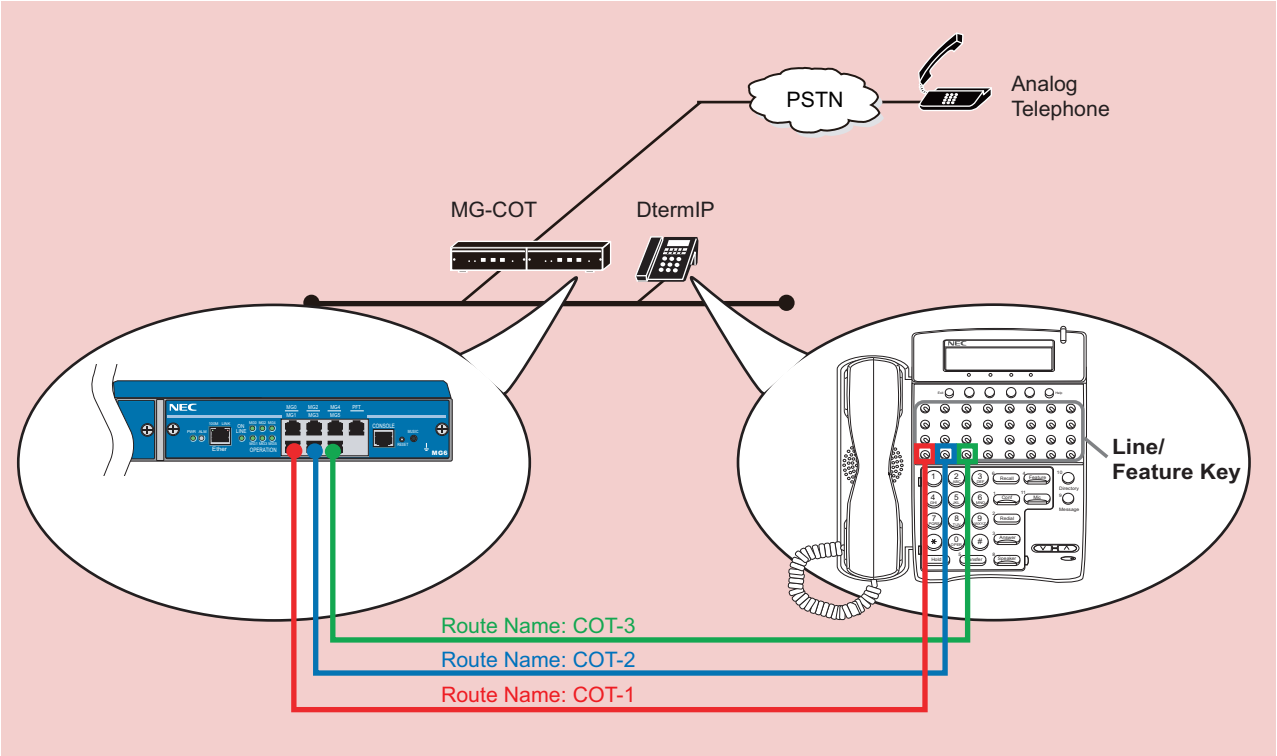
(e) When Caller ID has not been received, any Caller information cannot be displayed.

(f) Calling Name is not displayed even when Calling Name has been received but Calling Number has not been informed or cannot be displayed.

Note: Refer to Data Programming Manual - Business for the data assignment and operating procedure of this feature.

Trunk Line Appearance-D

Connecting an analog C.O. trunk and a virtual line one-to-one, this feature allows DtermIP user to directly access C.O. line of MG-COT by pressing corresponding Line key on DtermIP station, without dialing access code. DtermIP station can also answer incoming calls from C.O. line by pressing the Line key.



Follow the service conditions below to use this feature by MG-COT:

(a) System data assignment for Trunk Answer from Any Station (TAS) is required for this feature, but the TAS service is not activated.

(b) Whether the Trunk Answer from Any Station (TAS) feature is available or not is determined by the Service Feature Restriction Class (SFC: 34) setting to each station.

(c) When Trunk Line Appearance-D station does not answer the incoming call and Call Forwarding-Don't Answer is activated, the LCD on the DtermIP does not display to inform the execution of call forwarding.

(d) Analog C.O. line corresponding to PB signal is only applicable.

(e) DtermIP stations must assign a My Line on Line/Feature Key beforehand.

(f) All the virtual lines of C.O. trunk, excepting My Line, can be assigned as Trunk Line Appearance-D lines on one DtermIP station. (e.g. On 16-button type of DtermIP station, a maximum of 15 lines can be accommodated as Trunk Line Appearance-D. The remaining one line is the My Line.)

(g) Up to 128 of C.O. lines can be accommodated as Trunk Line Appearance-D per system.

(h) Distinctive Ringing is not activated when incoming call terminates.

(i) Analog Telephone cannot answer the incoming call of Trunk Line Appearance-D.

(j) When DtermIP station answers and holds the incoming call of Trunk Line Appearance-D, Analog Telephone station cannot answer the held call. DtermIP stations can answer the held call.

(k) Call termination is informed to the user only by the Message Waiting Lamp indication on DtermIP.

(l) This feature is not applied to the outside call via ISDN line.

(m) To send out Hooking signal to the destination party, assign the Route Class data of COT route to HKS=1.

(n) When originating a call, DtermIP station hears dummy tone from the own system. Assign the dummy tone by the 2nd DT parameter of ASPA command.

ASPA 2nd DT: 0: -
Second DT is not sent.
1: 2nd DT
Second DT is sent.

(o) Numbering plan data for the call origination via COT must be assigned by the LCR setting of ASPA command.

(p) MG-COT can send out Hooking signal to outside in this feature.

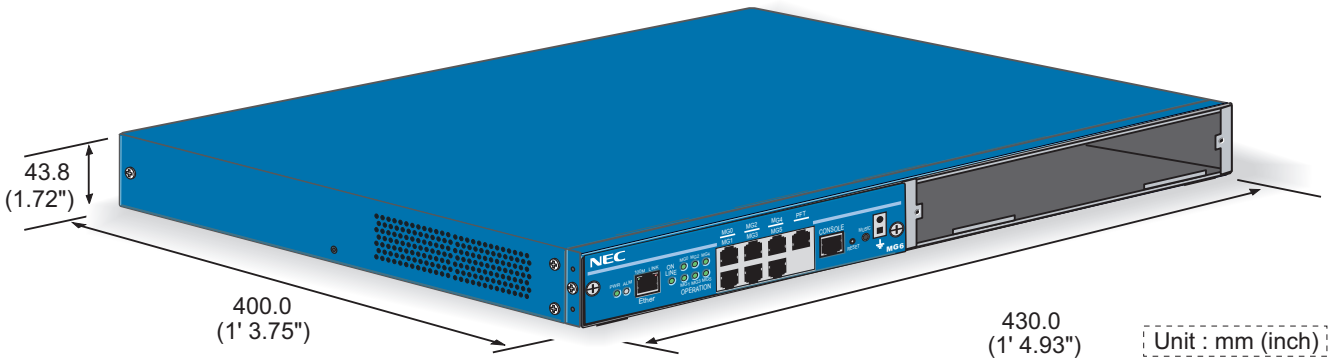
Note: Refer to the Data Programming Manual - Business for the data assignment and operating procedure of this feature.

1.3 Specifications

1. Dimension

MG-COT Card is mounted in 1U-MPC module (19-inch rack mount, 1U-box).

Size of MG-COT Card in 1U-MPC



2. Specifications

MG-COT Specifications

FUNCTION	SPECIFICATION	NOTE
Voice CODEC	G.711	64 k (bps): PCM μ-law/A-law Packet cycle: 10~40 milliseconds (in 10 msec steps)
	G.729a	8 k (bps): CS-ACELP Packet cycle: 10~40 milliseconds (in 10 msec steps)
	G.723.1	6.3 k (bps): MP-MLQ/ACELP Packet cycle: 30 or 60 milliseconds
		5.3 k (bps): MP-MLQ/ACELP Packet cycle: 30 or 60 milliseconds
FAX	Data transmission as voice data	G.711/G.726 (ADPCM)
	FAX Relay (T.30)	FRF.11
	FAX Relay (T.38)	Not supported
FAX auto-detect timer	FAX auto-detect is activated on timer timeout	Timer: 1M, 2M, 3M, 4M, 5M (0M=Invalid to change to Fax mode) (OFF=Always possible to change to Fax mode)
Jitter Buffer	Static	10~300 milliseconds (assignable in 10 msec steps)
	Dynamic	10~300 milliseconds
Quality of Service (QoS)	ToS, IP Precedence	Supported
	DiffServ	Supported
VLAN	IEEE 802.1Q (Tagging VLAN), VLAN bit, Priority bit	
LAN Interface	100 Mbps/10 Mbps, auto-negotiation (Half/Full Duplex)	RJ-45 Connector 1 Port
IP Address Assignment	DHCP is supported	
Operation & Maintenance	Console	RJ-45 serial interface Connecting through CONSOLE cable (RJ-45 ⇔ RS-232C serial cable)
Audible Tone Generator	16 types	
DTMF detection/generation	Supported	
Holding Tone	Supported (Internal and External)	
Safety Standard	UL60950	
EMI	FCC Part15	

MG Specifications

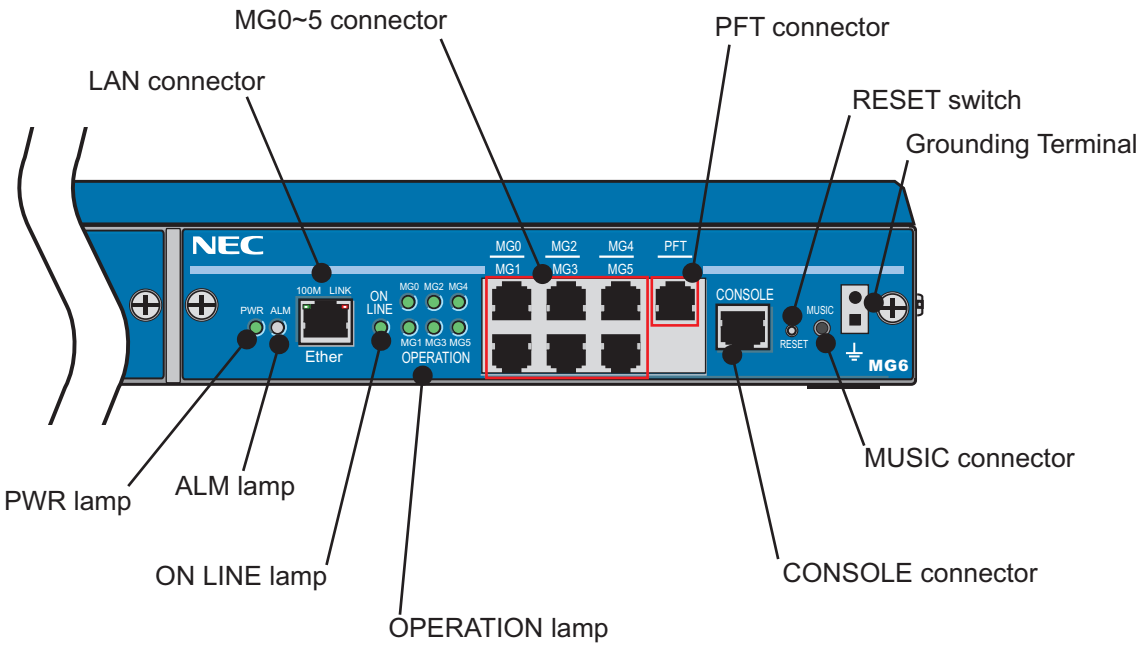
FUNCTION	SPECIFICATION	NOTE
Number of lines	Six lines	RJ-11 Modular Jack 6 Ports
Signaling Method	Loop Start / Ground Start **Note 1**	
Reverse Detection	Supported	Available in idle or loop closing state.
Caller ID (for North America)	Supported	
Call Metering Pulse Detection	Not Supported	
Line Fault Detection	Not Supported	
AC Clearing	Not Supported	
Selection Signal	DTMF only	DP is not supported
Automatic Polarity Reverse	Not Supported	
REVERSAL ON IDLE	Not Supported	
REVERSAL ON ANSWER REVERSAL ON SEIZURE	Not Supported	
PROCEED-TO-SEND-WINK START (LOOP-OUT CALLS)	Not supported	
Terminal Impedance and BNW (for North America)	600Ω (Default setting)	
PAD Control (for voice transmission)	-10dB ~ +20dB	Default value: analog → LAN = 0 dB LAN → analog = 0 dB
Echo Canceller	G.168/G165 (NLP function available)	Tail Length is 64 milliseconds
Echo Canceller Training Tone sending	Supported	Selectable
Smooth PAD	Supported LAN → analog only	Default value: 1 = Threshold 2.0 dBm

Note 1: Grounding less than 10Ω is desirable for Signaling Method. If the grounding is not available, the interface functions as a ringdown trunk. When Ground Start is used as Signaling Method, proper grounding is required.

3. Layout of Connectors, Lamps, and Switches

Connectors, lamps, and switches indications are explained below. This figure shows SCA-6COTA as an example.

Front View of MG-COT Card [SCA-6COTA]



Connectors on Front Panel

CONNECTOR	FUNCTION	NOTE
Ether	LAN Interface	RJ-45 100Mbps/10Mbps, auto-negotiation (Half/Full Duplex)
MG0	PSTN Interface	RJ-11 Connected to Analog Line (PFT) when PFT is activated.
MG1		RJ-11
MG2		
MG3		
MG4		
MG5		
PFT	PFT port for emergency telephone	RJ-11 Connected to C.O. line (MG0) when PFT is activated. (without MC connection)
CONSOLE	Interface for Maintenance Console	RJ-45 serial connection (CONSOLE cable RJ-45 ⇔ RS-232C is used)
MUSIC	External Music-On-Hold connection	ϕ 3.5 mini-jack (monaural type)
Grounding Terminal	-	AWG28-14 (Grounding Terminal for communication) Required for Ground Start.

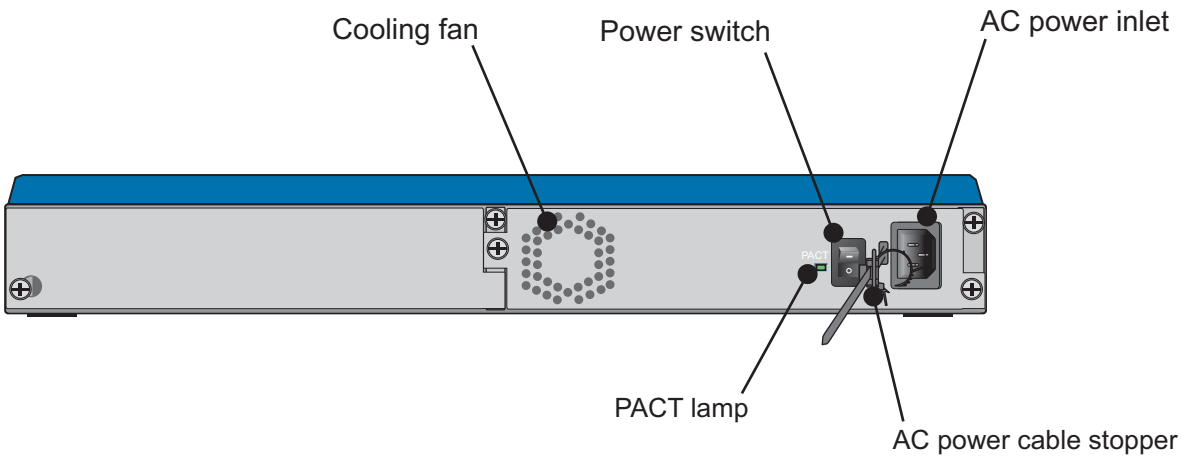
Lamps on the Front Panel

LAMP NAME		COLOR	MEANING OF INDICATION
PWR		Green	Power ON
		OFF	Power OFF
ALM		Red	Lights when power failure is detected
		OFF	Normal operation
Ether	LINK	Green	Lights when establishing port link **Note:** Lights when physically connected to IP network.
		Flash	Flashes green (in 0.67-second cycle) when sending/receiving IP Packet
		OFF	Port link is not established
	100M	Green	Lights when transmission speed is 100 Mbps
		OFF	Remains OFF when transmission speed is 10 Mbps
MG	ON LINE	Green	See for the detail explanations of the lamp indication.
	OPERATION MG0	Green	
	OPERATION MG1	Green	
	OPERATION MG2	Green	
	OPERATION MG3	Green	
	OPERATION MG4	Green	
	OPERATION MG5	Green	

Lamp Indication and Status

LAMP INDICATION							DISCRIPTION OF STATUS
LEGEND L: Lights Fr: Flashes rapidly (60INT) Fs: Flashes slowly (30INT) ×: Remains OFF R: Rotary lights							
MG							
ON LINE	OPERATION						
	MG0	MG1	MG2	MG3	MG4	MG5	
×	×	×	×	×	×	×	Start the BOOT program
×	R	R	R	R	R	R	Main program is starting up
×	Fs	Fs	Fs	Fs	Fs	Fs	Registration of MG has started
L	×	×	×	×	×	×	Registration of MG has been completed
L	×	-	-	-	-	-	CH0 (MG) is vacant
L	-	×	-	-	-	-	CH1 (MG) is vacant
L	-	-	×	-	-	-	CH2 (MG) is vacant
L	-	-	-	×	-	-	CH3 (MG) is vacant
L	-	-	-	-	×	-	CH4 (MG) is vacant
L	-	-	-	-	-	×	CH5 (MG) is vacant
L	Fr	-	-	-	-	-	CH0 (MG) is Make-Busy
L	-	Fr	-	-	-	-	CH1 (MG) is Make-Busy
L	-	-	Fr	-	-	-	CH2 (MG) is Make-Busy
L	-	-	-	Fr	-	-	CH3 (MG) is Make-Busy
L	-	-	-	-	Fr	-	CH4 (MG) is Make-Busy
L	-	-	-	-	-	Fr	CH5 (MG) is Make-Busy
L	L	-	-	-	-	-	CH0 (MG) is in use
L	-	L	-	-	-	-	CH1 (MG) is in use
L	-	-	L	-	-	-	CH2 (MG) is in use
L	-	-	-	L	-	-	CH3 (MG) is in use
L	-	-	-	-	L	-	CH4 (MG) is in use
L	-	-	-	-	-	L	CH5 (MG) is in use

Rear View of MG-COT Card [SCA-6COTA]



Note: This figure is an example when the 1U-MPC is in single power configuration. Prepare one more power unit (optional) for dual power configuration. (See the Appliance Model Installation Manual for the power unit mounting procedure.)

Connectors, Lamps, and Switches on Rear Panel

NAME	FUNCTION	
AC power inlet	Connected to AC-DC adapter with an attached three-polar grounded AC power cable (Cable Length: 3 m [9.8 ft.])	AC 100V (50/60 Hz) ± 10% AC 120V (50/60 Hz) ± 10% AC 230V (50/60 Hz) ± 10% AC 240V (50/60 Hz) ± 10%
Power switch	Power ON/OFF switching	
PACT lamp	Indicates the state in power unit	Lights green: Normal operation OFF: Power off or Power failure

Note: For the safety measures against static electricity, lightning struck, and other electrical surges, be sure to take proper connection to grounding (less than 10 Ω). As MG-COT has PSTN interface, if the line cable is struck by lightning directly, the lightning might cause damage to MG-COT and AC power adapter without Ground connection.

4. Port Number

The following provides the port number to be used in this system.

- When using Proprietary Protocol Mode

Port Number	Path	Function	Note
3456/UDP	DRS (Telephony Server LAN1)	Registration	Changing an initial value by using ADTM command.
3457/UDP	MG-COT	Registration	-
50001/UDP	MG-COT	iLP-PM	-
1024~ /TCP	Peer to Peer	H.245	Allocated by Operating System
1024~64510/UDP	Peer to Peer	RTP	Changing an initial value by using the configuration command. [SET STARTPORT] from a local console.

When using SIP Mode

	Function	TP side			SP side	
		LAN Port (default)	Port Number (default)	Command to Change Setting	Port Number (default)	Command to Change Setting
TP ⇔ SP Note 2	Registration	LAN1	3456	ADTM (Port Number only)	22000	Cannot be changed
	iLP-PM	LAN1	60130	ADTM (Port Number only)	64105	ALIDL
SP Internal Control Port Note 3	iLP-PM	-	-	-	64010	ALIDL
					22001	ASPC
MG-COT ⇔ SP	SIP	-	-	-	5060	Cannot be changed
H.245 Negotiation	Ready	-	-	-	22002	ASPC
	H.245	-	-	-	22003 ~ 26000	ASPC

Note 2: The packet between TP and SP (“TP ⇔ SP” in the table) does not flow over the network because both of which are part of the Telephony Server.

Note 3: The packet related to SP internal control port does not flow over the network.

5. Available Channels When Using SIP Mode

The number of channels that are processed depends on codec and payload cycle used by MG-COT in SIP mode. Therefore, adjustments will be needed, such as placing unnecessary channels into the Make Busy status.

See VoIP Encryption [V-27] in Data Programming Manual - Business for the number of available channels on the encryption status of this component.

1.4 Requirements

(1) Hardware Requirements

To use the MG-COT for an analog terminal and PSTN connection, the following hardware is required:

- PC running Terminal Software (for Maintenance Console)
- Cables

LAN cable: Use any of the following cables for connecting to LAN.
10BASE-T:Unshielded Twisted-pair (UTP) Straight-through Cable Category 3 or higher, (a maximum of 100 m)
100BASE-TX:Unshielded Twisted-pair (UTP) Straight-through Cable Category 5 or higher, (a maximum of 100 m)

Line Cable: For the connection between an Analog terminal for PFT, use a Modular Cable with an RJ-11 Modular Jack.
For the connection to PSTN network, use a Modular Cable with an RJ-11 Modular Jack.

CONSOLE Cable: RJ-45 ⇔ RS-232C serial cable (for maintenance console)

Audio Cable: Microphone Input (for external Music-On-Hold source)
ϕ 3.5 mini-jack (monaural type)

Grounding Cable: AWG28-14 (connection to Grounding Terminal for communication when using Ground Start)

(2) Firmware Program

The following program is installed in MG-COT [SCA-6COTA/SCA-6COTC].

- Installed Firmware [SCA-6COTA]:

Mode	Installed Firmware
Proprietary Protocol Mode	SP-3875 6MGCOT PROG-A Issue 2.0.0.0 version or later

- Installed Firmware [SCA-6COTC]:

Mode	Installed Firmware
Proprietary Protocol Mode/ SIP Mode	SP-3948 6MGCOT PROG-A Issue 1.0.0.0 version or later

(3) Environmental Requirements

- Operational Temperature Range: 0°C to 40°C (32°F to 104°F)
- Operational Humidity Range: 20% to 90% (not condensing)
- Main Source Power: 100 VAC / 120 VAC / 230 VAC / 240 VAC (50/60 Hz) ±10%

1.5 Service Conditions

Before the use of MG-COT, note the following conditions.

Service Conditions for Proprietary Protocol Mode and SIP Mode

(1) When the setting of ASYDL, SYS1, INDEX880, Bit 1 (Internal PHI-PRI/BRI)/Bit 3 (Internal PHE) is modified, initialize the Internal PHI-BRI/Internal PHE module with the ADPM command.

(2) The connection via less secure network such as Internet is not available. Also, dial-up connection is not available.

(3) PFT connects the following port.
PFT ⇔ MG0

(4) DIMG command is used to check the current status of MG-COT Card registration.

(5) Virtual Trunk for MG occupies one group. Therefore, the group to which Virtual Channel of MG has been assigned cannot be used for other Trunk. Do not use LV6 and LV7 of the group to which Virtual Channel of MG has been assigned. The Virtual Trunk can be assigned for Virtual PIR.

(6) When originating a call to the analog network, "*" cannot be included in the dialing number.

(7) Only DTMF signal is sent to Trunk Line. Dial Pulse is not used.

(8) PAD value and Echo Canceler data assigned by PAD/EC Control IP/PHC Support has priority. For details, refer to PAD/EC Control IP/PHC Support in Data Programming Manual - Business.

(9) If the data assignment by PAD/EC Control IP/PHC Support is invalid, PAD value and Echo Canceler data assigned in AMGVL/AIVCL has priority.

(10) Assign CODEC in AMGVL command (If AMGVL data is not assigned, AIVCL data is applied). For available payload type/payload size, refer to "Payload Setting for Each IP Equipment" in the System Description. When both command data are not assigned, default setting is applied (default setting is G.711- 40ms).

(11) When Payload Type is specified by AMGVL/AIVCL, A/μ-law setting assigned by AMGIL is applied. System Data is not applied (ASYD SYS1 INDEX 63 bit 0 A/μ-law for TSW). When A-law MG and μ-law MG are connected, A-law is applied.

(12) Route Number can be shared by multiple MGs.

(13) Assign each LENS for MG line (0-5) and CH (Fixed to 0) in AMGIL command. (MG0: Even Number Level, MG1: Level of MG0 + 1)

(14) Guard Timer for Originating Call is performed by the Telephony Server side. Assign the Timer value by ASYD (SYS 1, INDEX 474) to change the value. Default value is 3072 milliseconds.

(15) When digit conversion is required for the digits received from the public network, use ARTD, CDN66 (DC) and ACDD. A maximum of seven digits can be converted, counting from the last.

(16) There are the following restrictions when using REMOTE ACCESS TO SYSTEM [R-2] or AUTOMATED ATTENDANT [A-82].
- If any virtual registers cannot be seized, other registers (**Note 1**) are seized.
- When any registers cannot be seized, calling party hears busy tone.
- The sum total of virtual registers and other registers (**Note 1**) per LP cannot exceed 64 channels.

Note 1: In this context, other registers are:
- Originating register trunk (RT: 902)
- Incoming register trunk (RT: 903)
- PBR for Automated Attendant Service (RT: 906)
- CRT (RT: 933)

- Assign "2" to EQP of AAED to make calling party hear some announcement. The announcement can be sent only once.

(17) Assign the following parameter in ARTI command when using fax via MG.
- CDN 71: IP FAX data
- CDN 72: Jitter Buffer Size for IP FAX
- CDN 73: Payload Type for IP FAX
- CDN 74: Payload Size for IP FAX (This data is required only when G.711 or G.726 is specified in the FXPT parameter)

(18) When analog terminal is connected to outside via MG, the terminal user can send external/internal music resources as Music-on-Hold. External/internal Music-on-Hold data is assigned by AMGIL command per MG.

(19) MG-COT Card does not monitor the status of Analog line such as line failure. Therefore, MG-COT Card tries to originate a call regardless of Trunk failure. (As far as MG-COT Card works correctly.)

(20) If MG-COT Card is a Conference Leader for VS32 Conference Server (Multiple-Party Conference [RESET/ PROGRESSIVE]), the line which can send the release signal should be used.

(21) Hooking cannot be performed until MG-COT Card receives Polarity Reverse Signal for called party answer. However, hooking can be performed after the false answer by setting the false answer data (ANS on ARTD command and False answer timing on AMGIL command).

(22) When Trunk Soft Hold Timer is effective, the call originating party will be charged when the timer expires.

(23) A Conference cannot be established until the False Answer Timer expires.

(24) SMDR cannot be collected until the False Answer Timer expires.

(25) Adding a pause when originating to Central Office Line is not available.

Service Conditions particular to Proprietary Protocol Mode

(1) Only one Internal PHI-BRI can be registered per system.

(2) A total number of MGs in one system depends on the maximum number of IP terminals that are controlled by Internal PHI-BRI.

(3) Internal PHI-BRI performs the Health Check of MG-COT Card between Internal PHI-BRI and MG-COT Card.

(4) System Messages (33-R) are output when packet transmission failure is detected in Internal PHI-BRI.

(5) Internal PHI-BRI and MG are connected via UDP/IP. Therefore, Routine Diagnosis is performed by Proprietary Protocol procedure. System Message (33-S) is output if failure is detected.

(6) System Message (33-R) is output if control packet is sent and connection failure is detected. The message is output when timeout of control packet transmission timer occurred eight times or more continuously. The transmission timer value is changed/modified by ASYDL command (SYS 1, INDEX 884, bit0 PHI Retransmission timer). After modifying the data, reset the buffer or initialize the data by ADPM command.

(7) When LCR data has been assigned, LCR is activated if any failure described in conditions 5 and 6 occurs.

(8) IP address and Subnet Mask of Internal PHI-BRI are LAN1 IP address (ACT) of the Telephony Server. Port number is modified by ADTM command (default is 64000, shown as "Internal PHI-BRI"). Modified data is automatically reflected on System Data (**Note 2**). Port number of "Internal PHI-BRI" is shared with that of "Internal PHI-PRI".

Note 2: After modifying the data, initialize the data or reset the buffer by ADPM command. Data is reflected to System Data after this assignment.

(9) Assign Quality of Service (QoS) setting for Internal PHI-BRI in ALOCL command. (LOC-ID=0) Assign QoS of signaling packet for MG in AMGIL command, and QoS of voice packet in AMGVL/AIVCL command.

Service Conditions particular to SIP Mode

(1) MG-COT Card is controlled by SP-PHI. To activate SP-PHI, it is required to register Internal PHE. To turn SP-PHI and SP (Signaling Processor) effective, assign the following system data.
ASYDL, SYS1, INDEX 880, Bit 1 = 1 (Internal PHI-PRI/BRI is available)
ASYDL, SYS1, INDEX 880, Bit 3 = 1 (Internal PHE is available)
ASYDL, SYS1, INDEX 885, Bit 7 = 1 (SP Implementation is available)

(2) MG-COT Card requests registration to SP-PHI, not to Internal PHI-BRI.

(3) Accommodated location (LENS) data of Internal PHE and MPH/SP-PHI is required to be set on ALIDL command.

(4) For details on Encryption, refer to VoIP Encryption [V-27].

(5) Conditions for Fault Monitoring are as follows.

- Health Check is provided between SP-PHI and MG-COT Card. If a failure is detected by the Health Check, System Message (33-S) is output to the SP-PHI accommodated location (LENS).

- When timer timeout of control packet transmission between Internal PHE and SP-PHI occurs eight times consecutively, System Message (33-R) is output to the Internal PHE accommodated location (LENS).

(6) SR-MGC supports MG-COT Card.

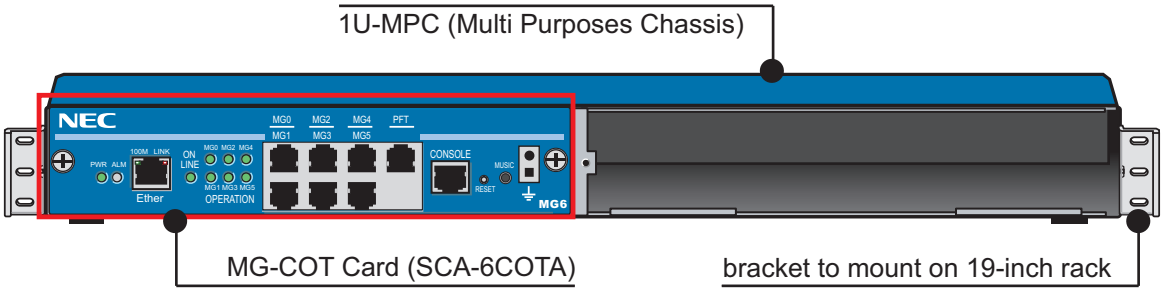
2 Installation

This section shows how to install the hardware required for using MG-COT. Be sure to take measures to anti-static electricity.

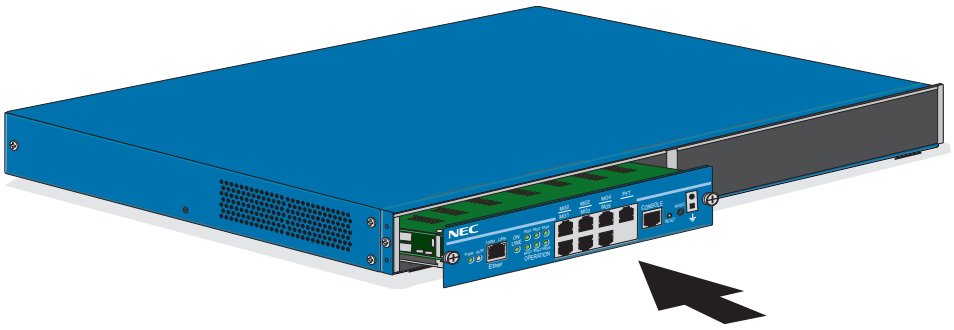


2.1 How to Set MG-COT

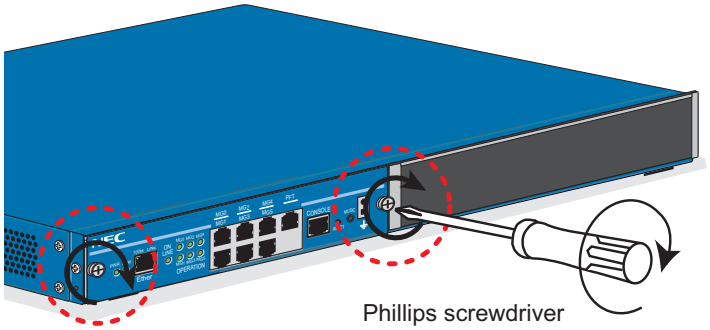
Note: The figure below, where MG-COT Card is accommodated in the left slot of 1U-MPC,.is just an example.



STEP 1 Insert MG-COT Card to 1U-MPC.



STEP 2 Secure the MG-COT Card to 1U-MPC fixing two screws on right and left sides.



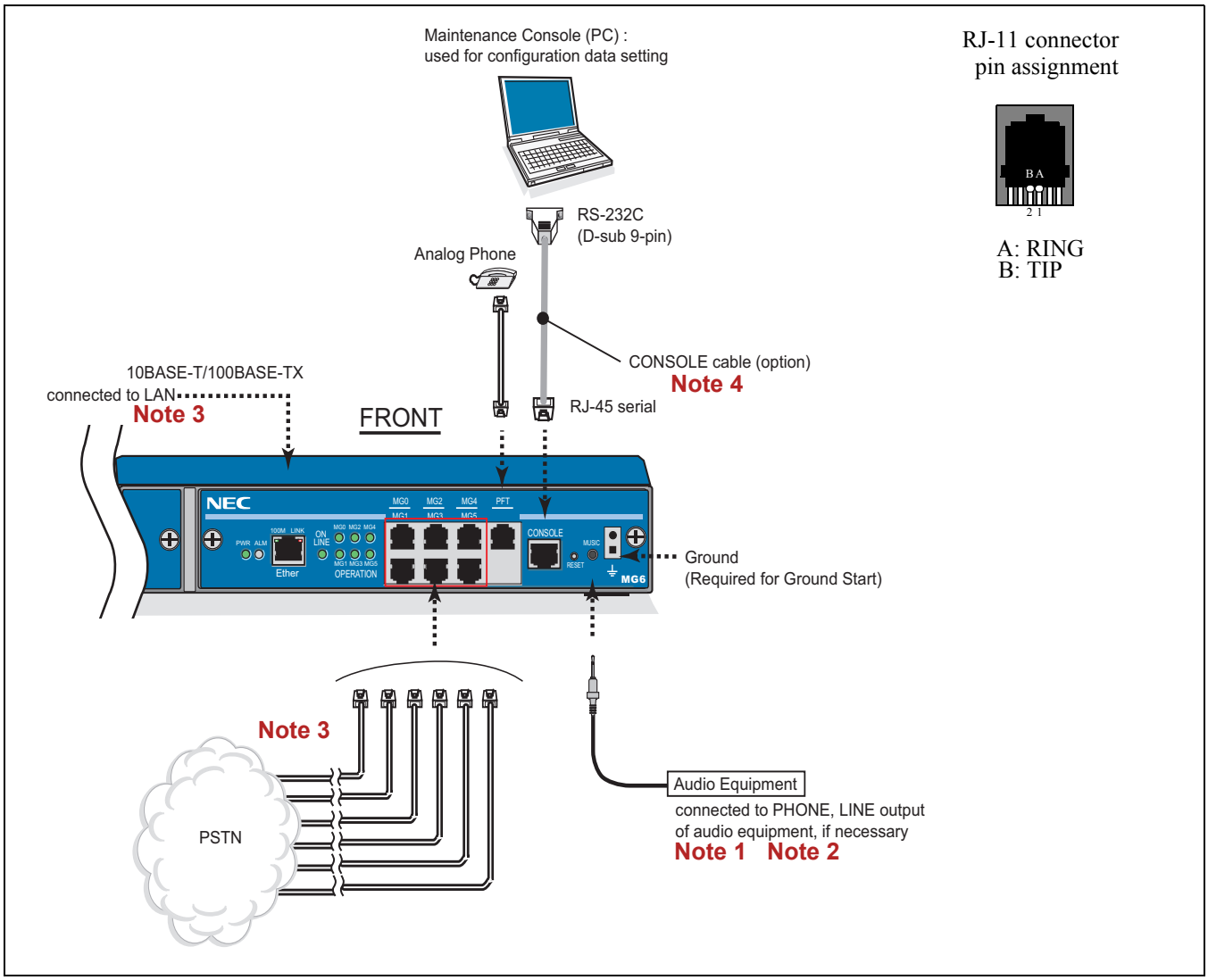
2.2 Cable Connection

This section shows the cable connection to the MG-COT. MG-COT provides the following interfaces:

- Connection to LAN
- Connection to PSTN
- Connection of Analog Telephone
- Serial Port Connection to Maintenance Console
- Connection to Audio Equipment for external music
- Power Supply

Connect the required cables according to the system configuration. The figure below shows a cable configuration example.

MG-COT Cable Connection Diagram (Front)



Note 1: Cable of external hold tone source needs to be conformed with all-purpose ϕ 3.5 mono-aural ear phone jack. Adjustment of output level for external hold tone source need to be started from low and to higher to avoid over-current. The tuning of volume level sent is to be done by monitoring from the telephone terminal connected over PSTN and tuning the output level of external hold tone source. Input impedance from the external hold tone source needs to be within the ranges of 8Ω - 50kΩ. Make sure not to exceed this range.

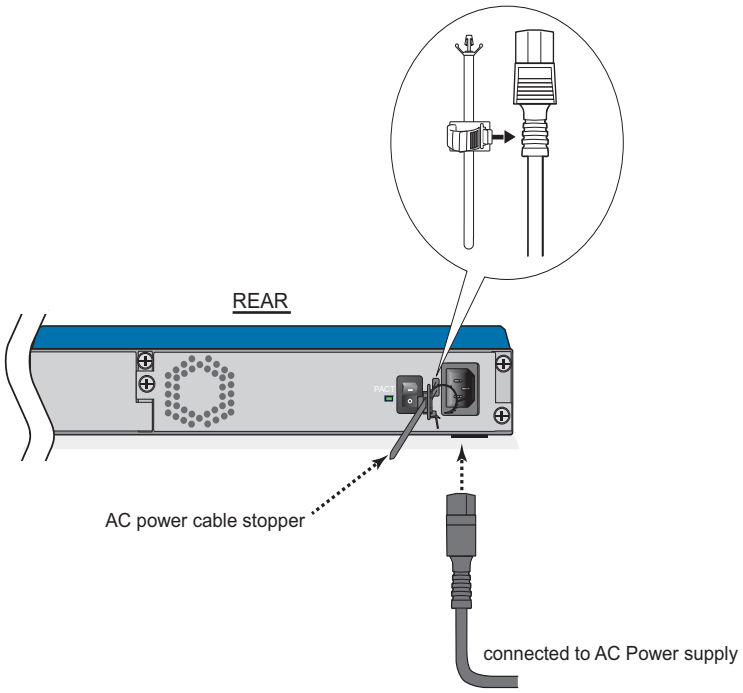
Note 2: If audio equipment has a ground terminal, be sure to take proper connection to grounding of audio equipment.

Note 3: Do not connect LAN and PSTN line here. These cables are connected in Section 3 Startup MG-COT and Basic Tests.

Note 4: When you turn off the power, disconnect the CONSOLE cable in advance of turning off the power.

STEP 1 AC power cable connection

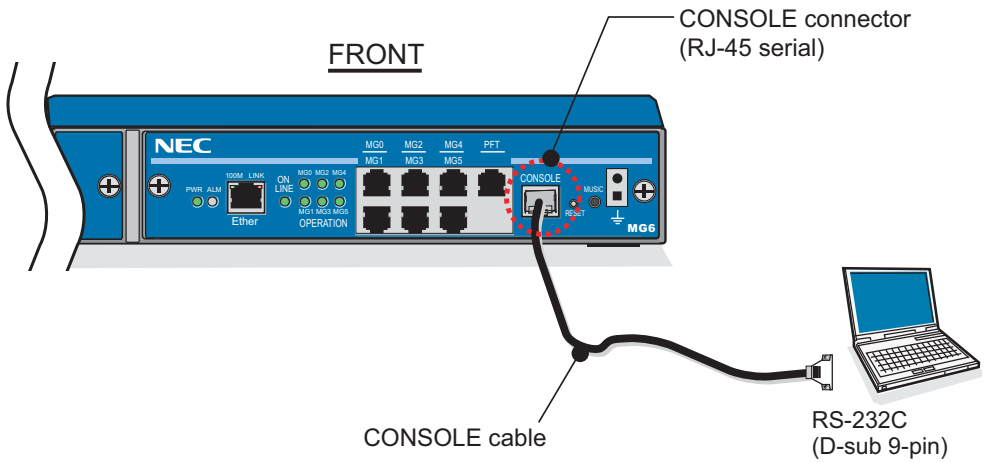
Connect AC power cable to AC Power Inlet on the rear panel of MG-COT. Fix the AC power cable with the stopper.]



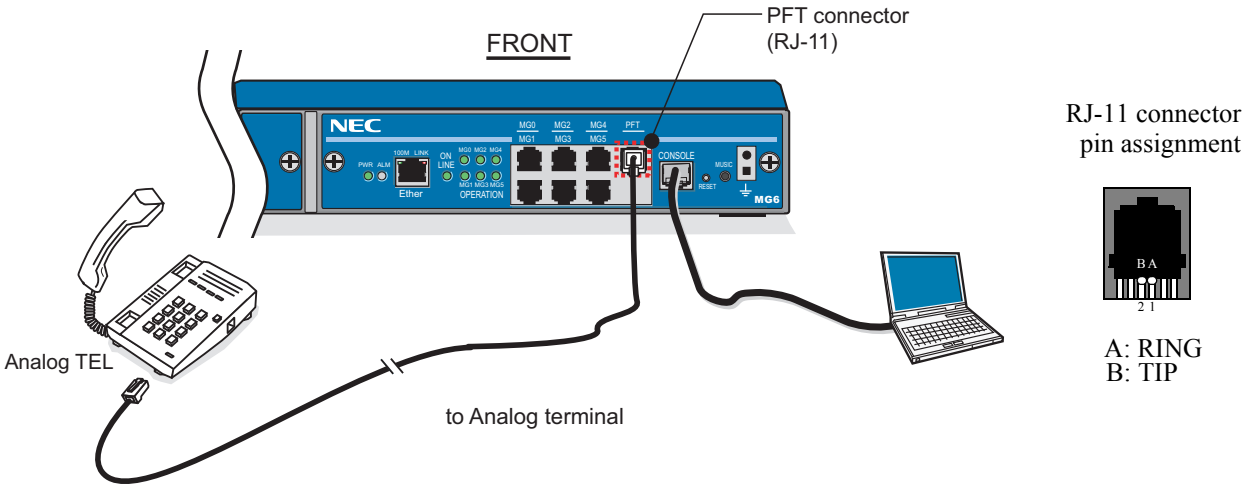
Connect the other end of the power cable to appropriate AC supply.

Note: For the safety measures against static electricity, lightning struck, and other electrical surges, be sure to take proper connection to grounding (less than 10 Ω). As MG-COT has PSTN interface, if the line cable is struck by lightning directly, the lightning might cause damage to MG-COT and AC power cable without Ground connection.

STEP 2 Connect a Maintenance Console (PC) to CONSOLE connector using CONSOLE cable.



STEP 3 Connect analog terminals to PFT connector on the front panel.



Note: PSTN lines and LAN cables are connected in Section 3 Startup MG-COT and Basic Tests. Do not connect these cables here.

3 Startup MG-COT and Basic Tests

This section explains procedures for startup and basic tests. Follow the procedure below depending on the registration mode.

STEP 1: Data Assignment by PCPro

When Proprietary Protocol mode	When SIP mode
1. Internal PHI-BRI Data Assignment	1. Internal PHE Data Assignment
2. MG-COT Card Data Assignment	2. SP-PHI Data Assignment
	3. MG-COT Card Data Assignment
	4. Security Data Assignment

STEP 2: VT-100 Compliant Terminal Software Setting on Maintenance Console

1. Connection between PC (maintenance console) and CONSOLE Connector
2. Terminal Software Activation
3. Setting of Terminal Software

STEP 3: Power ON

STEP 4: Configuration Command Assignment

When Proprietary Protocol mode	When SIP mode
1. Selection whether to use DHCP server	1. One Time Password Assignment
2. Network Data Assignment	2. Selection whether to use DHCP/DNS server
	3. Network Data Assignment

STEP 5: Cable Connection

1. Connection between MG-COT Card and LAN
2. Connection between C.O. lines and MG

STEP 6: Basic Test Procedures

1. Basic Connection Test
2. Alarm Information Check
3. PFT Switching Test

END

3.1 Data Assignment by PCPro

This section explains the data assignment procedures to the Telephony Server by PCPro.

Note: This equipment needs to be considered beforehand either Internal PHI-BRI or SP-PHI is set as the registration destination. Please make sure details of “Consideration for SP-PHI Data Assignment” in Chapter 2 of the Data Programming Manual - Business before data assignment.

Note: For UG50, refer to the Peripheral Equipment Description (UG50).

<When Proprietary Protocol mode>

MG-COT Card can be registered to either Internal PHI-BRI or SP-PHI. When registering to Internal PHI-BRI, it works using Proprietary Protocol, which is called Proprietary Protocol mode. The following explains MG-COT Card data assignment for Proprietary Protocol mode. When registering to SP-PHI (SIP mode), refer to page 304.

[1] Internal PHI-BRI Data Assignment

MG-COT (Proprietary Protocol mode) is controlled by Internal PHI-BRI embedded in the Telephony Server. So Internal PHI-BRI data assignment is necessary.

[2] MG-COT Card Data Assignment

Assign the necessary System Data for using the MG.

ASYD: Assignment of System Data

SYS1
INDEX 186, b6=1 (ISDN/MG-COT is in service)
INDEX 187=00 (Fixed)
INDEX 474 Guard Timer For Originating Call (MTC × TC)
bit 0-3 (MTC)
bit 4-6 (TC) **Note 1**

Note 1: When assigning 1H, TC = 64 msec.

ARTD: Assignment of Route Class Data

Assign the Route Class Data for Virtual Speech Channel. The following data setting is necessary besides Analog C.O BWT setting.

CDN1	OSGS = 0	CCIS
CDN60	TC/EC = 1	Echo Canceler is available
CDN114	DCH = 1	Unify the channel
CDN125	MGCOT = 1	MG (6COT) is available

When digits conversion is required for the received digits, assign the following data.

CDN66 (DC): Dialed Number Confirmation

Note: Assign the number of digits for identifying the incoming line. Count the digits from the last one of the received number.

<Related to MF>

CDN 72 MFSP	Sending Speed (0-15)
CDN 73 KPPT	Duration of KP sending (0-15)
CDN 74 KPST	Pause after KP sending (0-15)
CDN 75 MT	Step Code (0/1)

<Ground Start>

CDN 15 LSG = 1	Ground Start is available

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

ARTI: Assignment of Trunk Application Data

Assign Trunk Application Data for Virtual Speech Channel.

CDN68 VIR = 2	MG connection

When using fax connection via MG, following assignment is necessary.
CDN 71 IP FAX data
CDN 72 Jitter Buffer Size for IP FAX
CDN 73 Payload Type for IP FAX
CDN 74 Payload Size for IP FAX

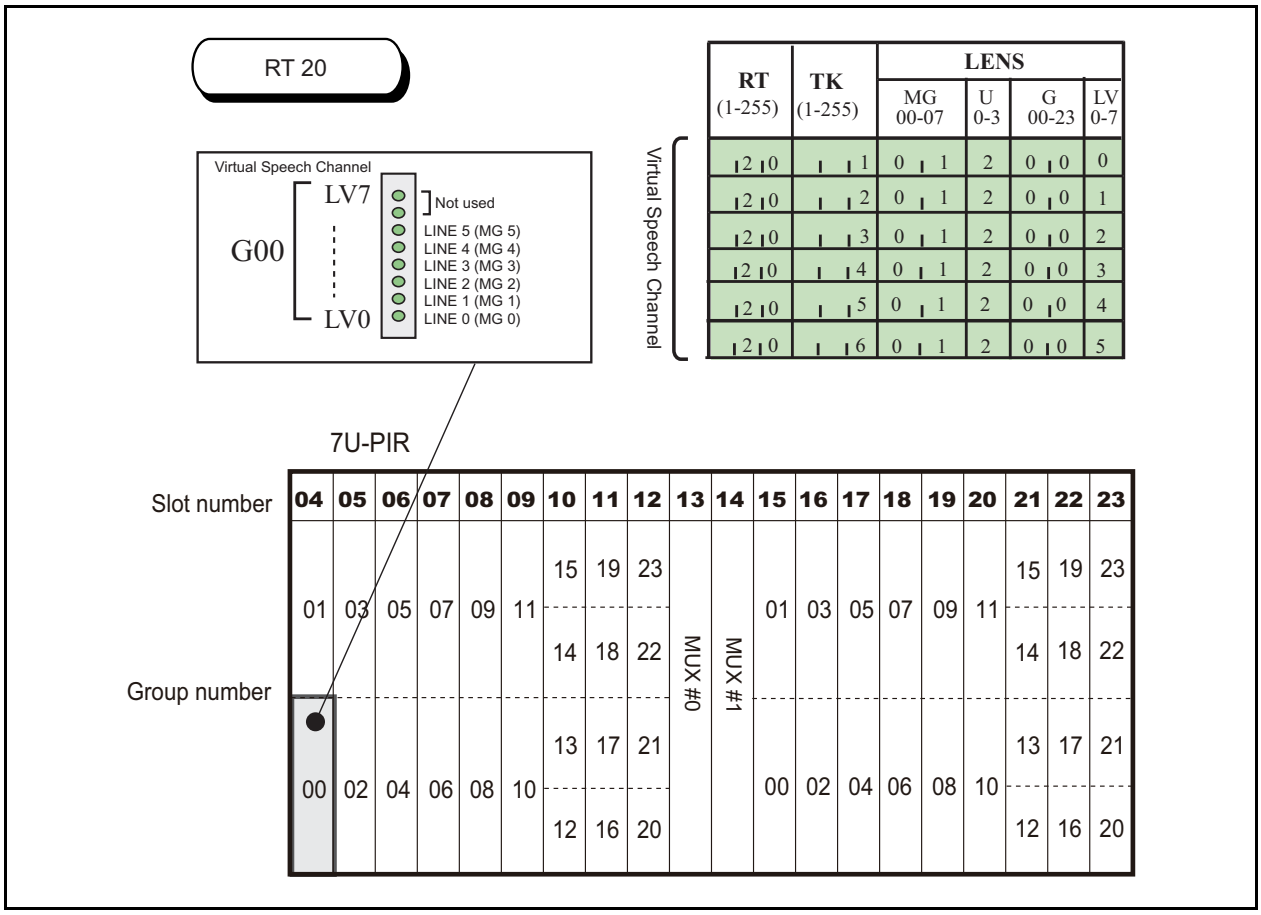
Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

ATRK: Assignment of Trunk Data

Assign the Trunk Data for Virtual Speech Channel.
The example of data setting procedure is shown below.

Note: Virtual trunk occupies one group. For example, if one channel is registered for Virtual Trunk, the group is occupied exclusively for the Virtual Trunk.

Note: Do not assign any trunk data to Group 0 of Unit 0 in even number Module group because it cannot be used with MG-COT.



MBTK: Make-Busy of Trunk

Assign the IDLE/BUSY status of trunks for Virtual Speech Channel.

RT	Route Number
TK	Trunk Number
MB	Make-Busy Information MB = 0 (Make Idle)

AMGIL: Assignment of Media Gateway Information (LDM)

Assign the information of MG (6COT).

Note: When assigning/deleting the data in this command with MG (6COT) working, the terminal is reset.

Note: Verify that ATRK data is assigned to LENS prior to assigning AMGIL data.

MG-ID	MAC Address of MG-COT
KIND	Kind of MG Trunk Select MG(6COT)

UG50 Multi-Slot Mode
Select this check box if registering UG50 in Multi-slot mode.

LINE MG Line Number [0-5]

Note: Check all of the boxes for LINE0 (LV0) - LINE5 (LV5). This data setting is available only when trunk data is assigned by ARTI/ATRK command.

CH MG Channel Number
Assign "0".

LENS Assign Virtual Speech Channel for MG (6COT).

Setting Type of Signaling Packet Service
Type of service for MG (6COT)

Music On Hold Exists
External Music on hold (default setting)
Internal Music on hold1
Internal Music on hold2

External music on hold input gain adjustment
0: 0dB
1: -10dB (gain)
2: -15dB (gain)
3: -20dB (gain)
4-15: Not used

Country Code
Australia
Brazil
China
Hong Kong
Japan
Korea
Malaysia
Mexico
New Zealand
North America
Singapore
Sri Lanka
Taiwan
Thailand
Thailand (EGAT)
U.K
Other

Law of A/D conversion

Australia	A law
Hong Kong	μ law
Japan	μ law
Korea	μ /A law
Malaysia	A law
Mexico	A law
New Zealand	A law
North America	μ law

Singapore	A law
Taiwan	μ law
U.K	A law
Other	μ /A law

PB Receive Complete Timing of Dial-In [0-15]
Default value is 0.
False Answer Timing [0-15]
Default value is 0.

AMGVL: Assignment of Media Gateway Voice Control (LDM)

Assign the voice control data for terminal that is connected to MG (6COT). When AMGVL data is not assigned, AIVCL data setting is applied.
A RT (MG Storing)
Physical Route Number for Virtual Speech Channel of MG (6COT)
TYPE
Choose either of the following:
- Route Specified
- Location ID Specified

B RT (MG Storing)
Displayed when TYPE = Route Specified is selected.
Physical Route Number for Virtual Speech Channel of terminal connected to MG
B LOC-ID: Location ID of IP terminal connected to MG (6COT)
Displayed when TYPE = Location ID Specified is selected.
Setting of Jitter Buffer
JB MIN: Jitter Buffer minimum value
JB MAX: Jitter Buffer maximum value
Setting Type of Voice Packet Service
Type of service for MG (6COT)
Setting of Payload
TYPE
SIZE
Setting of PAD
Select this check box when setting data for PAD value of MG.
PAD Information
This parameter is available only when the check box of “Setting of PAD” is ON.
No = 1: The PAD value of MG when DtermIP/Soft Phone/INASET is connected
No = 2: The PAD value of MG when Analog MC/Digital MC is connected
No = 3: The PAD value of MG when IPPAD is connected
No = 4: The PAD value of MG when MG is connected

Note: The PAD value of MG (6COT) is valid only when you select “Setting” from the drop-down box of “Setting of Detail” to specify the detail PAD value.

AIVCL: Assignment of IP Service Voice Control Data (LDM)

Assign the voice packet control data for terminal that is connected to MG (6COT).
A LOC-ID Location ID of MG (6COT) or IP terminal

B LOC-ID Location ID of MG (6COT) or IP terminal
Setting of Jitter Buffer
JB MIN: Jitter Buffer minimum value
JB MAX: Jitter Buffer maximum value
Setting Type of Voice Packet Service
Type of service for MG (6COT)
Setting of Payload
TYPE
SIZE

ALOCL: Assignment of Location ID Data (LDM)

Each IP terminal is allocated a Location ID to identify its location within the network on Network Address basis. By using the Location ID, IP services such as Bandwidth Control and ToS Control are provided for each IP terminal.

TYPE: Select "Network Address".
IP ADDRESS: Enter the IP Address. For the Telephony Server (IPPAD), assign "0.0.0.0".
MASK BIT: Enter the Mask Bit in the range of 1-31 except when IP Address 0.0.0.0 is determined. Mask Bit=32 is automatically set when IP Address=0.0.0.0
NETWORK ADDRESS: Display only.
LOC-ID: Assign the Location ID in the range of 0-4095, associated with the IP Address. When IP Address=0.0.0.0, LOC-ID=0 is automatically set (the value cannot be changed).

Note: LOC-ID=0 is predetermined to the Location ID of the Telephony Server (i.e.IPPAD).

Setting Type of Signaling Packet Service: Click the check box to assign the ToS for signaling packet.
IP PRECEDENCE/DIFFSERV:
<When IP PRECEDENCE is selected>
Priority: Specify the precedence in the range of 0-7 (low-high).
Low Delay: Place a checkmark to set Low Delay to ON.
Through Put: Place a checkmark to set High Throughput to ON.
Reliability: Place a checkmark to set High Reliability to ON.
MIN Cost: Place a checkmark to set Cost Precedence to ON.
<When DIFFSERV is selected>
Priority: Specify the DiffServ Code Point in the range of 0-63.

Note: Default settings (IP PRECEDENCE, Priority=6, Low Delay=OFF, Throughput=OFF, Reliability=OFF, Min Cost=OFF) is applied when the check box is not clicked.

AIVCL: Assignment of IP Service Voice Control Data (LDM)

A LOC-ID:Location ID of the self-location [0-4095]
B LOC-ID:Location ID of the destination location [0-4095]
Setting of Jitter Buffer: Select the check box to assign the Jitter Buffer data.
JB MIN: Jitter Buffer minimum value [0-30 (× 10 milliseconds)]
JB MAX: Jitter Buffer maximum value [0-30 (× 10 milliseconds)]

Note: Default settings (JB MIN=1 (10 ms), JB MAX=30 (300 ms)) is applied when the check box is not selected.

Setting Type of Voice Packet Service: Select the check box to assign the ToS data for voice packet.
IP PRECEDENCE/DIFFSERV: Choose either from the drop-down list box.
<When IP PRECEDENCE is selected>

Priority (PRECEDENCE/DSCP):Specify the precedence in the range of 0-7 (low-high).
Low Delay: Place a checkmark to set Low Delay to ON.
Through Put: Place a checkmark to set High Throughput to ON.
Reliability: Place a checkmark to set High Reliability to ON.
MIN Cost: Place a checkmark to set Cost Precedence to ON.

<When DIFFSERV is selected>

Priority (PRECEDENCE/DSCP:Specify the DiffServ Code Point in the range of 0-63.

Note: Default settings (IP PRECEDENCE, Priority (PRECEDENCE/DSCP) = 5, Low Delay = OFF, Through Put = OFF, Reliability = OFF, Min Cost = OFF) is applied when the check box is not selected.

Setting of Payload: Select the check box to assign the Payload data. Specify a payload type (TYPE) and payload size (SIZE) in the order of priority 1 to 4 (PRI1 through PRI4).

TYPE: Select a payload type from the combo box.
- •No data
- •G.711
- •G.729a
- •G.723.1 (5.3K → 6.3K)
- •G.723.1 (6.3K → 5.3K)

SIZE: Select a payload size from the combo box according to the payload type.
- •No data
- •10 milliseconds
- •20 milliseconds
- •30 milliseconds
- •40 milliseconds
- •60 milliseconds

Note:

- If payload type G.711 is specified to more than two priorities in PRI1 through PRI4, assign different payload size to each priority.
- When payload types G.723.1 (5.3K → 6.3K) and G.723.1 (6.3K → 5.3K) are to be assigned on the same terminal, specify the same value to the payload size of both types.
- It is not necessary to assign the payload type/size to the whole priorities. Specifying the first priority only is allowed.
- For available payload type/payload size, refer to "Payload Setting for Each IP Equipment" in the System Description.

Setting of PAD: Select the check box to assign the PAD data manually. If not checked, default value 0 is applied.

KIND2: Specify the PAD value of Analog MC in the range of 0-3.
- •No PAD control (determined by ASYD, SYS1, INDEX 4, bit5 (5 dB PAD))
- •PAD OFF (0 dB)
- •3 dB
- •6 dB

KIND3: Specify the PAD No. of IPPAD in the range of 0-15.
PAD value is determined by this PAD No. (0-15) and the setting of SW10-6/7 on IPPAD card. Refer to the Circuit Card Description for more details.

Setting of Echo Canceller: Select the check box to assign the Echo Canceller data, and select one of the radio buttons.

- A EC-ON/B EC-ON
- A EC-ON/B EC-OFF
- A EC-OFF/B EC-ON
- A EC-OFF/B EC-OFF

Note: When the same value is assigned to both "A LOC-ID" and "B LOC-ID" parameters, select either "A EC-ON/B EC-ON" or "A EC-OFF/B EC-OFF."

Note: MG-COT needs to be rebooted after station data is assigned to reflect change. Confirm that there is no conversation in progress when rebooting.

[*] Data Deletion

Deletion must be operated in the reverse order of assignment. Make sure to delete in the order of AMGIL → ATRK. (Confirm there is no data left in AMGIL before deleting ATRK)
Operate the ASYD/ASYDL/ALIDL deletion carefully because these commands are also used by other equipments.

<When SIP mode>

MG-COT Card can be registered to either Internal PHI-BRI or SP-PHI. When registering to SP-PHI, it works using SIP, which is called SIP mode. The following explains MG-COT Card data assignment for SIP mode. When registering to Internal PHI-BRI (Proprietary Protocol mode), refer to page 296.

[1] Internal PHE Data Assignment

When MG-COT is registered to SP-PHI, MPH is used to control SP-PHI. For the use of MPH, it is required to make Internal PHE function valid. So Internal PHE data assignment is necessary.

[2] SP-PHI Data Assignment

When MG-COT is registered to SP-PHI, SP-PHI data assignment is necessary.

[3] MG-COT Card Data Assignment

Assign the necessary System Data for using the MG.

ASYD: Assignment of System Data

SYS1
INDEX 186, b6=1 (ISDN/MG-COT is in service)
INDEX 187=00 (Fixed)
INDEX 474 Guard Timer For Originating Call (MTC × TC)
bit 0-3 (MTC)
bit 4-6 (TC) **Note 2**

Note 2: When assigning 1H, TC = 64 msec.

ARTD: Assignment of Route Class Data

Assign the Route Class Data for Virtual Speech Channel. The following data setting is necessary besides Analog C.O BWT setting.

CDN1	OSGS = 0	CCIS
CDN60	TC/EC = 1	Echo Canceler is available
CDN114	DCH = 1	Unify the channel
CDN125	MGCOT = 1	MG (6COT) is available

When digits conversion is required for the received digits, assign the following data.

CDN66 (DC): Dialed Number Confirmation

Note: Assign the number of digits for identifying the incoming line. Count the digits from the last one of the received number.

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

<Related to MF>

CDN 72 MFSP	Sending Speed (0-15)
CDN 73 KPPT	Duration of KP sending (0-15)
CDN 74 KPST	Pause after KP sending (0-15)
CDN 75 MT	Step Code (0/1)

<Ground Start>

CDN 15 LSG = 1	Ground Start is available

ARTI: Assignment of Trunk Application Data

Assign Trunk Application Data for Virtual Speech Channel.

CDN68 VIR = 2	MG connection

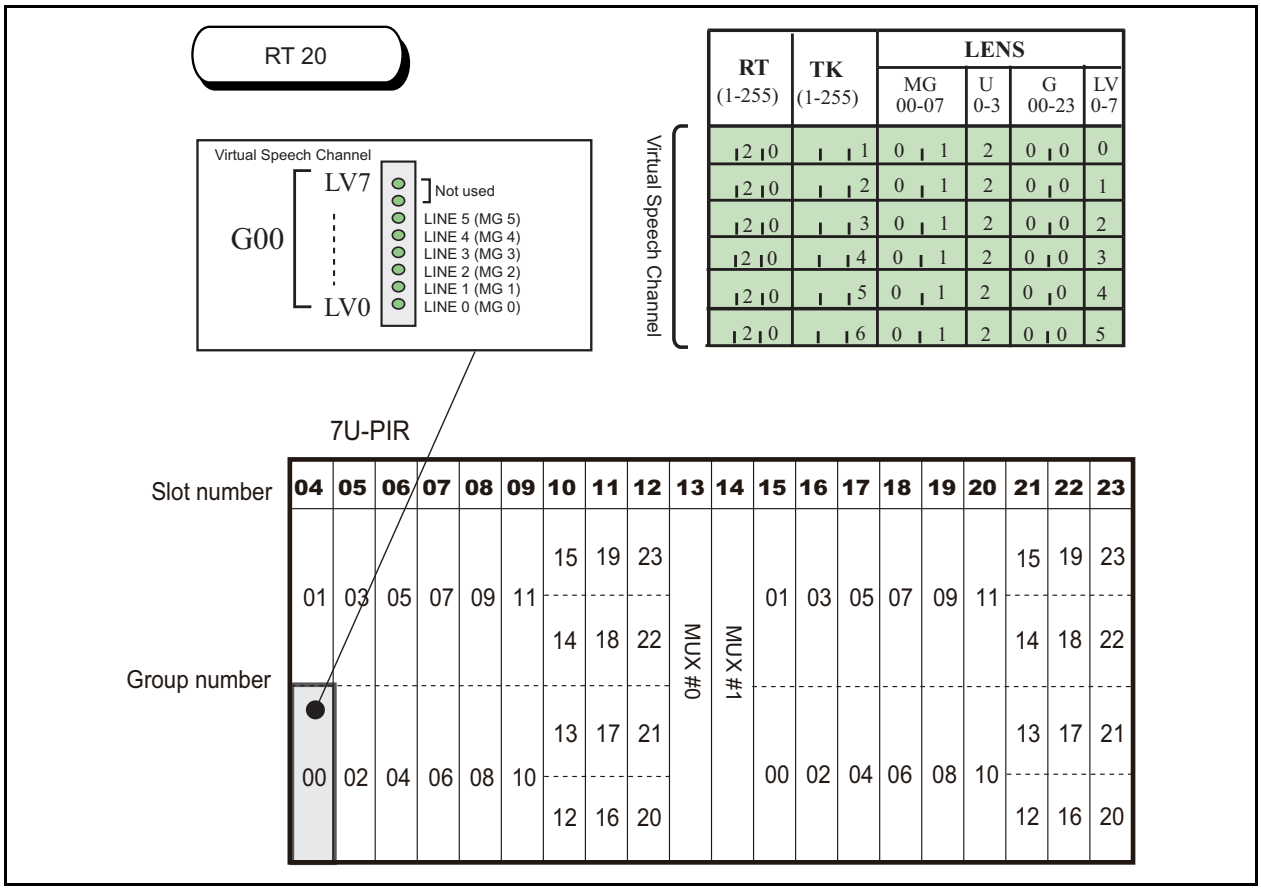
When using fax connection via MG, following assignment is necessary.
CDN 71 IP FAX data
CDN 72 Jitter Buffer Size for IP FAX
CDN 73 Payload Type for IP FAX
CDN 74 Payload Size for IP FAX

ATRK: Assignment of Trunk Data

Assign the Trunk Data for Virtual Speech Channel.
The example of data setting procedure is shown below.

Note: Virtual trunk occupies one group. For example, if one channel is registered for Virtual Trunk, the group is occupied exclusively for the Virtual Trunk.

Note: Do not assign any trunk data to Group 0 of Unit 0 in even number Module Group because it cannot be used with MG-COT.



MBTK: Make-Busy of Trunk

Assign the IDLE/BUSY status of trunks for Virtual Speech Channel.

RT	Route Number
TK	Trunk Number
MB	Make-Busy Information MB = 0 (Make Idle)

AMGIL: Assignment of Media Gateway Information (LDM)

Assign the information of MG (6COT).

Note: When assigning/deleting the data in this command with MG (6COT) working, the terminal is reset.

Note: Verify that ATRK data is assigned to LENS prior to assigning AMGIL data.

MG-ID	MAC Address of MG-COT
KIND	Kind of MG Trunk Select MG(6COT)[SIP]

UG50 Multi-Slot Mode
Select this check box if registering UG50 in Multi-slot mode.

LINE MG Line Number [0-5]

Note: Check all of the boxes for LINE0 (LV0) - LINE5 (LV5). This data setting is available only when trunk data is assigned by ARTI/ATRK command.

CH MG Channel Number
Assign "0".

LENS Assign Virtual Speech Channel for MG Line Number 0.

Setting Type of Signaling Packet Service
Type of service for MG (6COT)

Music On Hold Exists
External Music on hold (default setting)
Internal Music on hold1
Internal Music on hold2

External Music On Hold Input Gain Adjustment
0: 0dB
1: -10dB (gain)
2: -15dB (gain)
3: -20dB (gain)
4-15: Not used

Country Code
Australia
Brazil
China
Hong Kong
Japan
Korea
Malaysia
Mexico
New Zealand
North America
Singapore
Sri Lanka
Taiwan
Thailand
Thailand (EGAT)
U.K
Other

Law of A/D conversion

Australia	A law
Hong Kong	μ law
Japan	μ law
Korea	μ /A law
Malaysia	A law
Mexico	A law
New Zealand	A law
North America	μ law
Singapore	A law

Taiwan	μ law
U.K	A law
Other	μ /A law

PB Receive Complete Timing of Dial-In [0-15]
Default value is 0.
False Answer Timing [0-15]
Default value is 0.

AMGVL: Assignment of Media Gateway Voice Control (LDM)

Assign the voice control data for terminal that is connected to MG (6COT). When AMGVL data is not assigned, AIVCL data setting is applied.
A RT (MG Storing)
Physical Route Number for Virtual Speech Channel of MG (6COT)
TYPE
Choose either of the following:
- Route Specified
- Location ID Specified

B RT (MG Storing)
Displayed when TYPE = Route Specified is selected.
Physical Route Number for Virtual Speech Channel of terminal connected to MG
B LOC-ID: Location ID of IP terminal connected to MG (6COT)
Displayed when TYPE = Location ID Specified is selected.
Setting of Jitter Buffer
JB MIN: Jitter Buffer minimum value
JB MAX: Jitter Buffer maximum value
Setting Type of Voice Packet Service
Type of service for MG (6COT)
Setting of Payload
TYPE
SIZE
Setting of PAD
Select this check box when setting data for PAD value of MG.
PAD Information
This parameter is available only when the check box of “Setting of PAD” is ON.
No = 1: The PAD value of MG when DtermIP/Soft Phone/INASET is connected
No = 2: The PAD value of MG when Analog MC/Digital MC is connected
No = 3: The PAD value of MG when IPPAD is connected
No = 4: The PAD value of MG when MG is connected

Note: The PAD value of MG (6COT) is valid only when you select “Setting” from the drop-down box of “Setting of Detail” to specify the detail PAD value.

AIVCL: Assignment of IP Service Voice Control Data for LDM

Assign the voice packet control data for terminal that is connected to MG (6COT).
A LOC-ID Location ID of MG (6COT) or IP terminal
B LOC-ID Location ID of MG (6COT) or IP terminal

Setting of Jitter Buffer

JB MIN: Jitter Buffer minimum value
JB MAX: Jitter Buffer maximum value

Note: Default settings (JB MIN=1 (10 ms), JB MAX=30 (300 ms)) is applied when the check box is not selected.

Setting Type of Voice Packet Service: Select the check box to assign the ToS data for voice packet.
IP PRECEDENCE/DIFFSERV: Choose either from the drop-down list box.
<When IP PRECEDENCE is selected>

Priority (PRECEDENCE/DSCP):Specify the precedence in the range of 0-7 (low-high).
Low Delay: Place a checkmark to set Low Delay to ON.
Through Put: Place a checkmark to set High Throughput to ON.
Reliability: Place a checkmark to set High Reliability to ON.
MIN Cost: Place a checkmark to set Cost Precedence to ON.

<When DIFFSERV is selected>

Priority (PRECEDENCE/DSCP):Specify the DiffServ Code Point in the range of 0-63.

Note: Default settings (IP PRECEDENCE, Priority (PRECEDENCE/DSCP) = 5, Low Delay = OFF, Through Put = OFF, Reliability = OFF, Min Cost = OFF) is applied when the check box is not selected.

Setting of Payload: Select the check box to assign the Payload data. Specify a payload type (TYPE) and payload size (SIZE) in the order of priority 1 to 4 (PRI1 through PRI4).

TYPE: Select a payload type from the combo box.
- •No data
- •G.711
- •G.729a
- •G.723.1 (5.3K → 6.3K)
- •G.723.1 (6.3K → 5.3K)

SIZE: Select a payload size from the combo box according to the payload type.
- •No data
- •10 milliseconds
- •20 milliseconds
- •30 milliseconds
- •40 milliseconds
- •60 milliseconds

Note:

- If payload type G.711 is specified to more than two priorities in PRI1 through PRI4, assign different payload size to each priority.
- When payload types G.723.1 (5.3K → 6.3K) and G.723.1 (6.3K → 5.3K) are to be assigned on the same terminal, specify the same value to the payload size of both types.
- It is not necessary to assign the payload type/size to the whole priorities. Specifying the first priority only is allowed.
- For available payload type/payload size, refer to "Payload Setting for Each IP Equipment" in the System Description.

Setting of PAD: Select the check box to assign the PAD data manually. If the check box is not selected, default value 0 is applied.

KIND2: Specify the PAD value of Analog MC in the range of 0-3.
- •No PAD control (determined by ASYD, SYS1, INDEX 4, bit5 (5 dB PAD))
- •PAD OFF (0 dB)
- •3 dB
- •6 dB

KIND3: Specify the PAD No. of IPPAD in the range of 0-15.
PAD value is determined by this PAD No. (0-15) and the setting of SW10-6/7 on IPPAD card. Refer to the Circuit Card Description for more details.

Setting of Echo Canceller: Select the check box to assign the Echo Canceller data, and select one of the radio buttons.

- •A EC-ON/B EC-ON
- •A EC-ON/B EC-OFF
- •A EC-OFF/B EC-ON
- •A EC-OFF/B EC-OFF

Note: When the same value is assigned to both “A LOC-ID” and “B LOC-ID” parameters, choose either “A EC-ON/B EC-ON” or “A EC-OFF/B EC-OFF”.

Note: MG-COT needs to be rebooted after station data is assigned to reflect change. Confirm that there is no conversation in progress when rebooting.

[4] Security Data Assignment

Assign authentication data for SIP Mode.

ASECL: Assignment of Security Data (LDM)

Assign the One Time Password to be used for authentication procedure in MG (6COT) registration.

ONE TIME PASSWORD
One Time Password to be used for authentication procedure
[4-10 digits with numerics, - (hyphen), . (period)] **Note 3**

AVAILABLE PERIOD
Expiration date of One Time Password (No limit/1-7 days)

Note: Authentication Data Assignment is used only for SIP Mode.

Note 3: Assign the same One Time Password to MG (6COT) by configuration command setting.

[*] Data Deletion

Deletion must be operated in the reverse order of assignment. Make sure to delete in the order of AMGIL → ATRK. (Confirm there is no data left in AMGIL before deleting ATRK)
Operate the ASYD/ASYDL/ALIDL deletion carefully because these commands are also used by other equipment.

<E911-ANI Data For Proprietary Protocol Mode/SIP Mode>

When Automatic Number Identification (ANI) feature for Enhanced 911 (E911) is required, assign the following data.

ARTD: Assignment of Route Class Data

Assign the Route Class Data for Virtual Speech Channel. An independent route is required for E911-ANI interface different from ordinary MG-COT trunk.

CDN15 LSG = 0 Line Signal is Loop for C.O. line
CDN19 ANI =1 E911-ANI service is in service

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

AAND: Assignment of Automatic Number Identification Data

Assign ANI sending digit as per the Route Number and the number of digits of the Caller's Number.

RT: Outgoing Route Number
AT: 0 = Station outgoing
CC: 0/1 = Self Office/Distant Office
KT: 0/1 = Expansion of station number length OFF/ON (*required when CC=0)
STNL Station Number Length [1-8] (*required when KT=1)
COC: Central Office Code [Maximum five digits (0-9, *, #)] (*required when CC=1)
SKIP Call Originator Digit to be Skipped [0-10]
ADD ANI Additional Number of Digits [1-10]
DC: ANI Sending Number [Maximum 10 digits]

3.2 VT-100 Compliant Terminal Software Setting on Maintenance Console



Note: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data.

STEP 1: Connect a PC (maintenance console) to CONSOLE connector.

STEP 2: Run the VT-100 compliant terminal software (e.g. HyperTerminal) on the Maintenance Console.

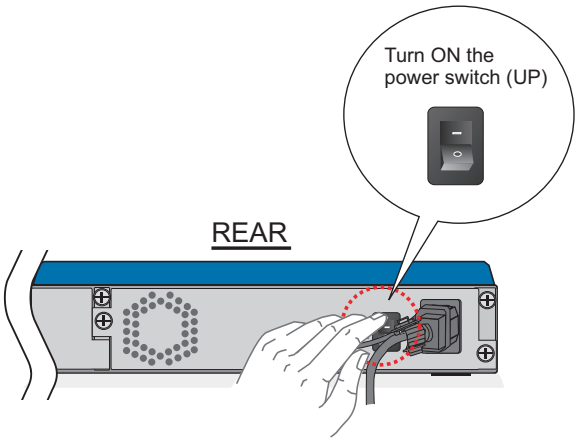
STEP 3: Set the parameter of the terminal software as follows:

- Port: *COM1 (depending on PC setting)*
- Baud Rate: *9600 bps*
- Data: *8 bits*
- Parity: *None*
- Stop Bit: *1*
- Flow Control: *None*

3.3 Power On

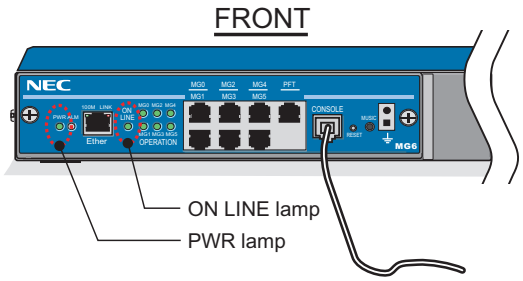
ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

STEP 1: Turn ON the power switch (UP) on the rear panel of MG-COT.



Note: When the 1U-MPC has already turned on, press “RESET” button on the front panel of MG-COT Card to restart the card and start its boot program.

STEP 2: Make sure the LEDs indicate normal status.
- PWR LED lights green.
- (Boot program automatically starts.)
- ON LINE LED light green when the sequence is completed.



3.4 Configuration Command Assignment

Assign the configuration data by command operation on maintenance console.

This section consists of two parts; procedure for Proprietary Protocol mode and procedure for SIP mode. The following explains the procedure by each mode.

Note: "DRS (Device Registration Server)" used in this section refers to the Telephony Server. When MG-COT Card works in Proprietary Protocol mode, the Telephony Server acts as DRS, which is controlling function of the Telephony Server.

Note: "SIP server" used in this section refers to the Telephony Server. When MG-COT Card works in SIP mode, the Telephony Server acts as SIP server.

Note: The setting data here is an example. Assign the network data according to your network configuration.

<When Proprietary Protocol Mode>

Assign the configuration data for MG-COT Card in Proprietary Protocol mode. About the configuration data for SIP mode, refer to page 320.

STEP 1: When the boot program is started, the initial display below is displayed on the screen.

```
MG-ID: xxxxxxxxxxxx

Starting Bootprogram......
--- Online program Initial start --- (wait for a while.)
:
:
:
->
->
->
```

STEP 2: Type “usrConsole” at the indicated OS prompt and press the ENTER key.

```
->
->
->usrConsole
```

STEP 3: MG-COT command prompt appears as follows.

```
->usrConsole
MG-COT Maintenance command
MG-COT>
```

STEP 4: Type “SETUP TP” to set the network data depending on your LAN environment. **Note 1**

There are two ways to set the network data;

- When DHCP server is used
- When DHCP server is NOT used

Note 1: If the firmware version is earlier than SP-3875 6MG COT PROG-A Ver.3.0.0.0, type “SETUP” to set the network data.

- **When DHCP server is used**

  As DHCP server automatically assigns IP addresses to MG-COT Card, Default Gateway, and the Telephony Server, there is no need to assign these network data on MG-COT Card side. IP addresses listed below, however, have to be prepared in DHCP server side. **Note 2**

  - IP address of Default Gateway
  - IP address and port number of DRS **Note 3**

  Note: Check the number of IP address saved in DHCP server is sufficient so as to get IP address of MG-COT Card anytime.

  Note 2: DHCP option setting is as follows.

  Class: Global
  Name: Not specified, but do not enter the same option name in duplicate
  Data: IP address
  Array: Checked
  Code: 161

  Refer to “DHCP Server Setup” in System Description for more information on DHCP Server Optional Setting.

  Note 3: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

```
MG-COT> setup tp


MG-ID = xx:xx:xx:xx:xx:xx


Use DHCP?
Input (Y:Yes/N:No/Q:Quit):y


-------------------------------------
MG-ID           = xx:xx:xx:xx:xx:xx
DHCP            = ENABLE
-------------------------------------

Input (Y:OK / N:Change / Q:Quit):y
```

Input “setup tp” and press Enter key. **Note 4**

MG-COT Card’s MAC address is displayed.

Set whether to use DHCP server.
Input “y” here and press Enter key. **Note 5**

Confirm the assigned data. Input “y” and press Enter key. The assigned data is automatically saved and start rebooting. The data turns effective after rebooting the MG-COT Card.

Note: If DHCP server is set for use, DHCP option will be set for use automatically. (SP-3875 6MGCOT PROG-A Ver.2.0.0.0 or later) If you do not assign the IP address of DRS to DHCP server, It must be assigned by “SET DRSADDRESS” command individually.

Note: Write down the displayed MG-ID (MAC address of MG-COT Card) to assign the MAC address on PCPro command AMGIL and AISTL.

Note 4: Type “setup” here for a firmware version of earlier than SP-3875 6MG COT PROG-A Ver.3.0.0.0.

Note 5: If the firmware version is earlier than SP-3875 6MG COT PROG-A Ver.2.0.0.0, whether to use DHCP option will be asked after DHCP server is set for use (“y” is input) here. The procedures in this case are as follow, depending on the answer.

- When DHCP Option is used

```
Use DHCP?
Input [Y(Yes)/N(No)/Q(Quit)]:y

Use DHCP option? (Get DRS address)
Input [Y(Yes)/N(No)/Q(Quit)]:y

-------------------------------------
MG-ID = xx:xx:xx:xx:xx:xx
DHCP = ENABLE
-------------------------------------

Input [Y(Yes)/N(No)/Q(Quit)]:y
```

Set whether to use DHCP option. This option is the function to get DRS address from DHCP server. Input “y” here and press Enter key.

- When DHCP Option is NOT used

```
Use DHCP?
Input [Y(Yes)/N(No)/Q(Quit)]:y

Use DHCP option? (Get DRS address)
Input [Y(Yes)/N(No)/Q(Quit)]:n

DRS1 ADDRESS (XXX.XXX.XXX.XXX):1.1.1.1

-------------------------------------
MG-ID = xx:xx:xx:xx:xx:xx
DHCP = ENABLE
DRS1 ADDRESS = 1.1.1.1
-------------------------------------

Input [Y(Yes)/N(No)/Q(Quit)]:y
```

Set whether to use DHCP option. This option is the function to get DRS address from DHCP server. Input “n” here and press Enter key.

Assign the IP address of DRS. **Note 6**

Note 6: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

- **When DHCP server is NOT used**

  Set the following data on MG-COT Card.

  - IP address of Default Gateway
  - IP address and port number of DRS **Note 7**
  - IP address of MG-COT Card (own address)

  Note: When the DHCP is set to “ENABLE”, IP addresses assigned here cannot take effect. Be sure to assign “SET DHCP DISABLE” before starting the IP address setting.

  Note 7: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

```
MG-COT> setup tp

MG-ID = xx:xx:xx:xx:xx:xx

Use DHCP?
Input (Y:Yes / N:No / Q:Quit) : n

OWN IP ADDRESS [0.0.0.0] : 1.1.1.10
SUBNET MASK [255.255.255.255] :
255.255.255.0
DEFAULT GATEWAY [0.0.0.0] : 1.1.1.254
DRS1 ADDRESS [0.0.0.0] : 1.1.1.1
--------------------------------------
MG-ID          = xx:xx:xx:xx:xx:xx
DHCP           = DISABLE
OWN IPADDRESS  = 1.1.1.10
OWN SUBNETMASK = 255.255.255.0
DEFAULT ROUTE  = 1.1.1.254
DRS1 ADDRESS   = 1.1.1.1
--------------------------------------
Input (Y:OK / N:Change / Q:Quit) : y
```

Input “setup tp” and press Enter key. **Note 8**

MG-COT Card’s MAC address is displayed.

Set whether to use DHCP server.
Input “n” here and press Enter key.

Input the IP address of MG-COT Card.

Input the Subnet Mask of MG-COT Card.

Input the Default Gateway of MG-COT Card.

Assign the IP address of DRS. **Note 9**

Confirm the assigned data. Input “y” and press Enter key. The assigned data is automatically saved and start rebooting. The data turns effective after rebooting the MG-COT Card.

Note: Write down the displayed MG-ID (MAC address of MG-COT Card) to assign the MAC address on PCPro command AMGIL and AISTL.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting show in [ ].

Note 8: Type “setup” here for a firmware version of earlier than SP-3875 6MG COT PROG-A Ver.3.0.0.0.

Note 9: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

<When SIP Mode>

Assign the configuration data for MG-COT Card in SIP mode. About the configuration data for Proprietary Protocol mode, refer to page 315.

STEP 1: When the boot program is started, the initial display below is displayed on the screen.

The system requires a one-time password for authentication in initial startup. Enter the same password with the one assigned on the Telephony Server. As long as you do not enter the one-time password, you cannot move on to the next step.

```
MG-ID : xxxxxxxxxxxx

Boot program version  : SP3839 SH7751R CBOOT-1 PROG-A
[04.00.00.00]

Main program version  : SP3948 6MGCOT PROG-A [01.00.00.00]

H/W PKG information   : CA-CC07 001
H/W PKG information   : CA-CC08 001

DSP information       : DSP-K-AC48302ck [03.11.00.00]
DSP information       : DSP-P-AC48302ce6 [03.11.00.00]


Starting Boot program.....

--- Online program Initial start (Wait for a while.) ---
:
: (Omitted)
:

No One Time Password!!

Please input a one time password.
One Time Password: 12345#

One Time Password setting succeeded.
```

STEP 2: Type “usrConsole” at the indicated OS prompt and press the ENTER key.

```
->
->
->usrConsole
```

STEP 3: MG-COT Card command prompt “MG-COT>” appears as follows.

```
->usrConsole
MG-COT Maintenance command
MG-COT>
```

STEP 4: Set the basic data for connecting network by “SETUP SP” command depending on your LAN environment. Enter “SETUP SP” following the prompt.

```
MG-COT>
MG-COT>SETUP SP
```

STEP 5: Assign whether to use DHCP server and DNS server. The required setting differs whether to use each server first.

DHCP server enable/disable setting:

```
--- DHCP Interface set ---

Current DHCP Interface : ENABLE

Change DHCP Interface ? [Y(change)/N(current)/Q(quit)] : Y

Input new DHCP Interface [E(enable)/D(disable)] : D
```

DNS server enable/disable setting:

```
--- DNS Interface set ---

Current DNS Interface : DISABLE

Change DNS Interface ? [Y(change)/N(current)/Q(quit)] : Y

Input new DNS Interface [E(enable)/D(disable)] : E

--- DNS Interface set ---
```

STEP 6: Assign network data according to the setting of DHCP server and DNS server;

- When DHCP server is used
- When DHCP server is NOT used & DNS server is used
- When DHCP server is NOT used & DNS server is NOT used

- **When DHCP server is used**

  In this setting, because MG-COT Card automatically gets IP address from DHCP server, it is not required to set IP address and Default Gateway on MG-COT Card. Set the Ethernet Speed as follows.

  Ethernet Speed:

```
--- Ethernet Speed set ---

Current LAN Speed : AUTO

Change LAN Speed ? [Y(change)/N(current)/Q(quit)] : Y

Input new Speed [1(AUTO)/2(100M)/3(10M)] : 2

Input new DUPLEX [F(full)/H(half)] : F
```

- **When DHCP server is NOT used & DNS server is used**

  Set the following data on MG-COT Card.

  - IP address of DNS server
  - IP address and subnet mask of MG-COT Card (own address)
  - Host name of MG-COT Card
  - IP address of Default Gateway
  - Host name of SIP server
  - Ethernet Speed

  Note: When the DHCP is set to "ENABLE", IP addresses assigned here cannot take effect. Be sure to assign "SET DHCP DISABLE" before starting the IP address setting.

(1) DNS server IP Address

```
--- DNS IP Address set ---

Current DNS IP Address : 0.0.0.0

Change DNS IP Address ? [Y(change)/N(current)/Q(quit)] : Y

Input new DNS IP Address: 10.41.1.150
```

(2) IP Address and Subnet Mask of MG-COT Card

```
--- IP Address & Subnetmask set ---

Current IP Address: 0.0.0.0

Current Subnetmask: 255.255.255.0

Change IP Address & Subnetmask? [Y(change)/N(current)/Q(quit)] :
Y

Input new IP Address : 10.41.1.100

Input new Subnetmask: 255.255.255.0
```

(3) Host name of MG-COT Card

```
--- Host Name set ---

Current Host Name: No Value

Is there the Host Name [Y/N]: Y

Input new Host Name : mcsip.nec.com
```

Note: Enter the host name in full-domain format.

(4) Default Gateway IP Address

```
--- Default Gateway IP Address set ---

Current Default Gateway: 0.0.0.0

Change Default Gateway? [Y(change)/N(current)/Q(quit)]: Y
```

```
Input new Default Gateway : 10.41.1.254
```

(5) Host Name of SIP Server

```
--- SIP Server Host Name set ---

Current SIP Server and Host Name:

SIP Server      Host Name
1
2
3
:
:
20

Change SIP Server Information? [Y(change)/N(current)/Q(quit)]: Y

Input new SIP Server (1-20): 1

Is there the Host Name? [Y/N]: Y

Input new Host Name: SVR1.nec.com

Continue? [Y(continue)/N(exit)]: N
```

(6) Ethernet Speed

```
--- Ethernet Speed set ---

Current LAN Speed : AUTO

Change LAN Speed ? [Y(change)/N(current)/Q(quit)] : Y

Input new Speed [1(AUTO)/2(100M)/3(10M)] : 2

Input new DUPLEX [F(full)/H(half)] : F
```

- **When DHCP server is NOT used & DNS server is NOT used**

  Set the following data on MG-COT Card.

  - IP address and subnet mask of MG-COT Card (own address)
  - IP address of Default Gateway
  - IP address, Port Number, and Host name of SIP server **Note 10**
  - Ethernet Speed

  Note 10: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

  Note: When the DHCP is set to "ENABLE", IP addresses assigned here cannot take effect. Be sure to assign "SET DHCP DISABLE" before starting the IP address setting.

(1) IP Address and Subnet Mask of MG-COT Card

```
--- IP Address & Subnetmask set ---

Current IP Address: 0.0.0.0

Current Subnetmask: 255.255.255.0

Change IP Address & Subnetmask? [Y(change)/N(current)/Q(quit)] :
Y

Input new IP Address : 10.41.1.100

Input new Subnetmask: 255.255.255.0
```

(2) Default Gateway IP Address

```
--- Default Gateway IP Address set ---

Current Default Gateway: 0.0.0.0

Change Default Gateway? [Y(change)/N(current)/Q(quit)]: Y

Input new Default Gateway : 10.41.1.254
```

(3) IP Address, Port Number, and Host name of SIP server

```
--- SIP Server Host Name set ---

Current SIP Server/IP Address/Port Number/Host Name:

SIP Server       IP Address       Port Number      Host Name
1                0.0.0.0          5060
2                0.0.0.0          5060
3                0.0.0.0          5060
:                :                :
:                :                :
20               0.0.0.0          5060

Change SIP Server Information? [Y(change)/N(current)/Q(quit)]: Y

Input new SIP Server (1-20): 1
```

```
Input new IP Address: 10.41.1.200

Input new Port Number: 5060

Is there the Host Name? [Y/N]: Y

Input new Host Name: SVR1.nec.com

Continue? [Y(continue)/N(exit)]: N
```

(4) Ethernet Speed

```
--- Ethernet Speed set ---

Current LAN Speed : AUTO

Change LAN Speed ? [Y(change)/N(current)/Q(quit)] : Y

Input new Speed [1(AUTO)/2(100M)/3(10M)] : 2

Input new DUPLEX [F(full)/H(half)] : F
```

- Save the assigned configuration data at the last of SETUP SP command to complete network setting.

```
** Don't power off in progress **
Do you save the configuration data? (Y/N) :Y

Configuration data has been saved.
Re-starting is required for making a setup reflect!!

Sp mode setting succeeded.
The register mode will be changed to
Sp mode after re-starting.
```

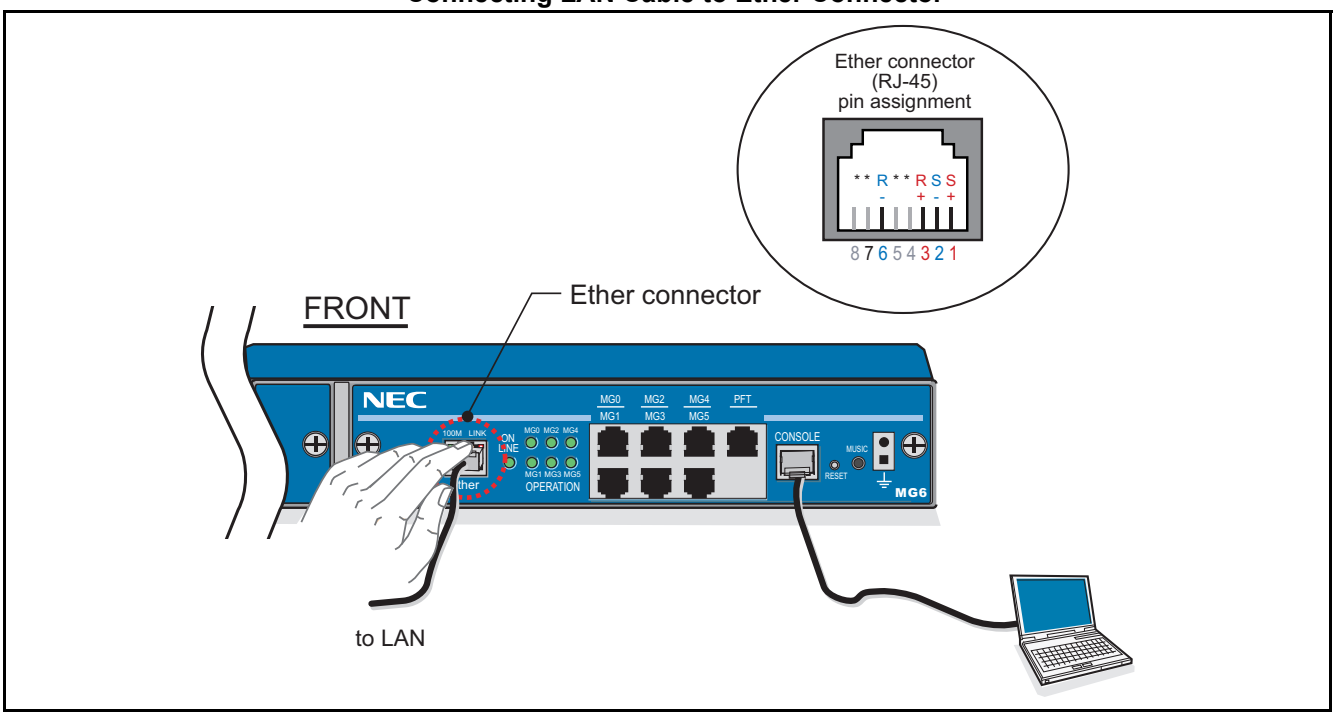
3.5 Cable Connection

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

STEP 1: Connect the MG-COT Card to the LAN by using an appropriate LAN cable.

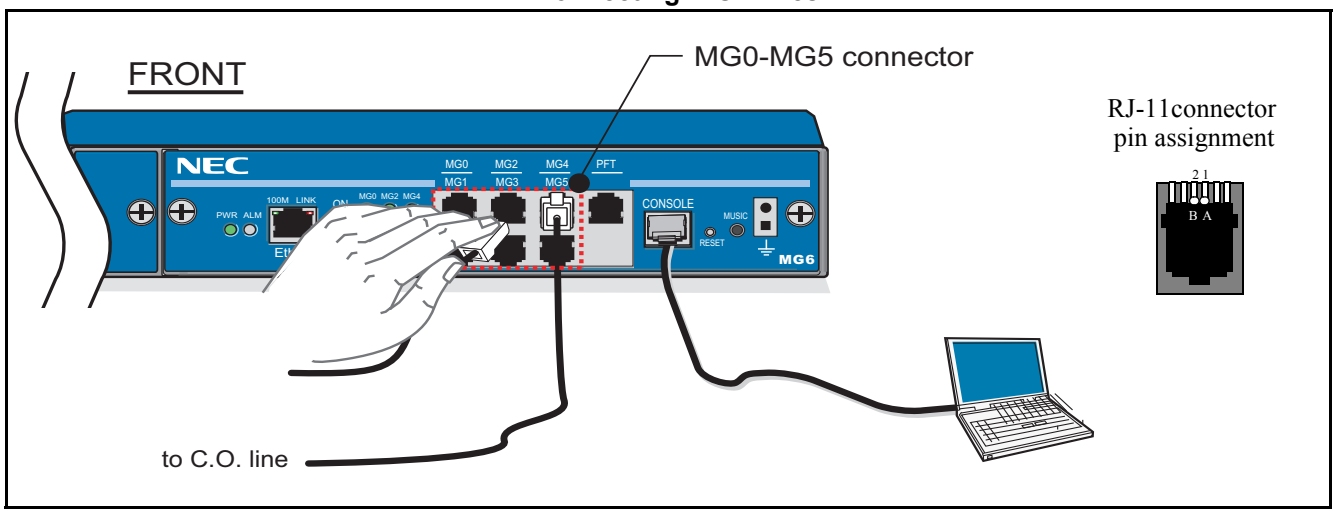
Note: Before connecting the MG-COT Card to network, be sure to execute “ping” command to check the followings:
- Is there other device having the same IP address overlapped?
- Is the new IP address assigned correct?

Connecting LAN Cable to Ether Connector



STEP 2: Connect C.O. lines to MG0-MG5.

Connecting C.O. Lines



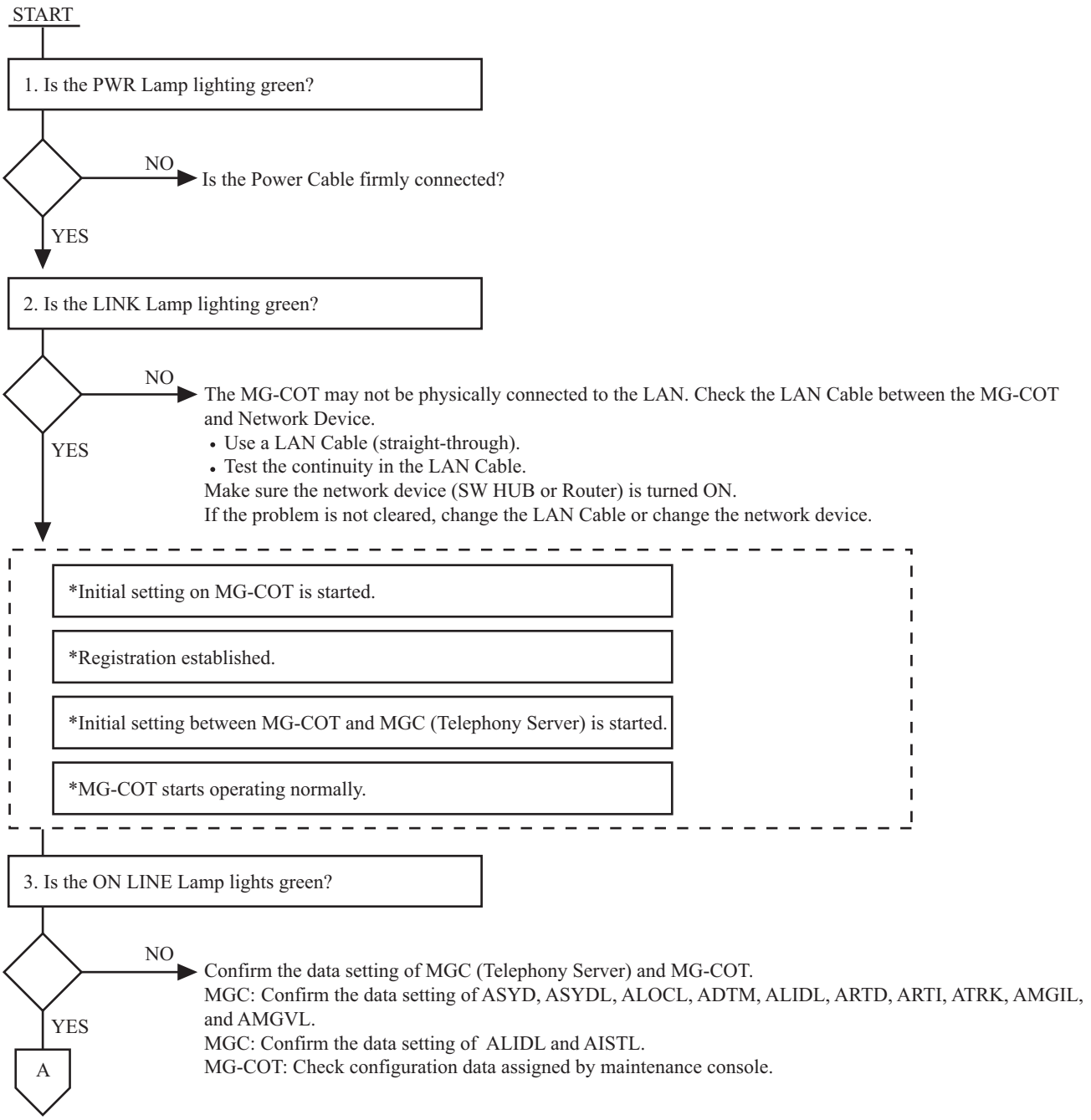
STEP 3: Check the lamp indication on the front panel of MG-COT Card.

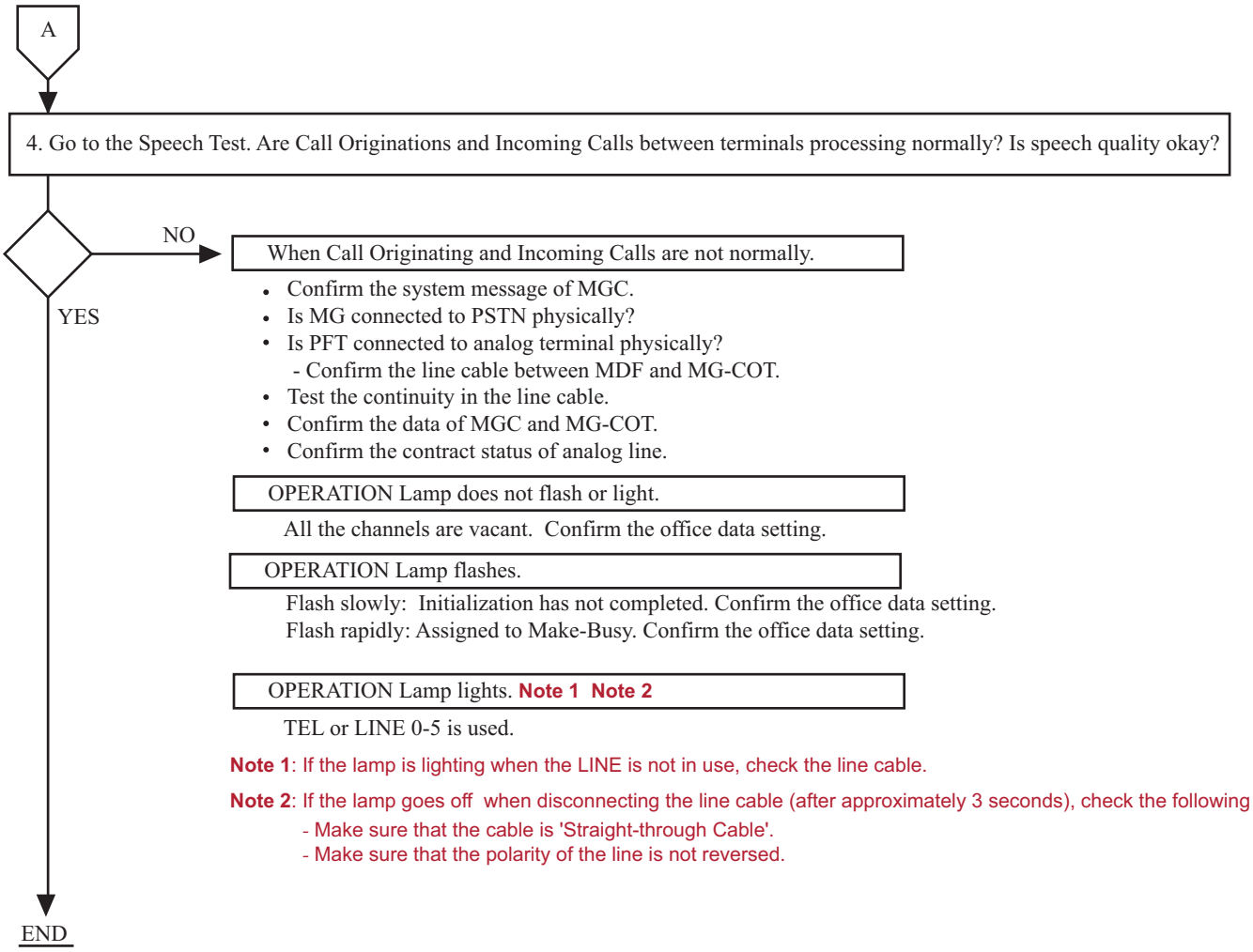
- PWR lamp: lights green
- ALARM lamp: OFF
- ON LINE lamp: OFF
- OPERATION MG0~MG5: flashes green

Note: After the data assignment (MG-COT Card entry, incoming/originating outside call data) on the Telephony Server side has been completed, ON LINE lamp lights green and the corresponding OPERATION MG lamps will go out.

3.6 Basic Test Procedures

[1] Basic Connection Test





[2] Alarm Information Check

- Check the Alarm Lamps. If the red lamp lights, search the cause of fault and perform the appropriate operations.
- Check the system message.
  1. Display the system message using DFTD command.
  2. See the system message and confirm whether MG-COT Card error occurs or not. If some error has occurs, perform the fault repair. ([33-R IP PKG Warning], [33-S IP PKG Failure], [33-T IP PKG Restore])

[3] PFT Switching Test

The test procedure of PFT function change is described below. PFT function is described in Power Failure Transfer (PFT) in this section.
PFT function connects the following ports.

PFT ⇔ MG0

Before the test, connect C.O. lines to MG0 and analog terminals to PFT.

(a) Perform this test before MG-COT Card initialization has been completed.

STEP 1: Turn off the MG-COT Card by switching off the Power Switch (DOWN) on the rear panel of MG-COT Card.

STEP 2: Perform the following operation.
Can analog terminal connected to PFT originate a call to PSTN connected to MG0?
Can analog terminal connected to PFT perform the incoming call from PSTN connected to MG0?

(b) Perform this test when WAN error occurs.

STEP 1: Turn on the MG-COT Card by switching on the Power Switch (UP) on the rear panel of MG-COT Card. And then confirm that initialization has been completed and ON LINE lamp lights on.

STEP 2: Disconnect the LAN cable and then wait until MG-COT Card detects WAN error. (about for three minutes)

STEP 3: Perform the following operation.
Can analog terminal connected to PFT originate a call to PSTN connected to MG0?
Can analog terminal connected to PFT perform the incoming call from PSTN connected to MG0?

Note: PFT function is available from MG-COT Card power is ON / start of initialization until ON LINE status.

4 Operation and Maintenance

4.1 How to Use Maintenance Command

On a serial connection client (e.g. HyperTerminal), start up the program and uses maintenance command. Enter "usrConsole" after the OS prompt (->).
When the maintenance command is started, the following prompt is indicated on the screen:

When Proprietary Protocol mode is Used:	`MG-COT>_`	("machine name" + ">", usually)
When SP mode is Used:	`MG-COT(SIP)>_`	("machine name" + "(SIP)>", usually)

Note: Note the following conditions:

- "DRS (Device Registration Server)" used in this section refers to the Telephony Server. When MG-COT Card works in Proprietary Protocol mode, the Telephony Server acts as DRS, which is controlling function of the Telephony Server.
- "SIP server" used in this section refers to the Telephony Server. When MG-COT Card works in SIP mode, the Telephony Server acts as SIP server.
- If you input "exit" after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

An example of indication is shown below:

```
MG-ID: xxxxxxxxxxxx

Boot program version  : SP3839 SH7751R CBOOT-1 PROG-A [04.00.00.00]
Main program version  : SP3948 6MGCOT PROG-A [01.00.00.00]

/W PKG information   : CA-CC07 001
H/W PKG information   : CA-CC08 001

DSP information       : DSP-K-AC48302ck [03.11.00.00]
DSP information       : DSP-P-AC48302ce6 [03.11.00.00]

Starting Boot program.......

--- Online program Initial start (Wait for a while.) ---

Attached TCP/IP interface to (null) unit 0
Attaching interface lo0... done

Adding 10739 symbols for standalone.

------//----------------------------------------//---
   Media Gateway (COT Interface/Enabled Grand Start)
              *Firmware SP-3948 (01.00.00.00)
              *Compiled on Aug 23 2006 11:23:39
---//----------------------------------------//------
->
->
->
-> usrConsole

MG-COT Maintenance Command

MG-COT >
```

The user input command above consists of a several components. The following describes these components using one of the ***SET*** commands.

MG-COT> SET IPADDRESS 123.201.18.45 255.255.255.0
1 2 3 4

1: Command
2: Sub Command
3: Parameter 1 (P1)
4: Parameter 2 (P2)

Note: The number of parameters to be specified is different depending on the command.

MAINTENANCE COMMAND FOR MG-COT Card

The Maintenance Console uses the commands listed in.

No.	SETUP COMMAND	REMARKS
1	SETUP TP	Sets up network environment for MG-COT Card Proprietary Protocol mode (SP-3875 6MGCOT PROG-A Ver.3.0.0.0 or later)
2	SETUP SP	Sets up network environment for MG-COT Card SP mode (SP-3875 6MG COT PROG-A Ver.3.0.0.0 or later)
3	SETUP	Sets up network environment for MG-COT Card Proprietary Protocol mode.(SP-3875 6MGCOT PROG-A Ver.3.0.0.0 or earlier)

No.	SET COMMAND	REMARKS
1	SET CODEC_COEF_MG	Sets CODEC Coefficiency
2	SET DEFAULTROUTE	Sets Default Gateway
3	SET DHCP	Sets DHCP
4	SET DNS_SW	Sets DNS Server
5	SET DRSADDRESS	Sets IP address and port number of DRS
6	SET DRSTOS	About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.
7	SET DSP_ECFB_MG	Sets DSP echo canceller for FAX communication
8	SET DTMF_CUTOFF_TIME	Sets DTMF Cutoff Timer
9	SET EC_TRAINING_MG	Sets Training feature mode of echo canceller
10	SET FAXERRORDETECT_MG	Sets FAX enable timer
11	SET FAXRECVPAD_MG	Sets Fax receiver PAD value
12	SET FAXSENDPAD_MG	Sets Fax sender PAD value
13	SET HC_TIMER	Sets Health Check Receive Timer
14	SET IC_ABANDON_TIME	Sets I/C call abandon timer
15	SET INTERFACE	Sets the communication speed for LAN interface
16	SET IPADDRESS	Sets IP Address and Net Mask
17	SET ONE_TIME_PASS	Sets One Time Password for security
18	SET OWN_NAME	Sets Host Name of MG-COT Card
19	SET RELEASE_SIGNAL	Sets Release Signal
20	SET SIGNALING_PORT_NO	Sets signaling port number for SIP
21	SET SIGNALING_QOS	Sets QoS for SIP signaling session
22	SET SIPSV_IPADDRESS	Sets IP address, port number, and host name of SIP server
23	SET SMOOTH_PAD_MG	Sets DSP smooth PAD mode
24	SET STARTPORT	Sets RTP Start Port
25	SET VLAN	Sets VLAN
26	SET WARNING_TONE	Sets the Warning Tone for LAN failure
27	SET RVS_AUST	Sets RVS mode (for Australia)
28	SET CONNECT_TIME	Sets E911 Connection Signal Detection Timer
29	SET ANSWER_TIME	Sets E911 Reception Signal Detection Timer
30	SET AUTO_POLARITY	Sets Auto Polarity

No.	SHOW COMMAND	REMARKS
1	SHOW CODEC_COEF_MG	Shows CODEC Coefficiency
2	SHOW CONFIGDATA	Shows configuration data list
3	SHOW DHCP	Shows DHCP setting
4	SHOW DNS_SW	Shows DNS Server
5	SHOW DRSADDRESS	Shows DRS Address and Port Number
6	SHOW DRSTOS	Shows ToS setting of DRS session
7	SHOW DSP_ECFB_MG	Shows DSP echo canceller for FAX communication
8	SHOW DTMF_CUTOFF_TIME	Shows DTMF Cutoff Timer
9	SHOW EC_TRAINING_MG	Shows Training feature mode of echo canceller
10	SHOW FAXERRORDE-TECT_MG	Shows FAX enable timer
11	SHOW FAXRECVPAD_MG	Shows FAX receiver PAD value
12	SHOW FAXSENDPAD_MG	Shows FAX sender PAD value
13	SHOW HC_TIMER	Shows Health Check Receive Timer
14	SHOW IC_ABANDON_TIME	Shows I/C call abandon timer
15	SHOW INTERFACE	Shows communication speed for LAN interface
16	SHOW IPADDRESS	Shows IP Address, Net Mask, and Default Gateway
17	SHOW ONE_TIME_PASS	Shows One Time Password for security:
18	SHOW OWN_NAME	Shows Host Name of MG-COT Card
19	SHOW RELEASE_SIGNAL	Shows Release Signal
20	SHOW SIGNALING_PORT_NO	Shows signaling port number for SIP
21	SHOW SIGNALING_QOS	Shows QoS setting for SIP signaling session
22	SHOW SIPSV_IPADDRESS	Shows IP address, port number, and host name of SIP server
23	SHOW SMOOTH_PAD_MG	About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.
24	SHOW STARTPORT	Shows RTP Start Port
25	SHOW STATUS	Shows operating status of MG-COT Card
26	SHOW VERSION	Shows the version information
27	SHOW VLAN	Shows VLAN setting
28	SHOW WARNING_TONE	Shows Warning Tone control
29	SHOW RVS_AUST	Shows RVS mode (for Australia)
30	SHOW CONNECT_TIME	Shows E911 Connection Signal Detection Timer
31	SHOW ANSWER_TIME	Shows E911Answer Signal Detection Timer
32	SHOW AUTO_POLARITY	Shows Auto Polarity:

PING COMMAND	REMARKS
PING	Checks the connection status of network:

DELETE COMMAND	REMARKS
DELETE VLAN	Deletes the VLAN setting

SAVE COMMAND	REMARKS
SAVE CONFIGDATA	Saves the configuration data to Flash ROM

GET COMMAND	REMARKS
GET CONFIGDATA	Downloads Configuration Data file from specified TFTP server

PUT COMMAND	REMARKS
PUT CONFIGDATA	Uploads Configuration Data file to specified TFTP server

REBOOT COMMAND	REMARKS
REBOOT	Reboots the MG-COT Card

EXIT COMMAND	REMARKS
EXIT	Exits the maintenance command

INT/CLEAR COMMAND	REMARKS
INIT CONFIGDATA	Initializes the configuration data to factory default value
CLEAR CONFIG	Clears the configuration data to factory default value

Enter the command, sub command and required parameters after the prompt (MG-COT>) appears. Parameters vary depending on the kind of command specified. When the data (command name, sub command name, parameter) is specified correctly, the command executes the required data processing, and then displays the processed result on the screen. To finish this program, input EXIT after a prompt.

Note: When the maintenance command program is activated, it provides a Help Function for referring to available commands and sub commands. After a prompt is shown, request to list-up the Target Help by entering “?” or “command name (SET or SHOW) + ?”, and press the Enter key.
The example below shows the screen when requesting a list of SET commands.

```
MG-COT> SET ?

IPADDRESS       Setting IP Address
DEFAULTROUTE    Setting Default Gateway
DRSADDRESS      Setting DRS Address
DRSTOS          Setting DRS TOS
INTERFACE       Setting Ethernet Speed

     :                    :
     :                    :
```

SETUP COMMAND

Set up network environment for MG-COT Card Proprietary Protocol mode (SP-3875 6MGCOT PROG-A Ver.3.0.0.0 or later)

(1) SETUP TP

This command is used to setup the basic data for Proprietary Protocol mode. Setting display differs whether DHCP server is used or not. Assign the required network data following the setting command shown in dialog form. Be sure to save the entered data at the last of SETUP command.

Note: The designated operating status cannot refer when SP-3875 6MG COT PROG-A Ver.3.0.0.0 or later.

- When DHCP is used:

```
MG-COT > setup tp

MG-ID           = xx:xx:xx:xx:xx:xx

Use DHCP?
Input (Y:Yes / N:No / Q:Quit) : y
-------------------------------------
MG-ID           = xx:xx:xx:xx:xx:xx
DHCP            = ENABLE
-------------------------------------
Input (Y:OK / N:Change / Q:Quit) : y

** Don't power off in progress **
 Do you save the configuration data? (Y/N) : y

Configuration data has not been saved.
Re-starting is required for making a setup
reflect!!

Tp mode setting succeeded.
The register mode will be changed to
TP mode after re-starting.
MG-COT >
```

MAC Address is displayed.

Enter “y”.

Enter “y” when the assigned data is correct.

Enter “y” when saved the configuration data.

Result is shown.

Note: If DHCP server is set for use, DHCP Option will be set for use automatically. If you do not assign the IP address of DRS to DHCP server, It must be assigned by “SET DRSADDRESS” command individually.

- When DHCP server is not used:

```
MG-COT > setup tp

MG-ID          = xx:xx:xx:xx:xx:xx

Use DHCP?
Input (Y:Yes / N:No / Q:Quit) : n
OWN IP ADDRESS [0.0.0.0] : 1.1.1.10

SUBNET MASK [255.255.255.255] : 255.255.255.0
DEFAULT GATEWAY [0.0.0.0] : 1.1.1.254
DRS1 ADDRESS [0.0.0.0] : 1.1.1.1

-----------------------------------------
MG-ID          = xx:xx:xx:xx:xx:xx
DHCP           = DISABLE
OWN IPADDRESS  = 1.1.1.10
OWN SUBNETMASK = 255.255.255.0
DEFAULT ROUTE  = 1.1.1.254
DRS1 ADDRESS   = 1.1.1.1
-----------------------------------------
Input (Y:OK / N:Change / Q:Quit) : y

** Don't power off in progress **
   Do you save the configuration data? (Y/N) : y

Configuration data has not been saved.
Re-starting is required for making a setup
reflect!!

TP mode setting succeeded.
The register mode will be changed to
TP mode after re-starting.
MG-COT >
```

MAC Address is displayed.

Enter “n”.

Enter the IP address of MG-COT Card. **Note 1**

Enter the Subnet mask. **Note 1**

Enter the default gateway. **Note 1**

Enter the IP address of DRS **Note 1**, **Note 2**

Setting result is displayed.

Enter “y” when the assigned data is correct. **Note 3**, **Note 4**

Enter “y” when saved the configuration data.

Result is shown.

Note 1: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note 2: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

Note 3: Follow the procedure below when changing the assigned data.
<e.g. When DHCP server is not used>

```
Input (Y:OK / N:Change / Q:Quit) : n

Change list.
DHCP                          --- input :1
OWN IPADDRESS                 --- input :2
OWN SUBNETMASK                --- input :3
DEFAULT ROUTE                 --- input :4
DRS1 ADDRESS                  --- input :5

Input (Q:Quit) : 1
```

Enter “n”.

Data items to change are listed.

Enter the item number to be changed.

Note 4: Follow the display below when you want to change the data entered in the former steps.
<e.g. When DHCP server is not used>

```
OWN IP ADDRESS [1.1.1.10] :1.1.1.12

SUBNET MASK [255.255.255.0] :255.255.0.0

DEFAULT GATEWAY [1.1.1.254] : b


SUBNET MASK [255.255.0.0] :
```

IP address is entered.

Subnet mask is entered.

Enter “b” to change the Subnet mask setting.

Returns to Subnet mask setting line.

Set up network environment for MG-COT Card SP mode (SP-3875 6MG COT PROG-A Ver.3.0.0.0 or later)

(2) SETUP SP

This command is used to setup the basic data for SP mode. Setting display differs whether DHCP server and DNS server is used or not. Assign the required network data following the setting command shown in dialog form. Be sure to save the entered data at the last of SETUP command.

Note: The designated operating status cannot refer when SP-3875 6MG COT PROG-A Ver.3.0.0.0 or later.

Note: When any abnormal data is entered, the dialog asks to enter proper data until three times. In the third time you enter abnormal data, the SETUP command quits discarding all the entered data.

Note: When you quit the SETUP command entry halfway through the setting, all the entered data is to be discarded.

- Startup SETUP SIP:

```
MG-COT >
MG-COT > setup sp
```

Enter “SETUP SP” following the prompt.

- Setting DHCP server enable/disable:

```
--- DHCP Interface set ---
Current DHCP Interface: ENABLE
Change DHCP Interface? [Y(change)/N(current)/Q(quit)]: Y
Input new DHCP Interface [E(enable)/D(disable)]: D
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Specify whether to use DHCP server.
E=Use DHCP server (default)
D=Not use DHCP server

- Setting DNS server enable/disable:

```
--- DNS Interface set ---
Current DNS Interface: DISABLE
Change DNS Interface? [Y(change)/N(current)/Q(quit)]: Y
Input new DNS Interface [E(enable)/D(disable)]: E
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Specify whether to use DNS server.
E=Use DNS server (default)
D=Not use DNS server

- Setting DNS Server IP Address:

```
--- DNS IP Address set ---
Current DNS IP Address: 0.0.0.0
Change DNS IP Address? [Y(change)/N(current)/Q(quit)]: Y
Input new DNS IP Address: 10.41.1.150
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Enter new IP address of DNS server (e.g. 10.41.1.150)

Note: This setting is required when DHCP server is “D (disable)” and DNS server is “E (enable)”.

- Setting IP Address and Subnet Mask of MG-COT Card:

```
--- IP Address & Subnetmask set ---
```

```
Current IP Address: 0.0.0.0 Current Subnetmask: 255.255.255.0

Change IP Address & Subnetmask? [Y(change)/N(current)/Q(quit)]: Y

Input new IP Address: 10.41.1.100 Input new Subnetmask: 255.255.255.0
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Enter new IP address of MG-COT Card (e.g. 10.41.1.100)
Line 5: Enter new Subnet Mask (e.g. 255.255.255.0)

Note: This setting is required when DHCP server is “D (disable)”.

- Setting Host name of MG-COT Card:

```
--- Host Name set ---
Current Host Name: No Value
Is there the Host Name? [Y/N]: Y
Input new Host Name: mgcot.nec.com
```

Line 2: The current setting is displayed.
Line 3: Asked whether to use host name.
Y=Use host name
N=Not use host name
Line 4: Enter new host name of MG-COT Card in full-domain format.

Note: This setting is required when DHCP server is “D (disable)” and DNS server is “E (enable)”.

- Setting Default Gateway IP Address:

```
--- Default Gateway IP Address set ---
Current Default Gateway: 0.0.0.0
Change Default Gateway? [Y(change)/N(current)/Q(quit)]: Y
Input new Default Gateway: 10.41.1.254
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Enter new IP address of Default Gateway (e.g. 10.41.1.254)

Note: This setting is required when DHCP server is “D (disable)”.

- Setting Host Name of SIP server:

```
--- SIP Server Host Name set ---

Current SIP Server and Host Name:
```

```
SIP Server        Host Name
1
2
3
:
:
20

Change SIP Server Information? [Y(change)/N(current)/Q(quit)]: Y

Input new SIP Server (1-20): 1

Is there the Host Name? [Y/N]: Y

Input new Host Name: SVR1.nec.com

Continue? [Y(continue)/N(exit)]: N
```

Line 4-Line 9: The current setting of the Telephony Server information (host name) is displayed.
Line 10: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 11: Enter the number of SIP server [1-20]:
Line 12: Asked whether to use host name.
Y=Use host name
N=Not use host name
Line 13: Enter new host name of Telephony Server in full-domain format.
Up to 63 characters of alphanumerics, ". (period)", and "- (hyphen)" is available.
Line 14: Asked whether to continue the setting of other SIP server.
Y=Continue to register other SIP server
N=Exit this command and move on to the next command setting

Note: This setting is required when DHCP server is "D (disable)" and DNS server is "E (enable)".

- Setting IP Address, Port Number, and Host Name of SIP server

```
--- SIP Server IP Address & Host Name set ---

Current SIP Server/IP Address/Port Number/Host Name:

SIP Server          IP Address          Port Number         Host Name
1                   0.0.0.0             5060
2                   0.0.0.0             5060
3                   0.0.0.0             5060
:                   :                   :
:                   :                   :
20                  0.0.0.0             5060

Change SIP Server Information? [Y(change)/N(current)/Q(quit)]: Y
```

```
Input new SIP Server (1-20): 1

Input new IP Address: 10.41.1.200

Input new Port Number: 5060

Is there the Host Name? [Y/N]: Y

Input new Host Name: SVR1.nec.com

Continue? [Y(continue)/N(exit)]: N
```

Line 4~Line 9: The current setting of the Telephony Server information (IP address, port number, and host name) is displayed.
Line 10: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 11: Enter the number of SIP server [1-20]
Line 12: Enter the IP address of SIP server (e.g. 10.41.1.200) **Note 5**
Line 13: Enter the port number of SIP server (default=5060)
Line 14: Asked whether to use host name.
Y=Use host name
N=Not use host name
Line 15: Enter new host name of the Telephony Server in full-domain format.
Up to 63 characters of alphanumerics, ". (period)", and "- (hyphen)" is available.
Line 16: Asked whether to continue the setting of other SIP server.
Y=Continue to register other SIP server
N=Exit this command and move on to the next command setting

Note: This setting is required when DHCP server is "D (disable)" and DNS server is "D (disable)".

Note 5: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

- Setting Ethernet Speed:

```
--- Ethernet Speed set ---
Current LAN Speed: AUTO
Change LAN Speed? [Y(change)/N(current)/Q(quit)]: Y
Input new Speed [1(AUTO)/2(100M)/3(10M)]: 2
Input new DUPLEX [F(full)/H(half)]: F
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Select the communication speed of LAN interface
1=Auto negotiation (default)
2=100Mbps fixed mode
3=10Mbps fixed mode
Line 5: Select the Duplex mode of LAN interface
F=Full duplex mode
H=Half duplex mode

- Save the assigned configuration data at the last of SETUP SP command to complete network setting.

```
**Don't power off in progress**
Do you save the configuration data? (Y/N):Y


Configuration data has been saved.
Restarting is required for making a setup reflect!!

SP mode setting succeeded.
The register mode will be changed to SP mode after re-starting
```

Line 2: Asked whether to save the assigned data.
Y=Save
N=Not save
Line 3: Result is displayed.

Set up network environment for MG-COT Card Proprietary Protocol mode.(SP-3875 6MGCOT PROG-A Ver.3.0.0.0 or earlier)

(3) SETUP

To setup IP related data in dialog format. This command is used to simply assign the data related to IP address.

- When DHCP option is used (to get DRS address):

Note: The designated operating status cannot refer when SP-3875 6MG COT PROG-A Ver 3.0.0.0 or earlier.

```
MG-COT> setup


MG-ID = 00:30:13:16:ae:fa

Use DHCP?
Input [Y(Yes)/N(No)/Q(Quit)]:y
```

MAC address is displayed.

Enter "y".

```
Use DHCP option? (Get DRS address)
Input [Y(Yes)/N(No)/Q(Quit)]:y

-------------------------------------
MG-ID = 00:30:13:16:ae:fa
DHCP = ENABLE
-------------------------------------

Input [Y(OK)/N(Change)/Q(Quit)]:y
```

Enter “y”.

Setting result is displayed.

Enter “y” when the assigned data is correct.

- When DHCP option is not used:

```
MG-COT> setup


MG-ID = 00:30:13:16:ae:fa

Use DHCP?
Input [Y(Yes)/N(No)/Q(Quit)]:y

Use DHCP option? (Get DRS address)
Input [Y(Yes)/N(No)/Q(Quit)]:n

DRS1 ADDRESS (XXX.XXX.XXX.XXX):1.1.1.1

-------------------------------------
MG-ID = 00:30:13:16:ae:fa
DHCP = ENABLE
DRS1 ADDRESS = 1.1.1.1
-------------------------------------

Input [Y(OK)/N(Change)/Q(Quit)]:y
```

MAC address is displayed.

Enter “y”.

Enter “n”.

Enter the IP address of DRS. **Note 6**

Setting result is displayed.

Enter “y” when the assigned data is correct.

Note 6: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

- SP-3875 6MGCOT PROG-A Ver.2.0.0.0 or later

```
MG-COT> setup


MG-ID = 00:30:13:16:ae:fa

Use DHCP?
Input [Y(Yes)/N(No)/Q(Quit)]:y

-------------------------------------
MG-ID = 00:30:13:16:ae:fa
DHCP = ENABLE
-------------------------------------

Input [Y(OK)/N(Change)/Q(Quit)]:y
```

Note: If DHCP server is set for use, DHCP Option will be set for use automatically. (SP-3875 6MGCOT PROG-A Ver.2.0.0.0 or later)
If you do not assign the IP address of DRS to DHCP server, It must be assigned by “SET DRSADDRESS” command individually.

- When DHCP server is not used:

```
MG-COT> setup


MG-ID = 00:30:13:16:ae:fa

Use DHCP?
Input [Y(Yes)/N(No)/Q(Quit)]:n

OWN IP ADDRESS (XXX.XXX.XXX.XXX):1.1.1.10

SUBNET MASK (XXX.XXX.XXX.XXX):255.255.255.0

DEFAULT GATEWAY (XXX.XXX.XXX.XXX):1.1.1.254

DRS1 ADDRESS (XXX.XXX.XXX.XXX):1.1.1.1

-----------------------------------------
MG-ID = 00:30:13:16:ae:fa
DHCP = DISABLE
OWN IPADDRESS 1.1.1.10
OWN SUBNETMASK 255.255.255.0
DEFAULT ROUTE 1.1.1.254
DRS1 ADDRESS 1.1.1.1
-----------------------------------------
-

Input [Y(OK)/N(Change)/Q(Quit)]:y
```

MAC address is displayed.

Enter “n”.

Enter the IP address of MG-COT Card.

Enter the Subnet mask.

Enter the default gateway.

Enter the IP address of DRS. **Note 7**

Setting result is displayed.

Enter “y” when the assigned data is correct.
Note 8, **Note 9**

Note 7: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

Note 8: Follow the procedure below when changing the assigned data.
<e.g. When DHCP server is not used>

```
Input [Y(OK)/N(Change)/Q(Quit)]:n

Change list.
DHCP                --- input:1
OWN IPADDRESS       --- input:2
OWN SUBNET          --- input:3
DEFAULT ROUTE       --- input:4
DRS1 ADDRESS        --- input:5

Input [Q(Quit)]:1
```

Enter “n”.

Data items to change are listed.

Enter the item number to be changed.

Note 9: Follow the display below when you want to change the data entered in the former steps. <e.g. When DHCP server is not used>

`OWN IPADDRESS (XXX.XXX.XXX.XXX):1.1.1.10`	IP address is entered.
`SUBNET MASK (XXX.XXX.XXX.XXX):255.255.255.0`	Subnet mask is entered.
`DEFAULT ROUTE (XXX.XXX.XXX.XXX):b`	Enter “b” to change the Subnet mask setting.
`SUBNET MASK (XXX.XXX.XXX.XXX):`	Returns to Subnet mask setting line.

SET COMMAND

(1) SET CODEC_COEF_MG

Specify CODEC Coefficiency.

```
MG-COT > SET CODEC_COEF_MG P1 P2


CODEC Coefficient(CH00) setting succeeded.
```

Line 1: Enter the Line Number 0-5. And then, enter the setting value (default is 2) after the space.

Line 2: Result is shown.

Note: The setting values are shown in the following table. Set appropriate values. Setting value “2” is assigned when the product is shipped. Change the data if required.

- *North America*

RESISTER	KIND OF BNW	SETTING VALUE
600Ω+2.16μF	600Ω+2.16μF	0 (default)
600Ω+2.16μF	600Ω	1
600Ω+2.16μF	350Ω+(1000Ω//210nF)	2
900Ω+2.16μF	900Ω+2.16μF	3
900Ω+2.16μF	900Ω	4
900Ω+2.16μF	800Ω//(100Ω/+50nF)	5

- *Australia*

RESISTER	KIND OF BNW	SETTING VALUE
220Ω+(820Ω//120nF)	220Ω+(820Ω//120nF)	0 (default)
220Ω+(820Ω//120nF)	600Ω	1
600Ω	600Ω	2

- *Brazil*

RESISTER	KIND OF BNW	SETTING VALUE
900Ω	800Ω//50nF	0 (default)
900Ω	900Ω	1

- *China*

RESISTER	KIND OF BNW	SETTING VALUE
200 Ω +(680 Ω //100nF)	200 Ω +(680 Ω //100nF)	0 (default)
200 Ω +(680 Ω //100nF)	200 Ω +(680 Ω //100nF)	1

Note: SETTING VALUE 0=Constant voltage mode
SETTING VALUE 1=Constant current mode

- *Other*

RESISTER	KIND OF BNW	SETTING VALUE
600 Ω +2.16 μ F	600 Ω +2.16 μ F	0 (default)
600 Ω +2.16 μ F	600 Ω	1
600 Ω +2.16 μ F	350 Ω +(1000 Ω //210nF)	2
600 Ω +2.16 μ F	370 Ω +(620 Ω //310nF)	3
600 Ω	600 Ω +2.16 μ F	4
600 Ω	600 Ω	5
600 Ω	350 Ω +(1000 Ω //210nF)	6
600 Ω	370 Ω +(620 Ω //310nF)	7
900 Ω +2.16 μ F	900 Ω +2.16 μ F	8
900 Ω +2.16 μ F	900 Ω	9
900 Ω +2.16 μ F	800 Ω //(100 Ω +50nF)	10
900 Ω	900 Ω +2.16 μ F	11
900 Ω	900 Ω	12
900 Ω	800 Ω //(100 Ω +50nF)	13
370 Ω +(620 Ω //310nF)	600 Ω	14
370 Ω +(620 Ω //310nF)	370 Ω +(620 Ω //310nF)	15

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(2) SET DEFAULTROUTE

Assign the IP address of Default Gateway in the same segment where MG-COT belongs.

```
MG-COT > SET DEFAULTROUTE P1

Default Gateway setting succeeded.
```

Line 1: Enter Default Gateway Address.

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(3) SET DHCP

Assign ENABLE when the network uses DHCP server to provide IP addresses.

```
MG-COT > SET DHCP P1




DHCP setting succeeded.
```

Line 1: Enter ENABLE or DISABLE after the command name. ENABLE=DHCP is valid (default), DISABLE=DHCP is invalid.

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(4) SET DNS_SW

Set whether to use DNS server.

```
MG-COT(SIP)> SET DNS_SW
DNS Interface (ENABLE/DISABLE) [ENABLE]: ENABLE
DNS IP Address [0.0.0.0]: 10.41.2.101


DNS setting succeeded.
```

Line2: ENABLE=DNS server is used DISABLE=DNS server is not used (default)

Line3: Enter the IP address of DNS server (e.g. 10.41.2.101)

Line 4: Result is shown.

Note: The designated DNS Server cannot be applied when Proprietary Protocol mode. Assign the SP mode before executing this DNS Server setting.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: When DISABLE is selected, the setting line of DNS IP Address is not displayed.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(5) SET DRSADDRESS

Assign IP address and port number of DRS.

```
MG-COT > SET DRSADDRESS
DRS Unit (1:Primary/2:Secondary/3:Tertiary/
4:Forth) : 1
DRS IP Address [0.0.0.0] : 150.10.1.100
DRS Port Number (1024-65535) [3456] : 3456

DRS setting succeeded.
```

Line 2: Select "1" for the Telephony Server in normal condition.
Line 3: Enter IP Address of DRS. (e.g. 150.10.1.100) **Note 10**
Line 4: Enter Port Number of DRS (1024-65535, default = 3456).
Line 5: Result is shown.

Note: The designated DRS setting cannot be applied when SP mode. Assign the Proprietary Protocol mode before executing this DRS setting.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note 10: About IP address of DRS (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

(6) SET DRSTOS

Set quality of service data for DRS session.

```
MG-COT > SET DRSTOS PRECEDENCE
PRECEDENCE (0-7) : 6
DELAY (0/1) : 0
THROUGHPUT (0/1) : 0
RELIABILITY (0/1) : 0
COST (0/1) : 0









DRS TOS setting succeeded.(0xC0)
```

Line 1: Enter sub command name PRECEDENCE to set the parameters such as Delay, Throughput, Reliability, and Cost. Specify the value to each parameter.
Line 2: Precedence:0-7(low-high)(default=6)
Line 3: Delay:0/1=Normal(default)/Low Delay ON
Line 4: Throughput:0/1=Normal(default)/High Throughput ON
Line 5: Reliability:0/1=Normal(default)/High Reliability ON
Line 6: Cost:0/1=Normal(default)/Cost Precedence ON
Line 7: Result is shown.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

```
MG-COT > SET DRSATOS VALUE
TOS (00-FF) : C0



DRS TOS setting succeeded.(0xC0)
```

Line 1: Enter the sub command name VALUE to set the DRS setting value Directly.
Line 2: Specify the value in the range of 00-FF(default=C0).
Line 3: Result is shown.

Note: The designated DRS setting cannot be applied when SP mode. Assign the Proprietary Protocol mode before executing this DRS setting.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(7) SET DSP_ECFB_MG

Assign DSP echo canceller for FAX communication.

```
MG-COT > SET DSP_ECFB_MG P1



DSP ECFB setting succeeded.
```

Line 1: Enter 0 or 1.
0=FAX echo canceller is ON (default)
1=FAX echo canceller is OFF
Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(8) SET DTMF_CUTOFF_TIME

Specify DTMF Cutoff Timer.

```
MG-COT > SET DTMF_CUTOFF_TIME P1



DTMF Cutoff Time setting succeeded.
```

Line 1: Select DTMF Cutoff Timer.
0=20ms(default)
1=10ms
Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(9) SET EC_TRAINING_MG

Specify Training feature mode of echo canceler.

```
MG-COT > SET EC_TRAINING_MG P1



EC Training setting succeeded.
```

Line 1: Select the Training feature mode of EC.
OFF=Training function is invalid (default)
ON= Training function is valid

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(10) SET FAXERRORDETECT_MG

Specify FAX enable timer.

```
MG-COT > SET FAXERRORDETECT_MG P1




FAX Enable Timer setting succeeded.
```

Line 1: Enter the Change Effective Timer.
0=Invalid to change to Fax mode
1-5=Possible to change to Fax mode within 1-5 minutes (default=1 minute)
OFF=Always possible to change to FAX mode

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(11) SET FAXRECVPAD_MG

Specify a Fax receiver PAD value

```
MG-COT > SET FAXRECVPAD_MG P1



Fax Receiver PAD setting succeeded.
```

Line 1: Enter the Fax Receiver PAD value in the range of 0-20 after the command name (default=0).

Line 2: Result is shown.

Note: The FAXSENDPAD_MG command assigns the value to decrease the Fax signal level in the receiver (PSTN to IP) direction when the Fax signal is detected.

Note: The total PAD value (Receiver PAD + Fax Receiver PAD) is limited to 20dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(12) SET FAXSENDPAD_MG

Specify a Fax sender PAD value.

```
MG-COT > SET FAXSENDPAD_MG P1



Fax Sender PAD setting succeeded.
```

Line 1: Enter the Fax Sender PAD value in the range of 0-20 after the command name (default=3).

Line 2: Result is shown.

Note: The FAXSENDPAD_MG command assigns the value to decrease the Fax signal level in the sender (IP to PSTN) direction when Fax signal is detected.

Note: The total PAD value (Sender PAD + Fax Sender PAD) is limited to 20dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(13) SET HC_TIMER

Specify Health Check Receive Timer.

```
MG-COT > SET HC_TIMER P1



Health-Check Timer Timeout setting succeeded.
```

Line 1: Enter the time (second) in the range of 120-240 (at intervals of 30 seconds) (default=150).

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(14) SET IC_ABANDON_TIME

Specify I/C call abandon timer

```
MG-COT > SET IC_ABANDON_TIME P1




I/C Call Abandon Timer setting succeeded.
```

Line 1: Enter the Incoming call abandon timer (0-2).
0=6 seconds (default)
1=3 seconds
2=1 second

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(15) SET INTERFACE

Specify the communication speed for LAN interface

```
MG-COT > SET INTERFACE
SPEED (AUTO/100M/10M) [AUTO] : 10M
DUPLEX (FULL/HALF) [HALF]    : HALF



Ethernet Speed setting succeeded.
```

Line 2: Select the communication speed.
AUTO=Auto Negotiation (default)
100M=100 Mbps fixed mode
10M=10 Mbps fixed mode
Line 3: Select the Duplex mode.
FULL=Full Duplex mode
HALF=Half Duplex mode

Line 4: Result is shown.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: The DUPLEX setting is not shown when Auto Negotiation (AUTO) is selected in the Speed setting.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(16) SET IPADDRESS

Specify IP address and net mask of MG-COT.

```
MG-COT > SET IPADDRESS P1 P2


IP Address setting succeeded.
```

Line 1: Enter the IP Address, then Subnet Mask after a space.

Line 2: Result is shown.

Note: The designated IP address cannot be applied when the DHCP is set to Enabled. Assign the DHCP setting to Disable before executing this IP address setting.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(17) SET ONE_TIME_PASS

Specify one-time password for security.

```
MG-COT(SIP)> SET ONE_TIME_PASS
One Time Password: 123456#

One Time Password setting succeeded.
```

Line 2:Enter the password in numeric [4~10 digits (0-9, *, # can be used)]

Line 3: Result is shown.

Note: The designated One Time Password cannot be applied when Proprietary Protocol mode. Assign the SP mode before executing this One Time Password setting.

(18) SET OWN_NAME

Specify host name of MG-COT.

```
MG-COT(SIP) > SET OWN_NAME P1




Host Name setting succeeded.
```

Line1: Enter the host name of MG-COT Card in full-domain format within 63 characters of alphanumerics, ". (period)", and "- (hyphen)".

Line 2: Result is shown.

Note: The designated Host Name cannot be applied when Proprietary Protocol mode. Assign the SP mode before executing this Host Name setting.

Note: Host name cannot be used when DHCP is assigned ENABLE or DNS is assigned DISABLE. Before assigning the host name, be sure to execute "SET DHCP DISABLE" and "SET DNS_SW".

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(19) SET RELEASE_SIGNAL

Enable/Disable Release Signal.

```
MG-COT > SET RELEASE_SIGNAL P1



Release Signal setting succeeded.
```

Line1: Select Release Signal Setting.
OFF=Invalid (default)
ON=Valid

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(20) SET SIGNALING_PORT_NO

Specify a signaling port number for SIP

```
MG-COT(SIP) > SET SIGNALING_PORT_NO P1


Signaling Port Number setting succeeded.
```

Line1: Enter the Port Number used for SP-PHI. (default=5060)

Line 2: Result is shown.

Note: The designated Signaling Port Number cannot be applied when Proprietary Protocol mode. Assign the SP mode before executing this Signaling Port Number setting.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(21) SET SIGNALING_QOS

Specify Quality of Service for SIP signaling session.

- When ToS is selected in QoS setting type:

```
MG-COT(SIP)> SET SIGNALING_QOS
QOS (TOS/DIFFSERV) [TOS]: TOS

PRECEDENCE (0-7) [6]: 6

DELAY (0/1) [0]: 0

THROUGHPUT (0/1) [0]: 0

RELIABILITY (0/1) [0]: 0

COST (0/1) [0]: 0

Signaling QoS setting succeeded. (0xC0)
```

Line 2: Select QoS setting type (default=TOS)

Line 3:Precedence: 0-7 (low-high) (default=6)

Line 4:Delay: 0/1=Normal (default)/ Low Delay ON

Line 5:Throughput: 0/1=Normal (default)/High Throughput ON

Line 6:Reliability: 0/1=Normal (default)/High Reliability ON

Line 7:Cost: 0/1=Normal (default)/Cost Precedence ON

Line 8: Result is shown.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

- When Diffserv is selected in QoS setting type:

```
MG-COT(SIP)> SET SIGNALING_QOS
QOS (TOS/DIFFSERV) [TOS]: DIFFSERV

DHCP (0-63) [48]: 48

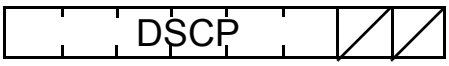
Signaling QoS setting succeeded. (0xC0)
```

Line 2: Select QoS setting type (default=TOS)

Line 3: Enter the setting value directly (default=48)

Line 4: Result is shown.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data in ToS field for Diffserv is shown below:



DSCP = Differentiated Service Code Point (6 bits)

Note: The designated Signaling QoS cannot be applied when Proprietary Protocol mode. Assign the SP mode before executing this Signaling QoS setting.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(22) SET SIPSV_IPADDRESS

Specify IP address, port number, and host name of SIP server.

```
MG-COT(SIP)> SET SIPSV_IPADDRESS
SIP Server (1-20): 1

IP Address [0.0.0.0]: 10.41.2.100


Port Number [5060]: 5060

Is there the Host Name? (Y/N) [N]: Y
Host Name: SVR1.nec.com




SIP Server setting succeeded.
```

Line 2: Enter the SIP server number. Up to 20 SIP servers can be used in one network.

Line 3: Enter the IP address of SIP server e.g. 10.41.2.100 (default=0.0.0.0) **Note 11**

Line 4: Enter the port number (default=5060)

Line 5: Select whether to use host name

Line 6: Enter the host name in the full-domain format, within 63 byte of alphanumerics, ". (period)", and "- (hyphen)". 63. (*This line is displayed when "Y" is selected above.)

Line 7: Result is shown.

Note: The designated SIP Server cannot be applied when Proprietary Protocol mode. Assign the SP mode before executing this SIP Server setting.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note 11: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

(23) SET SMOOTH_PAD_MG

Specify DSP smooth PAD mode.

```
MG-COT > SET SMOOTH_PAD_MG P1




Smooth PAD Mode setting succeeded.
```

Line 1: Enter a value of smooth PAD(1-5, OFF).
OFF=Set smooth PAD mode to OFF
1=2.0dBm (default)
2=-5.2dBm
3=-2.1dBm
4=0dBm
5=-4.2dBm

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(24) SET STARTPORT

Specify RTP Start Port.

```
MG-COT > SET STARTPORT P1



RTP Start Port Number setting succeeded.
```

Line 1: Enter the number of RTP Start Port in the range of 1024-64510 (default=1024).

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note: Port number must be the even number. RTCP port number is assigned to start port number + 1. (odd number)

(25) SET VLAN

Assign VLAN ID and CoS of VLAN.

```
MG-COT > SET VLAN
Please enter a parameter.
VLAN_ID (1-4094) : 1
COS (0-7) : 0

VLAN setting succeeded.
```

Line 3: Line 3: Enter the VLAN_ID in the range of 1-4094.
Line 4: Enter the COS in the range of 0-7.

Line 5: Result is shown.

Note: The maximum number of VLAN is one.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(26) SET WARNING_TONE

Specify the warning tone for LAN failure.

```
MG-COT > SET WARNING_TONE P1




Warning Tone Control setting succeeded.
```

Line 1: Specify the mode.
0=Warning Tone is not sent
1=Warning Tone is sent to IP Network
2=Warning Tone is sent to PSTN
3=Warning Tone is sent to IP Network and PSTN (default)

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(27) SET RVS_AUST

Specify RVS mode (for Australia).

```
MG-COT > SET RVS_AUST
Reverse Watch (ROA/ROS): ROA


Reverse Watch (AU) setting succeeded
```

Line 2: Enter RVS mode
ROA = Reversal on Answer (default)
ROS = Reversal on Seizure

Line 3: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(28) SET CONNECT_TIME

Specify E911 Connection Signal Detection Timer.

```
MG-COT > SET CONNECT_TIME
E911 Connection Signal Detection Timer (0-3): 0




E911 Connection Signal Detection Timer setting
succeeded.
```

Line 2: Enter the Connection Signal Detection Timer
0 = 56ms (default)
1 = 96ms
2 = 136ms
3 = 176ms

Line 3: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

(29) SET ANSWER_TIME

Specify E911 Reception Signal Detection Timer.

```
MG-COT > SET ANSWER_TIME
E911 Reception Signal Detection Timer (0-3): 0



E911 Reception Signal Detection Timer setting
succeeded.
```

Line 2: Enter the Reception Signal Detection Timer
0 = 56ms (default)
1 = 96ms
2 = 136ms
3 = 176ms

Line 3: Result is shown.

(30) SET AUTO_POLARITY

Enable/Disable Auto Polarity.

```
MG-COT > SET AUTO_POLARITY P1



Auto Polarity setting succeeded.
```

Line 1: Specify the auto polarity.
OFF = Invalid (default)
ON = Valid

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

SHOW COMMAND

(1) SHOW CODEC_COEF_MG

This command shows CODEC Coefficiency.

```
MG-COT> SHOW CODEC_COEF_MG
CH00=0
CH01=3
CH02=3
CH03=0
CH04=0
CH05=3
```

The current setting is shown.

(2) SHOW CONFIGDATA

This command shows configuration data list.

```
MG-COT > SHOW CONFIGDATA

[SYSTEM]
REGISTER_MODE=TP
FILE_INFO=2006.07.14

[IP]
OWN_ADDR=0.0.0.0
SUBNET_MASK=255.255.255.255
DEFAULT_GATEWAY=0.0.0.0
DRS_ADDR1=0.0.0.0
DRS_PORT1=3456
DRS_ADDR2=0.0.0.0
DRS_PORT2=3456
DRS_ADDR3=0.0.0.0
DRS_PORT3=3456
DRS_ADDR4=0.0.0.0
DRS_PORT4=3456
DRS_TOS=0xC0

[NETWORK]
LAN_SPEED=AUTO
DHCP_SW=ENABLE
:
:
```

The current setting is shown.

(3) SHOW DHCP

This command shows DHCP setting.

```
MG-COT> SHOW DHCP

DHCP is ENABLE
```

The current setting is shown.

(4) SHOW DNS_SW

This command shows the settings for DNS.

```
MG-COT(SIP) > SHOW DNS_SW

DNS interface: ENABLE
DNS IP Address: 10.41.2.101
```

The current setting is shown.

Note: The designated DNS Server cannot refer when Proprietary Protocol mode. Assign the SP mode before executing this DNS Server shown.

(5) SHOW DRSADDRESS

This command shows DRS address and port number.

```
MG-COT> SHOW DRSADDRESS
                IP Address          Port Number
Primary         10.40.1.100         3456
Secondary       0.0.0.0             3456
Tertiary        0.0.0.0             3456
Forth           0.0.0.0             3456
```

The current setting of DRS Address and Port Number is shown.

Note: The designated DRS cannot refer when SP mode. Assign the Proprietary Protocol mode before executing this DRS shown.

Note: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

(6) SHOW DRSTOS

This command shows ToS setting of DRS session.

```
MG-COT> SHOW DRSTOS
DRS TOS is 0xC0.
PRECEDENCE=6
DELAY=0
THROUGHPUT=0
RELIABILITY=0
COST=0
```

The current setting is shown.

Note: The designated DRS TOS cannot refer when SP mode. Assign the Proprietary Protocol mode before executing this DRS TOS shown.

(7) SHOW DSP_ECFB_MG

This command shows DSP echo canceller for FAX communication.

```
MG-COT> SHOW DSP_ECFB_MG

DSP ECFB Mode is 0.
```

The current setting is shown.

(8) SHOW DTMF_CUTOFF_TIME

This command shows DTMF Cutoff Timer.

```
MG-COT > SHOW DTMF_CUTOFF_TIME

DTMF Cutoff Time is 0 (20ms).
```

The current setting is shown.

(9) SHOW EC_TRAINING_MG

This command shows Training feature mode of echo canceller.

```
MG-COT> SHOW EC_TRAINING_MG

EC Training is ON.
```

The current setting is shown.

(10) SHOW FAXERRORDETECT_MG

This command shows FAX enable timer.

```
MG-COT> SHOW FAXERRORDETECT_MG

FAX Enable Timer is 1 minute.
```

The current setting is shown.

(11) SHOW FAXRECVPAD_MG

This command shows FAX receiver PAD value.

```
MG-COT> SHOW FAXRECVPAD_MG

FAX Receiver PAD is 4.
```

The current FAX receiver PAD value (PSTN → LAN direction) setting is shown.

(12) SHOW FAXSENDPAD_MG

This command shows FAX sender PAD value.

```
MG-COT> SHOW FAXSENDPAD_MG

FAX Sender PAD is 0.
```

The current FAX sender PAD value (LAN → PSTN direction) setting is shown.

(13) SHOW HC_TIMER

This command shows Health Check Receive Timer.

```
MG-COT > SHOW HC_TIMER

Health-Check Timer Timeout is 120 seconds.
```

The current setting is shown.

(14) SHOW IC_ABANDON_TIME

This command shows I/C call abandon timer.

```
MG-COT > SHOW IC_ABANDON_TIME

I/C Call Abandon Timer is 0 (6sec).
```

The current setting is shown.

(15) SHOW INTERFACE

This command shows communication speed for LAN interface.

```
MG-COT> SHOW INTERFACE
Setting: 100Mbps Full Duplex

Status: Speed is 100Mbps, Half Duplex, Link Up
```

Current setting of connection state is shown.

Actual operating state is shown.

(16) SHOW IPADDRESS

This command shows IP address, net mask, and default gateway.

```
MG-COT > SHOW IPADDRESS
IP Address: 10.4.128.5
Netmask: 255.255.255.0
Default Gateway: 10.4.128.254
```

Line 1: Enter the interface name.
Line 2: IP Address is shown.
Line 3: Netmask is shown.
Line 4: Default Gateway is shown.

(17) SHOW ONE_TIME_PASS

This command shows One Time Password for security.

```
MG-COT(SIP) > SHOW ONE_TIME_PASS

One Time Password: 12345
```

The current setting is shown.

Note: The designated One Time Password cannot refer when Proprietary Protocol mode. Assign the SP mode before executing this One Time Password shown.

(18) SHOW OWN_NAME

This command shows host name of MG-COT Card.

```
MG-COT(SIP) > SHOW OWN_NAME

Own Name: name1
```

The current setting is shown.

Note: The designated Host Name cannot refer when Proprietary Protocol mode. Assign the SP mode before executing this Host Name shown.

(19) SHOW RELEASE_SIGNAL

This command shows release signal.

```
MG-COT > SHOW RELEASE_SIGNAL

Release Signal is ON.
```

The current setting is shown.

(20) SHOW SIGNALING_PORT_NO

This command shows the signaling port number for SIP.

```
MG-COT(SIP) > SHOW SIGNALING_PORT_NO

Signaling Port Number is 5060
```

The current setting is shown.

Note: The designated Signaling Port Number cannot refer when Proprietary Protocol mode. Assign the SP mode before executing this Signaling Port Number shown.

(21) SHOW SIGNALING_QOS

This command shows the QoS setting for SIP signaling session.

```
MG-COT(SIP) > SHOW SIGNALING_QOS

Signaling QoS is 0xC0. (QOS = TOS)

PRECEDENCE = 6
DELAY = 0
THROUGHPUT = 0
RELIABILITY = 0
COST = 0
```

The current setting is shown. (*This display is an example when TOS (IP PRECEDENCE) type is selected.)

Note: The designated QoS cannot refer when Proprietary Protocol mode. Assign the SP mode before executing this QoS shown.

(22) SHOW SIPSV_IPADDRESS

This command shows IP address, port number, and host name of SIP server.

```
MG-COT(SIP)> SHOW SIPSV_IPADDRESS

SIP Server   IP Address     Port Number   Host Name

1            10.41.1.150    5060          SVR1.nec.com
2            0.0.0.0        5060
3            0.0.0.0        5060
:            :              :
:            :              :
20           0.0.0.0        5060
```

The current setting is shown.

Note: The designated SIP Server cannot refer when Proprietary Protocol mode. Assign the SP mode before executing this SIP Server shown.

Note: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

(23) SHOW SMOOTH_PAD_MG

This command shows IP address of SIP server (Telephony Server).

```
MG-COT > SHOW SMOOTH_PAD_MG

Smooth PAD Mode is 3.
```

The current setting is shown.

(24) SHOW STARTPORT

This command shows the RTP start port number.

```
MG-COT > SHOW STARTPORT

RTP Start Port Number is 1024.
```

The current setting is shown.

(25) SHOW STATUS

This command shows operating status of MG-COT Card.

- When Proprietary Protocol mode is Used

```
MG-COT > SHOW STATUS

 Register Mode          : TP
 MAC Address            : 00:30:13:6e:f4:e4
 Link State             : Up
 Speed                  : 100Mbps
 Duplex                 : Full
 VLAN Mode              : Disable
 DHCP Mode              : Enable
 IP Address             : 172.16.2.103
 Subnet Mask            : 255.255.0.0
 Default Gateway        : 172.16.1.254
 Current Drs Name       : Primary
 Current Drs Address    : 0.0.0.0
 Registration Status    :
    +-- [(null)]
```

The current setting is shown.

- When SP mode is Used

```
MG-COT(SIP) > SHOW STATUS

 Register Mode          : SP
 MAC Address            : 00:30:13:6e:f4:e4
 Link State             : Up
 Speed                  : 100Mbps
 Duplex                 : Full
 VLAN Mode              : Disable
 DHCP Mode              : Enable
 IP Address             : 172.16.2.103
 Subnet Mask            : 255.255.0.0
 Default Gateway        : 172.16.1.254
 DNS Mode               : Disable
 Current Sipsv Address  : 172.16.4.1
 Encryption             :
    +-- SIP Encrypt     : --
    +-- RTP Encrypt     : --
 Registration Status    : Offline
    +-- Registration is Started Now !
```

The current setting is shown.

Note: The designated operating status cannot refer when SP-3875 6MG COT PROG-A Ver.3.0.0.0 or later.

(26) SHOW VERSION

This command shows the version information.

```
MG-COT > SHOW VERSION
MG-COT Maintenance Command

Version Infomation

Hardware(Main): CA-CC07 001
Hardware(Sub) : CA-CC08 001

Boot program  : SP-3839 SH7751R CBOOT-1 PROG-A [04.00.00.00]
Firmware      : SP-3875 6MGCOT PROG-A [04.00.00.00]
```

Line 4-7: Version information of hardware, boot program, and firmware is shown respectively.

(27) SHOW VLAN

This command shows the VLAN setting.

```
MG-COT > SHOW VLAN

VLAN is ENABLE

DEVICE  ID   COS    IPADDRESS      SUBNETMASK
VLAN1   1     0     0.4.128.5      255.255.255.0
```

The current VLAN setting is shown.

(28) SHOW WARNING_TONE

This command shows Warning Tone control.

```
MG-COT > SHOW WARNING_TONE

Warning Tone Control of IP Network is 3 (IP & TDM
side)
```

The current setting is shown.

(29) SHOW RVS_AUST

This command shows RVS mode (for Australia).

```
MG-COT> SHOW RVS_AUST

Reverse Watch (AU) is ROA.
```

The current setting is shown.

(30) SHOW CONNECT_TIME

This command shows E911 Connection Signal Detection Timer.

```
MG-COT> SHOW CONNECT_TIME

E911 Connection Signal Detection Timer is 0.
```

The current setting is shown.

(31) SHOW ANSWER_TIME

This command shows E911Answer Signal Detection Timer.

```
MG-COT> SHOW ANSWER_TIME

E911 Reception Signal Detection Timer is 0.
```

The current setting is shown.

(32) SHOW AUTO_POLARITY

This command shows Auto Polarity.

```
MG-COT> SHOW AUTO_POLARITY

Auto Polarity is ON.
```

The current setting is shown.

PING COMMAND

- PING

  Specify an IP address to check connectivity from MG-COT Card.

```
MC(SIP)> PING 100.100.100.4
PING 100.100.100.4: 56 data bytes
64 bytes from 100.100.100.4: icmp_seq=0. time=0. ms
64 bytes from 100.100.100.4: icmp_seq=1. time=0. ms
64 bytes from 100.100.100.4: icmp_seq=2. time=0. ms
64 bytes from 100.100.100.4: icmp_seq=3. time=0. ms
----100.100.100.4 PING Statistics----
4 packets transmitted, 4 packets received, 0% packet loss
round-trip (ms) min/avg/max = 0/0/0
```

Line 1: Enter the IP address of the system to access.
Line 4-7: Connection status of the accessing system is displayed 4 lines.

```
MC(SIP)> PING 100.100.100.4
PING 100.100.100.4: 56 data bytes
ping: timeout
no answer from 100.100.100.4
```

When the MG-COT Card cannot connect to network, “no answer” is displayed.

Note: The designated operating status cannot refer when SP-3875 6MG COT PROG-A Ver.3.0.0.0 or later.

DELETE COMMAND

- DELETE VLAN

  This command deletes the VLAN setting.

```
MG-COT> DELETE VLAN

VLAN deleting succeeded.
```

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

SAVE COMMAND

- SAVE CONFIGDATA

  This command saves the configuration data to Flash ROM.

```
MG-COT > SAVE CONFIGDATA

**Don't power off in progress**

Do you need save? (Y/N): Y
Configuration data has been saved.
Re-starting is required for making a setup
reflect!!
```

Line 3: Select either, Y or N.
Line 4: Result is shown.

Note: When the error occurs during saving, configuration data is not preserved.

GET COMMAND

- GET CONFIGDATA

  Specify an IP address of TFTP server in which configuration is stored.

```
MG-COT> GET CONFIGDATA 10.41.1.150

Configuration data has been downloaded.
```

Line 1: Specify the IP Address of TFTP Server after the Command Name. (e.g. 10.41.1.150)
Line 2: Result is shown.

Note: Configuration data file is downloaded from the specified TFTP server. When the destination file name is not entered, file name of transferred folder is used automatically.

PUT COMMAND

- PUT CONFIGDATA

  Specify an IP address of TFTP server to be uploaded the configuration data in.

```
MG-COT > PUT CONFIGDATA P1

check sum = 58694(0xe546)

Configuration data has been uploaded.
```

Line 1: Specify the IP Address of TFTP server after the Command Name. (e.g. 10.41.1.150)
Line 2: Check sum is shown.
Line 3: Result is shown.

Note: Configuration data file is uploaded to the TFTP server.

REBOOT COMMAND

- REBOOT

  This command reboots MG-COT Card.

```
MG-COT> REBOOT

Do you need reboot? (Y/N): Y
```

Line 2: Enter Y or N to confirm.
Y=Reboot
N=Not reboot

Note: The screen returns to the prompt of the maintenance command (MG-COT Card, in default) if any error occurs when “Y” is selected after changing the configuration data.

EXIT COMMAND

- EXIT

  This command exits the configuration mode.

  [Normal occasion]

```
MG-COT > EXIT

Finished!
value = 11 = 0xb
->
```

Line 1: Normal occasion.
Line 2: Result is shown.
Line 3: Display changes to the OS prompt.

[When configuration data is changed]

```
MG-COT > EXIT
Configration data was changed.
**Don't power off in progress**
Y:Save and Exit.
N:Exit without saving.
C:Cancel
(Y/N/C):Y
Configration data has been saved.
->
```

Line 7: Select Y to make the changed configuration data effective and exit the maintenance command.
Line 8: Result is shown.
Line 9: Display changes to the OS prompt.

Note: The screen returns to the prompt of the maintenance command (MG-COT Card, in default) if any error occurs when "Y" is selected after changing the configuration data.

INIT (CLEAR) COMMAND

- INIT CONFIGDATA

```
MG-COT > INIT CONFIGDATA

 *** Warning !! ***
 This command is for initialize config data.
 If this command is executed, your configuration
is deleted!!
 OK ? (Y/N) : y

 It's recommended to back up your configuration !!
 really OK ? (Y/N) : y

 Initialize of configuration data was successful.
 You need to setup config data!!

MG-COT >
```

Note: The designated operating status cannot refer when SP-3875 6MG COT PROG-A Ver.3.0.0.0 or later.

- CLEAR CONFIG

SP-3875 6MG COT PROG-A Ver 3.0.0.0 or earlier

```
MG-COT> CLEAR CONFIG
[SYSTEM]
LONG_TIMEOUT=30
SHORT_TIMEOUT=5
:
:
Configuration data initial setting succeeded.
Reboot.....
```

4.2 Error Messages

When an error occurs in using the maintenance command, error message is indicated to show the cause for helping the reassignment of required data.

List of Error Messages

MESSAGE	CAUSE
File not found on the TFTP server.	Download file of system data is not founded on the TFTP server.
Command not found.	Not supported command was entered when entering command.
Invalid parameter.	Invalid parameter was entered when entering command.
IP address form is incorrect.	IP address is entered in incorrect form.
VLAN ID is no more registered.	VLAN ID cannot be registered because the number of VLAN exceeds the maximum.
Sub command is missing.	Sub command is not entered when entering command.
Invalid parameter value.	The range of entered parameter is incorrect.
Invalid sub command.	Entered sub command is incorrect.
Command is abnormally terminated.	Command is terminated illegally.
Parameter(s) are missing.	Parameter is not entered when entering command.
Entered VLAN ID is already registered.	Entered VLAN ID has been already registered.
VLAN ID is not registered.	Entered VLAN ID does not exist.
This command is not supported in a present operation mode.	The entered command is not supported in the operation mode currently works.

MG-COT Card [SCA-6COTB]

1 General

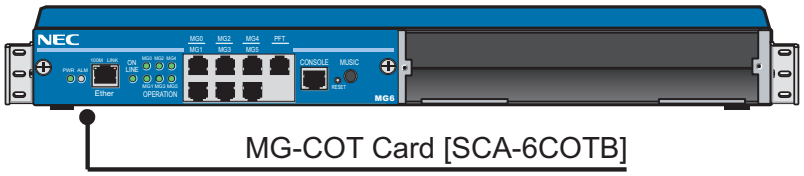
1.1 What is MG-COT?

MG-COT has a function of Media Gateway (MG) which is an interface between IP network and Analog PSTN line. Also an analog terminal for exclusive use of Power Failure Transfer (PFT) can be connected through a PFT connector on this card.

MG usually works independently. In the case of failure of MG-COT, PFT connects C.O. line and analog terminal directly and provides emergency line. **Note 1**

Note 1: For the PFT service on the UG50, a station line connected to the PFT port cannot be used as a station line for the system. Be sure to connect a terminal that can be used as telephone to the PFT port. Terminals such as a FAX terminal are not allowed.

Outerview of MG-COT



Note: MG-COT Card is mounted in 1U-MPC (Multi Purpose Chassis) module. One unit of 1U-MPC module can accommodate a maximum of two cards. MG-COT Card is mounted in the left slot in this figure.

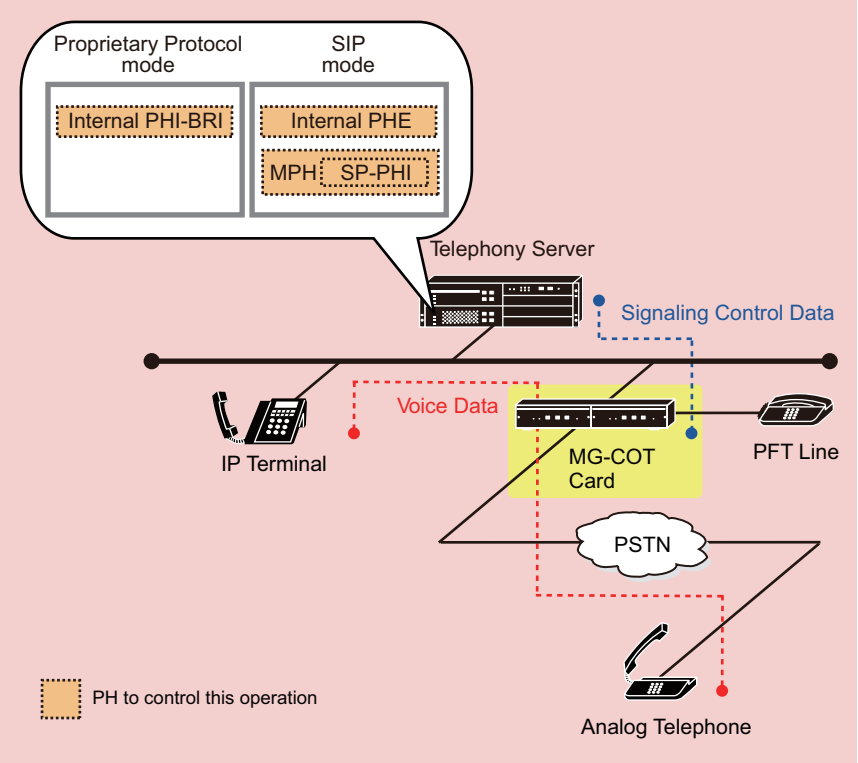
Note: Only MG0 can be used for PFT function. An analog terminal connected to the PFT connector cannot be used when the MG-COT operates normally.

1.2 Function Overview

Basic Connection

MG has six analog ports and connects IP Network and PSTN. Any IP terminals and SIP terminals can originate and receive call to/from analog PSTN line.

MG-COT in the System



Note: For Proprietary Protocol mode, Internal PHI-BRI controls the signaling data, which is accommodated in the Telephony Server. Call control between Internal PHI-BRI and MG-COT is executed via TCP/IP port of the system.
In some cases, signaling data can be controlled by SP-PHI even though MG-COT operates in Proprietary Protocol mode. For the detail, refer to “Consideration for SP-PHI Data Assignment” in Data Programming Manual - Business.

Note: For SIP mode, SP-PHI, which is accommodated in MPH (Multi Protocol Handler) of the Telephony Server, handles the control signal from/to MG-COT. MPH is the interface for the control signal. Call control between SP-PHI and MG-COT is executed via TCP/IP port of the system.

Power Failure Transfer (PFT)

MG-COT has six MG (COT) ports and one PFT port. PFT connects the PFT port to one MG port (MG0) directly when some failure has occurred. Therefore, analog terminal is connected to PSTN network and then call origination to C.O. line becomes available. PFT is activated in following cases. **Note 1**

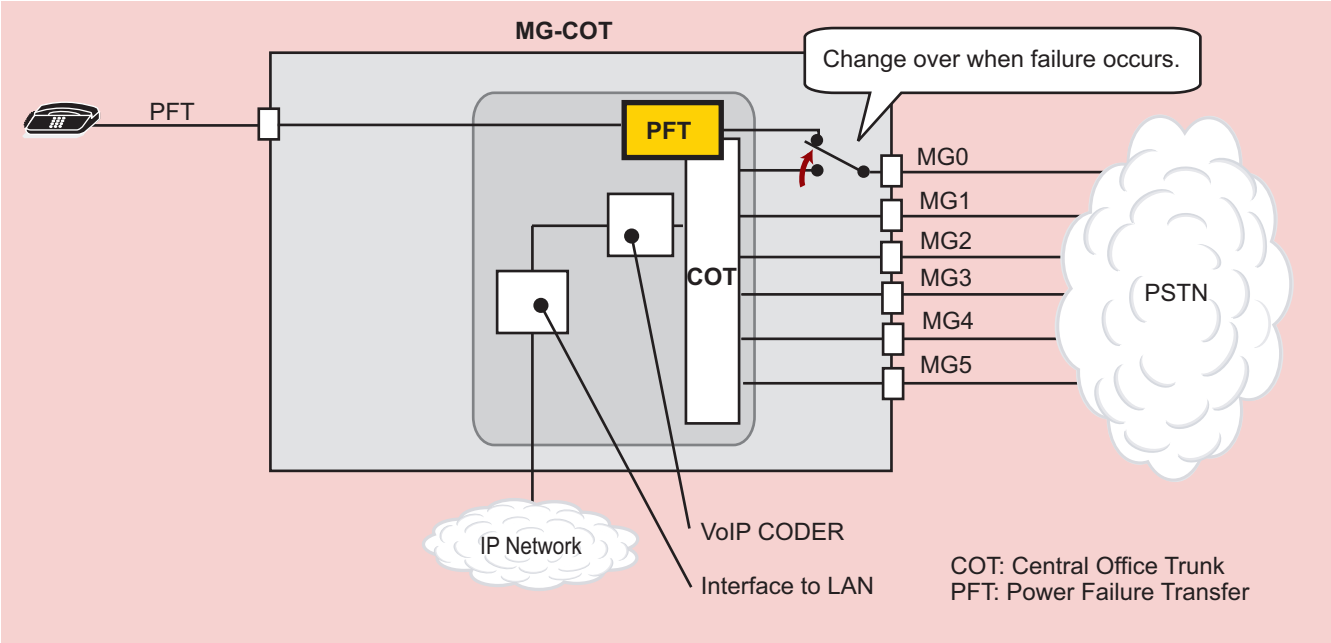
- Power failure of MG-COT → immediately switched to PFT, PFT line becomes available.
- IP link failure → depending on the connection status when Health Check time-out timer (150 seconds) expires;

  (a) when any calls are not in progress on MG-COT: immediately switched to PFT → PFT line becomes available.

  (b) when any calls are in progress on MG-COT: switched to PFT after cutting off MG side → PFT line becomes available.

Note 1: The PFT service is not available for the UG50.

Connecting Diagram of PFT Function



Release of PFT

PFT is released under the following conditions:

- After rebooting, IP link with the Telephony Server is established
- Release of the lines activating over PFT function are supervised.

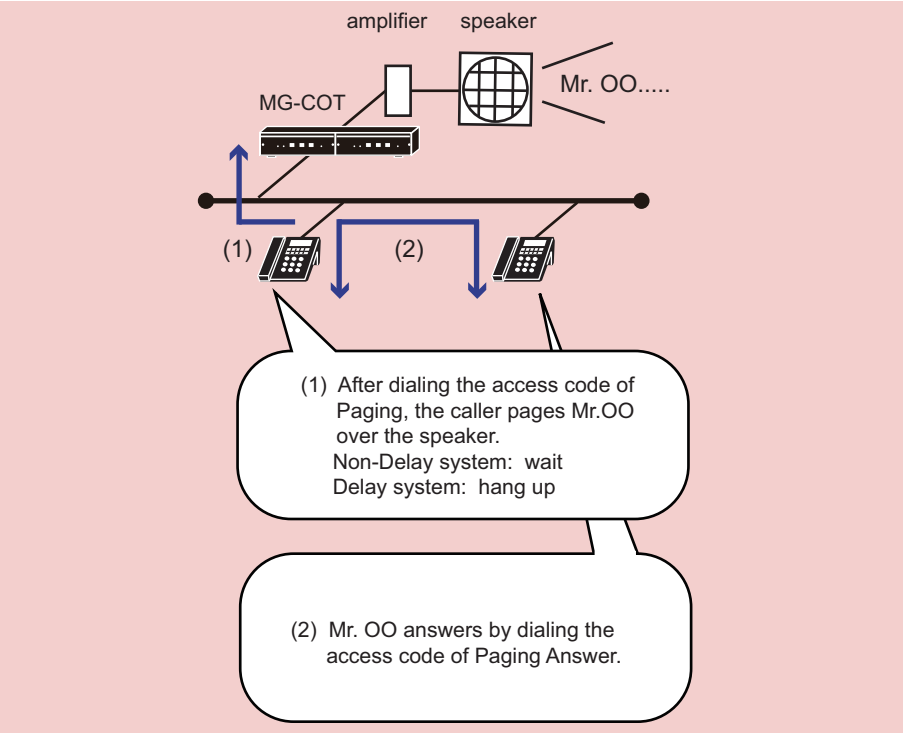
Paging

Stations can page anyone over the speaker connected to MG-COT. Paging equipment is configured as the Paging Trunk and connected using an interface on MG-COT.

Three types of paging features are supported by MG-COT's paging. For operation procedures refer to service conditions of PAGING ACCESS [P-1] and PAGING TRANSFER [P-10] in Data Programming Manual - Business.

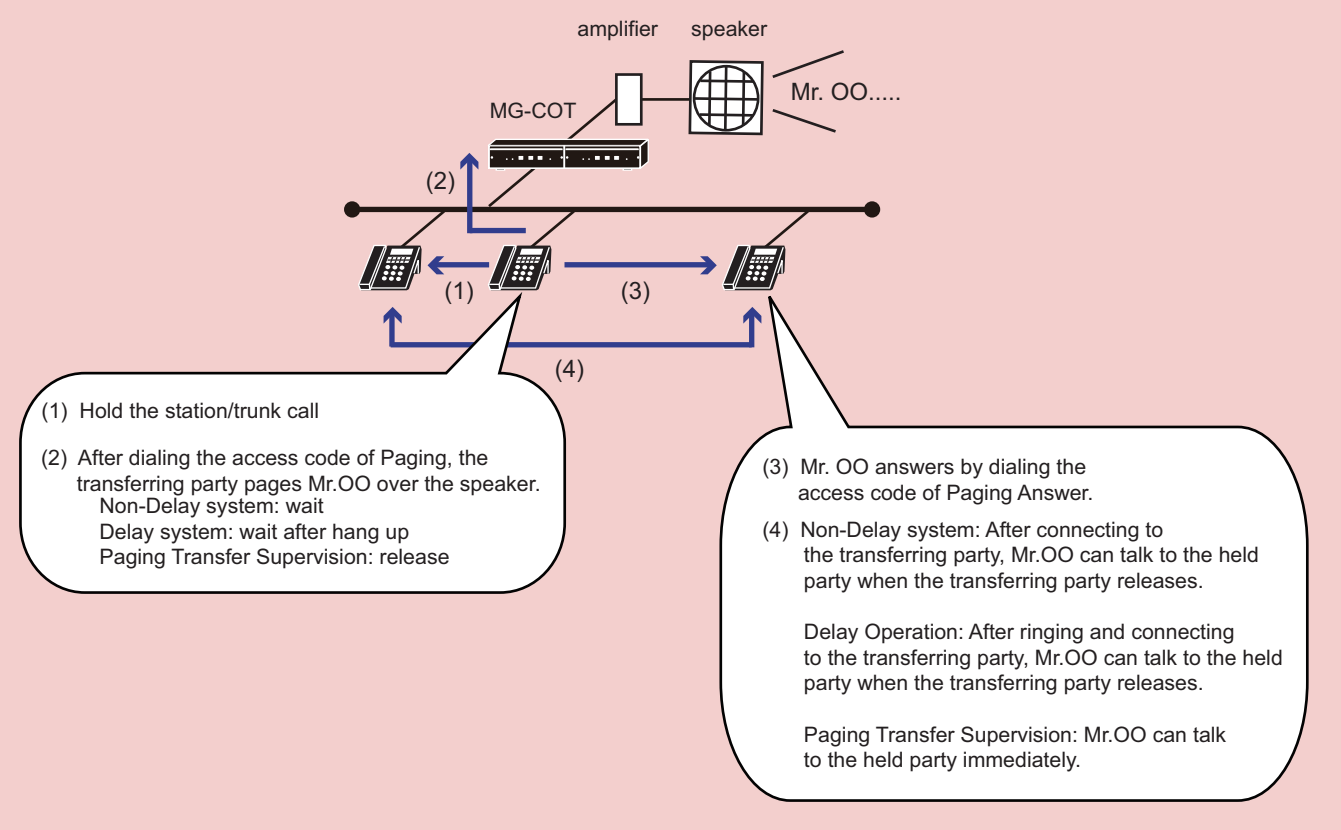
<Paging Access>

Dialing the access code of Paging Access on station, the caller can access the paging equipment to page anyone over the speaker. The paged person can answer the call by dialing the Paging Answer access code on any station.



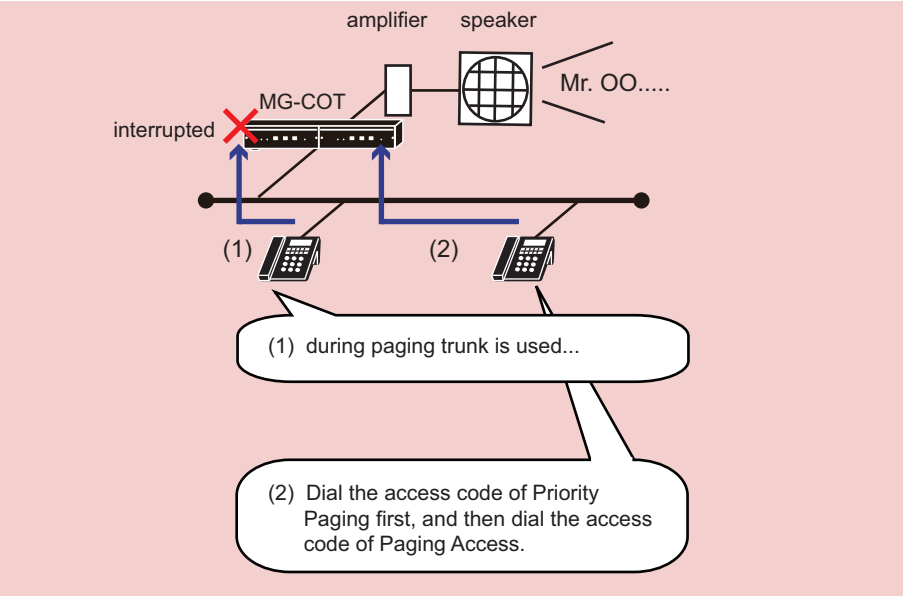
<Paging Transfer>

After holding a station/trunk call, the holding party can page anyone over the speaker to transfer the call. Non-Delay system, Delay system, and Paging Transfer Supervision is available.



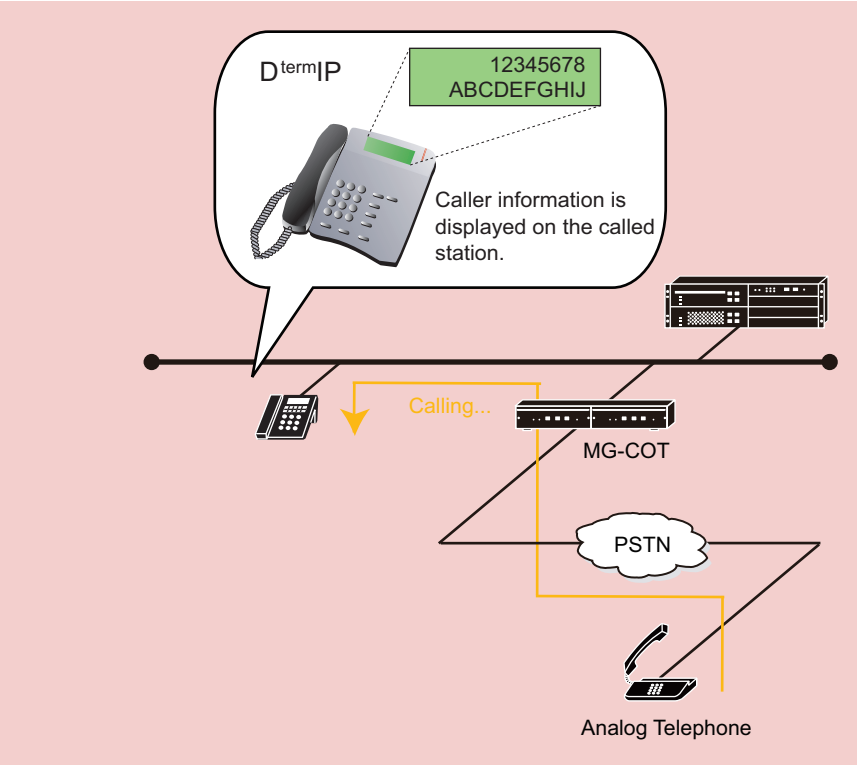
<Priority Paging>

By dialing the access code of Priority Paging, the station/ATTCON is allowed to access paging trunk interrupting other user's paging in progress.



Analog Caller ID

CALLER ID information (Calling Number and Calling Name) can be displayed on called terminals (Dterm and DtermIP stations with LCD) for the calls via CALLER ID-compliant analog C.O. line.



Follow the service conditions below:

(a) Firmware SP3875 6MGCOT PROG-A Issue 4.0.0.0 or later version is required.

(b) Up to 24 characters of Calling Name can be displayed on the called terminal. When the informed Calling Name exceeds 24 characters, only the Calling Number is displayed. Any characters of Calling Name are not considered.

(c) The display on the called terminal is shown like below.
e.g.) When the Calling Name display takes priority:

Calling Number [8 digits]	
Calling Name [24 characters]	

Note: When the Calling Number display is assigned to take priority over Calling Name display, the displayed lines for the Calling Number and the Calling Name are inverted. In this case, the first eight characters of Calling Name (company name) can be displayed.

(d) Caller information display is available only for the incoming call from C.O. line terminated directly to each station. Caller information cannot be displayed when intermediate station exists by Call Forwarding. When the intermediate station hangs up, the Caller information can be displayed.

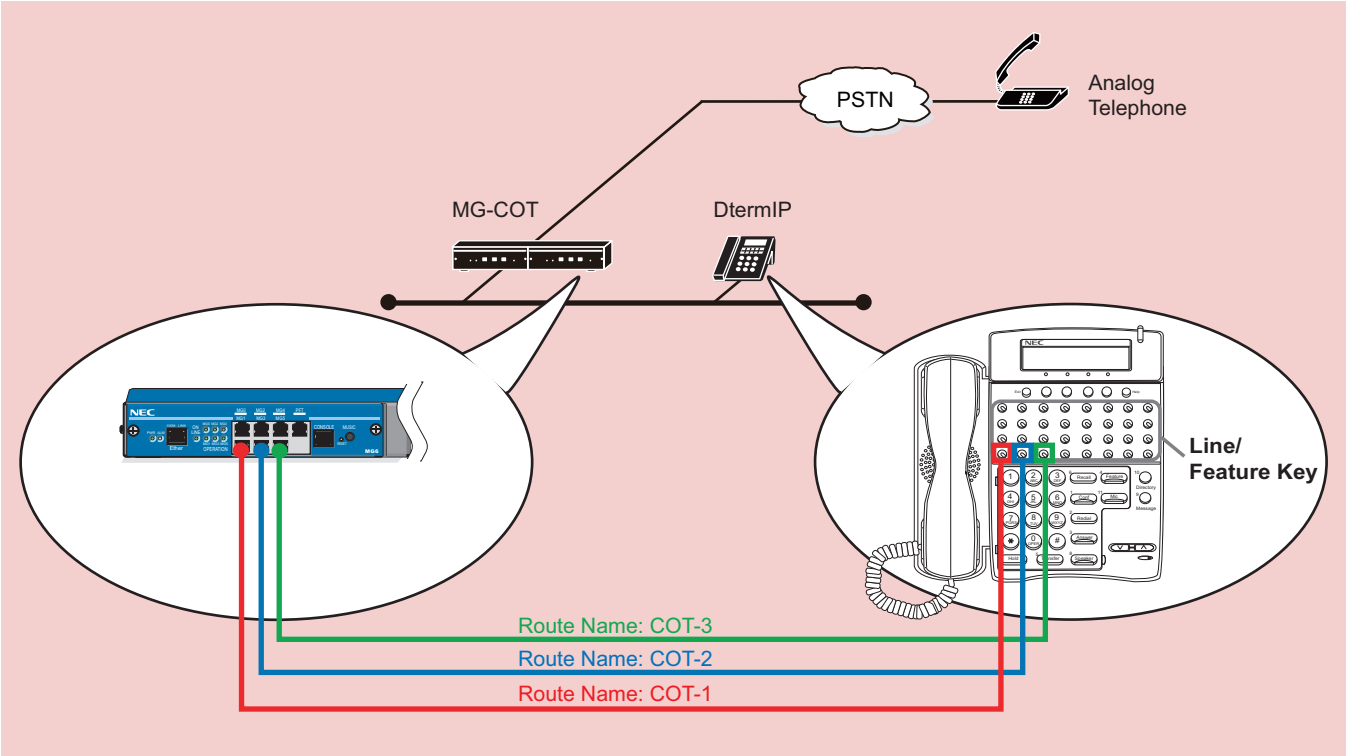
(e) When Caller ID has not been received, any Caller information cannot be displayed.

(f) Calling Name is not displayed even when Calling Name has been received but Calling Number has not been informed or cannot be displayed.

Note: Refer to Data Programming Manual - Business for the data assignment and operating procedure of this feature.

Trunk Line Appearance-D

Connecting an analog C.O. trunk and a virtual line one-to-one, this feature allows DtermIP user to directly access C.O. line of MG-COT by pressing corresponding Line key on DtermIP station, without dialing access code. DtermIP station can also answer incoming calls from C.O. line by pressing the Line key.



Follow the service conditions below to use this feature by MG-COT:

(a) System data assignment for Trunk Answer from Any Station (TAS) is required for this feature, but the TAS service is not activated.

(b) Whether the Trunk Answer from Any Station (TAS) feature is available or not is determined by the Service Feature Restriction Class (SFC: 34) setting to each station.

(c) When Trunk Line Appearance-D station does not answer the incoming call and Call Forwarding-Don't Answer is activated, the LCD on the DtermIP does not display to inform the execution of call forwarding.

(d) Analog C.O. line corresponding to PB signal is only applicable.

(e) DtermIP stations must assign a My Line on Line/Feature Key beforehand.

(f) All the virtual lines of C.O. trunk, excepting My Line, can be assigned as Trunk Line Appearance-D lines on one DtermIP station. (e.g. On 16-button type of DtermIP station, a maximum of 15 lines can be accommodated as Trunk Line Appearance-D. The remaining one line is the My Line.)

(g) Up to 128 of C.O. lines can be accommodated as Trunk Line Appearance-D per system.

(h) Distinctive Ringing is not activated when incoming call terminates.

(i) Analog Telephone cannot answer the incoming call of Trunk Line Appearance-D.

(j) When DtermIP station answers and holds the incoming call of Trunk Line Appearance-D, analog telephone station cannot answer the held call. DtermIP stations can answer the held call.

(k) Call termination is informed to the user only by the Message Waiting Lamp indication on DtermIP.

(l) This feature is not applied to the outside call via ISDN line.

(m) To send out Hooking signal to the destination party, assign the Route Class data of COT route to HKS=1.

(n) When originating a call, DtermIP station hears dummy tone from the own system. Assign the dummy tone by the 2nd DT parameter of ASPA command.

ASPA 2nd DT: 0: -
Second DT is not sent.
1: 2nd DT
Second DT is sent.

(o) Numbering plan data for the call origination via COT must be assigned by the LCR setting of ASPA command.

(p) MG-COT can send out Hooking signal to outside in this feature.

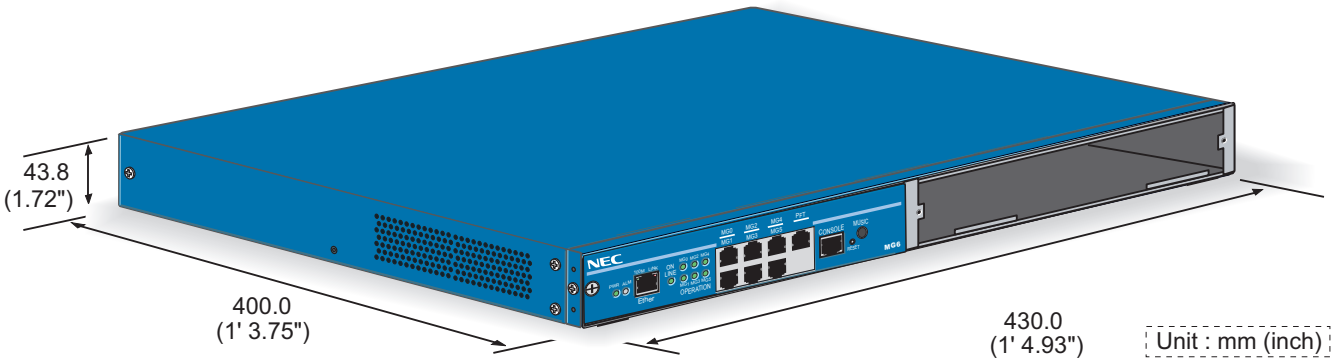
Note: Refer to the Data Programming Manual - Business for the data assignment and operating procedure of this feature.

1.3 Specifications

(1) Dimension

MG-COT Card is mounted in 1U-MPC module (19-inch rack mount, 1U-box).

Size of MG-COT Card in 1U-MPC



(2) Specifications

MG-COT Specifications

FUNCTION	SPECIFICATION	NOTE
Voice CODEC	G.711	64 k (bps): PCM μ-law/A-law Packet cycle: 10~40 milliseconds (in 10 msec steps)
	G.729a	8 k (bps): CS-ACELP Packet cycle: 10~40 milliseconds (in 10 msec steps)
	G.723.1	6.3 k (bps): MP-MLQ/ACELP Packet cycle: 30 or 60 milliseconds
		5.3 k (bps): MP-MLQ/ACELP Packet cycle: 30 or 60 milliseconds
FAX	Data transmission as voice data	G.711/G.726 (ADPCM)
	FAX Relay (T.30)	FRF.11
	FAX Relay (T.38)	Not supported
FAX auto-detect timer	FAX auto-detect is activated on timer timeout	Timer: 1M, 2M, 3M, 4M, 5M (0M=Invalid to change to Fax mode) (OFF=Always possible to change to Fax mode)
Jitter Buffer	Static	10~300 milliseconds (assignable in 10 msec steps)
	Dynamic	10~300 milliseconds
Quality of Service (QoS)	ToS, IP Precedence	Supported
	DiffServ	Supported
VLAN	IEEE 802.1Q (Tagging VLAN), VLAN bit, Priority bit	
LAN Interface	100 Mbps/10 Mbps, auto-negotiation (Half/Full Duplex)	RJ-45 Connector 1 Port
IP Address Assignment	DHCP is supported	
Operation & Maintenance	Console	RJ-45 serial interface Connecting through CONSOLE cable (RJ-45 ⇔ RS-232C serial cable)
Audible Tone Generator	16 types	
DTMF detection/generation	Supported	
Holding Tone	Supported (Internal and External)	

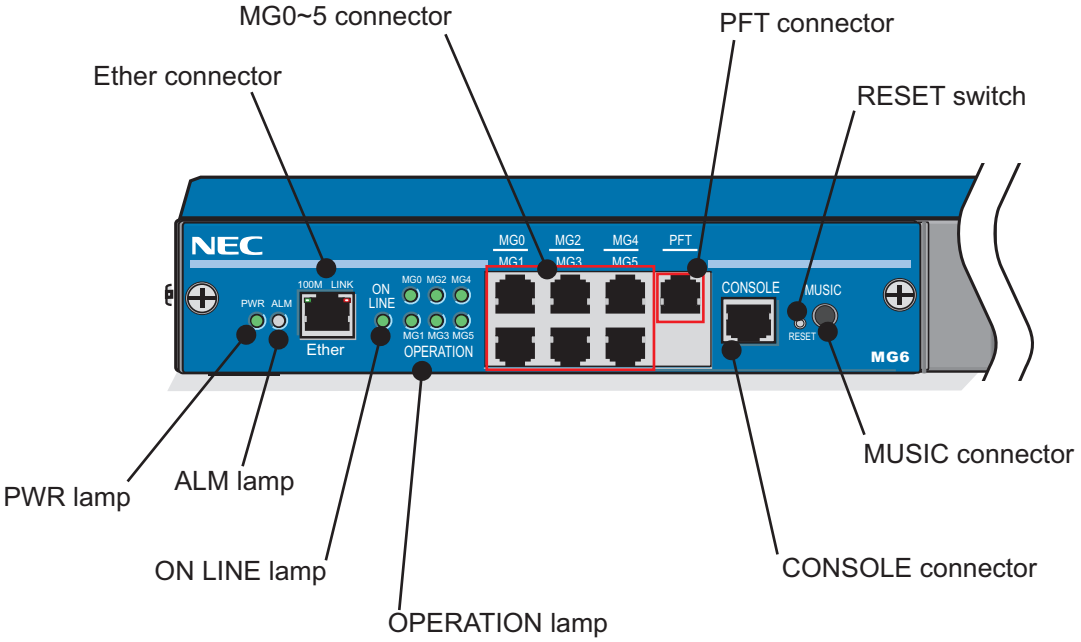
MG Specifications

FUNCTION	SPECIFICATION	NOTE
Number of lines	Six lines	RJ-11 Modular Jack 6 Ports
Signaling Method	Loop Start	
Reverse Detection	Supported	Available in idle or loop closing state.
Caller ID	Supported	Available for Firmware SP3875 6MG-COT PROG-A Issue 4.0.0.0 or later version.
Call Metering Pulse Detection	Not Supported	
Line Fault Detection	Not Supported	
AC Clearing	Not Supported	
Selection Signal	DTMF only	DP is not supported
Automatic Polarity Reverse	Supported	
REVERSAL ON IDLE	Not Supported	
REVERSAL ON ANSWER REVERSAL ON SEIZURE	Not Supported	
PROCEED-TO-SEND-WINK START (LOOP-OUT CALLS)	Not supported	
Terminal Impedance and BNW	600Ω (Default setting)	
PAD Control (for voice transmission)	-10dB ~ +20dB	Default value: analog → LAN = 0 dB LAN → analog = 0 dB
Echo Canceller	G.168/G165 (NLP function available)	Tail Length is 64 milliseconds
Echo Canceller Training Tone sending	Supported	Selectable
Smooth PAD	Supported LAN → analog only	Default value: 1 = Threshold 2.0 dBm

(3) Layout of Connectors, Lamps, and Switches

Connectors, lamps, and switches indications are explained below.

Front View of MG-COT Card [SCA-6COTB]



Connectors and Switch on Front Panel

NAME	FUNCTION	NOTE
Ether connector	LAN Interface	RJ-45 100Mbps/10Mbps, auto-negotiation (Half/Full Duplex)
MG0 connector	PSTN Interface	RJ-11 Connected to Analog Line (PFT) when PFT is activated.
MG1 connector		RJ-11
MG2 connector		
MG3 connector		
MG4 connector		
MG5 connector		
PFT connector	PFT port for emergency telephone	RJ-11 Connected to C.O. line (MG0) when PFT is activated. (without MC connection)
CONSOLE connector	Interface for Maintenance Console	RJ-45 serial connection (CONSOLE cable RJ-45 ⇔ RS-232C is used)
MUSIC connector	External Music-On-Hold connection	ϕ 3.5 mini-jack (monaural type)
RESET switch	MG-COT Card reset switch	Boot program is started.

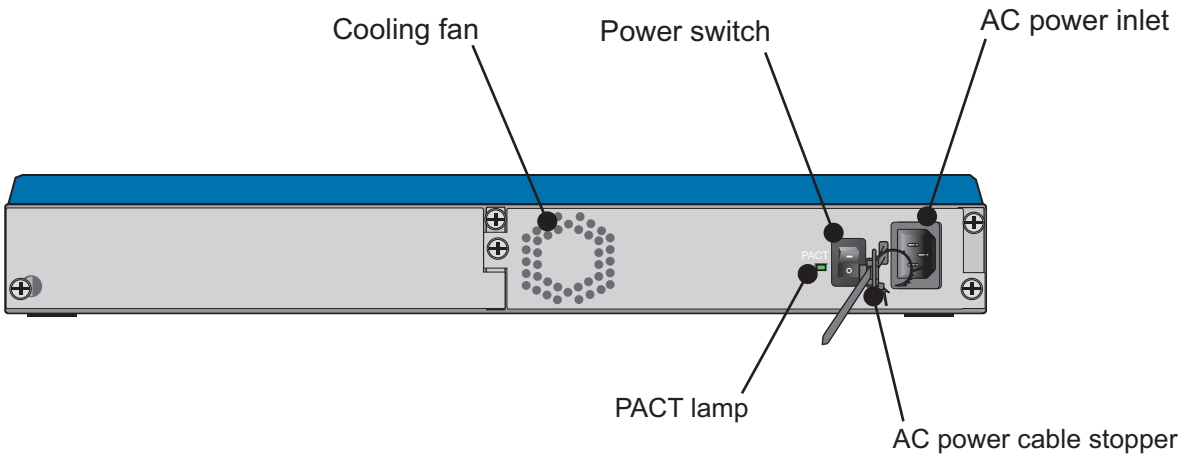
Lamps on the Front Panel

LAMP NAME		COLOR	MEANING OF INDICATION
PWR		Green	Power ON
		OFF	Power OFF
ALM		Red	Lights when power failure is detected
		OFF	Normal operation
Ether	LINK	Green	Lights when establishing port link **Note:** Lights when physically connected to IP network.
		Flash	Flashes green (in 0.67-second cycle) when sending/receiving IP Packet
		OFF	Port link is not established
	100M	Green	Lights when transmission speed is 100 Mbps
		OFF	Remains OFF when transmission speed is 10 Mbps
MG	ON LINE	Green	See for the detail explanations of the lamp indication.
	OPERATION MG0	Green	
	OPERATION MG1	Green	
	OPERATION MG2	Green	
	OPERATION MG3	Green	
	OPERATION MG4	Green	
	OPERATION MG5	Green	

Lamp Indication and Status

LAMP INDICATION							DISCRIPTION OF STATUS
LEGEND L: Lights Fr: Flashes rapidly (60INT) Fs: Flashes slowly (30INT) ×: Remains OFF R: Rotary lights							
MG							
ON LINE	OPERATION						
	MG0	MG1	MG2	MG3	MG4	MG5	
×	×	×	×	×	×	×	Start the BOOT program
×	R	R	R	R	R	R	Main program is starting up
×	Fs	Fs	Fs	Fs	Fs	Fs	Registration of MG has started
L	×	×	×	×	×	×	Registration of MG has been completed
L	×	-	-	-	-	-	CH0 (MG) is vacant
L	-	×	-	-	-	-	CH1 (MG) is vacant
L	-	-	×	-	-	-	CH2 (MG) is vacant
L	-	-	-	×	-	-	CH3 (MG) is vacant
L	-	-	-	-	×	-	CH4 (MG) is vacant
L	-	-	-	-	-	×	CH5 (MG) is vacant
L	Fr	-	-	-	-	-	CH0 (MG) is Make-Busy
L	-	Fr	-	-	-	-	CH1 (MG) is Make-Busy
L	-	-	Fr	-	-	-	CH2 (MG) is Make-Busy
L	-	-	-	Fr	-	-	CH3 (MG) is Make-Busy
L	-	-	-	-	Fr	-	CH4 (MG) is Make-Busy
L	-	-	-	-	-	Fr	CH5 (MG) is Make-Busy
L	L	-	-	-	-	-	CH0 (MG) is in use
L	-	L	-	-	-	-	CH1 (MG) is in use
L	-	-	L	-	-	-	CH2 (MG) is in use
L	-	-	-	L	-	-	CH3 (MG) is in use
L	-	-	-	-	L	-	CH4 (MG) is in use
L	-	-	-	-	-	L	CH5 (MG) is in use

Rear View of MG-COT Card [SCA-6COTB]



Note: This figure is an example when the 1U-MPC is in single power configuration. Prepare one more power unit (optional) for dual power configuration. (See the Appliance Model Installation Manual for the power unit mounting procedure.)

Connectors, Lamps, and Switches on Rear Panel

NAME	FUNCTION	
AC power inlet	Connected to AC-DC adapter with an attached three-polar grounded AC power cable (Cable Length: 3 m [9.8 ft.])	AC 100V (50/60 Hz) ± 10% AC 120V (50/60 Hz) ± 10% AC 230V (50/60 Hz) ± 10% AC 240V (50/60 Hz) ± 10%
Power switch	Power ON/OFF switching	
PACT lamp	Indicates the state in power unit	Lights green: Normal operation OFF: Power off or Power failure

Note: For the safety measures against static electricity, lightning struck, and other electrical surges, be sure to take proper connection to grounding (less than 10 Ω). As MG-COT has PSTN interface, if the line cable is struck by lightning directly, the lightning might cause damage to MG-COT and AC power cable without Ground connection.

(4) Port Number

The following provides the port number to be used in this system.

- When using Proprietary Protocol Mode

Port Number	Path	Function	Note
3456/UDP	DRS (Telephony Server LAN1)	Registration	Changing an initial value by using ADTM command.
3457/UDP	MG-COT	Registration	-
50001/UDP	MG-COT	iLP-PM	-
1024~ /TCP	Peer to Peer	H.245	Allocated by Operating System
1024~64510/UDP	Peer to Peer	RTP	Changing an initial value by using the configuration command. [SET STARTPORT] from a local console.

When using SIP Mode

	Function	TP side			SP side	
		LAN Port (default)	Port Number (default)	Command to Change Setting	Port Number (default)	Command to Change Setting
TP ⇔ SP Note 1	Registration	LAN1	3456	ADTM (Port Number only)	22000	Cannot be changed
	iLP-PM	LAN1	60130	ADTM (Port Number only)	64105	ALIDL
SP Internal Control Port Note 2	iLP-PM	-	-	-	64010	ALIDL
					22001	ASPC
MG-COT ⇔ SP	SIP	-	-	-	5060	Cannot be changed
H.245 Negotiation	Ready	-	-	-	22002	ASPC
	H.245	-	-	-	22003 ~ 26000	ASPC

Note 1: The packet between TP and SP (“TP ⇔ SP” in the table) does not flow over the network because both of which are part of the Telephony Server.

Note 2: The packet related to SP internal control port does not flow over the network.

(5) Available Channels When Using SIP Mode

The number of channels that are processed depends on codec and payload cycle used by MG-COT in SIP mode. Therefore, adjustments will be needed, such as placing unnecessary channels into the Make Busy status.

See VoIP Encryption [V-27] in Data Programming Manual - Business for the number of available channels on the encryption status of this component.

1.4 Requirements

(1) Hardware Requirements

To use the MG-COT for an analog terminal and PSTN connection, the following hardware is required:

- PC running Terminal Software (for Maintenance Console)
- Cables

LAN cable:	Use any of the following cables for connecting to LAN. 10BASE-T:Unshielded Twisted-pair (UTP) Straight-through Cable Category 3 or higher, (a maximum of 100 m) 100BASE-TX:Unshielded Twisted-pair (UTP) Straight-through Cable Category 5 or higher, (a maximum of 100 m)
Line Cable:	For the connection between an Analog terminal for PFT, use a Modular Cable with an RJ-11 Modular Jack. For the connection to PSTN network, use a Modular Cable with an RJ-11 Modular Jack.
CONSOLE Cable:	RJ-45 ⇔ RS-232C serial cable (for maintenance console)
Audio Cable:	Microphone Input (for external Music-On-Hold source) ϕ 3.5 mini-jack (monaural type)

(2) Firmware Program

The following program is installed in MG-COT [SCA-6COTB].

- Installed Firmware:

Mode	Installed Firmware
Proprietary Protocol Mode/ SIP Mode	SP-3948 6MGCOT PROG-A Issue 1.0.0.0 version or later

(3) Environmental Requirements

- Operational Temperature Range: 0°C to 40°C (32°F to 104°F)
- Operational Humidity Range: 20% to 90% (not condensing)
- Main Source Power: 100 VAC / 120 VAC / 230 VAC / 240 VAC (50/60 Hz) ±10%

1.5 Service Conditions

Before the use of MG-COT, note the following conditions.

Service Conditions for Proprietary Protocol Mode and SIP Mode

(1) When the setting of ASYDL, SYS1, INDEX880, Bit 1 (Internal PHI-PRI/BRI)/Bit 3 (Internal PHE) is modified, initialize the Internal PHI-BRI/Internal PHE module with the ADPM command.

(2) The connection via less secure network such as Internet is not available. Also, dial-up connection is not available.

(3) PFT connects the following port.
PFT ⇔ MG0

(4) DIMG command is used to check the current status of MG-COT Card registration.

(5) Virtual Trunk for MG occupies one group. Therefore, the group to which Virtual Channel of MG has been assigned cannot be used for other Trunk. Do not use LV6 and LV7 of the group to which Virtual Channel of MG has been assigned. The Virtual Trunk can be assigned for Virtual PIR.

(6) When originating a call to the analog network, "*" cannot be included in the dialing number.

(7) Only DTMF signal is sent to Trunk Line. Dial Pulse is not used.

(8) PAD value and Echo Canceler data assigned by PAD/EC Control IP/PHC Support has priority. For details, refer to PAD/EC Control IP/PHC Support in Data Programming Manual - Business.

(9) If the data assignment by PAD/EC Control IP/PHC Support is invalid, PAD value and Echo Canceler data assigned in AMGVL/AIVCL has priority.

(10) Assign CODEC in AMGVL command (If AMGVL data is not assigned, AIVCL data is applied). For available payload type/payload size, refer to "Payload Setting for Each IP Equipment" in the System Description. When both command data are not assigned, default setting is applied (default setting is G.711- 40ms).

(11) When Payload Type is specified by AMGVL/AIVCL, A/μ-law setting assigned by AMGIL is applied. System Data is not applied (ASYD SYS1 INDEX 63 bit 0 A/μ-law for TSW). When A-law MG and μ-law MG are connected, A-law is applied.

(12) Route Number can be shared by multiple MGs.

(13) Assign each LENS for MG line (0-5) and CH (Fixed to 0) in AMGIL command. (MG0: Even Number Level, MG1: Level of MG0 + 1)

(14) Guard Timer for Originating Call is performed by the Telephony Server side. Assign the Timer value by ASYD (SYS 1, INDEX 474) to change the value. Default value is 3072 milliseconds.

(15) When digit conversion is required for the digits received from the public network, use ARTD, CDN66 (DC) and ACDD. A maximum of seven digits can be converted, counting from the last.

(16) There are the following restrictions when using REMOTE ACCESS TO SYSTEM [R-2] or AUTOMATED ATTENDANT [A-82].
- If any virtual registers cannot be seized, other registers (**Note 1**) are seized.
- When any registers cannot be seized, calling party hears busy tone.
- The sum total of virtual registers and other registers (**Note 1**) per LP cannot exceed 64 channels.

Note 1: In this context, other registers are:
- Originating register trunk (RT: 902)
- Incoming register trunk (RT: 903)
- PBR for Automated Attendant Service (RT: 906)
- CRT (RT: 933)

- Assign "2" to EQP of AAED to make calling party hear some announcement. The announcement can be sent only once.

(17) Assign the following parameter in ARTI command when using fax via MG.
- CDN 71: IP FAX data
- CDN 72: Jitter Buffer Size for IP FAX
- CDN 73: Payload Type for IP FAX
- CDN 74: Payload Size for IP FAX (This data is required only when G.711 or G.726 is specified in the FXPT parameter)

(18) When analog terminal is connected to outside via MG, the terminal user can send external/internal music resources as Music-on-Hold. External/internal Music-on-Hold data is assigned by AMGIL command per MG.

(19) MG-COT Card does not monitor the status of Analog line such as line failure. Therefore, MG-COT Card tries to originate a call regardless of Trunk failure. (As far as MG-COT Card works correctly.)

(20) If MG-COT Card is a Conference Leader for VS32 Conference Server (Multiple-Party Conference [RESET/ PROGRESSIVE]), the line which can send the release signal should be used.

(21) Hooking cannot be performed until MG-COT Card receives Polarity Reverse Signal for called party answer. However, hooking can be performed after the false answer by setting the false answer data (ANS on ARTD command and False answer timing on AMGIL command).

(22) When Trunk Soft Hold Timer is effective, the call originating party will be charged when the timer expires.

(23) A Conference cannot be established until the False Answer Timer expires.

(24) SMDR cannot be collected until the False Answer Timer expires.

(25) Adding a pause when originating to Central Office Line is not available.

Service Conditions particular to Proprietary Protocol Mode

(1) Only one Internal PHI-BRI can be registered per system.

(2) A total number of MGs in one system depends on the maximum number of IP terminals that are controlled by Internal PHI-BRI. Maximum channel number that can be operated by 1LP is 460 channels including other ISDN channels, MG-PRI and MG-BRI.

(3) Internal PHI-BRI performs the Health Check of MG-COT Card between Internal PHI-BRI and MG-COT Card.

(4) System Messages (33-R) are output when packet transmission failure is detected in Internal PHI-BRI.

(5) Internal PHI-BRI and MG are connected via UDP/IP. Therefore, Routine Diagnosis is performed by Proprietary Protocol procedure. System Message (33-S) is output if failure is detected.

(6) System Message (33-R) is output if control packet is sent and connection failure is detected. The message is output when timeout of control packet transmission timer occurred eight times or more continuously. The transmission timer value is changed/modified by ASYDL command (SYS 1, INDEX 884, bit0 PHI Retransmission timer). After modifying the data, reset the buffer or initialize the data by ADPM command.

(7) When LCR data has been assigned, LCR is activated if any failure described in conditions 5 and 6 occurs.

(8) IP address and Subnet Mask of Internal PHI-BRI are LAN1 IP address (ACT) of the Telephony Server. Port number is modified by ADTM command (default is 64000, shown as “Internal PHI-BRI”). Modified data is automatically reflected on System Data (**Note 2**). Port number of “Internal PHI-BRI” is shared with that of “Internal PHI-PRI”.

Note 2: After modifying the data, initialize the data or reset the buffer by ADPM command. Data is reflected to System Data after this assignment.

(9) Assign Quality of Service (QoS) setting for Internal PHI-BRI in ALOCL command. (LOC-ID=0) Assign QoS of signaling packet for MG in AMGIL command, and QoS of voice packet in AMGVL/AIVCL command.

Service Conditions particular to SIP Mode

(1) MG-COT Card is controlled by SP-PHI. To activate SP-PHI, required to register Internal PHE. To turn SP-PHI and SP (Signaling Processor) effective, assign the following system data.
ASYDL, SYS1, INDEX 880, Bit 1 = 1 (Internal PHI-PRI/BRI is available)
ASYDL, SYS1, INDEX 880, Bit 3 = 1 (Internal PHE is available)
ASYDL, SYS1, INDEX 885, Bit 7 = 1 (SP Implementation is available)

(2) MG-COT Card requests registration to SP-PHI, not to Internal PHI-BRI.

(3) Accommodated location (LENS) data of Internal PHE and MPH/SP-PHI is required to be set on ALIDL command.

(4) Maximum channel number that can be operated by 1LP is 460 channels including other ISDN channels, MG-PRI and MG-BRI

(5) A maximum number of MG-COT Card which can be accommodated in a system depends on the number of SP-PHI ports (REGMAX) Maximum port number is 4095.

(6) For details on Encryption, refer to VoIP Encryption [V-27].

(7) Conditions for Fault Monitoring are as follows.

- Health Check is provided between SP-PHI and MG-COT Card. If a failure is detected by the Health Check, System Message (33-S) is output to the SP-PHI accommodated location (LENS).
- When timer timeout of control packet transmission between Internal PHE and SP-PHI occurs eight times consecutively, System Message (33-R) is output to the Internal PHE accommodated location (LENS).

(8) SR-MGC supports MG-COT Card.

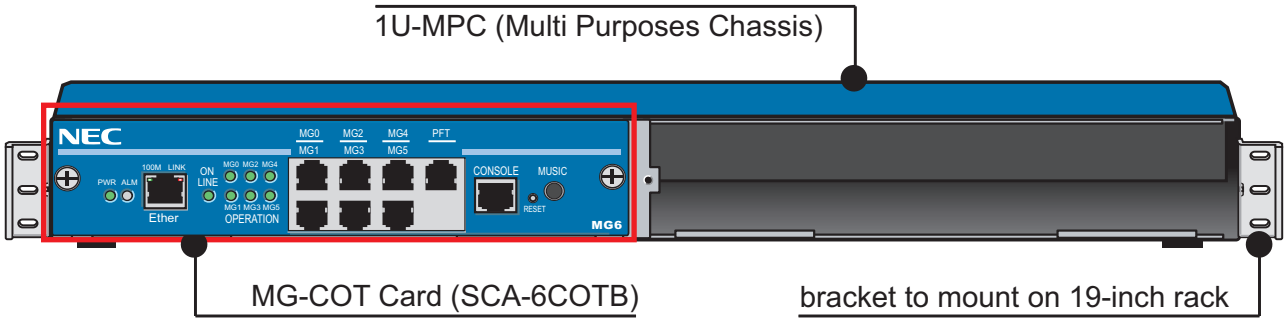
2 Installation



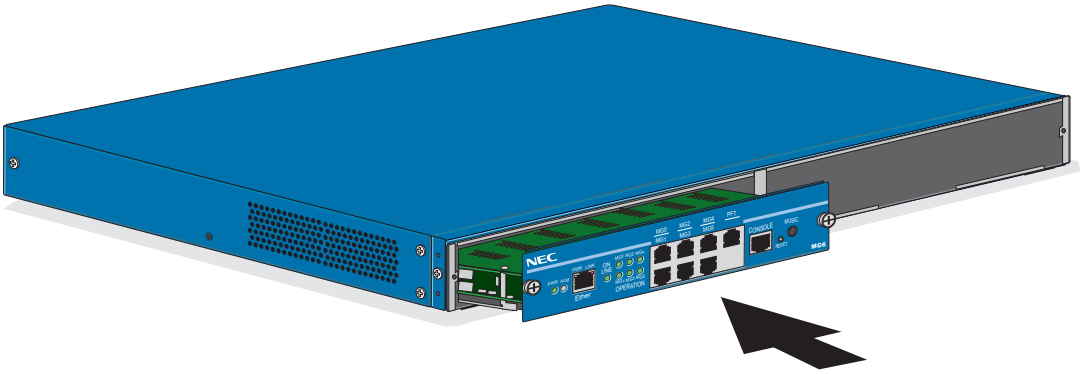
This section shows how to install the hardware required for using MG-COT. Be sure to take measures to anti-static electricity.

2.1 How to Set MG-COT

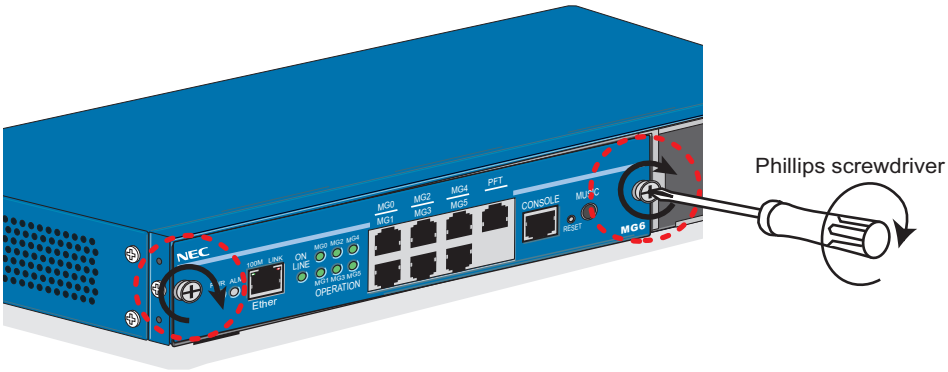
MG-COT Card is used by mounting on 1U-MPC (19-inch rack mount, 1U-box).



STEP 1 Insert MG-COT Card to 1U-MPC.



STEP 2 Secure the MG-COT Card to 1U-MPC fixing two screws on right and left sides.



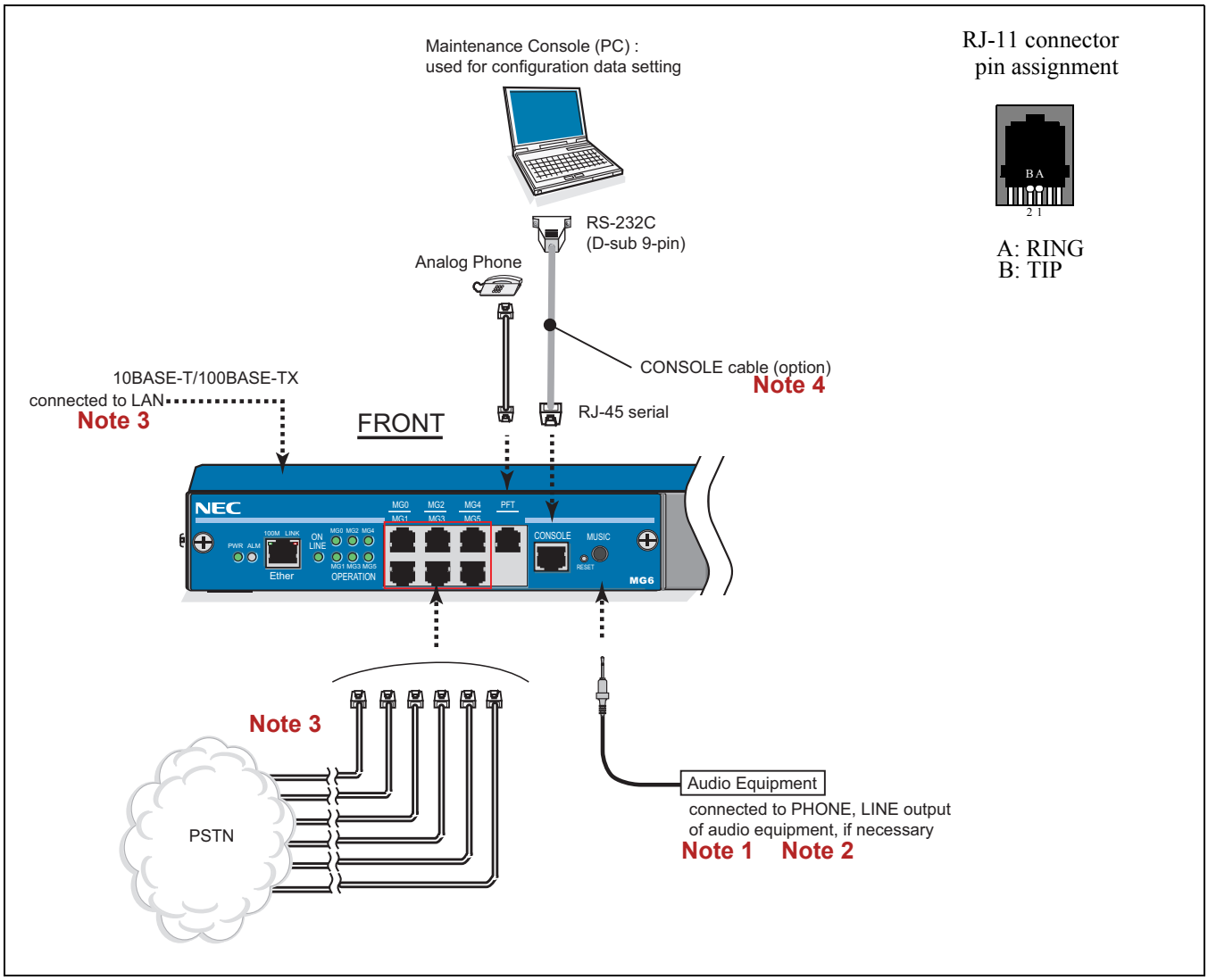
2.2 Cable Connection

This section shows the cable connection to the MG-COT. MG-COT provides the following interfaces:

- Connection to LAN
- Connection to PSTN
- Connection of Analog Telephone
- Serial Port Connection to Maintenance Console
- Connection to Audio Equipment for external music
- Power Supply

Connect the required cables according to the system configuration. The figure below shows a cable configuration example.

MG-COT Cable Connection Diagram (Front)



Note 1: Cable of external hold tone source needs to be conformed with all-purpose ϕ 3.5 mono-aural ear phone jack. Adjustment of output level for external hold tone source need to be started from low and to higher to avoid over-current. The tuning of volume level sent is to be done by monitoring from the telephone terminal connected over PSTN and tuning the output level of external hold tone source. Input impedance from the external hold tone source needs to be within the ranges of 8Ω - 50kΩ. Make sure not to exceed this range.

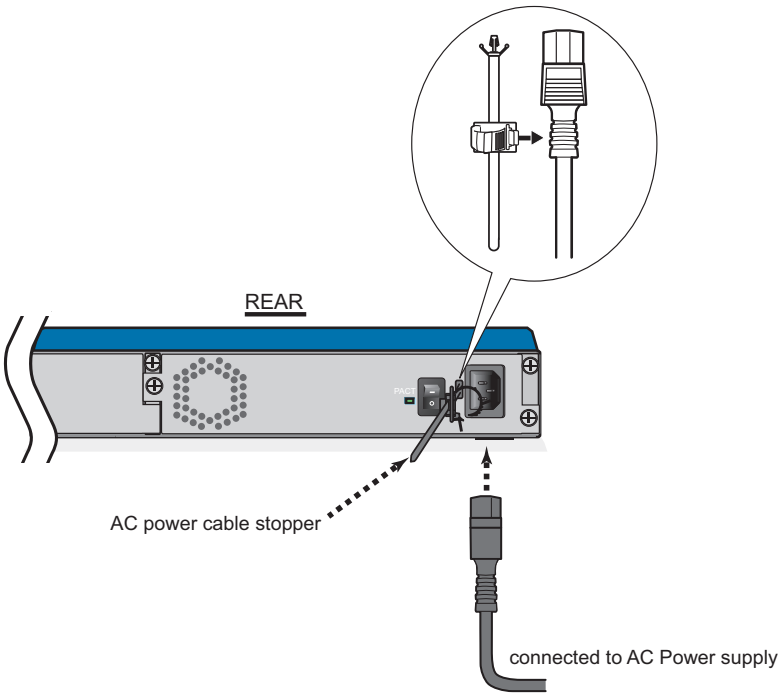
Note 2: If audio equipment has a ground terminal, be sure to take proper connection to grounding of audio equipment.

Note 3: Do not connect LAN and PSTN line here. These cables are connected in Section 3 Startup MG-COT and Basic Tests.

Note 4: When you turn off the power, disconnect the CONSOLE cable in advance of turning off the power.

STEP 1 AC power cable connection

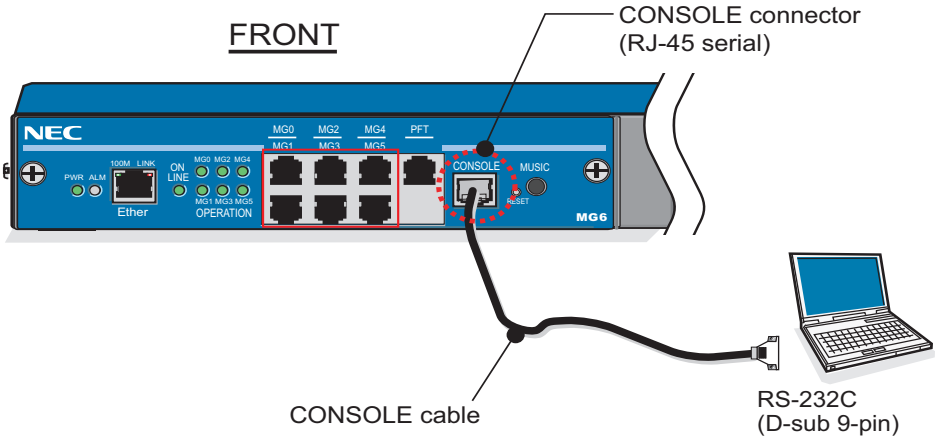
Connect AC power cable to AC Power Inlet on the rear panel of MG-COT. Fix the AC power cable with the stopper.



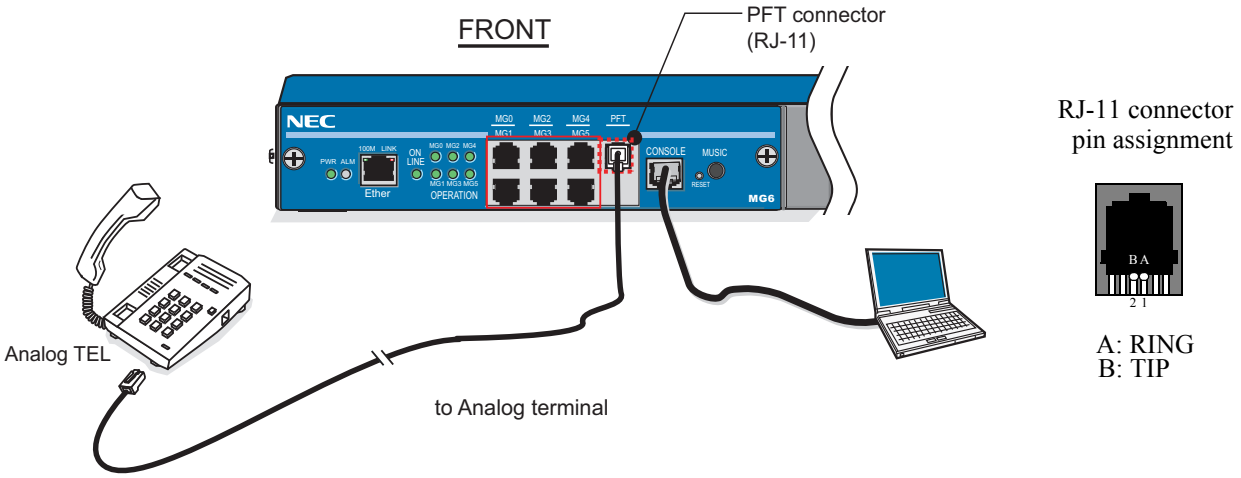
Connect the other end of the power cable to appropriate AC supply.

Note: For the safety measures against static electricity, lightning struck, and other electrical surges, be sure to take proper connection to grounding (less than 10 Ω). As MG-COT has PSTN interface, if the line cable is struck by lightning directly, the lightning might cause damage to MG-COT and AC power cable without Ground connection.

STEP 2 Connect a Maintenance Console (PC) to CONSOLE connector using CONSOLE cable.



STEP 3 Connect analog terminals to PFT connector on the front panel.



Note: PSTN lines and LAN cables are connected in Section 3 Startup MG-COT and Basic Tests. Do not connect these cables here.

3 Startup MG-COT and Basic Tests

This section explains procedures for startup and basic tests. Follow the procedure below depending on the registration mode.

STEP 1: Data Assignment by PCPro

When Proprietary Protocol mode	When SIP mode
1. Internal PHI-BRI Data Assignment	1. Internal PHE Data Assignment
2. MG-COT Card Data Assignment	2. SP-PHI Data Assignment
	3. MG-COT Card Data Assignment
	4. Security Data Assignment

STEP 2: VT-100 Compliant Terminal Software Setting on Maintenance Console

1. Connection between PC (maintenance console) and CONSOLE Connector
2. Terminal Software Activation
3. Setting of Terminal Software

STEP 3: Power ON

STEP 4: Configuration Command Assignment

When Proprietary Protocol mode	When SIP mode
1. Selection whether to use DHCP server	1. One Time Password Assignment
2. Network Data Assignment	2. Selection whether to use DHCP/DNS server
	3. Network Data Assignment

STEP 5: Cable Connection

1. Connection between MG-COT Card and LAN
2. Connection between C.O. lines and MG

STEP 6: Basic Test Procedures

1. Basic Connection Test
2. Alarm Information Check
3. PFT Switching Test

END

3.1 Data Assignment by PCPro

This section explains the data assignment procedures to the Telephony Server by PCPro.

Note: This equipment needs to be considered beforehand either Internal PHI-BRI or SP-PHI is set as the registration destination. Please make sure details of "Consideration for SP-PHI Data Assignment" in Chapter 2 of Data Programming Manual - Business before data assignment.

Note: For UG50, refer to the Peripheral Equipment Description (UG50).

<When Proprietary Protocol mode>

MG-COT Card can be registered to either Internal PHI-BRI or SP-PHI. When registering to Internal PHI-BRI, it works using Proprietary Protocol, which is called Proprietary Protocol mode. The following explains MG-COT Card data assignment for Proprietary Protocol mode. When registering to SP-PHI (SIP mode), refer to page 417.

[1] Internal PHI-BRI Data Assignment

MG-COT (Proprietary Protocol mode) is controlled by Internal PHI-BRI embedded in the Telephony Server. So Internal PHI-BRI data assignment is necessary.

[2] MG-COT Card Data Assignment

Assign the necessary System Data for using the MG.

ASYD: Assignment of System Data

SYS1
INDEX 186, b6=1 (ISDN/MG-COT is in service)
INDEX 187=00 (Fixed)
INDEX 474 Guard Timer For Originating Call (MTC × TC)
bit 0-3 (MTC)
bit 4-6 (TC) **Note 1**

Note 1: When assigning 1H, TC = 64 msec.

ARTD: Assignment of Route Class Data

Assign the Route Class Data for Virtual Speech Channel. The following data setting is necessary besides Analog C.O BWT setting.

CDN1	OSGS = 0	CCIS
CDN60	TC/EC = 1	Echo Canceler is available
CDN114	DCH = 1	Unify the channel
CDN125	MGCOT = 1	MG (6COT) is available

When digits conversion is required for the received digits, assign the following data.

CDN66 (DC): Dialed Number Confirmation

Note: Assign the number of digits for identifying the incoming line. Count the digits from the last one of the received number.

<Related to MF>

CDN 72 MFSP	Sending Speed (0-15)
CDN 73 KPPT	Duration of KP sending (0-15)
CDN 74 KPST	Pause after KP sending (0-15)
CDN 75 MT	Step Code (0/1)

<Loop Start>

CDN 15 LSG = 0	Loop Start is available

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

ARTI: Assignment of Trunk Application Data

Assign Trunk Application Data for Virtual Speech Channel.

CDN68 VIR = 2	MG connection

When using fax connection via MG, following assignment is necessary.
CDN 71 IP FAX data
CDN 72 Jitter Buffer Size for IP FAX
CDN 73 Payload Type for IP FAX
CDN 74 Payload Size for IP FAX

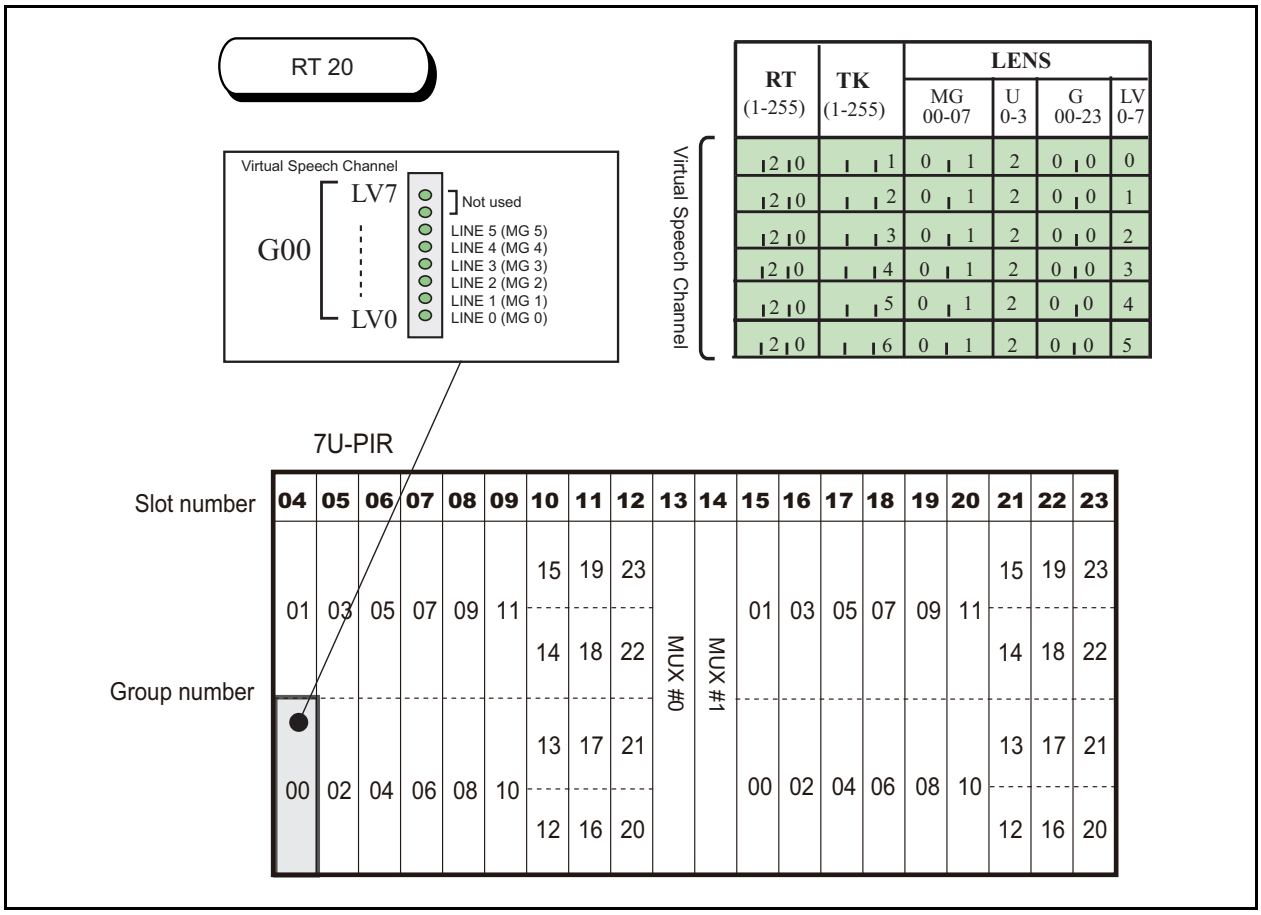
Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

ATRK: Assignment of Trunk Data

Assign the Trunk Data for Virtual Speech Channel.
The example of data setting procedure is shown below.

Note: Virtual trunk occupies 1HW (4-Group). For example, if one channel is registered for Virtual Trunk, the whole HW is occupied exclusively for the Virtual Trunk.

Note: Do not assign any trunk data to Group 0 of Unit 0 in even number Module group because it cannot be used with MG-COT.



MBTK: Make-Busy of Trunk

Assign the IDLE/BUSY status of trunks for Virtual Speech Channel.

RT Route Number
TK Trunk Number
MB Make-Busy Information
MB = 0 (Make Idle)

AMGIL: Assignment of Media Gateway Information (LDM)

Assign the information of MG (6COT).

Note: When assigning/deleting the data in this command with MG (6COT) working, the terminal is reset.

Note: Verify that ATRK data is assigned to LENS prior to assigning AMGIL data.

MG-ID MAC Address of MG-COT
KIND Kind of MG Trunk
Select MG(6COT)

UG50 Multi-Slot Mode
Select this check box if registering UG50 in Multi-slot mode.
LINE MG Line Number [0-5]

Note: Check all of the boxes for LINE0 (LV0) - LINE5 (LV5). This data setting is available only when trunk data is assigned by ARTI/ATRK command.

CH MG Channel Number
Assign "0".
LENS Assign Virtual Speech Channel for MG (6COT).
Setting Type of Signaling Packet Service
Type of service for MG (6COT)
Music On Hold Exists
External Music on hold (default setting)
Internal Music on hold1
Internal Music on hold2
External Music On Hold Input Gain Adjustment
0: 0dB
1: -10dB (gain)
2: -15dB (gain)
3: -20dB (gain)
4-15: Not used
Country Code U.K. (fixed)
Law of A/D conversion
A law (fixed)
PB Receive Complete Timing of Dial-In [0-15]
Default value is 0.
False Answer Timing [0-15]
Default value is 0.

AMGVL: Assignment of Media Gateway Voice Control (LDM)

Assign the voice control data for terminal that is connected to MG (6COT). When AMGVL data is not assigned, AIVCL data setting is applied.
A RT (MG Storing)
Physical Route Number for Virtual Speech Channel of MG (6COT)
TYPE
Select one of the followings:
- Route Specified
- Location ID Specified

B RT (MG Storing)
Displayed when TYPE=Route Specified is selected.
Physical Route Number for Virtual Speech Channel of terminal connected to MG
B LOC-ID:Location ID of IP terminal connected to MG (6COT)
Displayed when TYPE=Location ID Specified is selected.
Setting of Jitter Buffer
JB_MIN:Jitter Buffer Minimum
JB_MAX:Jitter Buffer Maximum
Setting Type of Voice Packet Service

Type of service for MG (6COT)
Setting of Payload
TYPE
SIZE
Setting of PAD
Click this check box when setting data for PAD value of MG.
PAD Information
This parameter is available only when the check box of "Setting of PAD" is ON.
No = 1: The PAD value of MG when DtermIP/Soft Phone/INASET is connected
No = 2: The PAD value of MG when Analog MC/Digital MC is connected
No = 3: The PAD value of MG when IPPAD is connected
No = 4: The PAD value of MG when MG is connected

Note: The PAD value of MG (6COT) is valid only when you select "Setting" from the drop-down box of "Setting of Detail" to specify the detail PAD value.

AIVCL: Assignment of IP Service Voice Control Data (LDM)

Assign the voice packet control data for terminal that is connected to MG (6COT).
A LOC-ID Location ID of MG (6COT) or IP terminal
B LOC-ID Location ID of MG (6COT) or IP terminal
Setting of Jitter Buffer
JB MIN: Jitter Buffer minimum value
JB MAX: Jitter Buffer maximum value
Setting Type of Voice Packet Service
Type of service for MG (6COT)
Setting of Payload
TYPE
SIZE

ALOCL: Assignment of Location ID Data (LDM)

Each IP terminal is allocated a Location ID to identify its location within the network on Network Address basis. By using the Location ID, IP services such as Bandwidth Control and ToS Control are provided for each IP terminal. Select "Network Address" radio button in ALIDL command.

TYPE: Select "Network Address".
IP ADDRESS: Enter the IP Address. For the Telephony Server (IPPAD), assign "0.0.0.0".
MASK BIT: Enter the Mask Bit in the range of 1-31 except when IP Address 0.0.0.0 is determined. Mask Bit=32 is automatically set when IP Address=0.0.0.0
NETWORK ADDRESS: Display only.
LOC-ID: Assign the Location ID in the range of 0-4095, associated with the IP Address. When IP Address=0.0.0.0, LOC-ID=0 is automatically set (the value cannot be changed).

Note: LOC-ID=0 is predetermined to the Location ID of the Telephony Server (i.e.IPPAD).

Setting Type of Signaling Packet Service: Click the check box to assign the ToS for signaling packet.
IP PRECEDENCE/DIFFSERV:
<When IP PRECEDENCE is selected>

Priority: Specify the precedence in the range of 0-7 (low-high).
Low Delay: Place a checkmark to set Low Delay to ON.
Through Put: Place a checkmark to set High Throughput to ON.
Reliability: Place a checkmark to set High Reliability to ON.
MIN Cost: Place a checkmark to set Cost Precedence to ON.

<When DIFFSERV is selected>

Priority: Specify the DiffServ Code Point in the range of 0-63.

Note: Default settings (IP PRECEDENCE, Priority=6, Low Delay=OFF, Throughput=OFF, Reliability=OFF, Min Cost=OFF) is applied when the check box is not clicked.

AIVCL: Assignment of IP Service Voice Control Data (LDM)

A LOC-ID:Location ID of the self-location [0-4095]
B LOC-ID:Location ID of the destination location [0-4095]
Setting of Jitter Buffer: Select the check box to assign the Jitter Buffer data.
JB MIN: Jitter Buffer minimum value [0-30 (× 10 milliseconds)]
JB MAX: Jitter Buffer maximum value [0-30 (× 10 milliseconds)]

Note: Default settings (JB MIN=1 (10 ms), JB MAX=30 (300 ms)) is applied when the check box is not selected.

Setting Type of Voice Packet Service: Select the check box to assign the ToS data for voice packet.
IP PRECEDENCE/DIFFSERV: Choose either from the drop-down list box.

<When IP PRECEDENCE is selected>

Priority (PRECEDENCE/DSCP):Specify the precedence in the range of 0-7 (low-high).
Low Delay: Place a checkmark to set Low Delay to ON.
Through Put: Place a checkmark to set High Throughput to ON.
Reliability: Place a checkmark to set High Reliability to ON.
MIN Cost: Place a checkmark to set Cost Precedence to ON.

<When DIFFSERV is selected>

Priority (PRECEDENCE/DSCP):Specify the DiffServ Code Point in the range of 0-63.

Note: Default settings (IP PRECEDENCE, Priority (PRECEDENCE/DSCP) = 5, Low Delay = OFF, Through Put = OFF, Reliability = OFF, Min Cost = OFF) is applied when the check box is not selected.

Setting of Payload: Select the check box to assign the Payload data. Specify a payload type (TYPE) and payload size (SIZE) in the order of priority 1 to 4 (PRI1 through PRI4).

TYPE: Select a payload type from the combo box.
- •No data
- •G.711
- •G.729a
- •G.723.1 (5.3K → 6.3K)
- •G.723.1 (6.3K → 5.3K)

SIZE: Select a payload size from the combo box according to the payload type.
- •No data
- •10 milliseconds
- •20 milliseconds
- •30 milliseconds
- •40 milliseconds

•60 milliseconds

Note:

- If payload type G.711 is specified to more than two priorities in PRI1 through PRI4, assign different payload size to each priority.
- When payload types G.723.1 (5.3K → 6.3K) and G.723.1 (6.3K → 5.3K) are to be assigned on the same terminal, specify the same value to the payload size of both types.
- It is not necessary to assign the payload type/size to the whole priorities. Specifying the first priority only is allowed.
- For available payload type/payload size, refer to "Payload Setting for Each IP Equipment" in the System Description.

Setting of PAD: Select the check box to assign the PAD data manually. If the check box is not selected, default value 0 is applied.

KIND2: Specify the PAD value of Analog MC in the range of 0-3.
•No PAD control (determined by ASYD, SYS1, INDEX 4, bit5 (5 dB PAD))
•PAD OFF (0 dB)
•3 dB
•6 dB

KIND3: Specify the PAD No. of IPPAD in the range of 0-15.
PAD value is determined by this PAD No. (0-15) and the setting of SW10-6/7 on IPPAD card. Refer to the Circuit Card Description for more details.

Setting of Echo Canceller: Select the check box to assign the Echo Canceller data, and select one of the radio buttons.

•A EC-ON/B EC-ON
•A EC-ON/B EC-OFF
•A EC-OFF/B EC-ON
•A EC-OFF/B EC-OFF

Note: When the same value is assigned to both “A LOC-ID” and “B LOC-ID” parameters, choose either “A EC-ON/B EC-ON” or “A EC-OFF/B EC-OFF”.

Note: MG-COT needs to be rebooted after station data is assigned to reflect change. Confirm that there is no conversation in progress when rebooting.

[*] Data Deletion

Deletion must be operated in the reverse order of assignment. Make sure to delete in the order of AMGIL → ATRK. (Confirm there is no data left in AMGIL before deleting ATRK)
Operate the ASYD/ASYDL/ALIDL deletion carefully because these commands are also used by other equipments.

<When SIP mode>

MG-COT Card can be registered to either Internal PHI-BRI or SP-PHI. When registering to SP-PHI, it works using SIP, which is called SIP mode. The following explains MG-COT Card data assignment for SIP mode. When registering to Internal PHI-BRI (Proprietary Protocol mode), refer to page 410.

[1] Internal PHE Data Assignment

When MG-COT is registered to SP-PHI, MPH is used to control SP-PHI. For the use of MPH, it is required to make Internal PHE function valid. So Internal PHE data assignment is necessary.

[2] SP-PHI Data Assignment

When MG-COT is registered to SP-PHI, SP-PHI data assignment is necessary.

[3] MG-COT Card Data Assignment

Assign the necessary System Data for using the MG.

ASYD: Assignment of System Data

SYS1
INDEX 186, b6=1 (ISDN/MG-COT is in service)
INDEX 187=00 (Fixed)
INDEX 474 Guard Timer For Originating Call (MTC × TC)
bit 0-3 (MTC)
bit 4-6 (TC)

Note: When assigning 1H, TC = 64 msec.

ARTD: Assignment of Route Class Data

Assign the Route Class Data for Virtual Speech Channel. The following data setting is necessary besides Analog C.O BWT setting.

CDN1	OSGS = 0	CCIS
CDN60	TC/EC = 1	Echo Canceler is available
CDN114	DCH = 1	Unify the channel
CDN125	MGCOT = 1	MG (6COT) is available

When digits conversion is required for the received digits, assign the following data.

CDN66 (DC): Dialed Number Confirmation

Note: Assign the number of digits for identifying the incoming line. Count the digits from the last one of the received number.

<Related to MF>

CDN 72 MFSP	Sending Speed (0-15)
CDN 73 KPPT	Duration of KP sending (0-15)
CDN 74 KPST	Pause after KP sending (0-15)
CDN 75 MT	Step Code (0/1)

<Loop Start>
CDN 15 LSG = 0 Loop Start is available

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

ARTI: Assignment of Trunk Application Data

Assign Trunk Application Data for Virtual Speech Channel.

CDN68 VIR = 2 MG connection

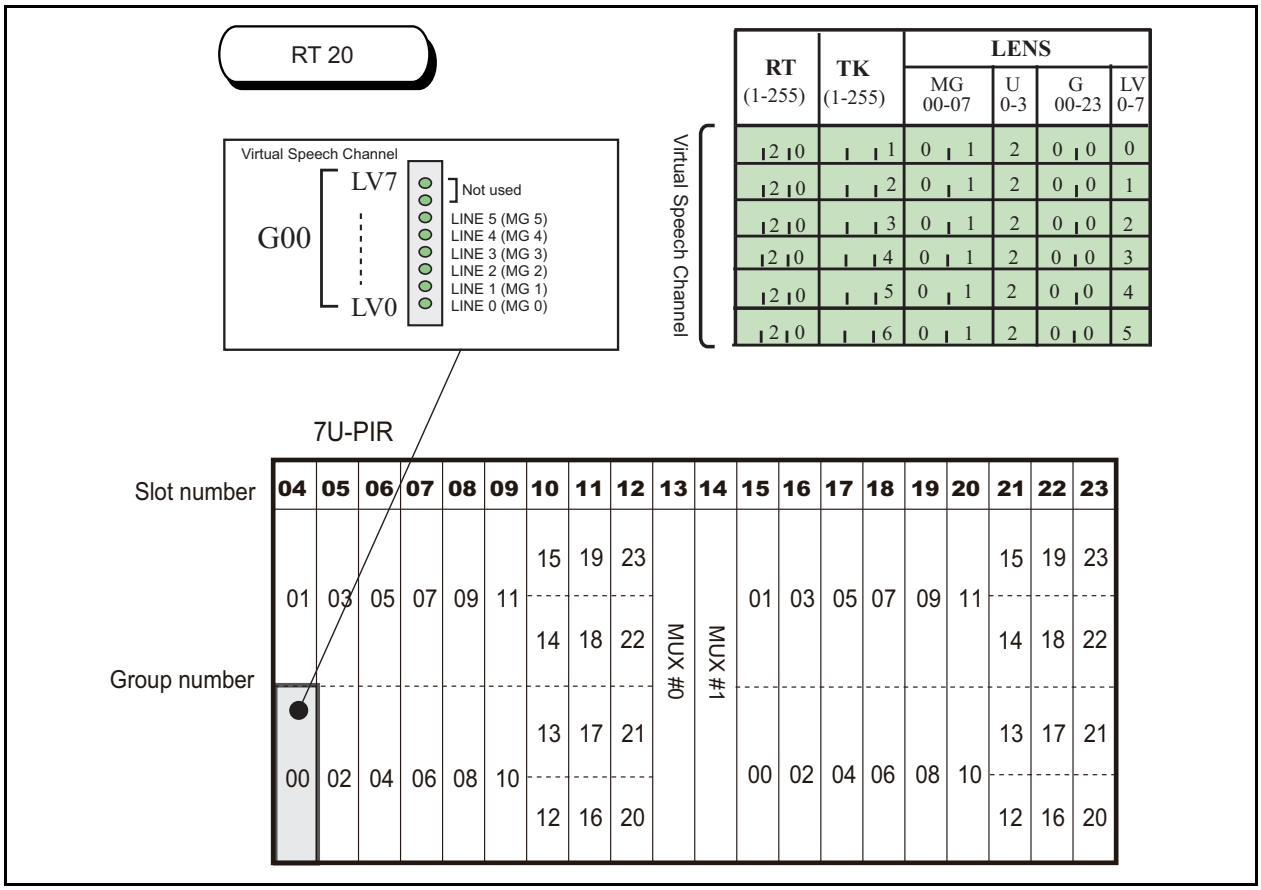
When using fax connection via MG, following assignment is necessary.
CDN 71 IP FAX data
CDN 72 Jitter Buffer Size for IP FAX
CDN 73 Payload Type for IP FAX
CDN 74 Payload Size for IP FAX

ATRK: Assignment of Trunk Data

Assign the Trunk Data for Virtual Speech Channel.
The example of data setting procedure is shown below.

Note: Virtual trunk occupies one group. For example, if one channel is registered for Virtual Trunk, the group is occupied exclusively for the Virtual Trunk.

Note: Do not assign any trunk data to Group 0 of Unit 0 in even number Module Group because it cannot be used with MG-COT.



MBTK: Make-Busy of Trunk

Assign the IDLE/BUSY status of trunks for Virtual Speech Channel.

RT	Route Number
TK	Trunk Number
MB	Make-Busy Information MB = 0 (Make Idle)

AMGIL: Assignment of Media Gateway Information (LDM)

Assign the information of MG (6COT).

Note: When assigning/deleting the data in this command with MG (6COT) working, the terminal is reset.

Note: Verify that ATRK data is assigned to LENS prior to assigning AMGIL data.

MG-ID	MAC Address of MG-COT
KIND	Kind of MG Trunk Select MG(6COT) [SIP]

UG50 Multi-Slot Mode
Select this check box if registering UG50 in Multi-slot mode.
LINE MG Line Number [0-5]

Note: Check all of the boxes for LINE0 (LV0) - LINE5 (LV5). This data setting is available only when trunk data is assigned by ARTI/ATRK command.

CH MG Channel Number
Assign "0".
LENS Assign Virtual Speech Channel for MG Line Number 0.
Setting Type of Signaling Packet Service
Type of service for MG (6COT)
Music On Hold Exists
External Music on hold (default setting)
Internal Music on hold1
Internal Music on hold2
External Music On Hold Input Gain Adjustment
0: 0dB
1: -10dB (gain)
2: -15dB (gain)
3: -20dB (gain)
4-15: Not used
Country Code U.K. (fixed)
Law of A/D conversion
A law (fixed)
PB Receive Complete Timing of Dial-In [0-15]
Default value is 0.
False Answer Timing [0-15]
Default value is 0.

AMGVL: Assignment of Media Gateway Voice Control (LDM)

Assign the voice control data for terminal that is connected to MG (6COT). When AMGVL data is not assigned, AIVCL data setting is applied.
A RT (MG Storing)
Physical Route Number for Virtual Speech Channel of MG (6COT)
TYPE
Select one of the followings:
- Route Specified
- Location ID Specified

B RT (MG Storing)
Displayed when TYPE=Route Specified is selected.
Physical Route Number for Virtual Speech Channel of terminal connected to MG
B LOC-ID:Location ID of IP terminal connected to MG (6COT)
Displayed when TYPE=Location ID Specified is selected.
Setting of Jitter Buffer
JB_MIN:Jitter Buffer Minimum
JB_MAX:Jitter Buffer Maximum
Setting Type of Voice Packet Service

Type of service for MG (6COT)

Setting of Payload

TYPE

SIZE

Setting of PAD

Click this check box when setting data for PAD value of MG.

PAD Information

This parameter is available only when the check box of "Setting of PAD" is ON.
No = 1: The PAD value of MG when DtermIP/Soft Phone/INASET is connected
No = 2: The PAD value of MG when Analog MC/Digital MC is connected
No = 3: The PAD value of MG when IPPAD is connected
No = 4: The PAD value of MG when MG is connected

Note: The PAD value of MG (6COT) is valid only when you select "Setting" from the drop-down box of "Setting of Detail" to specify the detail PAD value.

AIVCL: Assignment of IP Service Voice Control Data (LDM)

Assign the voice packet control data for terminal that is connected to MG (6COT).

A LOC-ID Location ID of MG (6COT) or IP terminal

B LOC-ID Location ID of MG (6COT) or IP terminal

Setting of Jitter Buffer

JB MIN: Jitter Buffer minimum value
JB MAX: Jitter Buffer maximum value

Note: Default settings (JB MIN=1 (10 ms), JB MAX=30 (300 ms)) is applied when the check box is not selected.

Setting Type of Voice Packet Service: Select the check box to assign the ToS data for voice packet.
IP PRECEDENCE/DIFFSERV: Choose either from the drop-down list box.

<When IP PRECEDENCE is selected>

Priority (PRECEDENCE/DSCP):Specify the precedence in the range of 0-7 (low-high).
Low Delay: Place a checkmark to set Low Delay to ON.
Through Put: Place a checkmark to set High Throughput to ON.
Reliability: Place a checkmark to set High Reliability to ON.
MIN Cost: Place a checkmark to set Cost Precedence to ON.

<When DIFFSERV is selected>

Priority (PRECEDENCE/DSCP):Specify the DiffServ Code Point in the range of 0-63.

Note: Default settings (IP PRECEDENCE, Priority (PRECEDENCE/DSCP) = 5, Low Delay = OFF, Through Put = OFF, Reliability = OFF, Min Cost = OFF) is applied when the check box is not selected.

Setting of Payload: Select the check box to assign the Payload data. Specify a payload type (TYPE) and payload size (SIZE) in the order of priority 1 to 4 (PRI1 through PRI4).

TYPE: Select a payload type from the combo box.
•No data
•G.711
•G.729a

•G.723.1 (5.3K → 6.3K)
•G.723.1 (6.3K → 5.3K)

SIZE: Select a payload size from the combo box according to the payload type.
•No data
•10 milliseconds
•20 milliseconds
•30 milliseconds
•40 milliseconds
•60 milliseconds

Note:

- If payload type G.711 is specified to more than two priorities in PRI1 through PRI4, assign different payload size to each priority.
- When payload types G.723.1 (5.3K → 6.3K) and G.723.1 (6.3K → 5.3K) are to be assigned on the same terminal, specify the same value to the payload size of both types.
- It is not necessary to assign the payload type/size to the whole priorities. Specifying the first priority only is allowed.
- For available payload type/payload size, refer to "Payload Setting for Each IP Equipment" in the System Description.

Setting of PAD: Select the check box to assign the PAD data manually. If the check box is not selected, default value 0 is applied.

KIND2: Specify the PAD value of Analog MC in the range of 0-3.
•No PAD control (determined by ASYD, SYS1, INDEX 4, bit5 (5 dB PAD))
•PAD OFF (0 dB)
•3 dB
•6 dB

KIND3: Specify the PAD No. of IPPAD in the range of 0-15.
PAD value is determined by this PAD No. (0-15) and the setting of SW10-6/7 on IPPAD card. Refer to the Circuit Card Description for more details.

Setting of Echo Canceller: Select the check box to assign the Echo Canceller data, and select one of the radio buttons.

•A EC-ON/B EC-ON
•A EC-ON/B EC-OFF
•A EC-OFF/B EC-ON
•A EC-OFF/B EC-OFF

Note: When the same value is assigned to both “A LOC-ID” and “B LOC-ID” parameters, select either “A EC-ON/B EC-ON” or “A EC-OFF/B EC-OFF”.

Note: MG-COT needs to be rebooted after station data is assigned to reflect change. Confirm that there is no conversation in progress when rebooting.

[4] Security Data Assignment

Assign authentication data for SIP Mode.

ASECL: Assignment of Security Data (LDM)

Assign the One Time Password to be used for authentication procedure in MG (6COT) registration.

ONE TIME PASSWORD
One Time Password to be used for authentication procedure
[4-10 digits with numerics, - (hyphen), . (period)] **Note 2**
AVAILABLE PERIOD
Expiration date of One Time Password (No limit/1-7 days)

Note: Authentication Data Assignment is used only for SIP Mode.

Note 2: Assign the same One Time Password to MG (6COT) by configuration command setting.

[*] Data Deletion

Deletion must be operated in the reverse order of assignment. Make sure to delete in the order of AMGIL → ATRK. (Confirm there is no data left in AMGIL before deleting ATRK)
Operate the ASYD/ASYDL/ALIDL deletion carefully because these commands are also used by other equipments.

3.2 VT-100 Compliant Terminal Software Setting on Maintenance Console



Note: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data.

STEP 1: Connect a PC (maintenance console) to CONSOLE connector.

STEP 2: Run the VT-100 compliant terminal software (e.g. HyperTerminal) on the Maintenance Console.

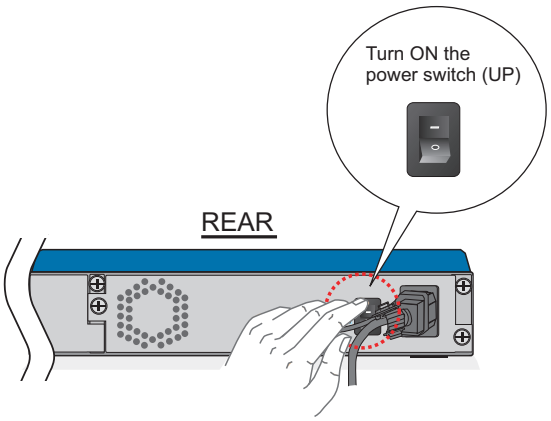
STEP 3: Set the parameter of the terminal software as follows:

- Port: *COM1 (depending on PC setting)*
- Baud Rate: *9600 bps*
- Data: *8 bits*
- Parity: *None*
- Stop Bit: *1*
- Flow Control: *None*

3.3 Power On

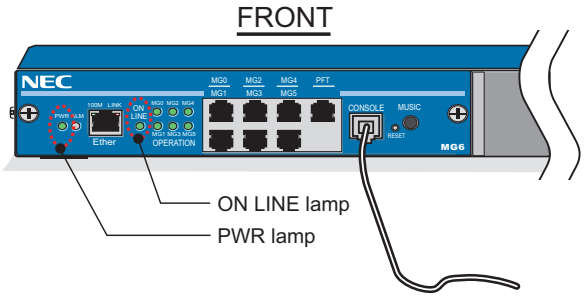


STEP 1: Turn ON the power switch (UP) on the rear panel of MG-COT.



Note: When the 1U-MPC has already turned on, press “RESET” button on the front panel of MG-COT Card to restart the card and start its boot program.

STEP 2: Make sure the LEDs indicate normal status.
- PWR LED lights green.
- (Boot program automatically starts.)
- ON LINE LED light green when the sequence is completed.



3.4 Configuration Command Assignment

Assign the configuration data by command operation on maintenance console.

This section consists of two parts; procedure for Proprietary Protocol mode and procedure for SIP mode. The following explains the procedure by each mode.

Note: "DRS (Device Registration Server)" used in this section refers to the Telephony Server. When MG-COT Card works in Proprietary Protocol mode, the Telephony Server acts as DRS, which is controlling function of the Telephony Server.

Note: "SIP server" used in this section refers to the Telephony Server. When MG-COT Card works in SIP mode, the Telephony Server acts as SIP server.

Note: The setting data here is an example. Assign the network data according to your network configuration.

<When Proprietary Protocol Mode>

Assign the configuration data for MG-COT Card in Proprietary Protocol mode. About the configuration data for SIP mode, refer to page 430.

STEP 1: When the boot program is started, the initial display below is displayed on the screen.

```
MG-ID: xxxxxxxxxxxx

Starting Bootprogram......
--- Online program Initial start --- (wait for a while.)
:
:
:
->
->
->
```

STEP 2: Type “usrConsole” at the indicated OS prompt and press the ENTER key.

```
->
->
->usrConsole
```

STEP 3: MG-COT command prompt appears as follows.

```
->usrConsole
MG-COT Maintenance command
MG-COT>
```

STEP 4: Type “SETUP TP” to set the network data depending on your LAN environment.

There are two ways to set the network data;

- When DHCP server is used
- When DHCP server is NOT used

- **When DHCP server is used**

  As DHCP server automatically assigns IP addresses to MG-COT Card, Default Gateway, and the Telephony Server, there is no need to assign these network data on MG-COT Card side. IP addresses listed below, however, have to be prepared in DHCP server side. **Note 2**

  - IP address of Default Gateway
  - IP address and port number of DRS **Note 1**

  Note 1: Check the number of IP address saved in DHCP server is sufficient so as to get IP address of MG-COT Card anytime.

  Note 2: DHCP option setting is as follows.

  Class: Global
  Name: Not specified, but do not enter the same option name in duplicate
  Data: IP address
  Array: Checked
  Code: 161

  Refer to “DHCP Server Setup” in the System Description for more information on DHCP Server Optional Setting.

```
MG-COT> setup tp

MG-ID = xx:xx:xx:xx:xx:xx

Use DHCP?
Input (Y:Yes/N:No/Q:Quit):y

--------------------------------------
MG-ID          = xx:xx:xx:xx:xx:xx
DHCP           = ENABLE
--------------------------------------

Input (Y:OK / N:Change / Q:Quit):y
```

Input “setup tp” and press Enter key.

MG-COT Card’s MAC address is displayed.

Set whether to use DHCP server.
Input “y” here and press Enter key.

Confirm the assigned data. Input “y” and press Enter key. The assigned data is automatically saved and start rebooting. The data turns effective after rebooting the MG-COT Card.

Note: If DHCP server is set for use, DHCP Option will be set for use automatically. If you do not assign the IP address of DRS to DHCP server, It must be assigned by “SET DRSADDRESS” command individually.

Note: Write down the displayed MG-ID (MAC address of MG-COT Card) to assign the MAC address on PCPro command AMGIL and AISTL.

- **When DHCP server is NOT used**

  Set the following data on MG-COT Card.

  - IP address of Default Gateway
  - IP address and port number of DRS **Note 3**
  - IP address of MG-COT Card (own address)

  Note: When the DHCP is set to “ENABLE”, IP addresses assigned here cannot take effect. Be sure to assign “SET DHCP DISABLE” before starting the IP address setting.

  Note 3: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

```
MG-COT> setup tp


MG-ID = xx:xx:xx:xx:xx:xx


Use DHCP?
Input (Y:Yes / N:No / Q:Quit) : n

OWN IP ADDRESS [0.0.0.0] : 1.1.1.10

SUBNET MASK [255.255.255.255] :
255.255.255.0

DEFAULT GATEWAY [0.0.0.0] : 1.1.1.254

DRS1 ADDRESS [0.0.0.0] : 1.1.1.1

--------------------------------------
MG-ID           = xx:xx:xx:xx:xx:xx
DHCP            = DISABLE
OWN IPADDRESS   = 1.1.1.10
OWN SUBNETMASK = 255.255.255.0
DEFAULT ROUTE   = 1.1.1.254
DRS1 ADDRESS    = 1.1.1.1
--------------------------------------

Input (Y:OK / N:Change / Q:Quit) : y
```

Input “setup tp” and press Enter key.

MG-COT Card’s MAC address is displayed.

Set whether to use DHCP server.
Input “n” here and press Enter key.

Input the IP address of MG-COT Card.

Input the Subnet Mask of MG-COT Card.

Input the Default Gateway of MG-COT Card.

Assign the IP address of DRS. **Note 4**

Confirm the assigned data. Input “y” and press Enter key. The assigned data is automatically saved and start rebooting. The data turns effective after rebooting the MG-COT Card.

Note: Write down the displayed MG-ID (MAC address of MG-COT Card) to assign the MAC address on PCPro command AMGIL and AISTL.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting show in [ ].

Note 4: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

<When SIP Mode>

Assign the configuration data for MG-COT Card in SIP mode. About the configuration data for Proprietary Protocol mode, refer to page 427.

STEP 1: When the boot program is started, the initial display below is displayed on the screen.

The system requires a one-time password for authentication in initial startup. Enter the same password with the one assigned on the Telephony Server. As long as you do not enter the one-time password, you cannot move on to the next step.

```
MG-ID : xxxxxxxxxxxx

Boot program version  : SP3839 SH7751R CBOOT-1 PROG-A
[04.00.00.00]

Main program version  : SP3948 6MGCOT PROG-A [01.00.00.00]

H/W PKG information   : CA-CC07 001
H/W PKG information   : CA-CC08 001

DSP information       : DSP-K-AC48302ck [03.11.00.00]
DSP information       : DSP-P-AC48302ce6 [03.11.00.00]


Starting Boot program.....

--- Online program Initial start (Wait for a while.) ---
:
: (Omitted)
:

No One Time Password!!

Please input a one time password.
One Time Password: 12345#

One Time Password setting succeeded.
```

STEP 2: Type “usrConsole” at the indicated OS prompt and press the ENTER key.

```
->
->
->usrConsole
```

STEP 3: MG-COT Card command prompt “MG-COT>” appears as follows.

```
->usrConsole
MG-COT Maintenance command
MG-COT>
```

STEP 4: Set the basic data for connecting network by “SETUP SP” command depending on your LAN environment. Enter “SETUP SP” following the prompt.

```
MG-COT>
MG-COT>SETUP SP
```

STEP 5: Assign whether to use DHCP server and DNS server. The required setting differs whether to use each server first.

DHCP server enable/disable setting:

```
--- DHCP Interface set ---
Current DHCP Interface : ENABLE
Change DHCP Interface ? [Y(change)/N(current)/Q(quit)] : Y
Input new DHCP Interface [E(enable)/D(disable)] : D
```

DNS server enable/disable setting:

```
--- DNS Interface set ---
Current DNS Interface : DISABLE
Change DNS Interface ? [Y(change)/N(current)/Q(quit)] : Y
Input new DNS Interface [E(enable)/D(disable)] : E
--- DNS Interface set ---
```

STEP 6: Assign network data according to the setting of DHCP server and DNS server;

- When DHCP server is used
- When DHCP server is NOT used & DNS server is used
- When DHCP server is NOT used & DNS server is NOT used

- **When DHCP server is used**

  In this setting, because MG-COT Card automatically gets IP address from DHCP server, it is not required to set IP address and Default Gateway on MG-COT Card. Set the Ethernet Speed as follows.

  Ethernet Speed:

```
--- Ethernet Speed set ---

Current LAN Speed : AUTO

Change LAN Speed ? [Y(change)/N(current)/Q(quit)] : Y

Input new Speed [1(AUTO)/2(100M)/3(10M)] : 2

Input new DUPLEX [F(full)/H(half)] : F
```

- **When DHCP server is NOT used & DNS server is used**

  Set the following data on MG-COT Card.

  - IP address of DNS server
  - IP address and subnet mask of MG-COT Card (own address)
  - Host name of MG-COT Card
  - IP address of Default Gateway
  - Host name of SIP server
  - Ethernet Speed

  Note: When the DHCP is set to “ENABLE”, IP addresses assigned here cannot take effect. Be sure to assign “SET DHCP DISABLE” before starting the IP address setting.

(1) DNS server IP Address

```
--- DNS IP Address set ---

Current DNS IP Address : 0.0.0.0

Change DNS IP Address ? [Y(change)/N(current)/Q(quit)] : Y

Input new DNS IP Address: 10.41.1.150
```

(2) IP Address and Subnet Mask of MG-COT Card

```
--- IP Address & Subnetmask set ---

Current IP Address: 0.0.0.0

Current Subnetmask: 255.255.255.0

Change IP Address & Subnetmask? [Y(change)/N(current)/Q(quit)] :
Y

Input new IP Address : 10.41.1.100

Input new Subnetmask: 255.255.255.0
```

(3) Host name of MG-COT Card

```
--- Host Name set ---

Current Host Name: No Value

Is there the Host Name [Y/N]: Y

Input new Host Name : mcsip.nec.com
```

Note: Enter the host name in full-domain format.

(4) Default Gateway IP Address

```
--- Default Gateway IP Address set ---

Current Default Gateway: 0.0.0.0

Change Default Gateway? [Y(change)/N(current)/Q(quit)]: Y
```

```
Input new Default Gateway : 10.41.1.254
```

(5) Host Name of SIP Server

```
--- SIP Server Host Name set ---

Current SIP Server and Host Name:

SIP Server      Host Name
1
2
3
:
:
20

Change SIP Server Information? [Y(change)/N(current)/Q(quit)]: Y

Input new SIP Server (1-20): 1

Is there the Host Name? [Y/N]: Y

Input new Host Name: SVR1.nec.com

Continue? [Y(continue)/N(exit)]: N
```

(6) Ethernet Speed

```
--- Ethernet Speed set ---

Current LAN Speed : AUTO

Change LAN Speed ? [Y(change)/N(current)/Q(quit)] : Y

Input new Speed [1(AUTO)/2(100M)/3(10M)] : 2

Input new DUPLEX [F(full)/H(half)] : F
```

- **When DHCP server is NOT used & DNS server is NOT used**

  Set the following data on MG-COT Card.

  - IP address and subnet mask of MG-COT Card (own address)
  - IP address of Default Gateway
  - IP address, Port Number, and Host name of SIP server **Note 5**
  - Ethernet Speed

  Note 5: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

  Note: When the DHCP is set to "ENABLE", IP addresses assigned here cannot take effect. Be sure to assign "SET DHCP DISABLE" before starting the IP address setting.

(1) IP Address and Subnet Mask of MG-COT Card

```
--- IP Address & Subnetmask set ---

Current IP Address: 0.0.0.0

Current Subnetmask: 255.255.255.0

Change IP Address & Subnetmask? [Y(change)/N(current)/Q(quit)] :
Y

Input new IP Address : 10.41.1.100

Input new Subnetmask: 255.255.255.0
```

(2) Default Gateway IP Address

```
--- Default Gateway IP Address set ---

Current Default Gateway: 0.0.0.0

Change Default Gateway? [Y(change)/N(current)/Q(quit)]: Y

Input new Default Gateway : 10.41.1.254
```

(3) IP Address, Port Number, and Host name of SIP server

```
--- SIP Server Host Name set ---

Current SIP Server/IP Address/Port Number/Host Name:

SIP Server       IP Address       Port Number      Host Name
1                0.0.0.0          5060
2                0.0.0.0          5060
3                0.0.0.0          5060
:                :                :
:                :                :
20               0.0.0.0          5060

Change SIP Server Information? [Y(change)/N(current)/Q(quit)]: Y

Input new SIP Server (1-20): 1

Input new IP Address: 10.41.1.200
```

```
Input new Port Number: 5060

Is there the Host Name? [Y/N]: Y

Input new Host Name: SVR1.nec.com

Continue? [Y(continue)/N(exit)]: N
```

(4) Ethernet Speed

```
--- Ethernet Speed set ---

Current LAN Speed : AUTO

Change LAN Speed ? [Y(change)/N(current)/Q(quit)] : Y

Input new Speed [1(AUTO)/2(100M)/3(10M)] : 2

Input new DUPLEX [F(full)/H(half)] : F
```

- Save the assigned configuration data at the last of SETUP SP command to complete network setting.

```
** Don't power off in progress **
Do you save the configuration data? (Y/N) :Y

Configuration data has been saved.
Re-starting is required for making a setup reflect!!

Sp mode setting succeeded.
The register mode will be changed to
Sp mode after re-starting.
```

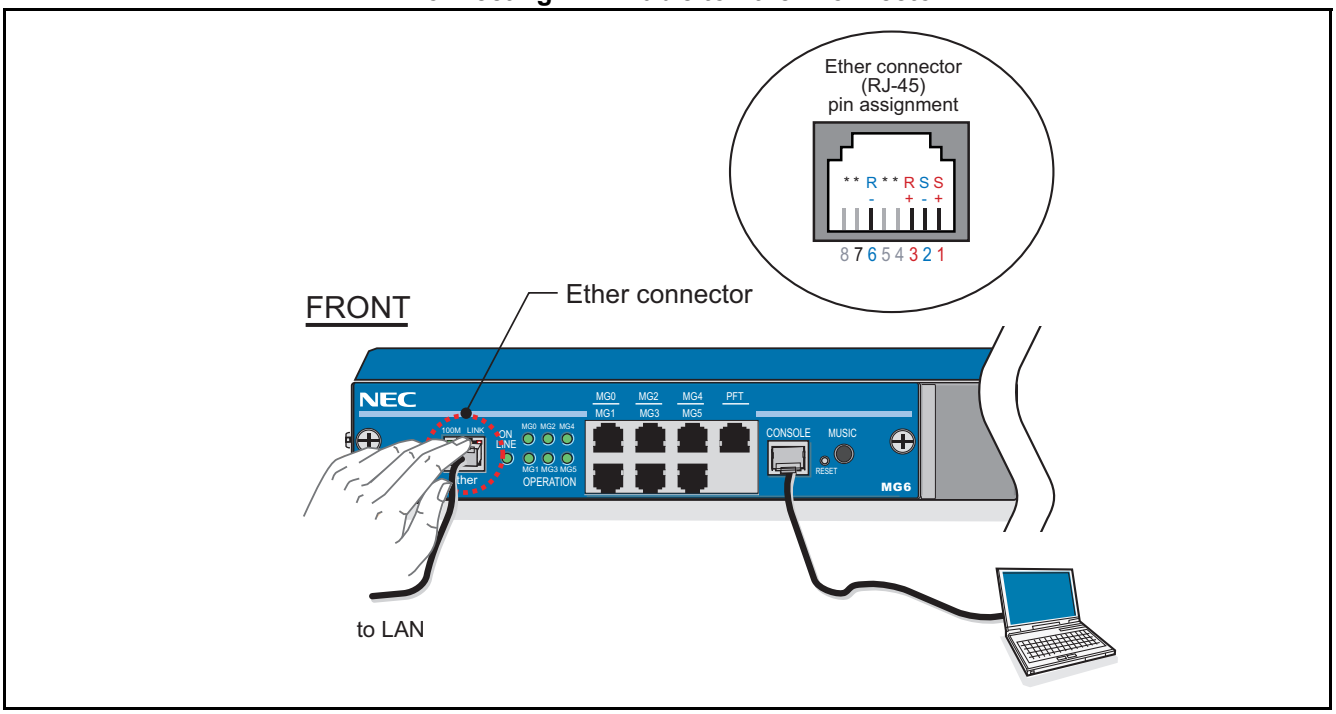
3.5 Cable Connection

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

STEP 1: Connect the MG-COT Card to the LAN by using an appropriate LAN cable.

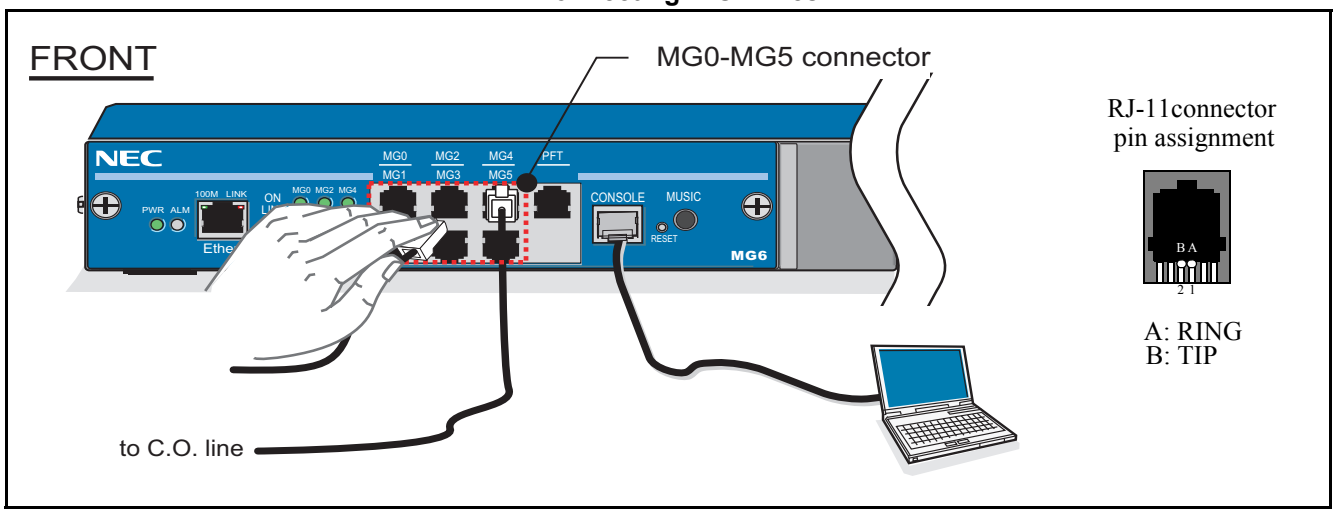
Note: Before connecting the MG-COT Card to network, be sure to execute “ping” command to check the followings:
- Is there other device having the same IP address overlapped?
- Is the new IP address assigned correct?

Connecting LAN Cable to Ether Connector



STEP 2: Connect C.O. lines to MG0-MG5.

Connecting C.O. Lines



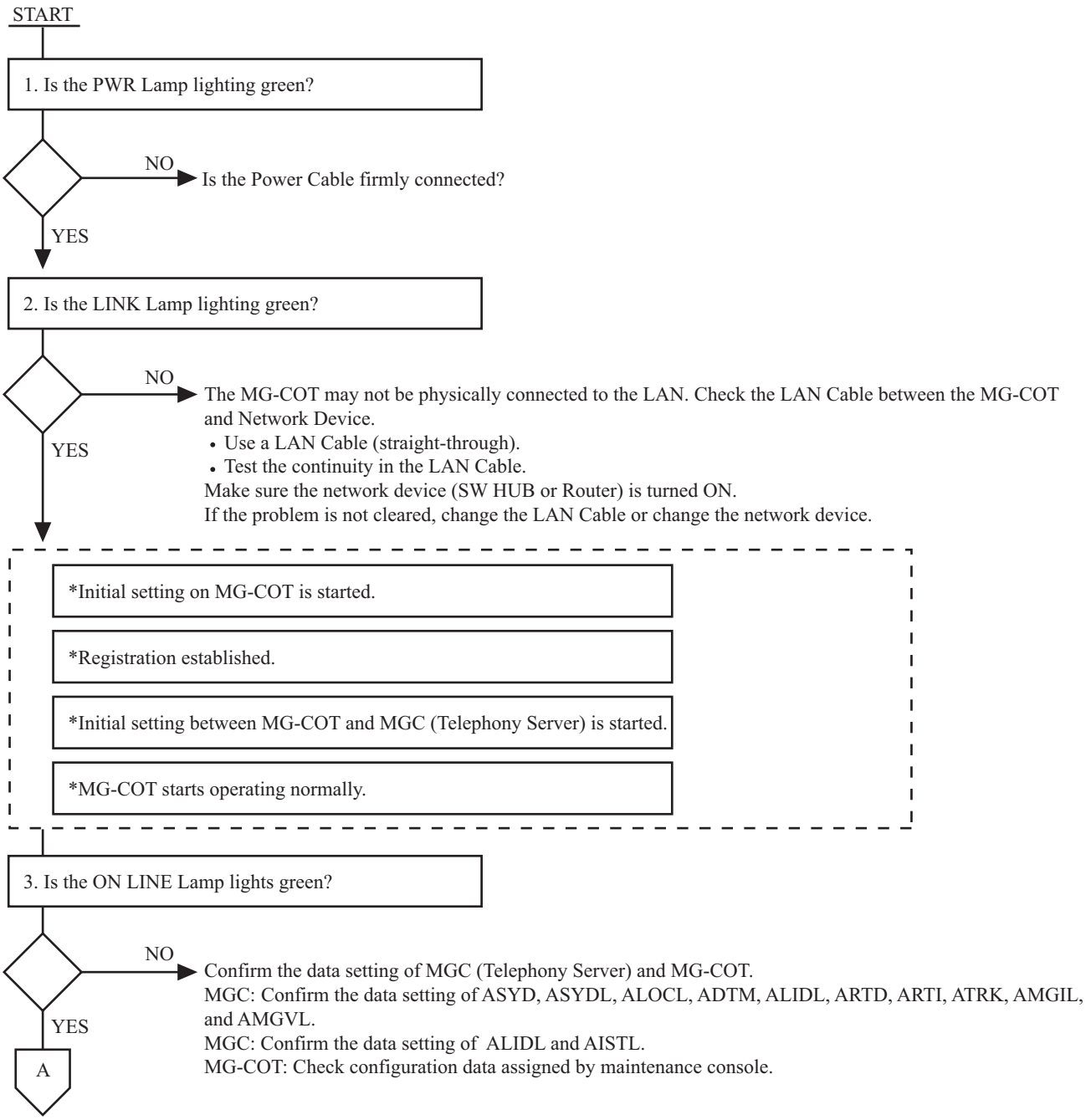
STEP 3: Check the lamp indication on the front panel of MG-COT Card.

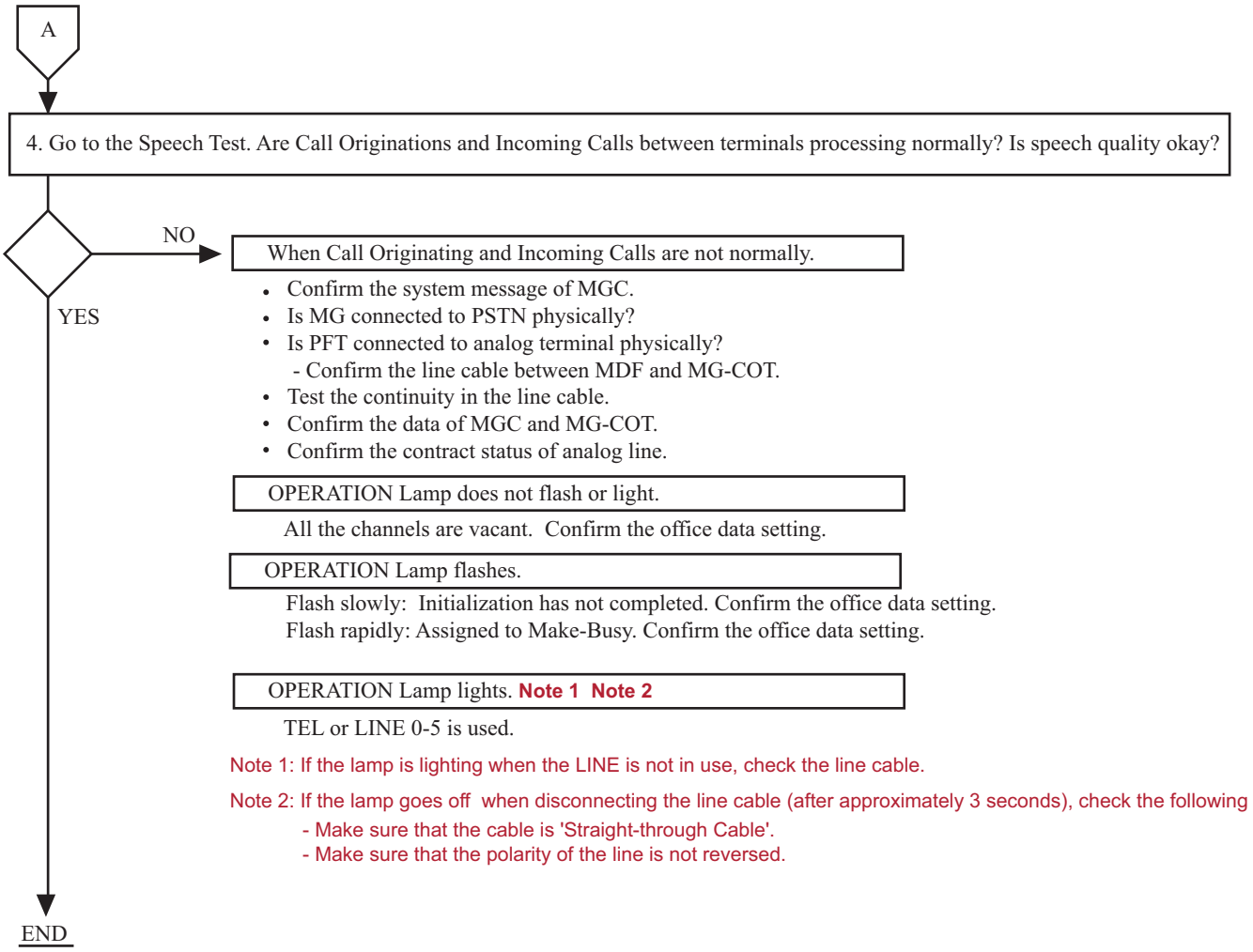
- PWR lamp: lights green
- ALARM lamp: OFF
- ON LINE lamp: OFF
- OPERATION MG0~MG5: flashes green

Note: After the data assignment (MG-COT Card entry, incoming/originating outside call data) on the Telephony Server side has been completed, ON LINE lamp lights green and the corresponding OPERATION MG lamps will go out.

3.6 Basic Test Procedures

[1] Basic Connection Test





[2] Alarm Information Check

- Check the Alarm Lamps. If the red lamp lights, search the cause of fault and perform the appropriate operations.
- Check the system message.
  1. Display the system message using DFTD command.
  2. See the system message and confirm whether MG-COT Card error occurs or not. If some error has occurs, perform the fault repair. ([33-R IP PKG Warning], [33-S IP PKG Failure], [33-T IP PKG Restore])

[3] PFT Switching Test

The test procedure of PFT function change is described below. PFT function is described in Power Failure Transfer (PFT).
PFT function connects the following ports.

PFT ⇔ MG0

Before the test, connect C.O. lines to MG0 and analog terminals to PFT.

(a) Perform this test before MG-COT Card initialization has been completed.

STEP 1: Turn off the MG-COT Card by switching off the Power Switch (DOWN) on the rear panel of MG-COT Card.

STEP 2: Perform the following operation.
Can analog terminal connected to PFT originate a call to PSTN connected to MG0?
Can analog terminal connected to PFT perform the incoming call from PSTN connected to MG0?

(b) Perform this test when WAN error occurs.

STEP 1: Turn on the MG-COT Card by switching on the Power Switch (UP) on the rear panel of MG-COT Card. And then confirm that initialization has been completed and ON LINE lamp lights on.

STEP 2: Disconnect the LAN cable and then wait until MG-COT Card detects WAN error. (about for three minutes)

STEP 3: Perform the following operation.
Can analog terminal connected to PFT originate a call to PSTN connected to MG0?
Can analog terminal connected to PFT perform the incoming call from PSTN connected to MG0?

Note: PFT function is available from MG-COT Card power is ON / start of initialization until ON LINE status.

4 Operation and Maintenance

4.1 How to Use Maintenance Command

On a serial connection client (e.g. HyperTerminal), start up the program and uses maintenance command. Enter "usrConsole" after the OS prompt (->).
When the maintenance command is started, the following prompt is indicated on the screen:

When Proprietary Protocol mode is Used:	`MG-COT>_`	("machine name" + ">", usually)
When SIP mode is Used:	`MG-COT(SIP)>_`	("machine name" + "(SIP)>", usually)

Note: Note the following conditions:

- "DRS (Device Registration Server)" used in this section refers to the Telephony Server. When MG-COT Card works in Proprietary Protocol mode, the Telephony Server acts as DRS, which is controlling function of the Telephony Server.
- "SIP server" used in this section refers to the Telephony Server. When MG-COT Card works in SIP mode, the Telephony Server acts as SIP server.
- If you input "exit" after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

An example of indication is shown below:

```
MG-ID: xxxxxxxxxxxx

Boot program version  : SP3839 SH7751R CBOOT-1 PROG-A [04.00.00.00]
Main program version  : SP3948 6MGCOT PROG-A [01.00.00.00]

/W PKG information   : CA-CC07 001
H/W PKG information   : CA-CC08 001

DSP information       : DSP-K-AC48302ck [03.11.00.00]
DSP information       : DSP-P-AC48302ce6 [03.11.00.00]

Starting Boot program.......

--- Online program Initial start (Wait for a while.) ---

Attached TCP/IP interface to (null) unit 0
Attaching interface lo0... done

Adding 10739 symbols for standalone.

------//----------------------------------------//---
   Media Gateway (COT Interface/Enabled Grand Start)
              *Firmware SP-3948 (01.00.00.00)
              *Compiled on Aug 23 2006 11:23:39
---//----------------------------------------//------
->
->
->
-> usrConsole

MG-COT Maintenance Command

MG-COT >
```

The user input command above consists of a several components. The following describes these components using one of the ***SET*** commands.

MG-COT> SET IPADDRESS 123.201.18.45 255.255.255.0
1 2 3 4

1: Command
2: Sub Command
3: Parameter 1 (P1)
4: Parameter 2 (P2)

Note: The number of parameters to be specified is different depending on the command.

MAINTENANCE COMMAND FOR MG-COT Card

The Maintenance Console uses the commands listed in.

COMMAND	No.	SUB COMMAND	FUNCTION	REMARKS
SETUP	1	TP	Set up network environment for MG-COT Card Proprietary Protocol mode.	
	2	SP	Set up network environment for MG-COT Card SIP mode	

COMMAND	No.	SUB COMMAND	FUNCTION	REMARKS
SET	1	CODEC_COEF_MG	Setting CODEC Coefficiency	
	2	DEFAULTROUTE	Setting Default Gateway	
	3	DHCP	Setting DHCP	
	4	DNS_SW	Setting DNS Server	
	5	DRSADDRESS	Setting IP address and port number of DRS	
	6	DRSTOS	Setting ToS of DRS session	
	7	DSP_ECFB_MG	Setting DSP echo canceller for FAX communication	
	8	DTMF_CUTOFF_TIME	Setting DTMF Cutoff Timer	
	9	EC_TRAINING_MG	Setting Training feature mode of echo canceller	
	10	FAXERRORDETECT_MG	Setting FAX enable timer	
	11	FAXRECVPAD_MG	Setting Fax receiver PAD value	
	12	FAXSENDPAD_MG	Setting Fax sender PAD value	
	13	HC_TIMER	Setting Health Check Receive Timer	
	14	IC_ABANDON_TIME	Setting I/C call abandon timer	
	15	INTERFACE	Setting the communication speed for LAN interface	
	16	IPADDRESS	Setting IP Address and Net Mask	
	17	ONE_TIME_PASS	Setting One Time Password for security	
	18	OWN_NAME	Setting Host Name of MG-COT Card	
	19	RELEASE_SIGNAL	Setting Release Signal	
	20	SIGNALING_PORT_NO	Setting signaling port number for SIP	
	21	SIGNALING_QOS	Setting QoS for SIP signaling session	
	22	SIPSV_IPADDRESS	Setting IP address, port number, and host name of SIP server	
	23	SMOOTH_PAD_MG	About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.	
	24	STARTPORT	Setting RTP Start Port	
	25	VLAN	Setting VLAN	
	26	WARNING_TONE	Setting the Warning Tone for LAN failure	
	27	AUTO_POLARITY	Setting Auto Polarity	

COMMAND	No.	SUB COMMAND	FUNCTION	REMARKS
SHOW	1	CODEC_COEF_MG	To show CODEC Coefficiency	
	2	CNFIGDATA	To show configuration data list	
	3	DHCP	To show DHCP setting	
	4	DNS_SW	To show DNS Server	
	5	DRSADDRESS	To show DRS Address and Port Number	
	6	DRSTOS	To show ToS setting of DRS session	
	7	DSP_ECFB_MG	To show DSP echo canceller for FAX communication	
	8	DTMF_CUTOFF_TIME	To show DTMF Cutoff Timer	
	9	EC_TRAINING_MG	To show Training feature mode of echo canceller	
	10	FAXERRORDETECT_MG	To show FAX enable timer	
	11	FAXRECVPAD_MG	To show FAX receiver PAD value	
	12	FAXSENDPAD_MG	To show FAX sender PAD value	
	13	HC_TIMER	To show Health Check Receive Timer	
	14	IC_ABANDON_TIME	To show I/C call abandon timer	
	15	INTERFACE	To show communication speed for LAN interface	
	16	IPADDRESS	To show IP Address, Net Mask, and Default Gateway	
	17	ONE_TIME_PASS	To show One Time Password for security	
	18	OWN_NAME	To show Host Name of MG-COT Card	
	19	RELEASE_SIGNAL	To show Release Signal	
	20	SIGNALING_PORT_NO	To show signaling port number for SIP	
	21	SIGNALING_QOS	To show QoS setting for SIP signaling session	
	22	SIPSV_IPADDRESS	To show IP address, port number, and host name of SIP server	
	23	SMOOTH_PAD_MG	About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.	
	24	STARTPORT	To show RTP Start Port	
	25	STATUS	To show operating status of MG-COT Card	
	26	VERSION	To show the version information	
	27	VLAN	To show VLAN setting	
	28	WARNING_TONE	To show Warning Tone control	
	29	AUTO_POLARITY	To show Auto Polarity	

COMMAND	SUB COMMAND	FUNCTION	REMARKS
PING	-	To check the connection status of network:	

COMMAND	SUB COMMAND	FUNCTION	REMARKS
DELETE	VLAN	To delete the VLAN setting	

COMMAND	SUB COMMAND	FUNCTION	REMARKS
SAVE	CONFIGDATA	To save the configuration data to Flash ROM	

COMMAND	SUB COMMAND	FUNCTION	REMARKS
GET	CONFIGDATA	To download Configuration Data file from specified TFTP server	

COMMAND	SUB COMMAND	FUNCTION	REMARKS
PUT	CONFIGDATA	To upload Configuration Data file to specified TFTP server	

COMMAND	SUB COMMAND	FUNCTION	REMARKS
REBOOT	-	To reboot the MG-COT Card	

COMMAND	SUB COMMAND	FUNCTION	REMARKS
EXIT	-	To exit the maintenance command	

COMMAND	SUB COMMAND	FUNCTION	REMARKS
INIT (or CLEAR)	CONFIGDATA	To initialize the configuration data to factory default value	

Enter the command, sub command and required parameters after the prompt (MG-COT>) appears. Parameters vary depending on the kind of command specified. When the data (command name, sub command name, parameter) is specified correctly, the command executes the required data processing, and then displays the processed result on the screen. To finish this program, input EXIT after a prompt.

Note: When the maintenance command program is activated, it provides a Help Function for referring to available commands and sub commands. After a prompt is shown, request to list-up the Target Help by entering “?” or “command name (SET or SHOW) + ?”, and press the Enter key.
The example below shows the screen when requesting a list of SET commands.

```
MG-COT> SET ?

IPADDRESS       Setting IP Address
DEFAULTROUTE    Setting Default Gateway
DRSADDRESS      Setting DRS Address
DRSTOS          Setting DRS TOS
INTERFACE       Setting Ethernet Speed

     :                    :
     :                    :
```

SETUP COMMAND

1. Set up network environment for MG-COT Card Proprietary Protocol mode.

   This command is used to setup the basic data for Proprietary Protocol mode. Setting display differs whether DHCP server is used or not. Assign the required network data following the setting command shown in dialog form. Be sure to save the entered data at the last of SETUP command.

   Note: The designated operating status cannot refer when SP-3948 6MG COT PROG-A Ver.1.0.0.0 or later.

- When DHCP is used:

```
MG-COT > setup tp

MG-ID           = xx:xx:xx:xx:xx:xx

Use DHCP?
Input (Y:Yes / N:No / Q:Quit) : y
-------------------------------------
MG-ID           = xx:xx:xx:xx:xx:xx
DHCP            = ENABLE
-------------------------------------
Input (Y:OK / N:Change / Q:Quit) : y

** Don't power off in progress **
 Do you save the configuration data? (Y/N) : y

Configuration data has not been saved.
Re-starting is required for making a setup
reflect!!

Tp mode setting succeeded.
The register mode will be changed to
TP mode after re-starting.
MG-COT >
```

MAC Address is displayed.

Enter “y”.

Enter “y” when the assigned data is correct.

Enter “y” when saved the configuration data.

Result is shown.

Note: If DHCP server is set for use, DHCP Option will be set for use automatically. If you do not assign the IP address of DRS to DHCP server, It must be assigned by “SET DRSADDRESS” command individually.

- When DHCP server is not used:

```
MG-COT > setup tp

MG-ID          = xx:xx:xx:xx:xx:xx

Use DHCP?
Input (Y:Yes / N:No / Q:Quit) : n
OWN IP ADDRESS [0.0.0.0] : 1.1.1.10

SUBNET MASK [255.255.255.255] : 255.255.255.0
DEFAULT GATEWAY [0.0.0.0] : 1.1.1.254
DRS1 ADDRESS [0.0.0.0] : 1.1.1.1

-----------------------------------------
MG-ID          = xx:xx:xx:xx:xx:xx
DHCP           = DISABLE
OWN IPADDRESS  = 1.1.1.10
OWN SUBNETMASK = 255.255.255.0
DEFAULT ROUTE  = 1.1.1.254
DRS1 ADDRESS   = 1.1.1.1
-----------------------------------------
Input (Y:OK / N:Change / Q:Quit) : y

** Don't power off in progress **
   Do you save the configuration data? (Y/N) : y

Configuration data has not been saved.
Re-starting is required for making a setup
reflect!!

TP mode setting succeeded.
The register mode will be changed to
TP mode after re-starting.
MG-COT >
```

MAC Address is displayed.

Enter “n”.

Enter the IP address of MG-COT Card. **Note 1**

Enter the Subnet mask. **Note 1**

Enter the default gateway. **Note 1**

Enter the IP address of DRS **Note 1**, **Note 2**

Setting result is displayed.

Enter “y” when the assigned data is correct. **Note 3**, **Note 4**

Enter “y” when saved the configuration data.

Result is shown.

Note 1: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note 2: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

Note 3: Follow the procedure below when changing the assigned data.
<e.g. When DHCP server is not used>

```
Input (Y:OK / N:Change / Q:Quit) : n

Change list.
DHCP                          --- input :1
OWN IPADDRESS                 --- input :2
OWN SUBNETMASK                --- input :3
DEFAULT ROUTE                 --- input :4
DRS1 ADDRESS                  --- input :5

Input (Q:Quit) : 1
```

Enter “n”.

Data items to change are listed.

Enter the item number to be changed.

Note 4: Follow the display below when you want to change the data entered in the former steps.
<e.g. When DHCP server is not used>

```
OWN IP ADDRESS [1.1.1.10] :1.1.1.12

SUBNET MASK [255.255.255.0] :255.255.0.0

DEFAULT GATEWAY [1.1.1.254] : b


SUBNET MASK [255.255.0.0] :
```

IP address is entered.

Subnet mask is entered.

Enter “b” to change the Subnet mask setting.

Returns to Subnet mask setting line.

1. Set up network environment for MG-COT Card SIP mode

   This command is used to setup the basic data for SIP mode. Setting display differs whether DHCP server and DNS server is used or not. Assign the required network data following the setting command shown in dialog form. Be sure to save the entered data at the last of SETUP command.

   Note: The designated operating status cannot refer when SP-3948 6MG COT PROG-A Ver.1.0.0.0 or later.

   Note: When any abnormal data is entered, the dialog asks to enter proper data until three times. In the third time you enter abnormal data, the SETUP command quits discarding all the entered data.

   Note: When you quit the SETUP command entry halfway through the setting, all the entered data is to be discarded.

2. Startup SETUP SIP:

```
MG-COT >
MG-COT > setup sp
```

Enter “SETUP SP” following the prompt.

3. Setting DHCP server enable/disable:

```
--- DHCP Interface set ---
Current DHCP Interface: ENABLE
Change DHCP Interface? [Y(change)/N(current)/Q(quit)]: Y
Input new DHCP Interface [E(enable)/D(disable)]: D
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Specify whether to use DHCP server.
E=Use DHCP server (default)
D=Not use DHCP server

4. Setting DNS server enable/disable:

```
--- DNS Interface set ---
Current DNS Interface: DISABLE
Change DNS Interface? [Y(change)/N(current)/Q(quit)]: Y
Input new DNS Interface [E(enable)/D(disable)]: E
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Specify whether to use DNS server.
E=Use DNS server (default)
D=Not use DNS server

5. Setting DNS Server IP Address:

```
--- DNS IP Address set ---
Current DNS IP Address: 0.0.0.0
Change DNS IP Address? [Y(change)/N(current)/Q(quit)]: Y
Input new DNS IP Address: 10.41.1.150
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Enter new IP address of DNS server (e.g. 10.41.1.150)

Note: This setting is required when DHCP server is “D (disable)” and DNS server is “E (enable)”.

6. Setting IP Address and Subnet Mask of MG-COT Card:

```
--- IP Address & Subnetmask set ---

Current IP Address: 0.0.0.0 Current Subnetmask: 255.255.255.0

Change IP Address & Subnetmask? [Y(change)/N(current)/Q(quit)]: Y

Input new IP Address: 10.41.1.100 Input new Subnetmask: 255.255.255.0
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Enter new IP address of MG-COT Card (e.g. 10.41.1.100)
Line 5: Enter new Subnet Mask (e.g. 255.255.255.0)

Note: This setting is required when DHCP server is “D (disable)”.

7. Setting Host name of MG-COT Card:

```
--- Host Name set ---
Current Host Name: No Value
Is there the Host Name? [Y/N]: Y
Input new Host Name: mgcot.nec.com
```

Line 2: The current setting is displayed.
Line 3: Asked whether to use host name.
Y=Use host name
N=Not use host name
Line 4: Enter new host name of MG-COT Card in full-domain format.

Note: This setting is required when DHCP server is “D (disable)” and DNS server is “E (enable)”.

8. Setting Default Gateway IP Address:

```
--- Default Gateway IP Address set ---
Current Default Gateway: 0.0.0.0
Change Default Gateway? [Y(change)/N(current)/Q(quit)]: Y
Input new Default Gateway: 10.41.1.254
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Enter new IP address of Default Gateway (e.g. 10.41.1.254)

Note: This setting is required when DHCP server is “D (disable)”.

9. Setting Host Name of SIP server:

```
--- SIP Server Host Name set ---

Current SIP Server and Host Name:

SIP Server        Host Name
1
2
3
:
:
20

Change SIP Server Information? [Y(change)/N(current)/Q(quit)]: Y

Input new SIP Server (1-20): 1

Is there the Host Name? [Y/N]: Y

Input new Host Name: SVR1.nec.com

Continue? [Y(continue)/N(exit)]: N
```

Line 4~Line 9: The current setting of the Telephony Server information (host name) is displayed.
Line 10: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 11: Enter the number of SIP server [1-20]:
Line 12: Asked whether to use host name.
Y=Use host name
N=Not use host name
Line 13: Enter new host name of the Telephony Server in full-domain format.
Up to 63 characters of alphanumerics, “. (period)”, and “- (hyphen)” is available.
Line 14: Asked whether to continue the setting of other SIP server.
Y=Continue to register other SIP server
N=Exit this command and move on to the next command setting

Note: This setting is required when DHCP server is “D (disable)” and DNS server is “E (enable)”.

10. Setting IP Address, Port Number, and Host Name of SIP server

```
--- SIP Server IP Address & Host Name set ---

Current SIP Server/IP Address/Port Number/Host Name:

SIP Server          IP Address          Port Number         Host Name
1                   0.0.0.0             5060
2                   0.0.0.0             5060
3                   0.0.0.0             5060
:                   :                   :
:                   :                   :
20                  0.0.0.0             5060

Change SIP Server Information? [Y(change)/N(current)/Q(quit)]: Y

Input new SIP Server (1-20): 1

Input new IP Address: 10.41.1.200

Input new Port Number: 5060

Is there the Host Name? [Y/N]: Y

Input new Host Name: SVR1.nec.com

Continue? [Y(continue)/N(exit)]: N
```

Line 4~Line 9: The current setting of the Telephony Server information (IP address, port number, and host name) is displayed.
Line 10: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 11: Enter the number of SIP server [1-20]
Line 12: Enter the IP address of SIP server (e.g. 10.41.1.200) **Note 5**
Line 13: Enter the port number of SIP server (default=5060)
Line 14: Asked whether to use host name.
Y=Use host name
N=Not use host name
Line 15: Enter new host name of the Telephony Server in full-domain format.
Up to 63 characters of alphanumerics, “. (period)”, and “- (hyphen)” is available.
Line 16: Asked whether to continue the setting of other SIP server.
Y=Continue to register other SIP server
N=Exit this command and move on to the next command setting

Note: This setting is required when DHCP server is “D (disable)” and DNS server is “D (disable)”.

Note 5: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

11. Setting Ethernet Speed:

```
--- Ethernet Speed set ---
Current LAN Speed: AUTO
Change LAN Speed? [Y(change)/N(current)/Q(quit)]: Y
Input new Speed [1(AUTO)/2(100M)/3(10M)]: 2
Input new DUPLEX [F(full)/H(half)]: F
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Select the communication speed of LAN interface
1=Auto negotiation (default)
2=100Mbps fixed mode
3=10Mbps fixed mode
Line 5: Select the Duplex mode of LAN interface
F=Full duplex mode
H=Half duplex mode

12. Save the assigned configuration data at the last of SETUP SP command to complete network setting.

```
**Don't power off in progress**
Do you save the configuration data? (Y/N):Y


Configuration data has been saved.
Restarting is required for making a setup reflect!!

SP mode setting succeeded.
The register mode will be changed to SP mode after re-starting
```

Line 2: Asked whether to save the assigned data.
Y=Save
N=Not save
Line 3: Result is displayed.

SET COMMAND

1. Setting CODEC Coefficiency

```
MG-COT > SET CODEC_COEF_MG P1 P2



CODEC Coefficient(CH00) setting succeeded.
```

Line 1: Enter the Line Number 0-5. And then, enter the setting value (default is 2) after the space.

Line 2: Result is shown.

Note: The setting values are shown in the following table. Set appropriate values. Setting value “2” is assigned when the product is shipped. Change the data if required.

RESISTER	KIND OF BNW	SETTING VALUE
600 Ω	600 Ω	2 (default)

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

2. Setting Default Gateway

```
MG-COT > SET DEFAULTROUTE P1

Default Gateway setting succeeded.
```

Line 1: Enter Default Gateway Address.

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

3. Setting DHCP

```
MG-COT > SET DHCP P1




DHCP setting succeeded.
```

Line 1: Enter ENABLE or DISABLE after the command name. ENABLE=DHCP is valid (default), DISABLE=DHCP is invalid.

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

4. Setting DNS Server

```
MG-COT(SIP)> SET DNS_SW
DNS Interface (ENABLE/DISABLE) [ENABLE]: ENABLE
DNS IP Address [0.0.0.0]: 10.41.2.101


DNS setting succeeded.
```

Line2: ENABLE=DNS server is used
DISABLE=DNS server is not used (default)
Line3: Enter the IP address of DNS server (e.g. 10.41.2.101)

Line 4: Result is shown.

Note: The designated DNS Server cannot be applied when Proprietary Protocol mode. Assign the SP mode before executing this DNS Server setting.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: When DISABLE is selected, the setting line of DNS IP Address is not displayed.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

5. Setting IP address and port number of DRS

```
MG-COT > SET DRSADDRESS
DRS Unit (1:Primary/2:Secondary/3:Tertiary/
4:Forth) : 1
DRS IP Address [0.0.0.0] : 150.10.1.100
DRS Port Number (1024-65535) [3456] : 3456

DRS setting succeeded.
```

Line 2: Select “1” for the Telephony Server in normal condition.
Line 3: Enter IP Address of DRS. (e.g. 150.10.1.100) **Note 6**
Line 4: Enter Port Number of DRS (1024-65535, default = 3456).

Line 5: Result is shown.

Note: The designated DRS setting cannot be applied when SP mode. Assign the Proprietary Protocol mode before executing this DRS setting.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note 6: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

6. Setting ToS of DRS session

```
MG-COT > SET DRSTOS PRECEDENCE
PRECEDENCE (0-7) : 6
DELAY (0/1) : 0
THROUGHPUT (0/1) : 0
RELIABILITY (0/1) : 0
COST (0/1) : 0




DRS TOS setting succeeded.(0xC0)
```

Line 1: Enter sub command name PRECEDENCE to set the parameters such as Delay, Throughput, Reliability, and Cost. Specify the value to each parameter.
Line 2: Precedence:0-7(low-high)(default=6)
Line 3: Delay:0/1=Normal(default)/Low Delay ON
Line 4: Throughput:0/1=Normal(default)/High Throughput ON
Line 5: Reliability:0/1=Normal(default)/High Reliability ON
Line 6: Cost:0/1=Normal(default)/Cost Precedence ON
Line 7: Result is shown.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

```
MG-COT > SET DRSATOS VALUE
TOS (00-FF) : C0



DRS TOS setting succeeded.(0xC0)
```

Line 1: Enter the sub command name VALUE to set the DRS setting value Directly.
Line 2: Specify the value in the range of 00-FF(default=C0).
Line 3: Result is shown.

Note: The designated DRS ToS cannot be applied when SP mode. Assign the Proprietary Protocol mode before executing this DRS ToS setting.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

7. Setting DSP echo canceller for FAX communication

```
MG-COT > SET DSP_ECFB_MG P1



DSP ECFB setting succeeded.
```

Line 1: Enter 0 or 1.
0=FAX echo canceller is ON (default)
1=FAX echo canceller is OFF

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

8. Setting DTMF Cutoff Timer

```
MG-COT > SET DTMF_CUTOFF_TIME P1



DTMF Cutoff Time setting succeeded.
```

Line 1: Select DTMF Cutoff Timer.
0=20ms(default)
1=10ms

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

9. Setting Training feature mode of echo canceller

```
MG-COT > SET EC_TRAINING_MG P1




EC Training setting succeeded.
```

Line 1: Select the Training feature mode of EC.
OFF=Training function is invalid (default)
ON= Training function is valid

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

10. Setting FAX enable timer

```
MG-COT > SET FAXERRORDETECT_MG P1









FAX Enable Timer setting succeeded.
```

Line 1: Enter the Change Effective Timer.
0=Invalid to change to Fax mode
1-5=Possible to change to Fax mode within 1-5 minutes (default=1 minute)
OFF=Always possible to change to FAX mode

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

11. Setting Fax receiver PAD value

```
MG-COT > SET FAXRECVPAD_MG P1


Fax Receiver PAD setting succeeded.
```

Line 1: Enter the Fax Receiver PAD value in the range of 0-20 after the command name (default=0).

Line 2: Result is shown.

Note: The FAXRECVPAD_MG command assigns the value to decrease the Fax signal level in the receiver (PSTN to IP) direction when the Fax signal is detected.

Note: The total PAD value (Receiver PAD + Fax Receiver PAD) is limited to 20dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

12. Setting Fax sender PAD value

```
MG-COT > SET FAXSENDPAD_MG P1


Fax Sender PAD setting succeeded.
```

Line 1: Enter the Fax Sender PAD value in the range of 0-20 after the command name (default=3).

Line 2: Result is shown.

Note: The FAXSENDPAD_MG command assigns the value to decrease the Fax signal level in the sender (IP to PSTN) direction when Fax signal is detected.

Note: The total PAD value (Sender PAD + Fax Sender PAD) is limited to 20dB.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

13. Setting Health Check Receive Timer

```
MG-COT > SET HC_TIMER P1


Health-Check Timer Timeout setting succeeded.
```

Line 1: Enter the time (second) in the range of 120-240 (at intervals of 30 seconds) (default=150).

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

14. Setting I/C call abandon timer

```
MG-COT > SET IC_ABANDON_TIME P1
```

Line 1: Enter the Incoming call abandon timer (0-2).
0=6 seconds (default)
1=3 seconds
2=1 second

```
I/C Call Abandon Timer setting succeeded.
```

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

15. Setting the communication speed for LAN interface

```
MG-COT > SET INTERFACE
SPEED (AUTO/100M/10M) [AUTO] : 10M
DUPLEX (FULL/HALF) [HALF]    : HALF




Ethernet Speed setting succeeded.
```

Line 2: Select the communication speed.
AUTO=Auto Negotiation (default)
100M=100 Mbps fixed mode
10M=10 Mbps fixed mode
Line 3: Select the Duplex mode.
FULL=Full Duplex mode
HALF=Half Duplex mode
Line 4: Result is shown.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: The DUPLEX setting is not shown when Auto Negotiation (AUTO) is selected in the Speed setting.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

16. Setting IP Address and Net Mask

```
MG-COT > SET IPADDRESS P1 P2


IP Address setting succeeded.
```

Line 1: Enter the IP Address, then Subnet Mask after a space.
Line 2: Result is shown.

Note: The designated IP address cannot be applied when the DHCP is set to Enabled. Assign the DHCP setting to Disable before executing this IP address setting.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

17. Setting One Time Password for security

```
MG-COT(SIP)> SET ONE_TIME_PASS
One Time Password: 123456#

One Time Password setting succeeded.
```

Line 2:Enter the password in numeric [4~10 digits (0-9, *, # can be used)]
Line 3: Result is shown.

Note: The designated One Time Password cannot be applied when Proprietary Protocol mode. Assign the SP mode before executing this One Time Password setting.

18. Setting Host Name of MG-COT Card

```
MG-COT(SIP) > SET OWN_NAME P1




Host Name setting succeeded.
```

Line1: Enter the host name of MG-COT Card in full-domain format within 63 characters of alphanumerics, ". (period)", and "- (hyphen)".

Line 2: Result is shown.

Note: The designated Host Name cannot be applied when Proprietary Protocol mode. Assign the SP mode before executing this Host Name setting.

Note: Host name cannot be used when DHCP is assigned ENABLE or DNS is assigned DISABLE. Before assigning the host name, be sure to execute "SET DHCP DISABLE" and "SET DNS_SW".

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

19. Setting Release Signal

```
MG-COT > SET RELEASE_SIGNAL P1



Release Signal setting succeeded.
```

Line1: Select Release Signal Setting.
OFF=Invalid (default)
ON=Valid

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

20. Setting signaling port number for SIP

```
MG-COT(SIP) > SET SIGNALING_PORT_NO P1


Signaling Port Number setting succeeded.
```

Line1: Enter the Port Number used for SP-PHI. (default=5060)

Line 2: Result is shown.

Note: The designated Signaling Port Number cannot be applied when Proprietary Protocol mode. Assign the SP mode before executing this Signaling Port Number setting.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

21. Setting QoS for SIP signaling session

- When ToS is selected in QoS setting type:

```
MG-COT(SIP)> SET SIGNALING_QOS
```

```
QOS (TOS/DIFFSERV) [TOS]: TOS

PRECEDENCE (0-7) [6]: 6

DELAY (0/1) [0]: 0

THROUGHPUT (0/1) [0]: 0

RELIABILITY (0/1) [0]: 0

COST (0/1) [0]: 0

Signaling QoS setting succeeded. (0xC0)
```

Line 2: Select QoS setting type (default=TOS)

Line 3:Precedence: 0-7 (low-high) (default=6)

Line 4:Delay: 0/1=Normal (default)/ Low Delay ON

Line 5:Throughput: 0/1=Normal (default)/High Throughput ON

Line 6:Reliability: 0/1=Normal (default)/High Reliability ON

Line 7:Cost: 0/1=Normal (default)/Cost Precedence ON

Line 8: Result is shown.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

- When Diffserv is selected in QoS setting type:

```
MG-COT(SIP)> SET SIGNALING_QOS
QOS (TOS/DIFFSERV) [TOS]: DIFFSERV

DHCP (0-63) [48]: 48

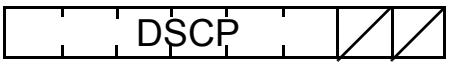
Signaling QoS setting succeeded. (0xC0)
```

Line 2: Select QoS setting type (default=TOS)

Line 3: Enter the setting value directly (default=48)

Line 4: Result is shown.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data in ToS field for Diffserv is shown below:



DSCP = Differentiated Service Code Point (6 bits)

Note: The designated Signaling QoS cannot be applied when Proprietary Protocol mode. Assign the SP mode before executing this Signaling QoS setting.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

22. Setting IP address, port number, and host name of SIP server

```
MG-COT(SIP)> SET SIPSV_IPADDRESS
SIP Server (1-20): 1

IP Address [0.0.0.0]: 10.41.2.100


Port Number [5060]: 5060

Is there the Host Name? (Y/N) [N]: Y

Host Name: SVR1.nec.com




SIP Server setting succeeded.
```

Line 2: Enter the SIP server number. Up to 20 SIP servers can be used in one network.

Line 3: Enter the IP address of SIP server e.g. 10.41.2.100 (default=0.0.0.0) **Note 7**

Line 4: Enter the port number. (default=5060)

Line 5: Select whether to use host name.

Line 6: Enter the host name in the full-domain format, within 63 byte of alphanumerics, ". (period)", and "- (hyphen)". 63. (*This line is displayed when "Y" is selected above.)

Line 7: Result is shown.

Note: The designated SIP Server cannot be applied when Proprietary Protocol mode. Assign the SP mode before executing this SIP Server setting.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note 7: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

23. Setting DSP smooth PAD mode

```
MG-COT > SET SMOOTH_PAD_MG P1




Smooth PAD Mode setting succeeded.
```

Line 1: Enter a value of smooth PAD(1-5, OFF).
OFF=Set smooth PAD mode to OFF
1=2.0dBm (default)
2=-5.2dBm
3=-2.1dBm
4=0dBm
5=-4.2dBm

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

24. Setting RTP Start Port

```
MG-COT > SET STARTPORT P1


RTP Start Port Number setting succeeded.
```

Line 1: Enter the number of RTP Start Port in the range of 1024-64510 (default=1024).

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note: Port number must be the even number. RTCP port number is assigned to start port number + 1. (odd number)

25. Setting VLAN

```
MG-COT > SET VLAN
Please enter a parameter.
VLAN_ID (1-4094) : 1
COS (0-7) : 0

VLAN setting succeeded.
```

Line 3: Line 3: Enter the VLAN_ID in the range of 1-4094.
Line 4: Enter the COS in the range of 0-7.

Line 5: Result is shown.

Note: The maximum number of VLAN is one.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

26. Setting the Warning Tone for LAN failure

```
MG-COT > SET WARNING_TONE P1




Warning Tone Control setting succeeded.
```

Line 1: Specify the mode.
0=Warning Tone is not sent
1=Warning Tone is sent to IP Network
2=Warning Tone is sent to PSTN
3=Warning Tone is sent to IP Network and PSTN (default)

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

27. Setting Auto Polarity

```
MG-COT > SET AUTO_POLARITY P1



Auto Polarity setting succeeded.
```

Line 1: Specify the auto polarity.
OFF = Invalid (default)
ON = Valid

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

SHOW COMMAND

1. To show CODEC Coefficiency

```
MG-COT> SHOW CODEC_COEF_MG
CH00=0
CH01=3
CH02=3
CH03=0
CH04=0
CH05=3
```

The current setting is shown.

2. To show configuration data list

```
MG-COT > SHOW CONFIGDATA

[SYSTEM]
REGISTER_MODE=TP
FILE_INFO=2006.07.14

[IP]
OWN_ADDR=0.0.0.0
SUBNET_MASK=255.255.255.255
DEFAULT_GATEWAY=0.0.0.0
DRS_ADDR1=0.0.0.0
DRS_PORT1=3456
DRS_ADDR2=0.0.0.0
DRS_PORT2=3456
DRS_ADDR3=0.0.0.0
DRS_PORT3=3456
DRS_ADDR4=0.0.0.0
DRS_PORT4=3456
DRS_TOS=0xC0

[NETWORK]
LAN_SPEED=AUTO
DHCP_SW=ENABLE
:
:
```

The current setting is shown.

3. To show DHCP setting

```
MG-COT> SHOW DHCP

DHCP is ENABLE
```

The current setting is shown.

4. To show DNS Server

```
MG-COT(SIP) > SHOW DNS_SW

DNS interface: ENABLE
DNS IP Address: 10.41.2.101
```

The current setting is shown.

Note: The designated DNS Server cannot refer when Proprietary Protocol mode. Assign the SP mode before executing this DNS Server shown.

5. To show DRS Address and Port Number

```
MG-COT> SHOW DRSADDRESS
                IP Address          Port Number
Primary         10.40.1.100         3456
Secondary       0.0.0.0             3456
Tertiary        0.0.0.0             3456
Forth           0.0.0.0             3456
```

The current setting of DRS Address and Port Number is shown.

Note: The designated DRS cannot refer when SP mode. Assign the Proprietary Protocol mode before executing this DRS shown.

Note: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

6. To show ToS setting of DRS session

```
MG-COT> SHOW DRSTOS
DRS TOS is 0xC0.
PRECEDENCE=6
DELAY=0
THROUGHPUT=0
RELIABILITY=0
COST=0
```

The current setting is shown.

Note: The designated DRS TOS cannot refer when SP mode. Assign the Proprietary Protocol mode before executing this DRS TOS shown.

7. To show DSP echo canceller for FAX communication

```
MG-COT> SHOW DSP_ECFB_MG

DSP ECFB Mode is 0.
```

The current setting is shown.

8. To show DTMF Cutoff Timer

```
MG-COT > SHOW DTMF_CUTOFF_TIME

DTMF Cutoff Time is 0 (20ms).
```

The current setting is shown.

9. To show Training feature mode of echo canceller

```
MG-COT> SHOW EC_TRAINING_MG

EC Training is ON.
```

The current setting is shown.

10. To show FAX enable timer

```
MG-COT> SHOW FAXERRORDETECT_MG

FAX Enable Timer is 1 minute.
```

The current setting is shown.

11. To show FAX receiver PAD value

```
MG-COT> SHOW FAXRECVPAD_MG

FAX Receiver PAD is 4.
```

The current FAX receiver PAD value (PSTN → LAN direction) setting is shown.

12. To show FAX sender PAD value

```
MG-COT> SHOW FAXSENDPAD_MG

FAX Sender PAD is 0.
```

The current FAX sender PAD value (LAN → PSTN direction) setting is shown.

13. To show Health Check Receive Timer

```
MG-COT > SHOW HC_TIMER

Health-Check Timer Timeout is 120 seconds.
```

The current setting is shown.

14. To show I/C call abandon timer

```
MG-COT > SHOW IC_ABANDON_TIME

I/C Call Abandon Timer is 0 (6sec).
```

The current setting is shown.

15. To show communication speed for LAN interface

```
MG-COT> SHOW INTERFACE
Setting: 100Mbps Full Duplex

Status: Speed is 100Mbps, Half Duplex, Link Up
```

Current setting of connection state is shown.

Actual operating state is shown.

16. To show IP Address, Net Mask, and Default Gateway

```
MG-COT > SHOW IPADDRESS
IP Address: 10.4.128.5
Netmask: 255.255.255.0
Default Gateway: 10.4.128.254
```

Line 1: Enter the interface name.
Line 2: IP Address is shown.
Line 3: Netmask is shown.
Line 4: Default Gateway is shown.

17. To show One Time Password for security

```
MG-COT(SIP) > SHOW ONE_TIME_PASS

One Time Password: 12345
```

The current setting is shown.

Note: The designated One Time Password cannot refer when Proprietary Protocol mode. Assign the SP mode before executing this One Time Password shown.

18. To show Host Name of MG-COT Card

```
MG-COT(SIP) > SHOW OWN_NAME

Own Name: name1
```

The current setting is shown.

Note: The designated Host Name cannot refer when Proprietary Protocol mode. Assign the SP mode before executing this Host Name shown.

19. To show Release Signal

```
MG-COT > SHOW RELEASE_SIGNAL

Release Signal is ON.
```

The current setting is shown.

20. To show signaling port number for SIP

```
MG-COT(SIP) > SHOW SIGNALING_PORT_NO

Signaling Port Number is 5060
```

The current setting is shown.

Note: The designated Signaling Port Number cannot refer when Proprietary Protocol mode. Assign the SP mode before executing this Signaling Port Number shown.

21. To show QoS setting for SIP signaling session

```
MG-COT(SIP) > SHOW SIGNALING_QOS

Signaling QoS is 0xC0. (QOS = TOS)

PRECEDENCE = 6
DELAY = 0
THROUGHPUT = 0
RELIABILITY = 0
COST = 0
```

The current setting is shown. (*This display is an example when TOS (IP PRECEDENCE) type is selected.)

Note: The designated QoS cannot refer when Proprietary Protocol mode. Assign the SP mode before executing this QoS shown.

22. To show IP address, port number, and host name of SIP server

```
MG-COT(SIP)> SHOW SIPSV_IPADDRESS
SIP Server   IP Address     Port Number   Host Name
1            10.41.1.150    5060          SVR1.nec.com
2            0.0.0.0        5060
3            0.0.0.0        5060
:            :              :
:            :              :
20           0.0.0.0        5060
```

The current setting is shown.

Note: The designated SIP Server cannot refer when Proprietary Protocol mode. Assign the SP mode before executing this SIP Server shown.

Note: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

23. To show DSP smooth PAD mode

```
MG-COT > SHOW SMOOTH_PAD_MG

Smooth PAD Mode is 3.
```

The current setting is shown.

24. To show RTP Start Port

```
MG-COT > SHOW STARTPORT

RTP Start Port Number is 1024.
```

The current setting is shown.

25. To show operating status of MG-COT Card

- When Proprietary Protocol mode is Used

```
MG-COT > SHOW STATUS

 Register Mode          : TP
 MAC Address            : 00:30:13:6e:f4:e4
 Link State             : Up
 Speed                  : 100Mbps
 Duplex                 : Full
 VLAN Mode              : Disable
 DHCP Mode              : Enable
 IP Address             : 172.16.2.103
 Subnet Mask            : 255.255.0.0
 Default Gateway        : 172.16.1.254
 Current Drs Name       : Primary
 Current Drs Address    : 0.0.0.0
 Registration Status    :
    +-- [(null)]
```

The current setting is shown.

- When SP mode is Used

```
MG-COT(SIP) > SHOW STATUS

 Register Mode          : SP
 MAC Address            : 00:30:13:6e:f4:e4
 Link State             : Up
 Speed                  : 100Mbps
 Duplex                 : Full
 VLAN Mode              : Disable
 DHCP Mode              : Enable
 IP Address             : 172.16.2.103
 Subnet Mask            : 255.255.0.0
 Default Gateway        : 172.16.1.254
 DNS Mode               : Disable
 Current Sipsv Address  : 172.16.4.1
 Encryption             :
    +-- SIP Encrypt     : --
    +-- RTP Encrypt     : --
 Registration Status    : Offline
    +-- Registration is Started Now !
```

The current setting is shown.

Note: The designated operating status cannot refer when SP-3948 6MG COT PROG-A Ver.1.0.0.0 or later.

26. To show the version information

```
MG-COT > SHOW VERSION
MG-COT Maintenance Command

Version Infomation

Hardware(Main): CA-CC07 001
Hardware(Sub) : CA-CC08 001

Boot program  : SP-3839 SH7751R CBOOT-1 PROG-A [04.00.00.00]
Firmware      : SP-3948 6MGCOT PROG-A [01.00.00.00]
```

Line 4-7: Version information of hardware, boot program, and firmware is shown respectively.

27. To show VLAN setting

```
MG-COT > SHOW VLAN

VLAN is ENABLE

DEVICE  ID   COS     IPADDRESS       SUBNETMASK
VLAN1    1     0     10.4.128.5      255.255.255.0
```

The current VLAN setting is shown.

28. To show Warning Tone control

```
MG-COT > SHOW WARNING_TONE

Warning Tone Control of IP Network is 3 (IP & TDM
side)
```

The current setting is shown.

29. To show Auto Polarity

```
MG-COT > SHOW AUTO_POLARITY

Auto Polarity is ON.
```

The current setting is shown.

PING COMMAND

- To check the connection status of network:

```
MC(SIP)> PING P1
MC(SIP)> PING 100.100.100.4
PING 100.100.100.4: 56 data bytes
64 bytes from 100.100.100.4: icmp_seq=0. time=0. ms
64 bytes from 100.100.100.4: icmp_seq=1. time=0. ms
64 bytes from 100.100.100.4: icmp_seq=2. time=0. ms
64 bytes from 100.100.100.4: icmp_seq=3. time=0. ms
----100.100.100.4 PING Statistics----
4 packets transmitted, 4 packets received, 0% packet loss
round-trip (ms) min/avg/max = 0/0/0
```

Line 1: Enter the IP address of the system to access.
Line 4-7: Connection status of the accessing system is displayed 4 lines.

```
MC(SIP)> PING 100.100.100.4
PING 100.100.100.4: 56 data bytes
ping: timeout
no answer from 100.100.100.4
```

When the MG-COT Card cannot connect to network, “no answer” is displayed.

Note: The designated operating status cannot refer when SP-3948 6MG COT PROG-A Ver.1.0.0.0 or later.

DELETE COMMAND

- To delete the VLAN setting

```
MG-COT> DELETE VLAN

VLAN deleting succeeded.
```

Line 2: Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

SAVE COMMAND

- To save the configuration data to Flash ROM

```
MG-COT > SAVE CONFIGDATA

**Don't power off in progress**

Do you need save? (Y/N): Y
Configuration data has been saved.
Re-starting is required for making a setup
reflect!!
```

Line 3: Select either, Y or N.
Line 4: Result is shown.

Note: When the error occurs during saving, configuration data is not preserved.

GET COMMAND

- To download Configuration Data file from specified TFTP server

```
MG-COT> GET CONFIGDATA 10.41.1.150

Configuration data has been downloaded.
```

Line 1: Specify the IP Address of TFTP Server after the Command Name. (e.g. 10.41.1.150)
Line 2: Result is shown.

Note: Configuration data file is downloaded from the specified TFTP server. When the destination file name is not entered, file name of transferred folder is used automatically.

PUT COMMAND

- To upload Configuration Data file to specified TFTP server

```
MG-COT > PUT CONFIGDATA P1

check sum = 58694(0xe546)

Configuration data has been uploaded.
```

Line 1: Specify the IP Address of TFTP server after the Command Name. (e.g. 10.41.1.150)
Line 2: Check sum is shown.
Line 3: Result is shown.

Note: Configuration data file is uploaded to the TFTP server.

REBOOT COMMAND

- To reboot the MG-COT Card

```
MG-COT> REBOOT

Do you need reboot? (Y/N): Y
```

Line 2: Enter Y or N to confirm.
Y=Reboot
N=Not reboot

Note: The screen returns to the prompt of the maintenance command (MG-COT Card, in default) if any error occurs when “Y” is selected after changing the configuration data.

EXIT COMMAND

- To exit the maintenance command

  [Normal occasion]

```
MG-COT > EXIT

Finished!
value = 11 = 0xb
->
```

Line 1: Normal occasion.
Line 2: Result is shown.
Line 3: Display changes to the OS prompt.

[When configuration data is changed]

```
MG-COT > EXIT
Configration data was changed.
**Don't power off in progress**
Y:Save and Exit.
N:Exit without saving.
C:Cancel
(Y/N/C):Y
Configration data has been saved.
->
```

Line 7: Select Y to make the changed configuration data effective and exit the maintenance command.
Line 8: Result is shown.
Line 9: Display changes to the OS prompt.

Note: The screen returns to the prompt of the maintenance command (MG-COT Card, in default) if any error occurs when "Y" is selected after changing the configuration data.

INIT (CLEAR) COMMAND

- To initialize the configuration data to factory default value

```
MG-COT > INIT CONFIGDATA

 *** Warning !! ***
 This command is for initialize config data.
 If this command is executed, your configuration
is deleted!!
 OK ? (Y/N) : y

 It's recommended to back up your configuration !!
 really OK ? (Y/N) : y

 Initialize of configuration data was successful.
 You need to setup config data!!

MG-COT >
```

Note: The designated operating status cannot refer when SP-3948 6MG COT PROG-A Ver.1.0.0.0 or later.

4.2 Error Messages

When an error occurs in using the maintenance command, error message is indicated to show the cause for helping the reassignment of required data.

List of Error Messages

MESSAGE	CAUSE
File not found on the TFTP server.	Download file of system data is not founded on the TFTP server.
Command not found.	Not supported command was entered when entering command.
Invalid parameter.	Invalid parameter was entered when entering command.
IP address form is incorrect.	IP address is entered in incorrect form.
VLAN ID is no more registered.	VLAN ID cannot be registered because the number of VLAN exceeds the maximum.
Sub command is missing.	Sub command is not entered when entering command.
Invalid parameter value.	The range of entered parameter is incorrect.
Invalid sub command.	Entered sub command is incorrect.
Command is abnormally terminated.	Command is terminated illegally.
Parameter(s) are missing.	Parameter is not entered when entering command.
Entered VLAN ID is already registered.	Entered VLAN ID has been already registered.
Entered VLAN ID is not registered.	Entered VLAN ID does not exist.
This command is not supported in a present operation mode.	The entered command is not supported in the operation mode currently works.

MG(BRI) [SCA-2BRIA/MG-2BRIA/SCA-2BRIA-B]

1 General

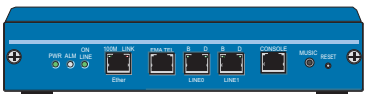
1.1 What is MG(BRI)?

MG(BRI) is a media gateway to provide gateway function between ISDN network and IP network. An MG(BRI) can accommodate a maximum of two ISDN lines. MG(BRI) works in SIP mode and the controlling signal between the Telephony Server and MG(BRI) adopts Session Initiation Protocol (SIP). (**Note 1**) Controlling signal and voice packets are encrypted to ensure security feature.

The MG(BRI) has two types: "MG(BRI) Card [SCA-2BRIA]" and "MG(BRI) Card [SCA-2BRIA-B]" for Card Type, "MG(BRI) Box [MG-2BRIA]" for Box Type. The MG(BRI) Card [SCA-2BRIA] and [SCA-2BRIA-B] are mounted in 1U-MPC (Multi Purpose Chassis) module. Those ones are in the following:



MG(BRI) Card [SCA-2BRIA]



MG(BRI) Box [MG-2BRIA]

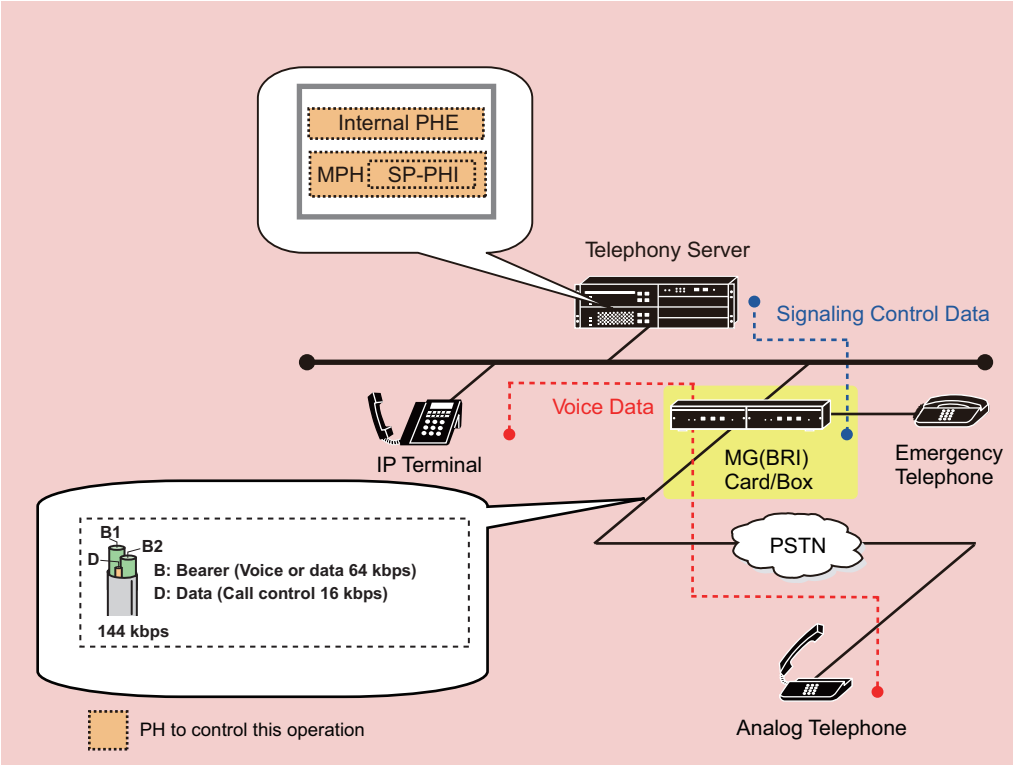
Note 1: In this operation, the Telephony Server acts as SIP server. LAN1 of the Telephony Server is used as the interface for the communication between SIP server and MG(BRI). In the case of Dual Configuration, LAN1 of the Telephony Server#0 is used.

1.2 Function Overview

Basic Connection

The general structure of this equipment and signaling flow are shown in the diagram below.

MG(BRI) in the System



Note: SP-PHI, which is accommodated in MPH (Multi Protocol Handler) of the Telephony Server, handles the control signal from/to MG(BRI). MPH is the interface for the control signal. Call control between SP-PHI and MG-COT is executed via TCP/IP port of the system.

MG External hold-tone

When a station is connected to outer-office terminal through the MG(BRI) and holds a call, MG(BRI) outputs hold-tone. MG(BRI) can output two kinds of hold-tones. One is MG(BRI) internal hold-tone (2 kinds), which MG(BRI) equips internally. The other is external hold-tone input from the MUSIC connector of MG(BRI). MG(BRI) internal hold-tone is used in normal circumstances. Two kinds of internal hold-tone can be selected by using the AMGIL command. External hold-tone can be used when jack was inserted to the MUSIC connector. In this situation, Gain value of external sound source can be assigned per MG(BRI).

Emergency Telephone

MG(BRI) can connect one emergency telephone in case MG function of the equipment is not available because of power failure or IP network failure. In this case, emergency telephone will be automatically connected to the ISDN network and provides the communication path.
By connecting an ISDN terminal (or TA + analog telephone) to the EMA TEL connector of MG(BRI), emergency line is ensured directly to the ISDN network.

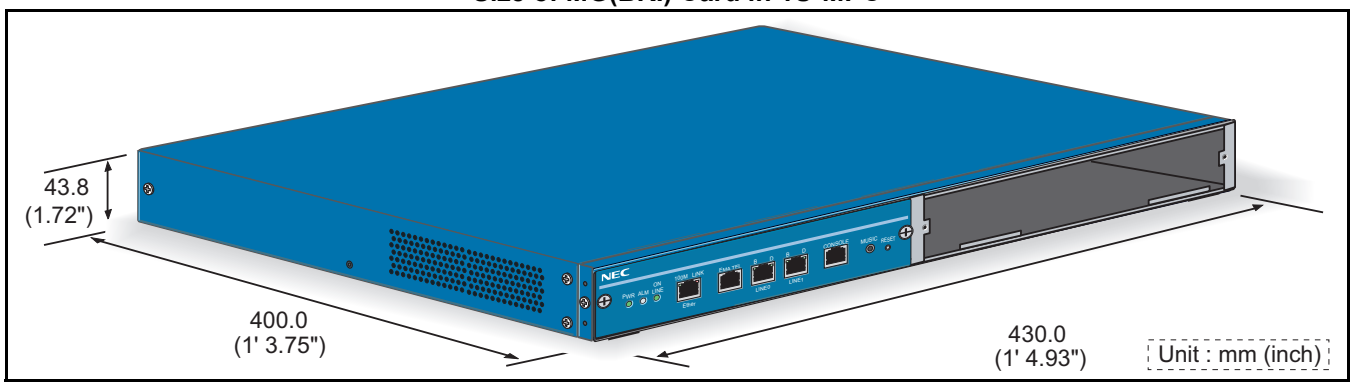
1.3 Specifications

1. Dimension

- MG(BRI) Card [SCA-2BRIA/SCA-2BRIA-B]

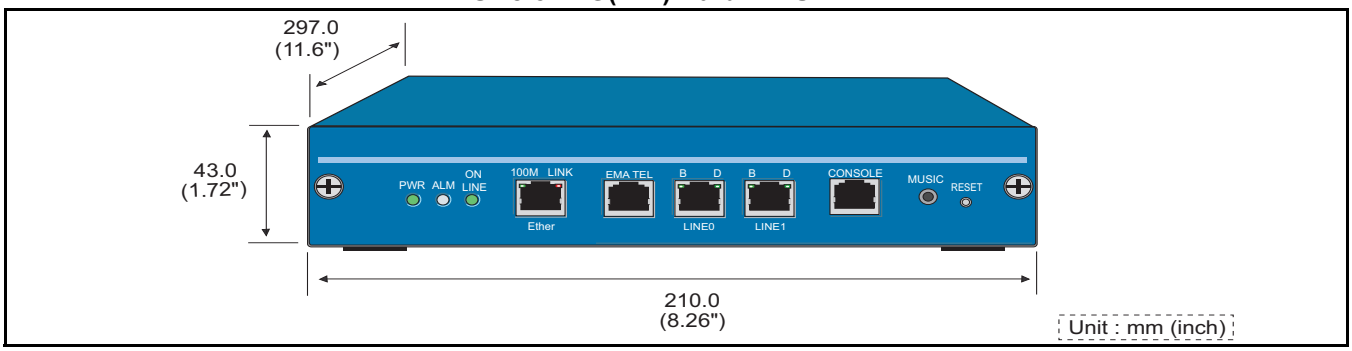
MG(BRI) is mounted in 1U-MPC (19-inch rack mount, 1U-box).

Size of MG(BRI) Card in 1U-MPC



- MG(BRI) Box [MG-2BRIA]

Size of MG(BRI) Card in 1U-MPC



2. Specifications

MG(BRI) Specifications

Function		Specification
ISDN Network side (Line [T point] Interface)	Number of Port	2 ports
	Connector type	RJ-45 Modular × 2
	Layer 1 Specification	Conforms to I.430 of ITU-T recommendation Conforms to ETS300 012
	Layer 2 Specification	Conforms to Q.921/Q.931 of ITU-T recommendation Conforms to ETS300 125
	Transmissible Distance	within 1000 meters (3280 feet) (Using 0.5ϕ twisted-pair cable for DSU)
IP Network side (LAN Interface)	Number of Port	1 port
	Connector type	RJ-45 Modular × 1
	Transmission Speed	10 Mbps/100 Mbps
	Cable	- 10BASE-T: Category 3 or higher, Max. length 100 meters - 100BASE-TX: Category 5 or higher, Max. length 100 meters - LAN cable: RJ-45 Modular cable
	CODEC	G.729a, G.711, G.723.1
Emergency Telephone connecting feature (Line [S/T point] interface)	Number of Port	1 port
	Connector type	RJ-45 Modular × 1
	Function	Connects one emergency telephone line directly to the ISDN network. It is used in case when the equipment is not available because of power failure or IP network failure.
Maintenance Console (PC)	Console	RJ-45 serial interface Connecting through CONSOLE cable (RJ-45 ⇔ RS-232C serial cable)

MG(BRI) Specifications (Continued)

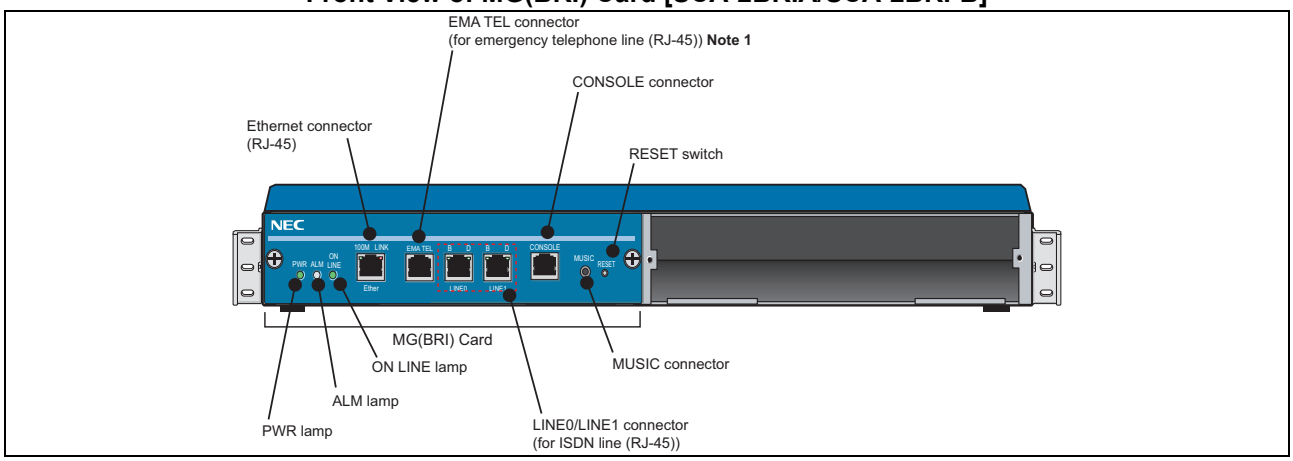
FUNCTION	SPECIFICATION	NOTE
Voice CODEC	G.711	64 k (bps): PCM μ-law/A-law Packet cycle: 10~40 msec (in 10 msec steps)
	G.729a	8 k (bps): CS-ACELP Packet cycle: 10~40 msec (in 10 msec steps)
	G.723.1	6.3 k (bps): MP-MLQ/ACELP Packet cycle: 30 or 60 msec
		5.3 k (bps): MP-MLQ/ACELP Packet cycle: 30 or 60 msec
DTMF detection/generation	Supported	RFC2833 Proprietary Protocol Data transmission as voice data
Echo Canceller	G.168	Tail Length is 64 msec
FAX	Data transmission as voice data	G.711/G.726 (ADPCM)
	FAX Relay (T.30)	FRF.11
	FAX Relay (T.38)	Not supported
Encryption Algorithm	Supported	AES (Advanced Encryption Standard)
PAD	PAD setting	0±20 dB (One dB step)
	Smooth PAD	Selectable (Mode1-Mode5)
Jitter Buffer	Static	10~300 msec (in 10 msec steps)
	Dynamic	10~300 msec
Quality of Service (QoS)	ToS, IP Precedence	Supported
	DiffServ	Supported
VLAN	IEEE 802.1Q (Tagging VLAN), VLAN bit, Priority bit	
Signaling Protocol	SIP mode	Telephony Server ⇔ MG(BRI)
IP Address Assignment	DHCP is supported	
Holding Tone	Internal hold-tone	Selectable on PCPro command AMGIL (1: Minuet, 2: For Elise)
	External hold-tone	Input audio source from MUSIC connector

3. Layout of Connectors, Lamps, and Switches

Front View

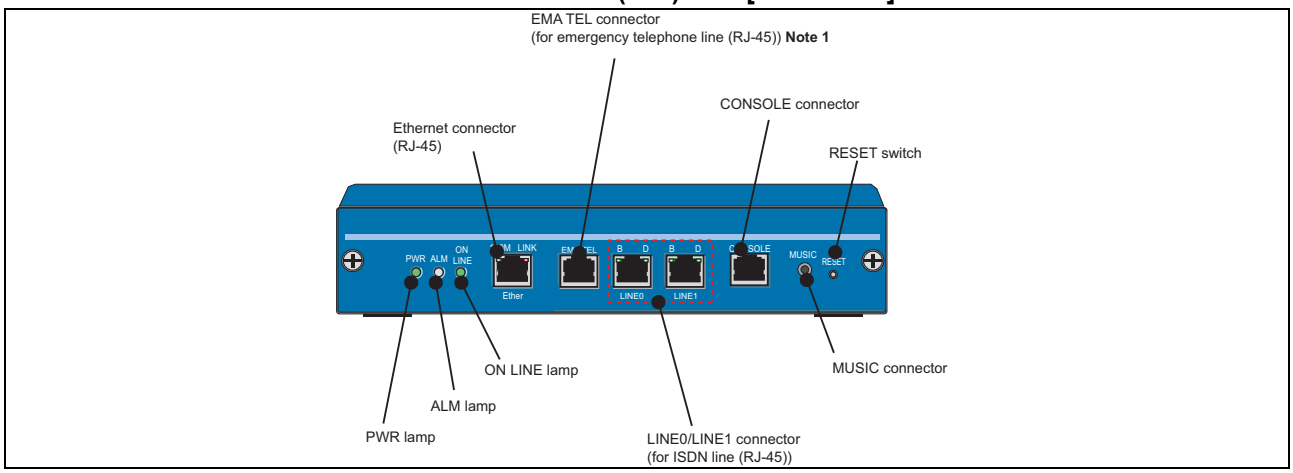
- MG(BRI) Card [SCA-2BRIA/SCA-2BRI-B]

Front View of MG(BRI) Card [SCA-2BRIA/SCA-2BRI-B]



- MG(BRI) Box [MG-2BRIA]

Front View of MG(BRI) Box [MG-2BRIA]



Connectors on Front Panel

CONNECTOR	FUNCTION	NOTE
Ether	LAN Interface	RJ-45 100Mbps/10Mbps, auto-negotiation (Half/Full Duplex)
EMA TEL	Emergency telephone connection	RJ-45 **Note 1**
LINE0	ISDN line #0 connection	RJ-45
LINE1	ISDN line #1 connection	RJ-45
CONSOLE	Interface for Maintenance Console	RJ-45 serial connection (CONSOLE cable RJ-45 ⇔ RS-232C is used)
MUSIC	External hold-tone connection	3.5 ϕ mini-jack (monaural type)

Note 1: Emergency Telephone (ISDN Telephone or TA + Analog Telephone) is connected to LINE0 directly when MG(BRI) does not operate in case of power failure, IP network failure, etc.

Lamps on the Front Panel

LAMP NAME		COLOR	MEANING OF INDICATION
PWR		Green	Power ON
		OFF	Power OFF
ALM		Red	Lights when power module failure is detected
		OFF	Normal operation
ON LINE		Green	See MG(BRI) Lamp Indication and Status for the detail explanations of the lamp indication.
Ether	100M	Green	Lights when transmission speed is 100 Mbps
		OFF	Remains OFF when transmission speed is 10 Mbps
	LINK	Green	Lights when establishing Layer 1 link **Note:** Lights when physically connected to IP network.
		Flash	Flashes green (in 0.67-second cycle) when sending/receiving IP Packet
		OFF	Layer 1 link is not established
LINE0	B	Green	See MG(BRI) Lamp Indication and Status for the detail explanations of the lamp indication.
	D	Green	
LINE1	B	Green	
	D	Green	

Note: In the case of MG-2BRIA, ALM lamp always turns OFF.

MG(BRI) Lamp Indication and Status

(Symbol): L: Lit, O: Off, S: Slow flash (120int), F: Fast Flash (240int), -: Don't care

Status	Lamp						Detail of Status	Note
	PWR	ON LINE	LINE0		LINE1			
			B	D	B	D		
Initial Startup	L	O	S	O	O	O	Fault found in self-diagnosis	Turn the power OFF → ON in this circumstance.
	L	O	L	O	O	O	Normal end of self-diagnosis	Self-diagnosis has finished normally. Though, turn the power OFF → ON when program download does not start and this condition remains for more than one minute.
	L	O	L	S	O	O	Failed to download the boot program (First time)	Turn the power OFF → ON in this circumstance.
	L	O	L	F	O	O	Failed to download the boot program (Second time)	Turn the power OFF → ON in this circumstance.
	L	S	O	O	O	O	Initializing	Turn the power OFF → ON when this condition remains for more than one minute.
	L	S	L	O	O	O	CPU initial complete	Turn the power OFF → ON when this condition remains for more than one minute.
	L	S	L	S	O	O	Failed to download the program (First time)	Turn the power OFF → ON in this circumstance.
	L	S	L	F	O	O	Failed to download the program (Second time)	Turn the power OFF → ON in this circumstance.
	L	S	L	L	O	O	Succeeded to download the program	Turn the power OFF → ON when this condition remains for more than one minute.
	L	S	L	L	S	O	Failed to download the DSP program	Turn the power OFF → ON in this circumstance.
	L	S	L	L	F	O	Failed to initialize the DSP	Turn the power OFF → ON in this circumstance.
	L	S	L	L	L	O	Initial setup for all equipment has completed	Turn the power OFF → ON when this condition remains for more than one minute.
	L	S	L	L	L	L	Registration to Telephony Server has started	Turn the power OFF → ON when this condition remains for more than one minute.
	L	L	F	O	F	O	Registration to Telephony Server has completed	Turn the power OFF → ON when this condition remains for more than one minute.
	L	L	F	O	F	O	ON LINE status	Turn the power OFF → ON when this condition remains for more than one minute.

(Symbol): L: Lit, O: Off, S: Slow flash (120int), F: Fast Flash (240int), -: Don't care

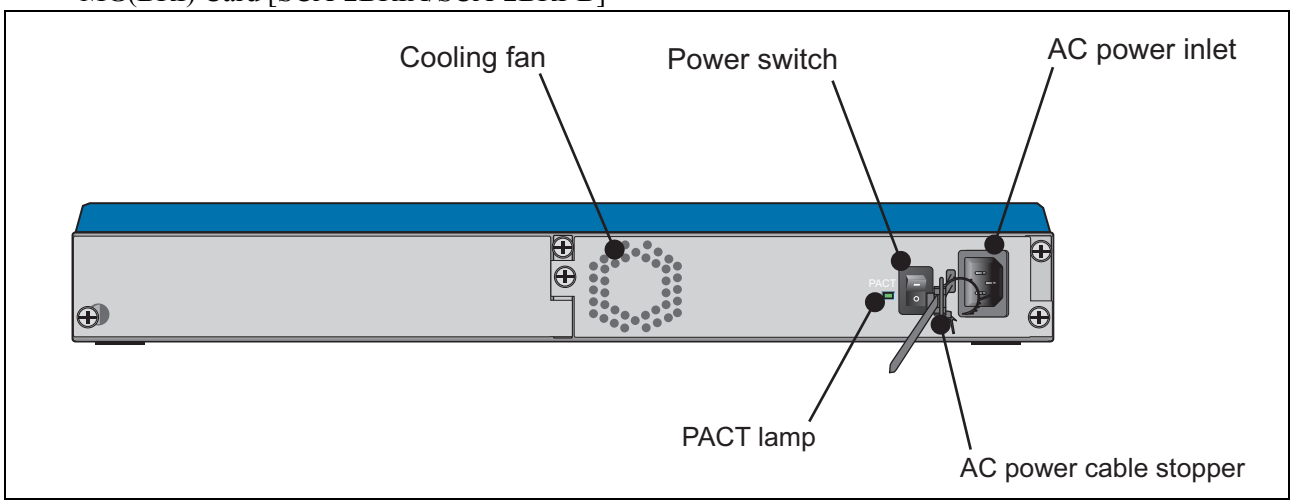
Status	Lamp						Detail of Status	Note
	PWR	ON LINE	LINE0		LINE1			
			B	D	B	D		
Layer 1 Fault	L	L	-	S	-	-	Cable slip off/Frame loss occurred in LINE0 (When office data exist in LINE0)	Confirm the cable connection and DSU side operation.
	L	L	-	-	-	S	Cable slip off/Frame loss occurred in LINE1 (When office data exist in LINE1)	
	L	L	-	S	-	S	Cable slip off/Frame loss occurred in LINE0/1 (When office data exist in LINE0/1)	
During Layer 2 startup	L	L	F	F	-	-	Layer 1 normal Layer 2 establishing of LINE 0	When this condition remains for more than one minute, check if the office data of LINE 0 is assigned and confirm the cable connection of LINE 0.
	L	L	-	-	F	F	Layer 1 normal Layer 2 establishing of LINE 1	When this condition remains for more than one minute, check if the office data of LINE 1 is assigned and confirm the cable connection of LINE 1.
	L	L	F	F	F	F	Layer 1 normal Layer 2 establishing of LINE 0/1	When this condition remains for more than one minute, check if the office data of LINE 0/1 is assigned and confirm the cable connection of LINE 0/1.
	L	L	F	L	-	-	Layer 1 normal Layer 2 established of LINE 0	Check if the office data of LINE 0 is assigned. (It is normal if both two channels of LINE 0 are in Make-Busy state)
	L	L	-	-	F	L	Layer 1 normal Layer 2 established of LINE 1	Check if the office data of LINE 1 is assigned. (It is normal if both two channels of LINE 1 are in Make-Busy state)
	L	L	F	L	F	L	Layer 1 normal Layer 2 established of LINE 0/1	Check if the office data of LINE 0/1 is assigned. (It is normal if all four channels of LINE 0/1 are in Make-Busy state)
During Restart process	L	L	O	O	-	-	LINE 0 being reset	Fault related to LINE 0 has occurred. Automatic Restart is processing.
	L	L	F	O	-	-	LINE 0 registration completed	
	L	L	F	O	-	-	LINE 0 ONLINE status	
	L	L	F	L	-	-	LINE 0 Layer 2 link established	
	L	L	-	-	O	O	LINE 1 being reset	Fault related to LINE 1 has occurred. Automatic Restart is processing.
	L	L	-	-	F	O	LINE 1 registration completed	
	L	L	-	-	F	O	LINE 1 ONLINE status	
	L	L	-	-	F	L	LINE 1 Layer 2 link established	

(Symbol): L: Lit, O: Off, S: Slow flash (120int), F: Fast Flash (240int), -: Don't care

Status	Lamp						Detail of Status	Note
	PWR	ON LINE	LINE0		LINE1			
			B	D	B	D		
During Operation	L	L	O	L	-	-	Both two channels of LINE 0 are in idle state	Normal
	L	L	S	L	-	-	One channel LINE 0 is in Make-Busy state and another in idle state	Normal
	L	L	F	L	-	-	Both two channels of LINE 0 are in Make-Busy state	Normal
	L	L	L	L	-	-	Either one channel of LINE 0 is being used	Normal
	L	L	-	-	O	L	Both two channels of LINE 1 are in idle state	Normal
	L	L	-	-	S	L	One channel LINE 1 is in Make-Busy state and another in idle state	Normal
	L	L	-	-	F	L	Both two channels of LINE 1 are in Make-Busy state	Normal
	L	L	-	-	L	L	Either one channel of LINE 1 is being used	Normal

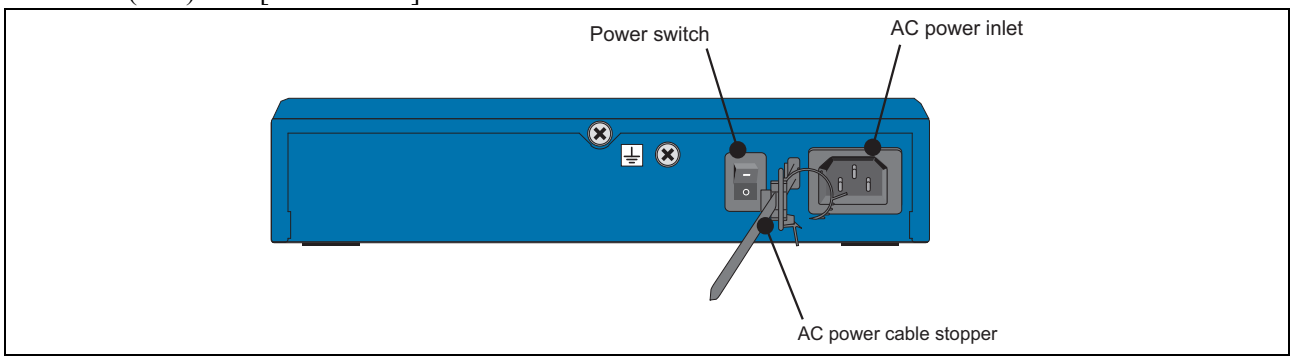
Rear View

- MG(BRI) Card [SCA-2BRIA/SCA-2BRI-B]



Note: This figure is an example when the 1U-MPC is in single power configuration. Prepare one more power unit (optional) for dual power configuration. (See the Appliance Model Installation Manual for the power unit mounting procedure.)

- MG(BRI) Box [MG-2BRIA]



Connectors, Lamps, and Switches on Rear Panel

NAME	FUNCTION	
AC power inlet	Connected to AC-DC adapter with an attached three-polar grounded AC power cable (Cable Length: 3 m [9.8 ft.])	AC 100V (50/60 Hz) ± 10% AC 120V (50/60 Hz) ± 10% AC 230V (50/60 Hz) ± 10% AC 240V (50/60 Hz) ± 10%
Power switch	Power ON/OFF switching	
PACT lamp	Indicates the state in power unit	Lights green: Normal operation OFF: Power failure

Note: For the safety measures against static electricity, lightning strike, and other electrical surges, be sure to make proper connection to grounding (less than 10 Ω). As MG(BRI) has ISDN interface, if the line cable is struck by lightning directly, the lightning might cause damage to MG(BRI) and AC power cable without Ground connection.

4. Port Numbers

The table below provides information about the port numbers of the Telephony Server to be used in the system including MG(BRI).

	Function	TP side			SP side	
		LAN Port (default)	Port Number (default)	Command to Change Setting	Port Number (default)	Command to Change Setting
TP ⇔ SP Note 2	Registration	LAN1	3456	ADTM (Port Number only)	22000	Cannot be changed
	iLP-PM	LAN1	60130	ADTM (Port Number only)	64105	ALIDL
SP Internal Control Port Note 3	iLP-PM	-	-	-	64010	ALIDL
					22001	ASPC
MG(BRI) ⇔ SP	SIP	-	-	-	5060	Cannot be changed
H.245 Negotiation	Ready	-	-	-	22002	ASPC
	H.245	-	-	-	22003 ~ 26000	ASPC

Note 2: The packet between TP and SP ("TP ⇔ SP" in the table) does not flow over the network because both of which are part of the Telephony Server.

Note 3: The packet related to SP internal control port does not flow over the network.

5. Available Channels

See VoIP Encryption [V-27] in Data Programming Manual - Business for the number of available channels on the encryption status of this component.

1.4 Requirements

1. Hardware Requirements

   - PC running Terminal Software (for Maintenance Console)
   - Cables

     LAN cable:Use any of the following cables for connecting to LAN.
     10BASE-T:Unshielded Twisted-pair (UTP) Straight-through Cable Category 3 or higher, (a maximum of 100 m)
     100BASE-TX:Unshielded Twisted-pair (UTP) Straight-through Cable Category 5 or higher, (a maximum of 100 m)
     Line Cable:For the connection to ISDN network (T point), use a 0.5ϕ Twisted-pair Cable for DSU with an RJ-45 Modular Jack.
     EMA TEL Cable:For the connection between Emergency telephone and MG(BRI), use a Modular Cable with an RJ-45 Modular Jack.
     CONSOLE Cable:RJ-45 ⇔ RS-232C serial cable (for maintenance console)
     Audio Cable:Microphone input (for external hold-tone source)
     3.5 ϕ mini-jack (monaural type)

2. Firmware Program

   - Installed Firmware: SP-3826 BRI MG SIP BSC PROG-A

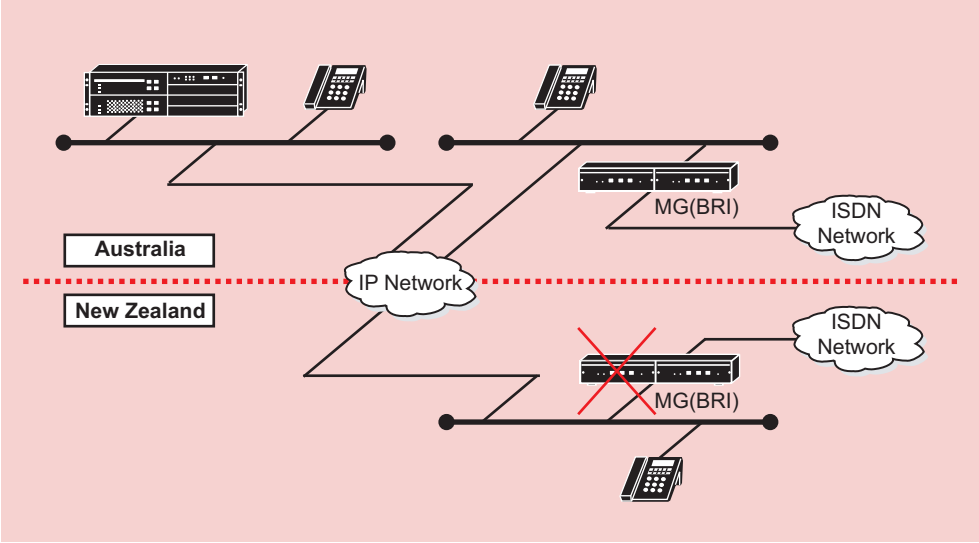
3. Environmental Requirements

   - Operational Temperature Range: 0°C to 40°C (32°F to 104°F)
   - Operational Humidity Range: 20% to 90% (not condensing)
   - Main Source Power: 100 VAC / 120 VAC / 230 VAC / 240 VAC (50/60 Hz) ±10%

1.5 Service Conditions

General Service Conditions

1. ETSI-ISDN for Australia is supported by assigning the System Data (ASYDL SYS1 Index818 Bit6=1).
   - ETSI basic features are supported.
   - ETSI optional features are not supported.
   - MG(BRI) cannot go over through other country's ISDN specification as shown in the figure below.



   For ETSI Euro-ISDN (EMEA), assign ASYDL SYS1 Index818 bit6=1.
   - MG(BRI) can go over through other countries, provided that the connected ISDN line complies with ETSI specifications.

2. MG(BRI) occupies one group of virtual speech channel. The group can only be used as virtual speech channel of MG(BRI) even when only one channel is assigned.
   The virtual speech channel of MG(BRI) cannot coexist in the same group with the virtual speech channel of other type of MG devices. Also the virtual speech channel cannot coexist in the same group with the virtual speech channel of CCIS over IP using Internal PHC.

3. Virtual speech channel (B channel) can be assigned to Virtual PIR (Assign with ASYDL SYS1 Indexes 556 and 557).

4. Internal PHE must be assigned (ASYDL SYS1 Index 880 bit3=1) to enable SP-PHI function.

5. Line Equipment Numbers (LENS) information for control signal needs to be assigned for MPH and SP-PHI by using the ALIDL command. (Available to assign only to virtual PIR.)

6. Assign the system data (ASYDL SYS1 Index880 bit1=1, Index885 bit7=1) to enable the SP-PHI function.

7. ISDN line can be connected both in Point-to-Multipoint connection or Point-to-Point connection. However, be careful for the following.

- In the case of Point to Point Connection, the TEI value is fixed to 0.
- In the case of Point to Multi Point Connection, TEI Automatic Assignment is available.
- Use the CDN 91 of ARTI command to select the Point to Point Connection or Point to Multi Point Connection.
- When using emergency telephone, user needs to have an ISDN line contract status according to the specification of the ISDN line interface of the emergency telephone to be used.
- Length of call reference value (in octets) is 1 byte and Dch cannot be shared.

8. Voice communication and unrestricted digital communication is available. MG(BRI) only supports 64kbps of unrestricted digital communication.
   Data communication more than 128kbps, H0 exchange, Dch packet and Bch packet are not supported.

9. Interface available is only Q.931 and connection to public ISDN network is available.
   MG(BRI) cannot accommodate ISDN terminal.
   MG(BRI) cannot be used with Tie-line connection.

10. The fault detection for ISDN line is operated as same as the ordinary ISDN lines (both Layer 1 and Layer 2). Call origination/termination is unavailable when MG(BRI) is in faulty condition.

11. SP-PHI and MG(BRI) is connected by UDP/IP. Routine diagnosis is activated by NOTIFY message. System Message [33-R: IP PKG warning] is output when fault is detected.

12. Re-routing follows the LCR feature if ISDN line or UDP/IP failure occurs.

13. Initialize the MG(BRI) by the operation below after the port number change. (Changed data will be effective after the initialization.)

    - System Initialization
    - Telephony Server power OFF/ON
    - Internal PHE module initialization by ADPM command
    - Data change of MPH or SP-PHI by ALIDL command (other than gaining REGMAX parameter)

14. The QoS value used for SP-PHI side is assigned by ALOCL command. Assign LOC-ID to the network address corresponding to the LAN1 IP address of the Telephony Server, and the QoS value assigned to the LOC-ID is applied to SP-PHI.
    ToS (QoS) setting and Control Signal packet used for MG(BRI) side is assigned by AMGIL command. Media stream is assigned by AMGVL command.

15. PAD value assigned by AMGVL command and AIVCL command takes precedence.

16. Echo Canceller (EC) setting by AMGVL and AIVCL commands takes precedence.

17. Echo Canceller (EC) training function is available between MG(BRI) and ISDN network.

Note: EC training: MG(BRI) sends out EC training tone to ISDN network when station answers a call and the tone crosses ISDN network to converge echo on an early stage.

18. CODEC is assigned by AMGVL command (AIVCL command is used when no data is assigned by AMGVL command).
    Payload type and size needs to be assigned after confirming the setting condition of MG(BRI). (Contact your local NEC dealer for further information.)

19. For KIND parameter of AMGIL command, choose “ISDN trunk (BRI)[SIP].” LENS of LINE, CH0, and CH1 need to be assigned consecutively. (Example: CH0=020010, CH1=020011...) Be sure to assign CH0 to even-numbered Level. (LENS: 000000 cannot be used.)

20. The Telephony Server is responsible for timing control of call originating guard timer, which needs to be assigned with the System Data (ASYD SYS1 Index474). Value “256ms” is default.

21. [S-127D] Serial Call - D cannot be operated toward the calls terminating through MG(BRI).

22. Use DIMG command to display the MG(BRI) registration status.

Service Conditions for MG External hold-tone

1. This feature is effective when Music-on-Hold service is effective (ASYD SYS1 Index64 bit7=1).

2. Each MG(BRI) can choose hold-tone to send out by AMGIL command. This assignment takes precedence over the data by ASYDL SYS1 Index810 bit2. This System Data is used to choose the hold-tone when nothing is assigned for AMGIL command.

Assignment per MG(BRI) (AMGIL command)	External Music-on-Hold feature to IP terminals (ASYDL SYS1 Index810 bit2)	Sound source of hold-tone to be used
Not assigned	Internal hold-tone (IP terminal) (=0)	MG(BRI) External hold-tone. (MG(BRI) Internal hold-tone 1 is used when no external input source is connected)
	External Hold-tone (=1)	Telephony Server External hold-tone. (MG(BRI) External hold-tone is used when IPPAD card is not available)
External hold-tone	- (Regardless to the setting)	MG(BRI) External hold-tone. (MG(BRI) Internal hold-tone 1 is used when IPPAD card is not available)
Internal hold-tone 1		MG(BRI) Internal hold-tone 1
Internal hold-tone 2		MG(BRI) Internal hold-tone 2

3. MG(BRI) External hold-tone is used when External Music-on-Hold of the system is assigned, but it cannot be used when the external music source is unavailable (no IPPAD card, line all busy).

4. When MG(BRI) External hold-tone is selected but nothing is connected to MUSIC connector, MG(BRI) will select the Internal hold-tone 1. When external music source is connected to MUSIC connector after that, MG(BRI) can then select the External hold-tone.

5. External Music-on-Hold (External Music-on-Hold and Expanded hold-tone) of the system or MG(BRI)'s External hold-tone can be chosen. But those types of hold-tone cannot be used on one MG(BRI).

6. When MB MG(BRI)'s External hold-tone is selected, Gain value can be assigned to each MG(BRI) individually by AMGIL command.

Service Conditions for MG(BRI) Emergency Telephone

1. MG(BRI) is switched to Emergency Telephone mode on the following conditions:

   - When the communication between the system and MG(BRI) is disconnected and Health Check timer expires (approximately 150 seconds) in the MG(BRI).
   - When any fault occurs in the MG(BRI).
   - When MG(BRI) power down occurs.
   - When the system detects Health Check time-out (approximately 150 seconds) between the system and MG(BRI), and the system requests MG(BRI) to reset.
   - When office data is deleted (all channels were deleted by the AMGIL command).
   - When AMGIL command specifies Emergency Telephone mode and executes resetting the MG(BRI).

2. Whether to keep Emergency Telephone mode or to switch to operation mode can be chosen when starting MG(BRI) by AMGIL command.

3. When switching to operating mode from Emergency Telephone mode (in on-line state), specify the operating mode by AMGIL command and execute resetting the MG(BRI). (The “on-line” here means the condition that the MG(BRI) has completed registration to the system.)

4. Reboot request by AMGIL command is only effective when MG(BRI) is in on-line state. It cannot be operated when power of MG(BRI) is off or Ethernet link is not established.

5. Regardless of the setting on AMGIL command, MG(BRI) is switched from operation mode to Emergency Telephone mode automatically when any failure is detected.

6. Because Emergency Telephone is connected directly to the public ISDN network, it cannot call stations or external lines of the system.

7. All on-going communication will be disconnected when switching to operation mode from Emergency Telephone mode because the MG(BRI) is rebooted after switching to operation mode by AMGIL command.

8. SMDR billing information cannot be output for the calls of Emergency Telephone.

9. Operation varies as shown below depending on the setting of the office data.

   (a) When both LINE0 and LINE1 are assigned.
   LINE1 cannot originate/terminate a normal call and cannot operate as an Emergency Telephone while operating in Emergency Telephone mode (LINE1 does not perform registration).

   (b) When only LINE1 is assigned
   MG(BRI) cannot start up in Emergency Telephone mode, registration is performed and starts up in operation mode.

10. When MG(BRI) is in on-line state, current operation mode can be checked by DIMG command.

2 Installation

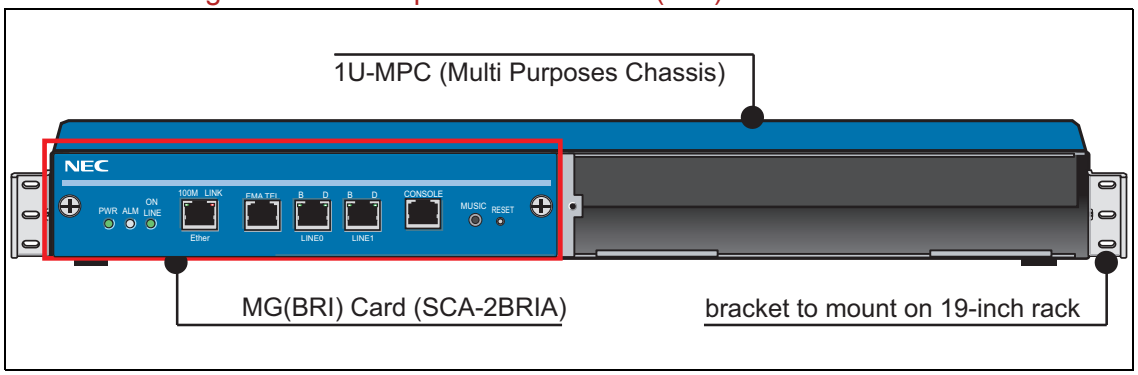
This section shows how to install the hardware required for using MG(BRI). Be sure to take measures to anti-static electricity.



2.1 How to Set MG(BRI)

- MG(BRI) Card [SCA-2BRIA/SCA-2BRI-B]

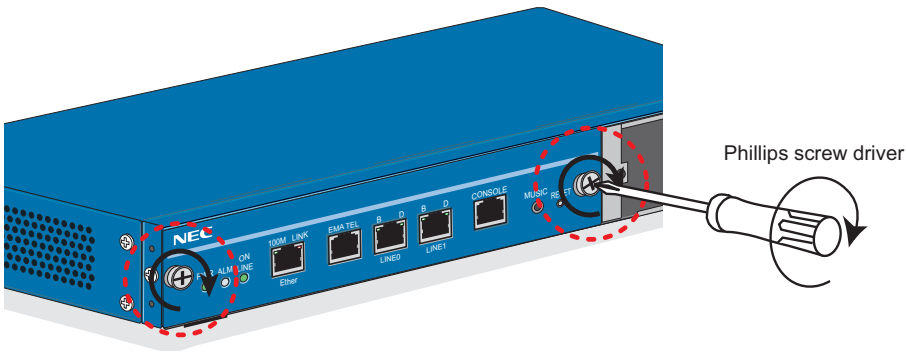
Note: This figure is an example to mount a MG(BRI) in the left slot on 1U-MPC.



STEP 1: Insert MG(BRI) to 1U-MPC

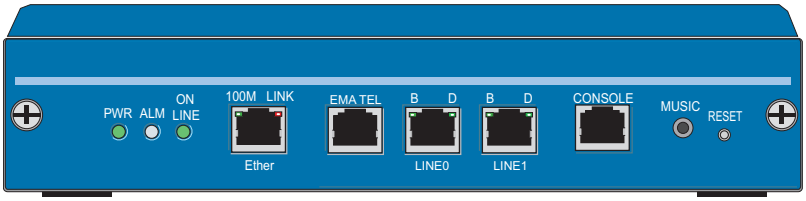


STEP 2: Secure the MG(BRI) to 1U-MPC fixing two screws on right and left sides.



- MG(BRI) Box [MG-2BRIA]

  MG(BRI) Box is set as the following. Be sure to place MG(BRI) Box on the flat surface.



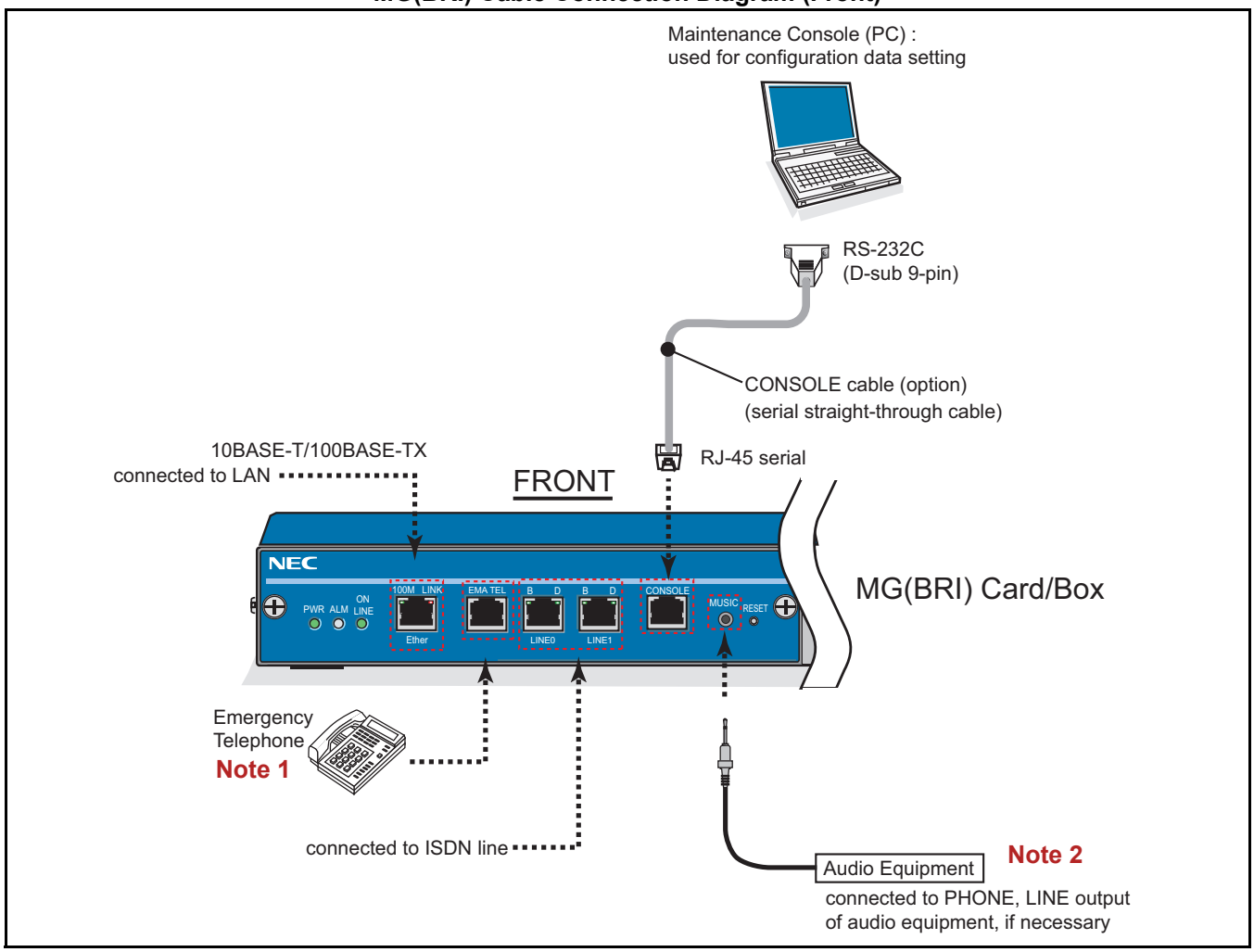
2.2 Cable Connection

This section shows the cable connection to the MG(BRI). MG(BRI) provides the following interfaces:

- Connection to LAN
- Connection to ISDN
- Connection of Emergency Telephone
- Serial Port Connection to Maintenance Console
- Connection to Audio Equipment for external music-on-hold
- Power Supply

Connect the required cables according to the system configuration. General description of cable connection for MG(BRI) is explained in the diagram below.

MG(BRI) Cable Connection Diagram (Front)



Note 1: Emergency Telephone: Connects one emergency telephone line directly to the ISDN Network. It is used in case when ISDN line of the equipment is not available because of power failure or IP network failure, etc. TA (Terminal Adapter) is necessary when using the Analog Telephone Terminal.

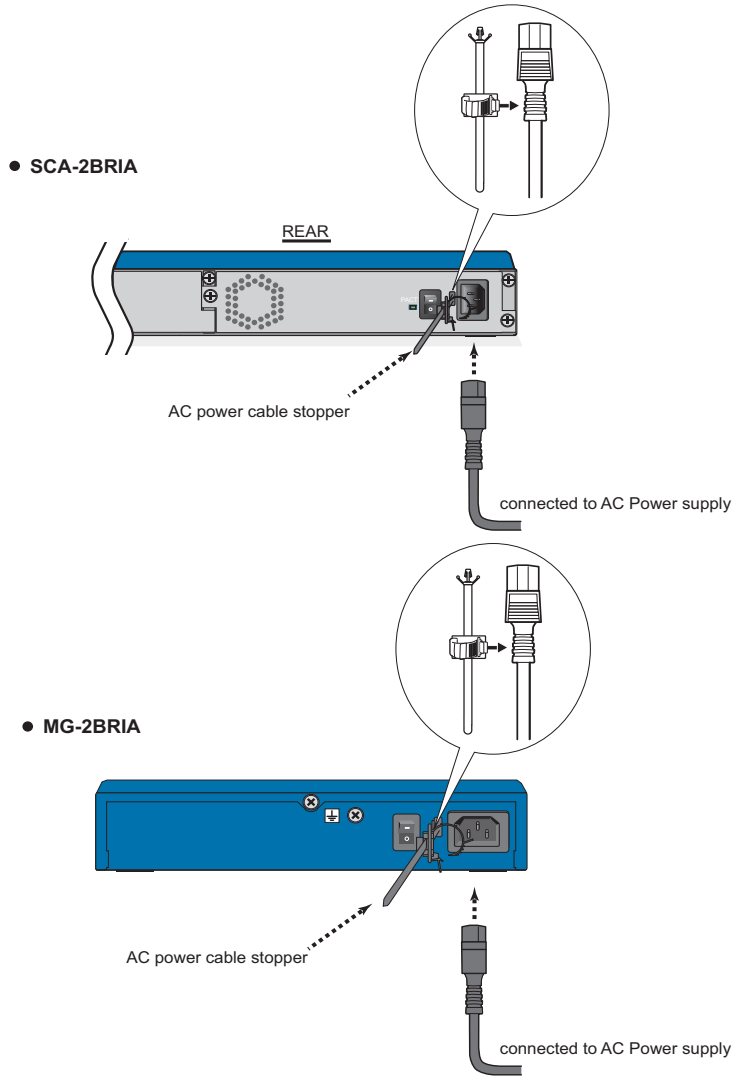
Note 2: Cable of external hold tone source needs to be conformed with all-purpose 3.5ϕ mono-aural ear phone jack. Adjustment of output level for external hold tone source needs to be started from low and to higher to avoid over current. The tuning of volume level sent is to be done by monitoring from the telephone terminal connected over the ISDN network and tuning the output level of external hold tone source or tuning the gain with the AMGIL command. Gain tuning can be done by following four steps of “0dB”, “-10dB (gain)”, “-15dB (gain)”, “-20dB (gain)”. (The gain value decreases when the PAD is assigned at minus value, to turn up the level of external music-on-hold.) Input impedance from the external hold tone source needs

to be within the ranges of 8Ω - 50kΩ. Make sure not to exceed this range.
If audio equipment has a ground terminal, be sure to make proper connection to grounding of audio equipment.

Note: Do not connect LAN and ISDN line here. These cables are connected in Section 3 Startup MG(BRI) and Basic Tests.

STEP 1: AC power cable connection

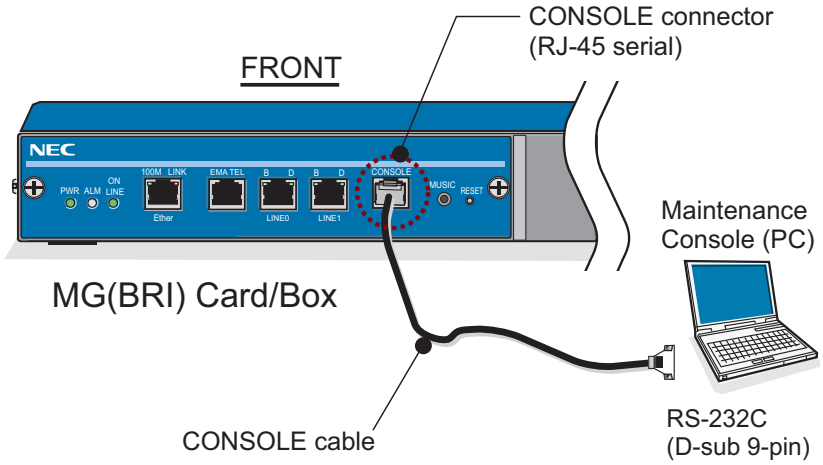
Connect the AC power cable to AC Power Inlet on the rear panel of 1U-MPC. Fix the AC power cable with the stopper.



Connect the other end of the power cable to appropriate AC supply.

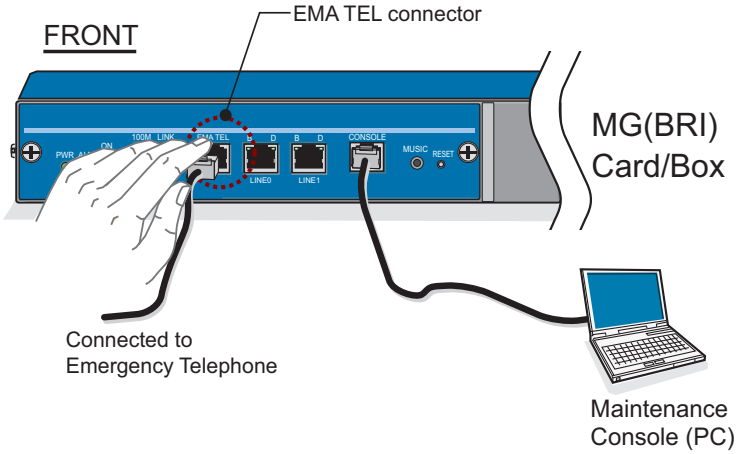
Note: For the safety measures against static electricity, lightning strike, and other electrical surges, be sure to make proper connection to grounding (less than 10 Ω). As MG(BRI) has ISDN interface, if the line cable is struck by lightning directly, the lightning might cause damage to MG(BRI) and AC power cable without Ground connection.

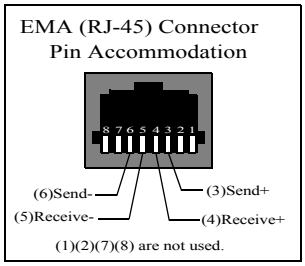
STEP 2: Connect a maintenance terminal (PC) to CONSOLE connector using CONSOLE cable.



STEP 3: Connect ISDN telephone terminal to EMA TEL connector to be used in emergency case.

Note: Emergency Telephone: ISDN Telephone or TA + Analog Telephone



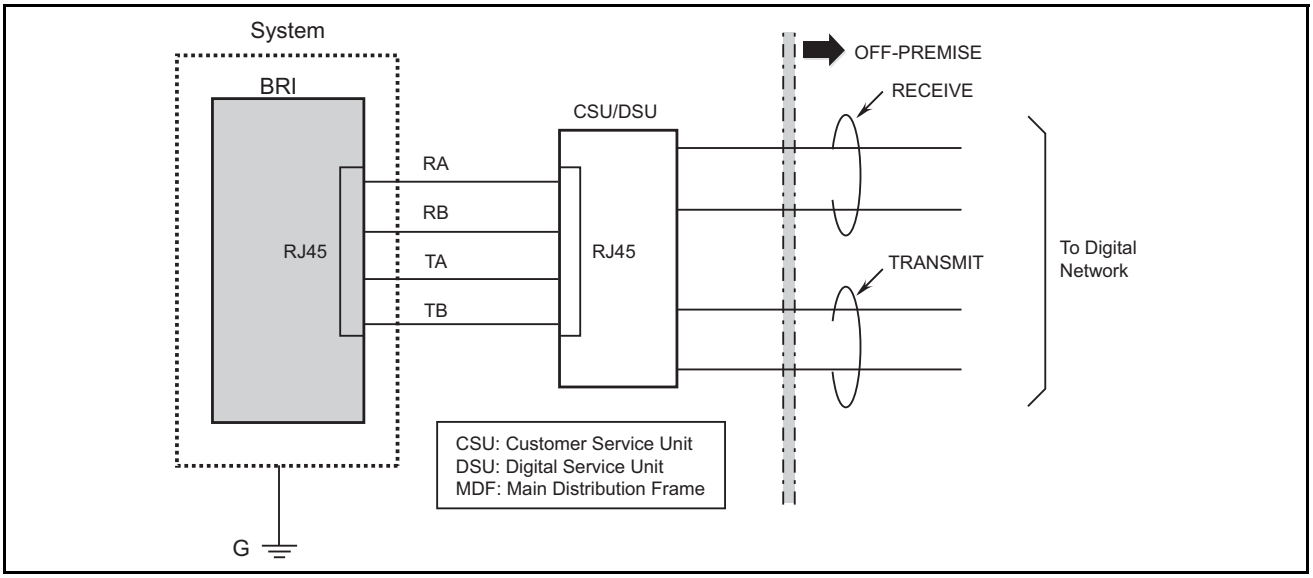


Note: ISDN Lines and LAN cables are connected in Section 3 Startup MG(BRI) and Basic Tests. Do not connect these cables here.

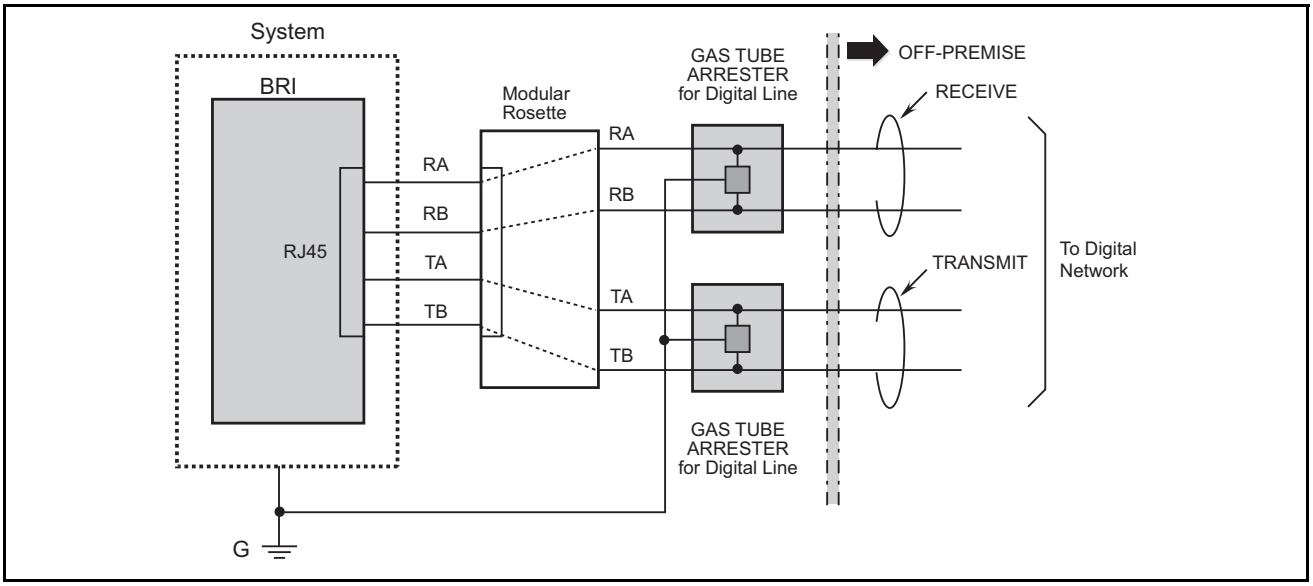
2.3 Safety Instructions

(1) For Digital interfaces, a CSU/DSU may be required for proper operation. When choosing a CSU/DSU, make sure that it is provided with suitable lightning protection. If this is not the case gas tube arresters as specified elsewhere in this manual must be connected to the involved interface wiring.

Note: The Ethernet ports are not intended to be connected directly to outdoor cables.



(2) When installing the MG(BRI) connected to off-premise site, connect gas tube arresters across each transmit and receive lines as shown in Figure below.



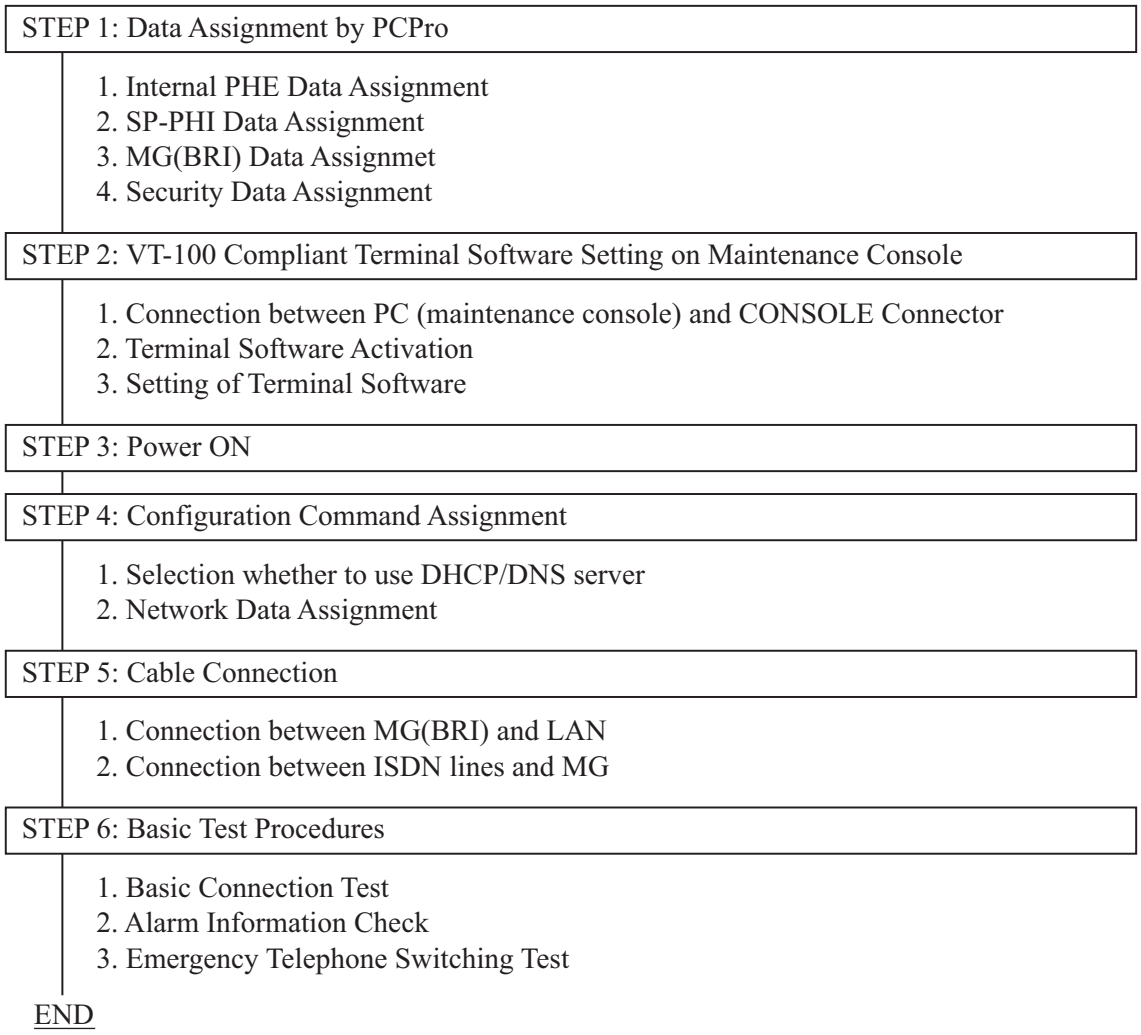
- Specifications

  Specifications of the gas tube arrester for digital line to be provided are as follows.

PARAMETER	SPECIFICATIONS
Transmission bandwidth	DC to 2MHz
Transmission loss	Less than 0.5dB
Longitudinal balance	More than 50dB
Nominal decoupling resistance	1ohm±0.5%
Operating voltage	DC 60V Max.
Nominal DC spark-over voltage	90V
Impulse spark-over voltage (at 1.2/50μs 6kV)	1500V (at initial max. voltage; 0 to 10μs) 20V (at more than10μs)
Nominal discharge current	100 A (at 10/200μs)

3 Startup MG(BRI) and Basic Tests

This section explains procedures for startup and basic tests. Follow the procedure below.



3.1 Data Assignment by PCPro

This section explains the data assignment procedures to the Telephony Server by PCPro.

[1] Internal PHE Data Assignment

MG(BRI) is registered to SP-PHI. In this case, MPH is used to control SP-PHI. For the use of MPH, it is required to make Internal PHE function valid. So Internal PHE data assignment is necessary.

[2] SP-PHI Data Assignment

MG(BRI) is registered to SP-PHI. So SP-PHI data assignment is necessary.

[3] MG(BRI) Data Assignment

Assign the necessary System Data for using MG(BRI).

ASYD (Assignment of System Data)

SYS1

INDEX 64, b0: 0/1=μ-law/A-law of CODEC (depends on the country)
INDEX 186, b6=1 (ISDN is in service)
INDEX 187=00 (Fixed)
INDEX 474 Guard Timer for Originating Call (MTC×TC)
bit 0-3: MTC (Timer Counter)
bit 4-6: TC (Timer Class), assign 1H (64 milliseconds)

ASYDL (Assignment of System Data for LDM)

SYS1

INDEX 810, b2: 0/1=Internal Music-on-Hold of IP terminal/External Music-on-Hold **Note 1**
INDEX 811: Tone Code (depends on the country). For more information, refer to the Command Manual.
INDEX 818, b6=1 (ETSI ISDN is supported) **Note 2**
INDEX 824, b4: 0/1=EC training feature of MG disabled/enabled

Note 1: Effective only when nothing is assigned for AMGIL command.

Note 2: Effective when Interface type of Route Class Data is INT: 6. Assign this system data only for Australia.

ARTD (Assignment of Route Class Data)

Assign the Route Class Data of Virtual Speech Channel.

CDN65 (INT): Interface Specification for ISDN
CDN60 (TC/EC): 1 (TC)
CDN114 (DCH): 1 (Channel Integration Enabled)

Note: Refer to ARTD section in the Command Manual for your country's specification.

ARTI (Assignment of Trunk Application Data)

Assign the application data for Trunk in Virtual Speech Channel.

CDN68 (VIR): 2 (MG connection)
CDN89 (REGION) 1 (ETSI-ISDN) *Required for ETSI ISDN (EMEA) only.

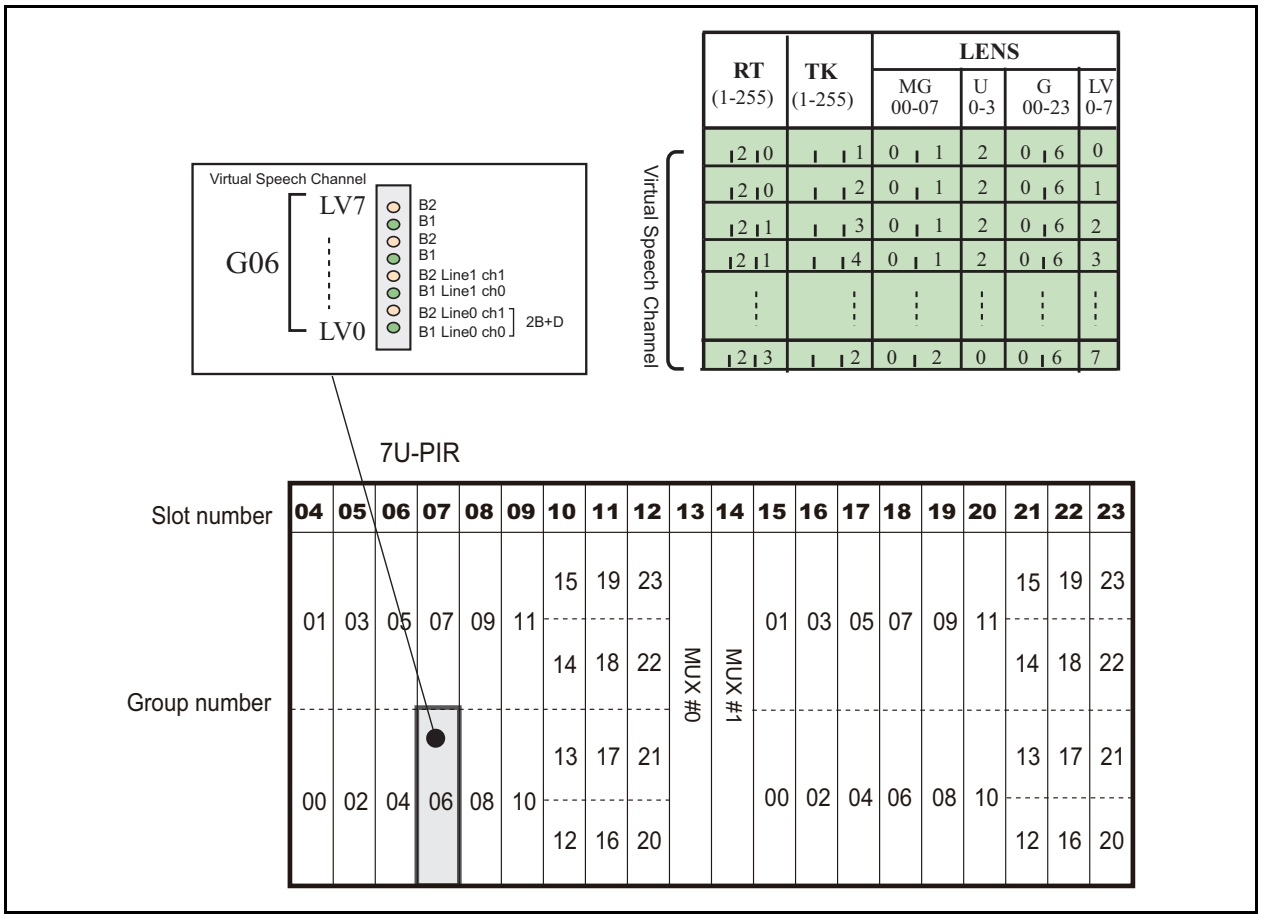
Assign the following value for the ISDN line to connect.

CDN91 (EU_OPT): 0 = Automatic Connection/P-to-P Connection
1 =Non-automatic Connection/P-to-P Connection
2 = Automatic Connection/P-to-M Connection
3 =Non-automatic Connection/P-to-M Connection

ATRK (Assignment of Trunk Data)

Assign the Trunk Data to Virtual Speech Channel.

Note: - MG(BRI) occupies the whole group when one channel is assigned.
- Do not assign the trunk data to even-numbered MG, U=0, and G=00. It is not available for MG(BRI).



MBTK (Make Busy of Trunk)

Cancel the Make-Busy of Virtual Speech Path.

RT: Route Number
TK: Trunk Number
MB: 0=Make-Busy Cancel

AMGIL (Assignment of Media Gateway Information for LDM)

Note: Make sure to assign in order of ATRK → AMGIL.

Assign MG(BRI).

MG-ID: MAC Address of MG(BRI) (6 byte of HEX data)
** MAC address is labeled on the left front of MG(BRI) (below PWR lamp).*
FUNCTION: Setting (to assign MG information)
KIND: ISDN Trunk (BRI)[SIP]
LINE: 0/1 (MG Line Number)
CH: 0/1 (Channel B1/Channel B2)
LENS: Accommodating Location of Virtual Speech Channel
** Make sure that LENS assigned here already has been assigned by the ATRK.*
Setting Type of Signaling Packet Service:
Place the check box ON to assign ToS data for signaling control of MG(BRI).
IP Precedence [0-7]/Diffserv [00-63]
Music On Hold Exists:Place the check box ON to select hold-tone type.
External Music On Hold Input Gain Adjustment
Select Input gain adjustment.
0=0dB (default)
1=-10dB (gain)
2=-15dB (gain)
3=-20dB (gain)
Internal Music-on-Hold 1
Internal Music-on-Hold 2

Note: The gain value decreases when the PAD is assigned at - (minus) value, to turn up the level of external music-on-hold.

Emergency Telephone: Automatically Cancel/Manually Cancel
FUNCTION:RESET
ACTION AFTER RESET: Startup with operation mode/Startup with emergency telephone mode

Note: Both channels CH0 and CH1 need to be assigned together. Do not assign individually. (Same condition is applied when deleting the data)

AMGVL (Assignment of Media Gateway Voice Control Data for LDM)

Assign the Voice control data to connect to MG(BRI).

Note: AIVCL command setting turns effective if AMGVL is not assigned.

A RT (Storing MG):Route number of virtual speech channel used for MG(BRI).
TYPE: Select “Route Specified” or “Location ID Specified”.
B RT (MG Storing): Displayed when TYPE=Route Specified is selected.
Used when connecting MG(BRI) and MG(BRI) in Tandem. Assign the route number of virtual speech channel for the destination MG(BRI).
B LOC-ID: Displayed when TYPE=Location ID Specified is selected.
Assign the location ID where the destination IP station belongs. (Preferred)
Setting of Jitter Buffer:JB_MIN [0-30 (×10 milliseconds)], JB_MAX [0-30 (×10 milliseconds)]
Setting Type of Voice Packet Service: IP PRECEDENCE [0-7]/DIFFSERV [00-63]
Setting of Payload: TYPE, SIZE **Note 3**

Note 3: For using this parameter, refer to "Payload Setting for Each IP Equipment" in the System Description.

Setting of PAD: Click this check box when setting data for PAD value of MG.
PAD Information: This parameter is available only when the check box of “Setting of PAD” is ON.

No: The meaning of each number is as follows:

No = 1: The PAD value of MG when DtermIP/Soft Phone/INASET is connected
No = 2: The PAD value of MG when Analog MC/Digital MC is connected
No = 3: The PAD value of MG when IPPAD is connected
No = 4: The PAD value of MG when MG is connected

Setting of Echo Canceller: Click this check box for the setting of Echo Canceller.

EC TYPE: This parameter is available only when the check box of “Setting of Echo Canceller” is ON. Select either of the radio buttons for specifying the type of Echo Canceller.

•A EC-ON/B EC-ON
•A EC-ON/B EC-OFF **Note 4**
•A EC-OFF/B EC-ON **Note 4**
•A EC-OFF/B EC-OFF

Note 4: Not effective when A RT=B RT.

[4] Security Data Assignment

Assign authentication data.

ASECL (Assignment of Security Data for LDM)

Assign one time password and its effective time.

ONE TIME PASSWORD: Assign One Time Password to be used for authentication procedure to execute MG(BRI) registration. [4-10 digits with numerics, - (hyphen), . (period)]
AVAILABLE PERIOD: Specify the expiration date of the one time password. [No limit/1-7 days]

Note: Assign the same One Time Password to MG(BRI) by configuration data.

Note: One Time Password will be lost during a power reset.

[*] Data Deletion

Deletion must be operated in the reverse order of assignment. Make sure to delete in the order of AMGIL → ATRK. (Confirm there is no data left in AMGIL before deleting ATRK)

Note: Do not delete “ASYDL SYS1 Index 810 Bit2” if external hold tone provided by the system is to be used.

Note: Other MG equipment shares the ALIDL data, so be careful in deleting.

3.2 VT-100 Compliant Terminal Software Setting on Maintenance Console



Note: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data.

STEP 1: Connect a PC (maintenance console) to the CONSOLE connector.

STEP 2: Run VT-100 compliant terminal software (e.g. HyperTerminal) on the Maintenance Console.

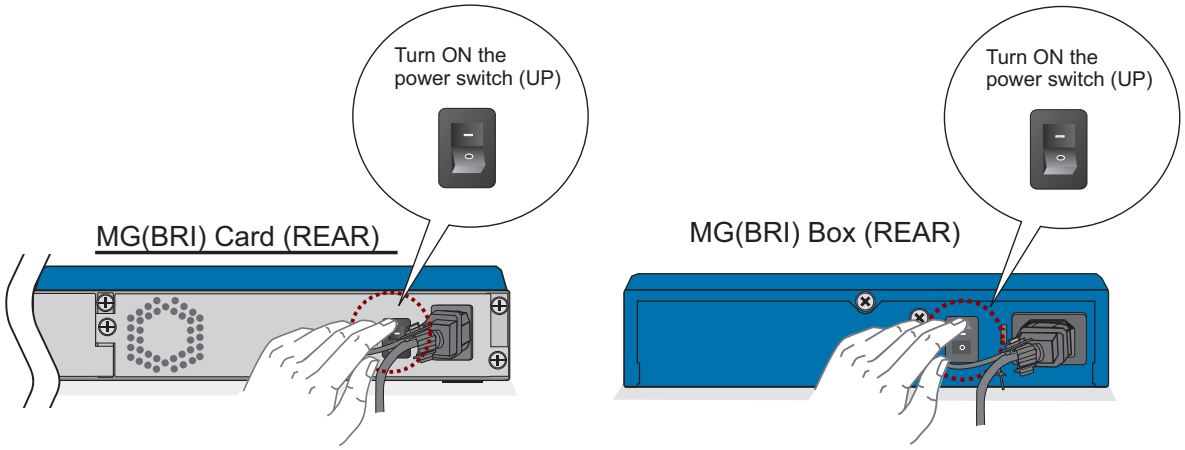
STEP 3: Set the parameter of the terminal software as follows:

- Port: *COM1 (depending on PC setting)*
- Baud Rate: *9600 bps*
- Data: *8 bits*
- Parity: *None*
- Stop Bit: *1*
- Flow Control: *None*

3.3 Power On

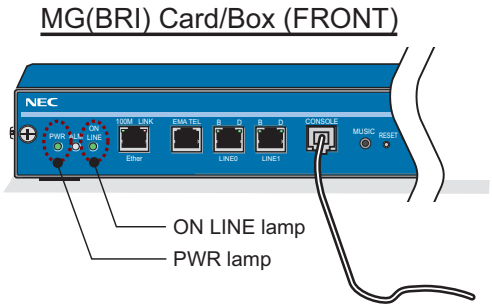
ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

STEP 1: Turn ON the power switch (UP) on the rear panel.



Note: When the 1U-MPC has already turned on, press "RESET" button on the front panel of MG(BRI) Card to restart the card and start its boot program.

STEP 2: Make sure the LEDs indicate normal status.
- PWR LED lights green.
- (Boot program automatically starts.)
- ON LINE lamp lights green when the sequence is completed.



3.4 Configuration Command Assignment

Assign the configuration data by command operation on maintenance console.

Note: "SIP server" used in this section refers to the Telephony Server. The Telephony Server acts as SIP server for MG(BRI) using SIP.

Note: The setting data here is an example. Assign the network data adjusting to your network configuration.

STEP 1: Boot Program starts by turning the power ON or pressing RESET button on the front panel.

STEP 2: Press ESC key when the starting boot program message shown below appears.

```
Starting MG-BRI boot program...
```

Main menu of boot mode is displayed and configuration command entry is available on the maintenance console.

STEP 3: Enter "1" after [Input:] then press Enter key.

```
-<Boot mode>Main menu-
Configuration data.     --- input: 1
Quit                    --- [Q/q]
Input: 1
```

STEP 4: Main menu of the configuration mode appears. Enter "1" after [Input:] then press Enter key to start Standard mode.

```
-<Configuration mode>Main menu-
Standard                --- input: 1
Custom                  --- input: 2
Quit                    --- [Q/q]
Input: 1
```

Note: Configuration command has two modes; Standard mode and Custom mode. Use Standard mode when starting up MG(BRI) for the first time to assign the basic data for connecting network. See Section 4.5 How to Use Maintenance Command for the detailed information of each command.

STEP 5: Assign whether DHCP server and DNS server are used or not.

(1) DHCP server enable/disable setting

```
--- DHCP Interface set ---
Current DHCP Interface: DISABLE
Change DHCP Interface? [Y (change)/N (current)/Q (quit)]: y
Input new DHCP Interface [E (enable)/D (disable)]: e
```

(2) DNS server enable/disable setting

```
--- DNS Interface set ---
Current DNS Interface: ENABLE
Change DNS Interface? [Y (change)/N (current)/Q (quit)]: y
Input new DNS Interface [E (enable)/D (disable)]: d
```

STEP 6: Assign network data according to the setting of DHCP server and DNS server.

- When DHCP Server is Enabled
- When DHCP Server is Disabled

- **When DHCP Server is Enabled**

  Assign the following network data on MG(BRI) side.

  - Ethernet Speed
  - Signaling Port Number
  - RTP Start Port Number
  - Signaling QOS
  - VLAN

1. Ethernet Speed

```
--- Ethernet Speed set ---
Current LAN Speed: 100MBPS_FD
Change LAN Speed? [Y (change)/N (current)/Q(quit)]: y


Input new Speed [1 (AUTO)/2 (100M)/3(10M)]: 2



Input new DUPLEX [F (full)/H (half)]: f
```

Current data setting is displayed.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Select the transmission speed of LAN interface.
1: Auto negotiation (default)
2: 100 Mbps fixed mode
3: 10 Mbps fixed mode

Select the Duplex mode.
F: Full duplex mode
H: Half duplex mode

Note: DUPLEX setting is not displayed when Auto negotiation is selected.

Note: Assign the proper speed adjusting the network devices (router, HUB) on the destination.

2. Signaling Port Number

```
--- Signaling Port Number set ---
Current Signaling Port Number: 64000
Change Signaling Port Number? [Y(change)/N(current)/Q(quit)]: y


Input new Signaling Port Number (1024-65535): 65000
```

Current data setting is displayed.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the port number of PHI signaling.
Port number: 1024~65535
(default = 64000)

Note: Specify the same port number assigned on SIP server (Telephony Server).

3. RTP Start Port Number

```
--- RTP Start Port Number set ---
Current RTP Start Port Number: 1024
Change RTP Start Port Number Port Number? [Y (change)/N
(current)/Q(quit)]: y

Input new RTP Start Port Number (1024-65512): 1024
```

Current data setting is displayed.

Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the first port number to be used for RTP.
Port number: 1024~65512 (default = 1024)

Note: Assign any even-numbered port number to the RTP start port. The specified data + 1 (the next odd-numbered port number) is assigned as the RTCP port number.

Note: 24 ports are occupied following the RTP start port. More than 24 of consecutive vacant ports must be reserved from the specified port number to the last 65535.

4. Signaling QOS

```
--- Signaling QOS set ---
Current Signaling QOS: IP Precedence [0xC0]
Change Signaling QOS? [Y (change)/N (current)/Q(quit)]: y


QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:d
```

Current data setting is displayed.

Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Select the QoS type.
I: IP Precedence
D: DIFFSERV

When I: IP Precedence is selected:

```
QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:i
PRECEDENCE(0-7: 6):6
DELAY(0/1): 0


THROUGHPUT(0/1: 0):0


RELIABILITY(0/1: 0):0


COST(0/1:0):0
```

Precedence in IP network (0-7) (6: Default)

Precedence of Low Delay in IP network
0: Not specified (Default)
1: Specified

Precedence of Throughput in IP network
0: Not specified (Default)
1: Specified

Precedence of Reliability in IP network
0: Not specified (Default)
1: Specified

Precedence of Lower Cost in IP network
0: Not specified (Default)
1: Specified

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



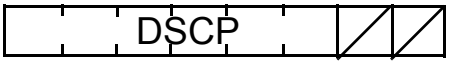
Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

When D: DIFFSERV is selected:

```
QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:d
DSCP (0-63: 48): 48
```

Enter DSCP value (0-63) (Default: 48)

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



DSCP = Differentiated Service Code Point (6 bits)

5. VLAN

```
--- VLAN Information set ---
Current VLAN Information:
  Device VLAN 1   ID   COS   IP Address      Subnetmask
                  1    7     10.41.1.200     255.255.255.0
Change VLAN Information? [Y (change)/N (current)/
Q(quit)]: y

Input new VLAN ID (0-4094): 1
Input new COS (0-7): 6
Input new IP Address: 10.41.1.200
Input new Subnet mask: 255.255.255.0
```

Current data setting is displayed.

Y: To change the displayed data
N: Not change
Q: Quit Standard mode

VLAN ID: 0-4094

CoS setting: 0-7

Enter the IP address of VLAN.

Enter the subnet mask of VLAN.

Note: Do not assign the following addresses (network address, broadcast address) to MG(BRI).
(example)
- IP address 192.168.1.0/Subnet mask 255.255.255.0 (192.168.1.0 is network address, improper)
- IP address 176.16.0.0/Subnet mask 255.255.0.0 (176.16.0.0 is network address, improper)
- IP address 192.168.1.255/Subnet mask 255.255.255.0 (192.168.1.255 is broadcast address, improper)
- IP address 176.16.255.255/Subnet mask 255.255.0.0 (176.16.255.255 is broadcast address, improper)

As IP address of MG(BRI), Default Gateway, and the Telephony Server is got by DHCP server, there is no need to assign these network data on MG(BRI) side. IP addresses listed below, however, need to be assigned on DHCP server side. **Note 1**

- IP address of Default Gateway

- IP address of the Telephony Server **Note 2**

Note 1: Check the number of IP address saved in DHCP server is sufficient so as to get IP address of MG(BRI) anytime.

Note 2: DHCP option setting is as follows:
Class: Global
Name: Not specified, but do not enter the same option name in duplicate
Data: IP address
Array: Checked
Code: 162

- **When DHCP Server is Disabled**

  The following listed items need to be assigned on MG(BRI).

  - IP address of DNS server (*only when DNS server is used)
  - IP Address and Subnetmask of MG(BRI)
  - Host Name of MG(BRI) (*can be skipped when DNS server is not used)
  - IP address of Default Gateway
  - IP address and Port Number of SIP server (*only when DNS server is not used) **Note 3**
  - Host name of SIP server
  - Ethernet Speed
  - Signaling Port Number
  - RTP Start Port Number
  - Signaling QOS
  - VLAN

  Note: IP addresses assigned here are not effective when DHCP server is set to "Enabled." Confirm to set DHCP server to "Disabled" before setting these IP Addresses.

  Note 3: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

1. IP address of DNS server

```
--- DNS IP Address set ---
Current DNS IP Address: 0.0.0.0
Change DNS IP Address? [Y (change)/N (current)/Q(quit)]: y


Input new DNS IP Address: 10.40.1.150
```

Current data setting is displayed.

Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the IP address of DNS server.

2. IP Address and Subnetmask of MG(BRI)

```
--- IP Address & Subnetmask set ---
Current IP Address: 0.0.0.0
Current Subnetmask: 0.0.0.0
Change IP Address and Subnetmask? [Y (change)/N
(current)/Q(quit)]: y

Input new IP Address: 10.40.1.100
Input new Subnet mask: 255.255.255.0
```

Current data setting is displayed.

Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the IP address of MG(BRI).

Enter the Subnet Mask of MG(BRI).

Note: Do not assign the following addresses (network address, broadcast address) to MG(BRI).
(example)
- IP address 192.168.1.0/Subnet mask 255.255.255.0 (192.168.1.0 is network address, improper)
- IP address 176.16.0.0/Subnet mask 255.255.0.0 (176.16.0.0 is network address, improper)

- IP address 192.168.1.255/Subnet mask 255.255.255.0 (192.168.1.255 is broadcast address, improper)
- IP address 176.16.255.255/Subnet mask 255.255.0.0 (176.16.255.255 is broadcast address, improper)

3. Host Name of MG(BRI)

```
--- Host Name set ---
Current Host Name: blank
Change Host Name? [Y (change)/N (current)/Q(quit)]: y


Is there the Host Name? [Y/N]: y


Input new Host Name: mgbri.nec.com
```

Current data setting is displayed.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Asked whether to use host name.
Y: Use host name
N: Not use host name

Enter the MG(BRI)'s host name in full-domain. (up to 63-byte of characters, . (period) and - (hyphen) is available)

4. IP address of Default Gateway

```
--- Default Gateway IP Address set ---
Current Default Gateway: 0.0.0.0
Change Default Gateway? [Y (change)/N (current)/Q(quit)]: y


Input new Default Gateway: 10.40.1.254
```

Current data setting is displayed.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the IP address of Default Gateway.

Note: Specify the Default Gateway in the same subnet of MG(BRI).

5. IP address and Port Number of SIP server

See the following.

6. Host name of SIP server

```
--- SIP Server IP Address & Host Name set ---
Current SIP Server/IP Address/Port Number/Host Name:
SIP Server   IP Address    Port Number    Host Name
1            0.0.0.0       0              blank
2            0.0.0.0       0              blank
3            0.0.0.0       0              blank
:            :             :              :
 -omit-
Change SIP Server Information? [Y (change)/N (cur-
rent)/Q(quit)]: y


Input new SIP Server (1-20): 1
Input new IP Address: 10.41.1.150
```

Current data setting is displayed.

Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the SIP server number.

Enter the IP address of SIP server.

```
Input new Port Number: 5060
Is there the Host Name? [Y/N]: y


Input new Host Name: SVR1.nec.com


Continue? [Y (continue)/N (exit)]: n
```

Enter the port number of SIP server.

Asked whether to use host name.
Y: Use host name
N: Not use host name

Enter the SIP server's host name in full-domain. (up to 63-byte of characters, . (period) and - (hyphen) is available)

Asked whether to continue this command setting.
Y: Continue to set other SIP server
N: Go on to the next command

7. Ethernet Speed

```
--- Ethernet Speed set ---
Current LAN Speed: 100MBPS_FD
Change LAN Speed? [Y (change)/N (current)/Q(quit)]: y


Input new Speed [1 (AUTO)/2 (100M)/3(10M)]: 1
```

Current data setting is displayed.

Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Select the transmission speed of LAN interface.
1: Auto negotiation (default)
2: 100 Mbps fixed mode
3: 10 Mbps fixed mode

Note: DUPLEX setting is not displayed when Auto negotiation is selected.

Note: Assign the proper speed adjusting the network devices (router, HUB) on the destination.

8. Signaling Port Number

```
--- Signaling Port Number set ---
Current Signaling Port Number: 64000
Change Signaling Port Number? [Y(change)/N(current)/Q(quit)]: y


Input new Signaling Port Number (1024-65535): 65000
```

Current data setting is displayed.

Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the port number of PHI signaling.
Port number: 1024~65535
(default = 64000)

Note: Specify the same port number assigned on SIP server (Telephony Server).

9. RTP Start Port Number

```
--- RTP Start Port Number set ---
Current RTP Start Port Number: 1024
Change RTP Start Port Number Port Number? [Y (change)/N
(current)/Q(quit)]: y

Input new RTP Start Port Number (1024-65512): 1024
```

Current data setting is displayed.

Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the first port number to be used for RTP.
Port number: 1024~65512 (default = 1024)

Note: Assign any even-numbered port number to the RTP start port. The specified data + 1 (the next odd-numbered port number) is assigned as the RTCP port number.

Note: 24 ports are occupied following the RTP start port. More than 24 of consecutive vacant ports must be reserved from the specified port number to the last 65535.

10. Signaling QOS

```
--- Signaling QOS set ---
Current Signaling QOS: IP Precedence [0xC0]
Change Signaling QOS? [Y (change)/N (current)/Q(quit)]: y


QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:d
```

Current data setting is displayed.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Select the QoS type.
I: IP Precedence
D: DIFFSERV

When I: IP Precedence is selected:

```
QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:i
PRECEDENCE(0-7: 6):6
DELAY(0/1): 0


THROUGHPUT(0/1: 0):0


RELIABILITY(0/1: 0):0


COST(0/1:0):0
```

Precedence in IP network (0-7) (6: Default)

Precedence of Low Delay in IP network
0: Not specified (Default)
1: Specified

Precedence of Throughput in IP network
0: Not specified (Default)
1: Specified

Precedence of Reliability in IP network
0: Not specified (Default)
1: Specified

Precedence of Lower Cost in IP network
0: Not specified (Default)
1: Specified

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



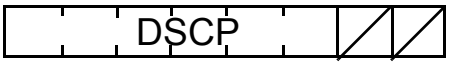
Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

When D: DIFFSERV is selected:

```
QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:d
DSCP (0-63: 48): 48
```

Enter DSCP value (0-63) (Default: 48)

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



DSCP = Differentiated Service Code Point (6 bits)

11. VLAN

```
--- VLAN Information set ---
Current VLAN Information:
  Device VLAN 1   ID   COS   IP Address      Subnetmask
                  1    7     10.41.1.200     255.255.255.0
Change VLAN Information? [Y (change)/N (current)/
Q(quit)]: y

Input new VLAN ID (0-4094): 1
Input new COS (0-7): 6
Input new IP Address: 10.41.1.200
Input new Subnet mask: 255.255.255.0
```

Current data setting is displayed.

Y: To change the displayed data
N: Not change
Q: Quit Standard mode

VLAN ID: 0-4094

CoS setting: 0-7

Enter the IP address of VLAN.

Enter the subnet mask of VLAN.

Note: Do not assign the following addresses (network address, broadcast address) to MG(BRI).
(example)
- IP address 192.168.1.0/Subnet mask 255.255.255.0 (192.168.1.0 is network address, improper)
- IP address 176.16.0.0/Subnet mask 255.255.0.0 (176.16.0.0 is network address, improper)
- IP address 192.168.1.255/Subnet mask 255.255.255.0 (192.168.1.255 is broadcast address, improper)
- IP address 176.16.255.255/Subnet mask 255.255.0.0 (176.16.255.255 is broadcast address, improper)

As IP address of MG(BRI), Default Gateway, and the Telephony Server is got by DHCP server, there is no need to assign these network data on MG(BRI) side. IP addresses listed below, however, need to be assigned on DHCP server side. **Note 4**

- IP address of Default Gateway
- IP address of the Telephony Server **Note 5**

Note 4: Check the number of IP address saved in DHCP server is sufficient so as to get IP address of MG(BRI) anytime.

Note 5: DHCP option setting is as follows:
Class: Global
Name: Not specified, but do not enter the same option name in duplicate
Data: IP address
Array: Checked
Code: 162

STEP 1: After data assignment in Standard mode is completed normally, the assigned data is listed. Enter "Y" and press Enter key when asked to save the data. The display returns to main menu of the configuration mode.

STEP 2: One Time Password setting

Move on to the Custom mode.

```
-<Configuration mode>Main menu-
Standard                --- input: 1
Custom                  --- input: 2
Quit                    --- [Q/q]
Input: 2
```

Set One Time Password for registration (e.g. 0123456789).

```
MG-BRI>set one_time_pass
One Time Password: 0123456789
```

Note: Set the One Time Password in the range of 4-10 digits (numerics 0-9, * (asterisk), # (pound sign) is available).

Note: Assigned One Time Password is deleted from the configuration setting when the first registration is completed.

STEP 3: Save the assigned configuration data.

```
MG-BRI>save config
** Don't power off in progress **
Do you need save? [Y/N]:Y
```

STEP 4: Reboot the MG(BRI) by turning the power OFF→ON or pressing RESET button.

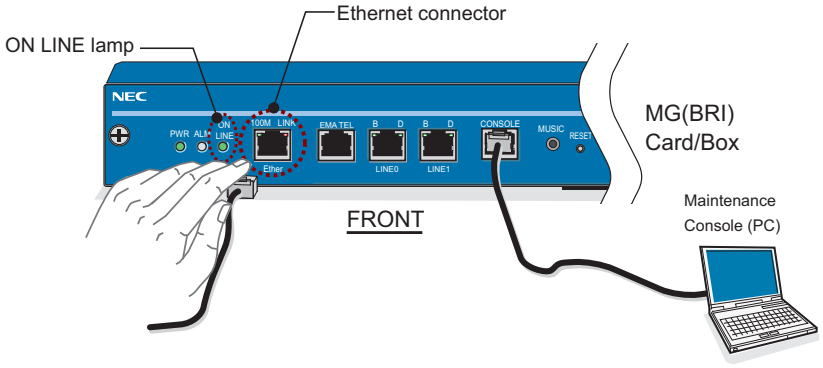
```
MG-BRI>reboot
Do you need reboot? [Y/N]:Y
```

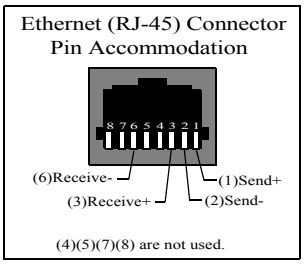
Note: MG-ID (MAC Address of MG(BRI)) is displayed after rebooting. The MG-ID needs to be assigned in AMGIL command.

3.5 Cable Connection

STEP 1: Connect MG(BRI) to the LAN.

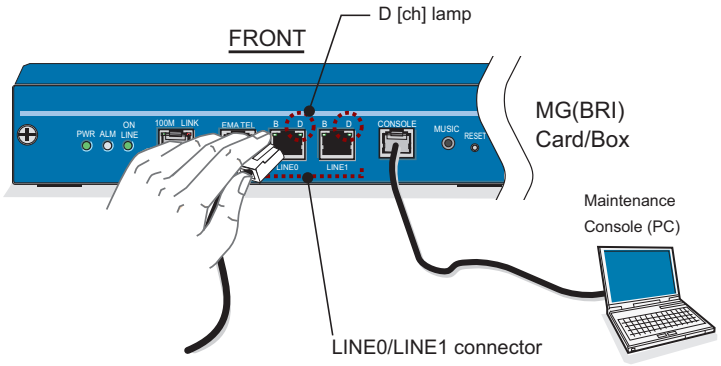
Insert LAN cable into the Ethernet connector on the front panel of the MG(BRI). ON LINE lamp lights green few minutes later after connection succeeded.

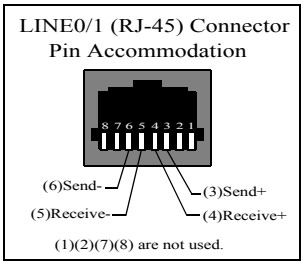




STEP 2: Connect ISDN line to MG(BRI).

Insert LINE cable of DSU into LINE0 and LINE1 connector on the front panel of the MG(BRI). Check the D lamp of LINE0/LINE1 flashes → steady lights in green when connection succeeded.





Depending on the network data acquisition status from DHCP and DNS server, whether MG(BRI) starts up or not varies as follows.

DHCP and DNS server		Network Data Acquisition Status from DHCP			Network Data Acquisition Status from DNS	Availability of Starting up MG(BRI)
		IP Address of MG(BRI) and Default Gateway, and Subnet Mask	IP Address of SIP server	IP Address of DNS, and Host Name of MG(BRI) and SIP server	IP Address of SIP server	
w/ DHCP server	w/ DNS server	Acquired	Acquired	-	-	Available
			Not acquired	Acquired	Acquired	Available
					Not acquired	Not available **Note 1** **Note 2**
				Not acquired	-	Not available **Note 1** **Note 2**
		Not acquired	-	-	-	Not available
	w/o DNS server	Acquired	Acquired	-	-	Available
			Not acquired			Not available **Note 2**
		Not acquired	-	-	-	Not available
w/o DHCP server	w/ DNS server	-	-	-	Acquired	Available
					Not acquired	Not available **Note 1** **Note 2**
	w/o DNS server	-	-	-	-	Available **Note 3**

Note 1: If the firmware issue is SP-3826 BRI MG SIP BSC PROG-A Issue 5.0 or later, if IP address of DNS server, and host name of MG(BRI) and SIP server are registered in configuration data of MG(BRI), MG(BRI) can start up by acquiring IP address of SIP server from DNS server, using the configuration data.

Note 2: If the firmware issue is SP-3826 BRI MG SIP BSC PROG-A Issue 5.0 or later, if network data required for starting up MG(BRI) could not be acquired from DHCP and DNS server, MG(BRI) will start up by using IP address of SIP server registered in the configuration data of MG(BRI).

Note 3: Configuration data is required.

3.6 Basic Test Procedures

Operation of MG(BRI) can be checked from the visual inspection of lamp display (see Lamps on the Front Panel in section 1.3 on page 483).

[1] Basic Connection Test

STEP 1: Is the PWR lamp lighting green?

[No]

- Check the AC power cable is firmly inserted.
- Check the PWR switch is ON.
- Check the AC power cable from the AC power inlet is firmly connected to power source.

[Lights green]

Go on to STEP 2.

STEP 2: Is the LINK lamp lighting green?

[No]

- MG(BRI) may not be physically connected to the LAN. Check the LAN cable between MG(BRI) and networking device. (Also check the power of Switching HUB and Routers are turned ON.)
- Check that correct cable is used (Use the Straight-through cable)
- Check that the cable is not damaged. (Test the continuity in the LAN cable.)

Replace the LAN cable or the network device if the problem is still not cleared.

[Lights green]

This lamp turns ON when MG(BRI) initially starts up and connection to LAN is established.

Go on to STEP 3.

STEP 3: Is the ON LINE lamp lighting green?

[No]

- Check the data assignment of the Telephony Server side and MG(BRI) side.

  Telephony Server: Is the data assignment on each PCPro command correct?

  MG(BRI): Check the configuration data assigned from the maintenance console.

[Lights green]

Go on to STEP 4.

STEP 4: Is the D lamp of LINE0/1 lamp lighting green?

[No]

- Check the system message of the Telephony Server.
- Check the MG(BRI) is physically connected to ISDN network.

  Also confirm the line cable between;

  - MDF and MG(BRI)

  - MDF and DSU
- Check the data assignment of the Telephony Server side and MG(BRI) side.

  Telephony Server: Is the data assignment on each PCPro command correct?

  MG(BRI): Check the configuration data assigned from the maintenance console.

[Lights green]

Go on to STEP 5.

STEP 5: Speech test through MG(BRI). Call origination/termination OK?

[Call origination/termination does not operate normally]

- Check the system message of the Telephony Server.
- Check the MG(BRI) is physically connected to ISDN network.

  Also confirm the line cable between:

  - MDF and MG(BRI)

  - MDF and DSU
- Check that the cable is not damaged. (Test the continuity in the LAN cable.)
- Check the data assignment of the Telephony Server side and MG(BRI) side.

  Telephony server: Is the data assignment on each PCPro command correct?

  MG(BRI): Check the configuration data assigned from the maintenance console.
- Check the contract status of the ISDN line.

[B lamp of LINE0/1 does not light]

- Indicates that all channels are in idle state, check the office data assignment.

[B lamp of LINE0/1 flashes]

- Flashes slow: Either of the channels is set to make-busy, and the other is in idle state. Check the office data assignment.
- Flashes fast: B1 and B2 channels are both in make-busy state. Check the office data assignment.

[B lamp of LINE0/1 lights]

- Either of the B1 or B2 channels is currently used.

[Call originated/terminated normally], [Call quality is adequate]

Connection test is completed.

[2] Alarm Information Check

- Check the Alarm Lamps. If the red lamp lights, search the cause of fault and perform the appropriate operations.

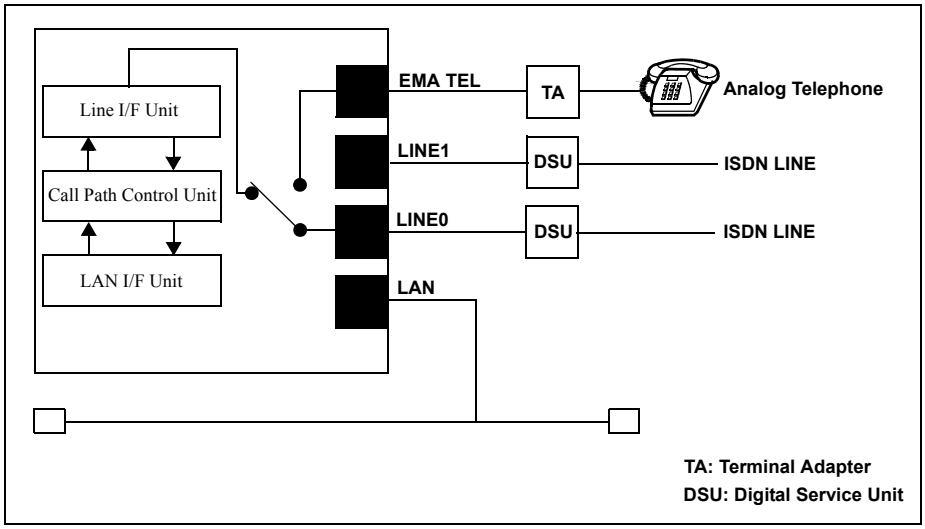
Note: ALM Lamp Check is available for SCA-24PRIA only.

- Check the system message.
  1. Display the system message using DFTD command.
  2. See the system message and confirm whether any failure occurs on MG(PRI). Recover it if needed.

  - 3-H (Digital Line Warning), 3-I (Digital Line Failure)
  - 13-J (Restoration from CCS Link Failure)
  - 33-R (IP PKG Warning), 33-S (IP PKG Failure), 33-T (IP PKG Restore)

[3] Emergency Telephone Switching Test

The general description of the “Emergency Telephone” is explained below.



Note: Telephone terminal to be connected to EMA TEL is ISDN terminal or Terminal Adapter + Analog Telephone. Only LINE0 is connected directly to ISDN line using this feature.

Connect the ISDN line to LINE0 and ISDN telephone (or TA + Analog Telephone) to EMA TEL. The cable length from DSU to ISDN terminal (or TA) must be set below 1000 meters (3280 feet).

(a) Test of MG(BRI) before completing the initialization

STEP 1: Turn OFF the MG(BRI) by switching off the power switch on the rear panel of 1U-MPC.

STEP 2: Check whether call origination/termination can be executed on Emergency Telephone.
- From the ISDN terminal (or TA + Analog Telephone) to ISDN line
- From ISDN line to ISDN terminal (or TA + Analog Telephone)

(b) Test of case when WAN is faulty

STEP 1: Start up the MG(BRI) by switching on the power switch on the rear panel of 1U-MPC. Check initialization completes and the MG(BRI) turns to ON LINE state.

STEP 2: Pull out the LAN cable from the Ether connector and wait until MG(BRI) detects the WAN fault. (About 4 minutes)

STEP 3: Check whether call origination/termination can be executed on Emergency Telephone.
- From the ISDN terminal (or TA + Analog Telephone) to ISDN line
- From ISDN line to ISDN terminal (or TA + Analog Telephone)

Note: Emergency Telephone is effective until the MG(BRI) turns to ON LINE state when turning ON the power and while in initializing state.

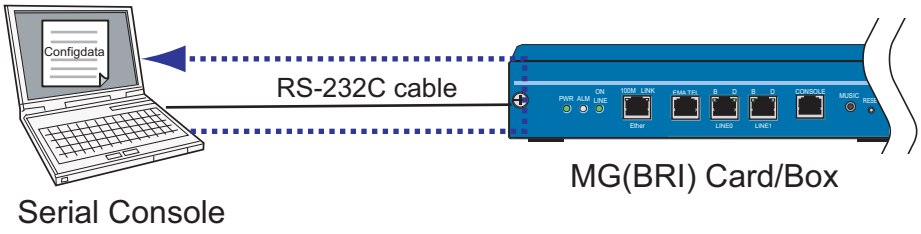
4 Operation and Maintenance

This section explains the operation and maintenance procedure of MG(BRI). Configuration data is assigned by using Maintenance Console (PC).

4.1 How to Restore Config Data by Serial Connection (Local Download)

This config download/upload is performed one by one, connecting a PC to each MG(BRI) with a RS-232C and a LAN cable. Prepare the following:

- RS-232C cable is required.
- Serial terminal emulation program (such as HyperTerminal) is required
- LAN cable (crossover) is required for restoring config data.
- PCPro has to be installed in advance.



- Backing Up Config Data By Serial Connection

STEP 1: Power off MG(BRI) and disconnect it from the network.

STEP 2: Connect PC to MG(BRI) by using RS-232C cable.

STEP 3: Power on MG(BRI).

STEP 4: Activate HyperTerminal and set the following:
Bit per second:9600bps
Data bits:8bit
Parity:None
Stop bit:1bit
Flow control:None

STEP 5: Select **[Transfer]** -> **[Capture File...]**.

STEP 6: Send File screen is displayed. Specify a file name to be saved, and then click the Start button.

STEP 7: At the moment that boot programming is starting (While "`Starting MG-BRI boot program`" is being displayed for approximately five seconds), press the ESC key.

STEP 8: After <Boot mode> Main menu is displayed, enter "1" (Configuration Data).

STEP 9: After <Configuration mode> Main menu is displayed, enter "2" (Custom).

STEP 10: After a prompt (`MG-BRI>`) is displayed, enter "show config" to display configuration data of the MG(BRI).

STEP 11: Select **[Transfer]** -> **[Capture Text]** -> **[Stop]** to save the config file shown in screen.

- Restoring Config Data By Serial Connection

STEP 1: Power off MG(BRI) and disconnect it from the network.

STEP 2: Connect Serial Console to MG(BRI) by using a RS-232C cable.

<Data Assignment on Serial Console>

STEP 1: Power on MG(BRI).

STEP 2: Activate HyperTerminal and set the following:
Bit per second:9600bps
Data bits:8bit
Parity:None
Stop bit:1bit
Flow control:None

STEP 3: Reboot MG(BRI). (OFF−>ON)

STEP 4: At the moment that boot programming is starting (While "`Starting MG-BRI boot program`" is being displayed for approximately five seconds), check the firmware name and the version. And then press the ESC key.

STEP 5: After <Boot mode> Main menu is displayed, enter "1" (Configuration Data).

STEP 6: Open the config data that was saved in the procedures of Backing Up Config Data By Serial Connection.

STEP 7: Assign the same settings by the configuration commands, seeing the config data. For more information about the configuration command, refer to section 4.4 on page 538.

STEP 8: After assigning the settings, save the config data by the save config command.

STEP 9: Enter "y" in the confirmation box.

STEP 10: Confirm that "Configuration data has been saved." is displayed in the screen, indicating the config data is saved normally.

STEP 11: Exit the HyperTerminal by selecting **[File]** -> **[Exit]**.

STEP 12: Power off the MG(BRI), and remove the cables.

<Confirmation of MG(BRI) Operation>

STEP 1: Connect the MG(BRI) to the network, and turn it on.

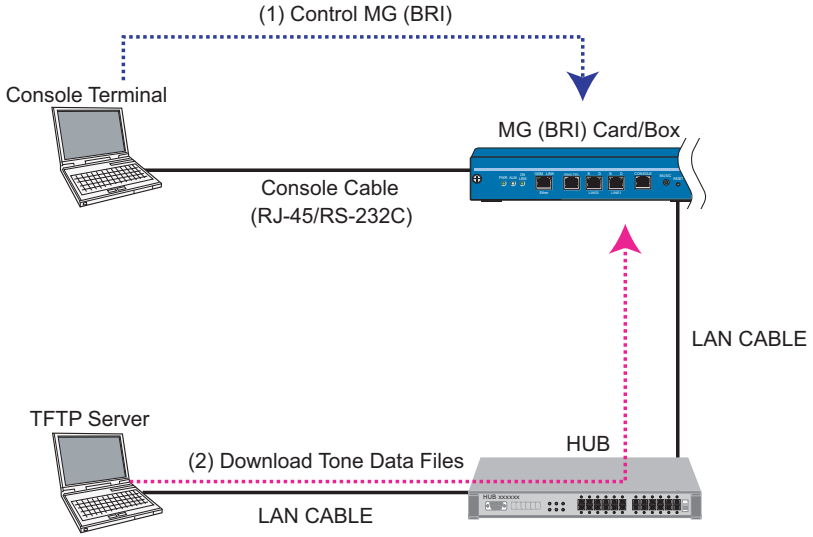
STEP 2: Check ON LINE LED lighten on, indicating that MG(BRI) is normally registered in system after reboot. Use the DISD command in PCPro. For more information, refer to the Operations and Maintenance Manual.

STEP 3: Check that calls via MG(BRI) can be made.

4.2 How to Download Tone Data

This TONE data downloading is performed one by one, connecting a PC to each MG(BRI) with a RJ-45/RS-232C cable. This tone data setting requires TFTP server. Prepare the following:

- LAN cable and Switching HUB are required.
- Console cable (RJ-45 ⇔ RS-232C) is required.
- Required to install TFTP server in advance.



STEP 1: Power off MG(BRI) and disconnect it from the network.

STEP 2: Connect PC (Console terminal) to MG(BRI) with Console cable.

STEP 3: Connect PC (TFTP Server) and MG(BRI) by using LAN cable and HUB.

STEP 4: Allow read in this directory. For more information, refer to the appropriate manual attached to the FTP server program.

STEP 5: Set network environment for the TFTP server.

STEP 6: Confirm the all files to be downloaded into an appropriate folder of the PC (TFTP Server).

The following show the example of TONE data files.

File Name	Remarks
a_tone_ita01	Italy standard TONE data
a_tone_ned01	Netherlands standard TONE data
a_tone_ger01	Germany standard TONE data

STEP 7: Start the TFTP program.

STEP 8: Power on MG(BRI).

STEP 9: Activate HyperTerminal and set the following:
Bit per second: 9600bps

Data bits: 8bit
Parity: None
Stop bit:1bit
Flow control: None

STEP 10: Reboot MG(BRI) (OFF->ON).

STEP 11: Connect AC adapter to MG(BRI) (or turn on the switch).

STEP 12: When the message "Starting MG(BRI) boot program..." appears, press ESC key within 5 seconds.

STEP 13: Enter "cmd" for Input.

STEP 14: Enter "ipxadmin" for password.

STEP 15: After a prompt (>>>Set command :) is displayed, enter "download".

STEP 16: The File Download mode is displayed. Input "3" (Download of Tone payload data).

STEP 17: Enter the Downloading file name and Tone data area number.

STEP 18: Confirm the entered download file name and Tone data area number. If they are correct, input "y".

STEP 19: Input "n" (set the existing IP address) for MG(BRI)'s IP address set, if the default IP address is not correct, input "y" and enter the proper IP address.

STEP 20: Input "n" (set the existing IP address) for TFTP's IP address set, if the default IP address is not correct, input "y" and enter the proper IP address.

STEP 21: Make sure correct IP addresses are set in TFTP server and MG(BRI). And then input "y" if they are correct.

STEP 22: After all the download is completed, enter "q" to reboot the system. If other tone data is required, enter "3" and back to Tone downloading display.

Note: Tone data can be downloaded a maximum of 3 files.

<Confirmation of MG(BRI) Operation>

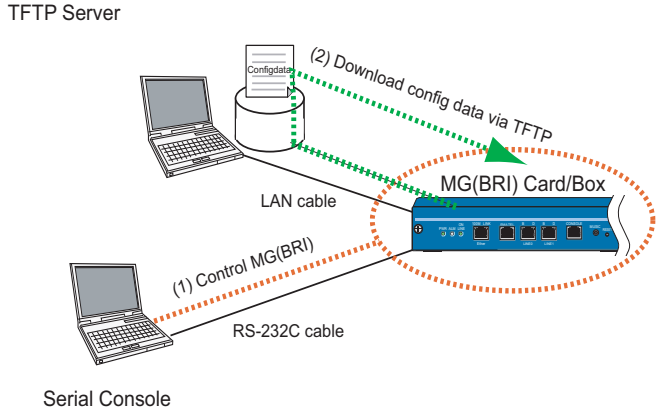
STEP 1: Connect the MG(BRI) to a network, and reboot MG(BRI).

STEP 2: To confirm MG(BRI) Tone data is downloaded correctly, check the status of setting, and confirm the SM number of Tone information on screen.

4.3 How to Upgrade Firmware by Serial Connection (Local Download)

This firmware upgrade is performed one by one, connecting a PC to each MG(BRI) with a RS-232C and a LAN cable. Prepare the following:

- Firmware for upgrade
- RS-232C cable and LAN cable (crossover) are required.
- Serial terminal emulation program (such as HyperTerminal) is required



Note 1: TFTP server and Serial Console both can be performed by single Personal Computer.

STEP 1: Disconnect the MG(BRI) from the network.

STEP 2: Connect PC(s) to MG(BRI) with LAN connector and RS-232C cable both.

STEP 3: Put the firmware file (mgbri-bsc.bin), checksum file (mgbri-bsccksum), and download list file (mgbri-boot.dat) for upgrade in the root folder of TFTP server. They are included in SP version name folder [e.g. SP3826].

STEP 4: Allow read in this directory. For more information, refer to the appropriate manual attached to the FTP server program.

STEP 5: Set network environment for the TFTP server.

STEP 6: Start the TFTP program.

STEP 7: Power on MG(BRI).

STEP 8: Activate HyperTerminal and set the following:
Bit per second:9600bps
Data bits:8bit
Parity:None
Stop bit:1bit
Flow control:None

STEP 9: Reboot MG(BRI). (OFF->ON)

STEP 10: At the moment that boot programming is starting (While "`Starting MG-BRI boot program...`" is being displayed for approximately five minutes), check version information and then press the ESC key.

STEP 11: Enter "cmd" for Input

STEP 12: Enter "ipxadmin" for password.

STEP 13: After a prompt (`>>>Set command :`) is displayed, enter “download”.

STEP 14: The File Download mode is displayed. Input “2” (Download of one program).

Note: If you input “1” (Download of all programs), system data of the terminals; such as IP address, will be overwritten by initial data.

STEP 15: Input “n” (set the existing IP address) for MG(BRI)’s IP address set.

STEP 16: Input “n” (set the existing IP address) for TFTP's IP address set.

STEP 17: Make sure correct IP addresses are set in TFTP server and MG(BRI). And then input “y” if they are correct.

STEP 18: The Program download menu is displayed. Input “0” to download BSC program.
BSC program is downloaded and written into Flash ROM.

STEP 19: After all the download is completed, enter “q” to reboot the system.

STEP 20: Activate HyperTerminal and connect to MG(BRI).
If you want to confirm the version information, enter “`show version`”.

<Confirmation of MG(BRI) Operation>

STEP 1: Connect the MG(BRI) to a network.

STEP 2: To confirm MG(BRI) is operating properly with the upgraded firmware, make a call to the MG(BRI). Check that you can hear RBT.

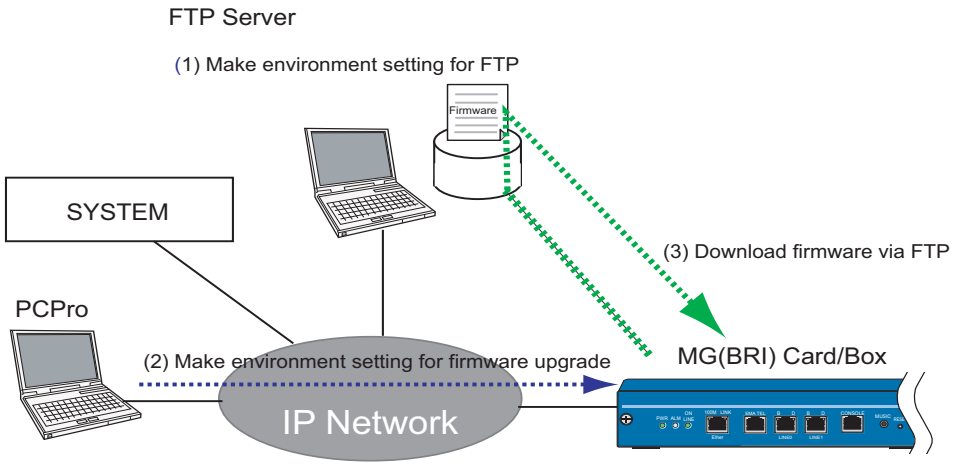
STEP 3: Receive a call via the MG(BRI), and confirm that you are able to talk to each other.

STEP 4: After all the tasks are completed, write down or label the firmware version onto the back of it.

4.4 How to Upgrade Firmware by FTP (Remote Download)

This upgrading process can be performed on up to eight MG(BRI)s at once.

- Firmware for upgrade
- PCs have to belong to the same segment with MG(BRI).
- FTP server has to be installed in advance.
- PCPro has to be installed in advance.
- MG(BRI) is already registered to system and it is working normally.



<Data Assignment on FTP Server>

STEP 1: Put the firmware file (mgbri-bsc.bin), DSP program file (mgbri-dsp.bin), and download list file (mg-brisiplist.txt) for upgrade in the root folder of FTP server. They are included in SP version name folder [e.g. SP3826].

STEP 2: Allow read in this directory. For more information, refer to the appropriate manual attached to the FTP server program.

STEP 3: Set network environment for the FTP server.

STEP 4: Start the FTP program.

<Resetting MG-BRI(SIP) by AMGIL Command>

STEP 5: Activate the AMGIL command, and then input the MG-ID of MG-BRI(SIP) to reset.

STEP 6: Click [Get] to read out the registered information.

STEP 7: Select an item of Reset in FUNCTION.

STEP 8: Select an item of Activate in operation mode in Operation after reset.

STEP 9: Click [Execute]. A message window will appear, and then click [Yes].

Note: Reset all the MG-BRI(SIP) to update, and check they has all been activated normally by using the DIPI command.

STEP 10: Click [Exit] to close the command.

<Data Assignment by ATDL Command>

STEP 1: Activate the ATDL command.
Select Terminal Type in Terminal Specifying Type, and then select MG-BRI SIP.
Specify the Hardware Type in HWTP and Hardware Version in HWVER.
Set the File Name.

STEP 2: Click the Add to Terminal List button.

STEP 3: After the MG-BRI SIPs are displayed in the Terminal List, select the appropriate MG-BRI SIP to be upgraded the firmware.

STEP 4: Select an item of External Server from FTP Server Type in the Setting for Download field.
Input the IP address of FTP server.
Input Login Name and Password for logging in to FTP server if required.
Select an item of Parallel in Download Method.
Select an item of Specify File Storage Directory, and specify the directory name.
Select an item of Parallel in Download Method.

Note: If you narrow them down by specifying Terminal Type in the ATDL command, MG(BRI)s will be displayed per registered channel. Therefore, when multiple channels are registered in an MG(BRI), in the box, the same MG(BRI) is displayed more than once. To avoid setting upgrade task to the target MG(BRI) more than once, select either one of the channels used in the MG(BRI) by checking LENS.

STEP 5: Click the EXECUTE button to upgrade the firmware to the target MG(BRI)s.
"Upgrade is succeeded" is displayed. Note that version information in the screen is not updated at this time. If the upgrade is failed, click the Close button, and then go back to STEP3.

Note: Although whether or not download process is completed, the MG(BRI) automatically restarts.

STEP 6: After upgrade is completed, click the Close button on the status window. In the main screen, click the Exit button to close the ATDL command.

STEP 7: To confirm the firmware, activate the DIPI command.

STEP 8: Select "ISDN Trunk (BRI)[SIP]" in "SIP Media Gateway", and then click the Execute button.

STEP 9: Confirm that the firmwares in the appropriate ones are upgraded.
The issue of the file in the screen is indicated as follows:

01.00.00.00
└ ISSUE NUMBER (ISSUE 1.0)

<Confirmation of MG(BRI) Operation>

STEP 1: To confirm MG(BRI) is operating properly with the upgraded firmware, make a call to the MG(BRI). Check that you can hear RBT.

STEP 2: Receive a call via the MG(BRI), and confirm that you are able to talk to each other.

STEP 3: After all the tasks are completed, write down or label the firmware version that you installed in the MG(BRI) onto the back of it.

4.5 How to Use Maintenance Command

Configuration command is used just for modifying the default data. Data is to be modified only when it is required and to the necessary part.

Note: Note the following conditions:

- If the firmware issue is SP-3826 BRI MG SIP BSC PROG-A Issue 5.0 or later, configuration data can be registered on line without turning off and on the power or pressing RESET switch to start a boot program. For the available command, refer to <Command List for SP-3826 BRI MG SIP BSC PROG-A Issue 5.0 or later>.
- "SIP server" used in this section refers to the Telephony Server. The Telephony Server acts as SIP server for MG(BRI) using SIP.
- When an event causing a restart of the device, such as Health Check timeout, occurs during startup of the configuration command, it takes about five minutes to start the rebooting after you exit from the configuration command or enter the last command.
- If you input "exit" after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

Starting Configuration Command

By using the communication software such as HyperTerminal (**Note 1**), start a boot program by turning on the power or pressing RESET switch.

When boot program has started, press ESC key while "Starting MG-BRI boot program" is displayed, then the boot mode main menu shown below appears.

```
-<Boot mode>Main menu-

Configuration data. --- input:1
Quit                --- [Q/q]
Input:1
```

Input "1" and press Enter key.

Main menu of the configuration mode is displayed. Select "Standard mode" or "Custom mode" to start configuration setting.

```
-<Configuration mode>Main menu-
Please input SIP server data in the priority order.

Standard --- input:1
Custom --- input:2
Quit --- [Q/q]
```

```
Input: _
```

Input 1 or 2 to start configuration setting, and press Enter key.
1 = to start Standard mode
2 = to start Custom mode

Note 1: Set the parameters of the terminal software as follows:

- Port: COM1 (depending on PC setting)
- Baud Rate: 9600 bps
- Data: 8 bits
- Parity: None
- Stop Bit: 1
- Flow Control: None

4.5.1 Standard Mode

Display changes as follows when Standard mode is selected on the main menu. Standard mode displays necessary commands in order. Assign the basic network data in dialog format.

<Dialogue Format Command Entry (example)>

```
--- DNS IP Address set ---
Current DNS IP Address: 0.0.0.0
Change DNS Interface? [Y(change)/N(current)/Q(quit)]: y




Input new DNS IP Address: 10.41.1.150
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode and back to main menu

Input “Y” and press Enter key to change the current data. Input “N” to skip this command and go on to the next command.

This line is displayed to assign the data only when “Y” is selected in the former step.

Input the IP address of DNS server (e.g. 10.41.1.150), and press Enter key.

- When any abnormal data is input, the dialog ask to enter proper data until three times. In the fourth time you enter abnormal data, the command quits the Standard mode discarding the input data.
- When all the necessary data is assigned properly, the assigned data is listed before exiting the Standard mode. (The same list of SHOW CONFIG command in Custom mode.) Input “Y” and press Enter key when asked to save the data. Standard mode ends and back to the main menu of configuration command.
- When you quit the command entry halfway through the Standard mode, all the input data is to be discarded.

<Standard Mode Command List>

First assign DHCP server and DNS server setting.

FUNCTION
DHCP Interface set
DNS Interface set

Assign the following network data according to your network environment. The required commands vary depending on DHCP server and DNS server setting.

DHCP SERVER	DNS SERVER	FUNCTION	
w/ DHCP server	w/ DNS server	Ethernet Speed set	
		Signaling Port Number set	
		RTP Start Port Number set	
		Signaling QOS set	
		VLAN Information set	
	w/o DNS server	Ethernet Speed set	
		Signaling Port Number set	
		RTP Start Port Number set	
		Signaling QOS set	
		VLAN Information set	
w/o DHCP server	w/ DNS server	DNS IP Address set	
		IP Address & Subnetmask set	
		Host Name set	
		Default Gateway IP Address set	
		SIP Server Host Name set	
		Ethernet Speed set	
		Signaling Port Number set	
		RTP Start Port Number set	
		Signaling QOS set	
		VLAN Information set	
	w/o DNS server	IP Address & Subnetmask set	
		Host Name set **Note 1**	
		Default Gateway IP Address set	
		SIP Server IP Address & Host Name set	IP Address and Port Number
			Host Name **Note 1**
		Ethernet Speed set	
		Signaling Port Number set	
		RTP Start Port Number set	
		Signaling QOS set	
		VLAN Information set	

Note 1: This command can be skipped.

Depending on the network data acquisition status from DHCP and DNS server, whether MG(BRI) starts up or not varies as follows.

DHCP and DNS server		Network Data Acquisition Status from DHCP			Network Data Acquisition Status from DNS	Availability of Starting up MG(BRI)
		IP Address of MG(BRI) and Default Gateway, and Subnet Mask	IP Address of SIP server	IP Address of DNS, and Host Name of MG(BRI) and SIP server	IP Address of SIP server Note 2	
w/ DHCP server	w/ DNS server	Acquired	Acquired	-	-	Available
			Not acquired	Acquired	Acquired	Available
					Not acquired	Not available Note 3 Note 4
				Not acquired	-	Not available Note 3 Note 4
		Not acquired	-	-	-	Not available
	w/o DNS server	Acquired	Acquired	-	-	Available
			Not acquired			Not available Note 4
		Not acquired	-	-	-	Not available
w/o DHCP server	w/ DNS server	-	-	-	Acquired	Available
					Not acquired	Not available Note 3 Note 4
	w/o DNS server	-	-	-	-	Available Note 5

Note 2: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

Note 3: If the firmware issue is SP-3826 BRI MG SIP BSC PROG-A Issue 5.0 or later, if IP address of DNS server, and host name of MG(BRI) and SIP server are registered in configuration data of MG(BRI), MG(BRI) can start up by acquiring IP address of SIP server from DNS server, using the configuration data.

Note 4: If the firmware issue is SP-3826 BRI MG SIP BSC PROG-A Issue 5.0 or later, if network data required for starting up MG(BRI) could not be acquired from DHCP and DNS server, MG(BRI) will start up by using IP address of SIP server registered in the configuration data of MG(BRI).

Note 5: Configuration data is required.

4.5.2 Custom Mode

Display changes as follows when Custom mode is selected on the main menu. Input the required command and parameter following the displayed command prompt in Custom mode to modify the default configuration data.

```
<Configuration data setting mode>

MG-BRI>
```

<Basic Command Entry>

Displays the prompt of command interface, then displays the Reply message by analyzing the character entered by the user. Command and Sub-command is mandatory, but parameter varies depending on each command. Example of command, sub-command and parameter is shown below.

Prompt	Command	Sub-command	Parameter 1 (P1)	Parameter 2 (P2)
MG-BRI>	set	own_ipaddress	123.201.18.45	255.255.255.0

<Dialogue Format Command Entry?>

Ordinary command executes one order at a line, but for some of the command, value needs to be entered in dialogue format because some of the command cannot execute an order in a line. For example, some of the Sub-command for "SET" Command value needs to be assigned in hexadecimal. Parameter can be omitted in this case. Setting value will be decided in hexadecimal when any value was assigned in dialogue format. Also, value can be entered directly by hexadecimal. Sample configuration is shown below.

```
MG-BRI>set signaling_qos

QOS[I(IP PRECEDENCE)/D(DIFFSERV):I]:I

PRECEDENCE(0-7: 6):6

DELAY(0/1): 0


THROUGHPUT(0/1: 0):0


RELIABILITY(0/1: 0):0


COST(0/1:0):0
```

I: When IP PRECEDENCE is selected

Precedence in IP network (0-7) (6: Default)

Precedence of Low Delay in IP network
0: Not specified (Default)
1: Specified

Precedence of Throughput in IP network
0: Not specified (Default)
1: Specified

Precedence of Reliability in IP network
0: Not specified (Default)
1: Specified

Precedence of Lower Cost in IP network
0: Not specified (Default)
1: Specified

Note: Other displays are omitted here.

<Custom Mode Command List>

SET: Command to assign the configuration data

	Sub-command	Function
1	DEFAULT_GATEWAY	Assign the IP address of Default Gateway.
2	DHCP_SV	Assign whether to use DHCP Server or not.
3	DNS_IPADDRSS	Assign the IP Address of DNS server.
4	DNS_SV	Assign whether to use DNS server or not.
5	FAX_DETECTION_TIME	Assign the effective switching timer for FAX
6	HC_RCV_TIMER	Assign the Time-out value for Telephony Server Health Check waiting process.
7	INTERFACE	Assign the speed and activation mode of Ether controller.
8	LAN_ERROR_CHECK	Assign the interval to detect LAN cable fall-off
9	ONE_TIME_PASS	Assign the one time password to be used for the first registration after connected to network.
10	OWN_IPADDRESS	Assignment of IP Address, Subnet Mask, and Host Name of MG(BRI) itself.
11	RTP_START_PORT_NO	Specify the first port number to be used for RTP.
12	SIGNALING_PORT_NO	Assign the port number to be used for PHI signaling.
13	SIGNALING_QOS	Assign the ToS value added to signaling (SIP server signaling) session.
14	SIPSV_IPADDRESS	Assign the IP address, port number, and host name of SIP server.
15	SMOOTH_PAD	Assign the Smooth PAD
16	VALUE	Assign the VALUE
17	VLAN	Assign the Tag VLAN information.
18	WARNING_TONE_CONTROL	Assign whether to use warning tone when LAN failure or not.

SHOW: Command to display the configuration data

	Sub-command	Function
1	CONFIG	Displays the list of current configuration data.
2	DEFAULT_GATEWAY	Displays the current setting of Default Gateway.
3	DHCP_SV	Displays the current setting of DHCP server.
4	DNS_IPADDRESS	Displays the current IP address setting of DNS server.
5	DNS_SV	Displays the current setting of DNS server.

	Sub-command	Function
6	FAX_DETECTION_TIME	Displays the current setting of effective timer for FAX switching.
7	HC_RCV_TIMER	Displays the current setting of Time-out timer for SIP server Health Check packet waiting process.
8	INTERFACE	Displays the current setting for speed and activation mode of Ethernet controller.
9	LAN_ERROR_CHECK	Displays the interval to detect LAN cable fall-off.
10	ONE_TIME_PASS	Displays the current setting of one time password.
11	OWN_IPADDRESS	Displays the current setting of IP Address, Subnet Mask, and Host Name of MG(BRI) itself.
12	RTP_START_PORT_NO	Displays the current setting of RTP Start Port Number.
13	SIGNALING_PORT_NO	Displays the current setting of Signaling Port number
14	SIGNALING_QOS	Displays the current setting of QoS data for signaling session.
15	SIPSV_IPADDRESS	Displays the current setting of SIP server's IP address, port number, and host name.
16	SMOOTH_PAD	Displays the current Smooth PAD mode.
17	VLAN	Displays the current VLAN setting.
18	WARNING_TONE_CONTROL	Displays the current setting whether to send warning tone in the case of LAN failure.

SAVE: Command to save the modified configuration

	Sub-command	Function
1	CONFIG	This command is used to save the modified configuration data to the FlashROM.

EXIT: Command to exit the configuration setting mode

	Sub-command	Function
1	-	This command is used to exit the configuration command of MG(BRI).

REBOOT: Command to reboot the MG(BRI)

	Sub-command	Function
1	-	This command is used to reboot the MG(BRI).

<Help>

What to enter next can be confirmed by entering [“?”] after the command. For example, to confirm what to enter after the “SET” command will be [“SET (Command Name)” + “?”]. To confirm the parameter after the Sub-command, it will be [“SET (Command Name)” + “OWN_IPADDRESS (Sub-command Name) + “?”]. Help screen of “SET” command is shown below as an example.

```
MG-BRI>SET?

INTERFACE             Setting Ethernet Speed (Def. AUTO)
DHCP_SV               Setting DHCP interface (Def. DISABLE)
DNS_SV                Setting DNS Interface (Def. DISABLE)
DNS_IPADDRESS         Setting DNS IP Address (Def. 0.0.0.0)
SIPSV_IPADDRESS       Setting SIP Server IP Address & Port Number & Host Name
                      (Def. 0.0.0.0/5060/blank)
OWN_IPADDRESS         Setting IP Address & Subnetmask & Host Name
                      (Def. 0.0.0.0/0.0.0.0/blank)
DEFAULT_GATEWAY       Setting Default Gateway IP Address (Def. 0.0.0.0)
SIGNALING_QOS         Setting Signaling QOS (Def.IP Precedence[0xC0])
SIGNALING_PORT_NO     Setting Signaling Port Number (Def. 64000)
VLAN                  Setting VLAN Information (Def. Not use VLAN)
LAN_ERROR_CHECK       Setting LAN Error Check Timer (Def. 1000ms)
FAX_DETECTION_TIME    Setting FAX Enable Timer (Def. 1)
SMOOTH_PAD            Setting Smooth PAD mode (Def. 1)
HC_RCV_TIMER          Setting Health-Check Receive Timer Timeout (Def. 150s)
WARNING_TONE_CONTROL  Setting Warning Tone Control of IP Network (Def. 3)
ONE_TIME_PASS         Setting One Time Password (Def. blank)
```

<Command List for SP-3826 BRI MG SIP BSC PROG-A Issue 5.0 or later>

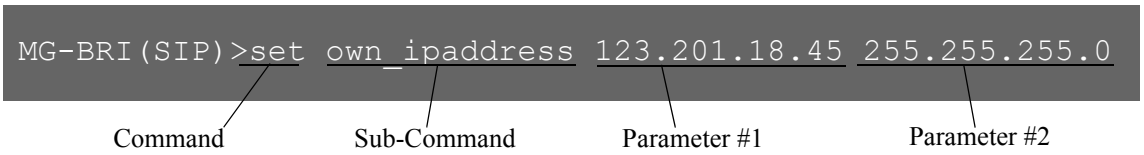
This maintenance command is available for SP-3826 BRI MG SIP BSC PROG-A Issue 5.0 or later. configuration data can be registered on line without turning off and on the power or pressing RESET switch to start a boot program.

Run terminal software (e.g. HyperTerminal) to start maintenance program. Maintenance command launches by entering “usrConsole” the OS prompt. When the system is ready, the following prompt is shown on the screen.

```
MG-BRI(SIP)>_
```

Maintenance Command consists of some components: Command, Sub-command, and Parameter. The values to be assigned for each Parameter depend on the Maintenance Command, some of the Maintenance Commands do not require any parameter. A space needs to be entered between Command, Sub-command, and Parameter.

An example screen setting IP address (123.201.18.45) and subnet mask (255.255.255.0) in the system data of MG-BRI (SIP) is shown below:



Note: The communication condition is as follows.
- Speed: 9600bps
- Data Length: 8bits
- Parity Bit: None

<Dialogue Format Command Entry?>

Some of the Sub-command for "SET" Command value needs to be assigned in hexadecimal. Parameter can be omitted in this case. Setting value will be decided in hexadecimal when any value was assigned in dialogue format. Also, value can be entered directly by hexadecimal. Sample configuration is shown below.

`MG-BRI(SIP)>SET SIGNALING_QOS`	
`QOS[I(IP PRECEDENCE)/D(DIFFSERV):IP PRECEDENCE]:i`	I: When IP PRECEDENCE is selected
`PRECEDENCE(0-7: 6):6`	Precedence in IP network (0-7) (6: Default)
`DELAY(0/1): 0`	Precedence of Low Delay in IP network 0: Not specified (Default) 1: Specified
`THROUGHPUT(0/1: 0):0`	Precedence of Throughput in IP network 0: Not specified (Default) 1: Specified
`RELIABILITY(0/1: 0):0`	Precedence of Reliability in IP network 0: Not specified (Default) 1: Specified
`COST(0/1:0):0`	Precedence of Lower Cost in IP network 0: Not specified (Default) 1: Specified
`Signaling QoS setting succeeded.(0xC0)`	The result is displayed.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

<Maintenance Command List>

SETUP

	Sub-command	Function
1	SP	SETUP COMMAND

SET: Command to assign the configuration data

	Sub-command	Function
1	CALL_HOLD	Specify whether to use MG Based Call Retention or not.
2	DEFAULT_GATEWAY	Specify the IP address of Default Gateway.
3	DHCP_SV	Specify whether to use a DHCP Server or not.
4	DNS_IPADDRSS	Assign the IP Address of DNS server.
5	DNS_SV	Assign whether to use DNS server or not.
6	DTMF_IN	Assign whether Inband DTMF is used or not.
7	FAX_DETECTION_TIME	Assign the effective switching timer for FAX
8	HC_RCV_TIMER	Assign the Time-out value for Telephony Server Health Check waiting process.
9	INTERFACE	Assign the speed and activation mode of Ether controller.
10	LAN_ERROR_CHECK	Assign the interval to detect LAN cable fall-off
11	ONE_TIME_PASS	Assign the one time password to be used for the first registration after connected to network.
12	OWN_IPADDRESS	Assignment of IP Address, Subnet Mask, and Host Name of MG(BRI) itself.
13	RTP_START_PORT_NO	Specify the first port number to be used for RTP.
14	RTP_STOP_DETECT	Specify a time-out value for MG Based Call Retention.
15	SIGNALING_PORT_NO	Assign the port number to be used for PHI signaling.
16	SIGNALING_QOS	Assign the ToS value added to signaling (SIP server signaling) session.
17	SIP_MADDR	Select the mode to use the maddr parameter in Via header of SIP message or not.
18	SIP_RPORT	Select the mode to use the rport parameter in Via header of SIP message or not.
19	SIPSV_IPADDRESS	Assign the IP address, port number, and host name of SIP server.
20	SMOOTH_PAD	Assign the Smooth PAD
21	SUBSCRIBE_RETRY	Select the regeneration mode for SIP SUBSCRIBE session.

	Sub-command	Function
22	VLAN	Assign the Tag VLAN information.
23	WARNING_TONE_CONTROL	Assign whether to use warning tone when LAN failure or not.

SHOW: Command to display the configuration data

	Sub-command	Function
1	CALL_HOLD	Display the current setting of MG Based Call Retention.
2	CONFIG	Displays the list of current configuration data.
3	DEFAULT_GATEWAY	Displays the current setting of Default Gateway.
4	DHCP_SV	Displays the current setting of DHCP server.
5	DNS_IPADDRESS	Displays the current IP address setting of DNS server.
6	DNS_SV	Displays the current setting of DNS server.
7	DTMF_IN	Display the current setting of DTMF relay of in-band signaling.
8	FAX_DETECTION_TIME	Displays the current setting of effective timer for FAX switching.
9	HC_RCV_TIMER	Displays the current setting of Time-out timer for SIP server Health Check packet waiting process.
10	INTERFACE	Displays the current setting for speed and activation mode of Ethernet controller.
11	LAN_ERROR_CHECK	Displays the interval to detect LAN cable fall-off.
12	ONE_TIME_PASS	Displays the current setting of one time password.
13	OWN_IPADDRESS	Displays the current setting of IP Address, Subnet Mask, and Host Name of MG(BRI) itself.
14	RTP_START_PORT_NO	Displays the current setting of RTP Start Port Number.
15	RTP_STOP_DETECT	Displays the current setting of RTP Stop Detect Timer.
16	SIGNALING_PORT_NO	Displays the current setting of Signaling Port number
17	SIGNALING_QOS	Displays the current setting of QoS data for signaling session.
18	SIP_MADDR	Displays the current setting of SIP maddr.
19	SIP_RPORT	Displays the current setting of SIP rport.
20	SIPSV_IPADDRESS	Displays the current setting of SIP server's IP address, port number, and host name.
21	SMOOTH_PAD	Displays the current Smooth PAD mode.
22	SUBSCRIBE_RETRY	Displays the current setting of regeneration mode for SIP SUBSCRIBE session.
23	VLAN	Displays the current VLAN setting.

	Sub-command	Function
24	WARNING_TONE_CONTROL	Displays the current setting whether to send warning tone in the case of LAN failure.

SAVE: Command to save the modified configuration

	Sub-command	Function
1	CONFIG	This command is used to save the modified configuration data to the FlashROM.

INIT: Command to initialize the configuration data to factory default value:

	Sub-command	Function
1	CONFIG	This command is used to initialize the configuration data to factory default value.

REBOOT: Command to reboot the MG(BRI)

	Sub-command	Function
1	-	This command is used to reboot the MG(BRI).

EXIT: Command to exit the configuration setting mode

	Sub-command	Function
1	-	This command is used to exit the configuration command.

<Help>

What to enter next can be confirmed by entering [“?”] after the command. For example, to confirm what to enter after the “SET” command will be [“SET (Command Name)” + “?”]. To confirm the parameter after the Sub-command, it will be [“SET (Command Name)” + “OWN_IPADDRESS (Sub-command Name) + “?”]. Help screen of “SET” command is shown below as an example.

```
MG-BRI(SIP)>SET ?

CALL_HOLD             Setting Call Hold
DEFAULT_GATEWAY       Setting Default Gateway IP address
DHCP_SV               Setting DHCP Interface
DNS_IPADDRESS         Setting DNS IP Address
DNS_SV                Setting DNS Interface
DTMF_IN               Setting IP Address & Subnetmask & Host Name

         :                    :

         :                    :
```

4.5.3 Standard Mode

Note: Data setting in this section is an example. Assign the data adjusting your network configuration.

- DHCP Interface set

  Assign whether to use DHCP server.

```
--- DHCP Interface set ---
Current DHCP Interface: Disable
Change DHCP Interface? [Y(change)/N(current)/Q(quit)]:y



Input new DHCP Interface [E(enable)/D(disable)]: e
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Specify whether to use DHCP server
E: DHCP server is used
D: DHCP server is not used (default)

- DNS Interface set

  Assign whether to use DNS server.

```
--- DNS Interface set ---
Current DNS Interface: Disable
```

Current data setting is displayed.

```
Change DNS Interface? [Y(change)/N(current)/Q(quit)]:y


Input new DNS Interface [E(enable)/D(disable)]: e
```

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Specify whether to use DNS server
E: DNS server is used
D: DNS server is not used (default)

<Standard mode for w/ DHCP server and w/ DNS server configuration>

- Ethernet Speed set

  Assign the LAN interface data.

```
--- Ethernet Speed set ---

Current LAN Speed: 100MBPS_FD

Change LAN Speed? [Y (change)/N (current)/
Q(quit)]: y


Input new Speed [1 (AUTO)/2 (100M)/3(10M)]: 2


Input new DUPLEX [F (full)/H (half)]: f
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Select the transmission speed of LAN interface.
1: Auto negotiation (default)
2: 100 Mbps fixed mode
3: 10 Mbps fixed mode

Select the Duplex mode.
F: Full duplex mode
H: Half duplex mode

Note: DUPLEX setting is not displayed when Auto negotiation is selected.

Note: Assign the proper speed adjusting the network devices (router, HUB) on the destination.

- Signaling Port Number set

  Assign the port number of PHI signaling [PHI = internal controlling function in SIP server (i.e. SP-PHI)].

```
--- Signaling Port Number set ---

Current Signaling Port Number: 64000
```

Current data setting is displayed.

```
Change Signaling Port Number? [Y (change)/N (cur-
rent)/Q(quit)]: y



Input new Signaling Port Number (1024-65535):
65000
```

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the port number of PHI signaling.
Port number: 1024~65535
(default = 64000)

Note: Specify the same port number assigned on SIP server.

- RTP Start Port Number set

  Assign the RTP start port number.

```
--- RTP Start Port Number set ---


Current RTP Start Port Number: 1024


Change RTP Start Port Number Port Number? [Y
(change)/N (current)/Q(quit)]: y



Input new RTP Start Port Number (1024-65512): 1024
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the first port number to be used for RTP.
Port number: 1024~65512
(default = 1024)

Note: Assign any even-numbered port number to the RTP start port. The specified data + 1 (the next odd-numbered port number) is assigned as the RTCP port number.

Note: 24 ports are occupied following the RTP start port. More than 24 of consecutive vacant ports must be reserved from the specified port number to the last 65535.

- Signaling QOS set

  Assign the ToS data added to signaling session.

```
--- Signaling QOS set ---

Current Signaling QOS: IP Precedence [0xC0]

Change Signaling QOS? [Y (change)/N (current)/Q(quit)]: y




QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:d
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Select the QoS type.
I: IP Precedence
D: DIFFSERV

When I: IP Precedence is selected:

```
QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:i
PRECEDENCE(0-7: 6):6
DELAY(0/1): 0


THROUGHPUT(0/1: 0):0


RELIABILITY(0/1: 0):0


COST(0/1:0):0
```

Precedence in IP network (0-7) (6: Default)

Precedence of Low Delay in IP network
0: Not specified (Default)
1: Specified

Precedence of Throughput in IP network
0: Not specified (Default)
1: Specified

Precedence of Reliability in IP network
0: Not specified (Default)
1: Specified

Precedence of Lower Cost in IP network
0: Not specified (Default)
1: Specified

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



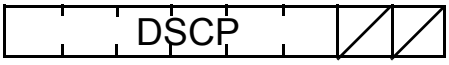
Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

When D: DIFFSERV is selected:

```
QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:d
DSCP (0-63: 48): 48
```

Enter DSCP value (0-63)
(Default: 48)

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



DSCP = Differentiated Service Code Point (6 bits)

- VLAN Information set

  Assign the VLAN data.

```
--- VLAN Information set ---

Current VLAN Information:
  Device VLAN 1   ID   COS   IP Address      Subnetmask
                  1    7     10.41.1.200     255.255.255.0
```

Current data setting is displayed.

`Change VLAN Information? [Y (change)/N (current)/ Q(quit)]: y`	Asked whether to change the displayed data. Y: To change the displayed data N: Not change Q: Quit Standard mode
`Input new VLAN ID (0-4094): 1`	VLAN ID: 0-4094
`Input new COS (0-7): 6`	CoS setting: 0-7
`Input new IP Address: 10.41.1.200`	Enter the IP address of VLAN.
`Input new Subnet mask: 255.255.255.0`	Enter the subnet mask of VLAN.

Note: Do not assign the following addresses (network address, broadcast address) to MG(BRI).
(example)
- IP address 192.168.1.0/Subnet mask 255.255.255.0 (192.168.1.0 is network address, improper)
- IP address 176.16.0.0/Subnet mask 255.255.0.0 (176.16.0.0 is network address, improper)
- IP address 192.168.1.255/Subnet mask 255.255.255.0 (192.168.1.255 is broadcast address, improper)
- IP address 176.16.255.255/Subnet mask 255.255.0.0 (176.16.255.255 is broadcast address, improper)

As IP address of MG(BRI), Default Gateway, and SIP server is get by DHCP server, there is no need to assign these network data on MG(BRI) side. IP addresses listed below, however, need to be assigned on DHCP server side. **Note 1**

- IP address of Default Gateway
- IP address of the Telephony Server **Note 2**, **Note 3**

Note 1: Check the number of IP address saved in DHCP server is sufficient so as to get IP address of MG(BRI) anytime.

Note 2: DHCP option setting is as follows:
Class: Global
Name: Not specified, but do not enter the same option name in duplicate
Data: IP address
Array: Checked
Code: 162

Note 3: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

<Standard mode for w/ DHCP server and w/o DNS server configuration>

- Ethernet Speed set

  Assign the LAN interface data.

```
--- Ethernet Speed set ---

Current LAN Speed: 100MBPS_FD

Change LAN Speed? [Y (change)/N (current)/
Q(quit)]: y



Input new Speed [1 (AUTO)/2 (100M)/3(10M)]: 3



Input new DUPLEX [F (full)/H (half)]: h
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Select the transmission speed of LAN interface.
1: Auto negotiation (default)
2: 100 Mbps fixed mode
3: 10 Mbps fixed mode

Select the Duplex mode.
F: Full duplex mode
H: Half duplex mode

Note: DUPLEX setting is not displayed when Auto negotiation is selected.

Note: Assign the proper speed adjusting the network devices (router, HUB) on the destination.

- Signaling Port Number set

  Assign the port number of PHI signaling [PHI = internal controlling function in SIP server (i.e. SP-PHI)].

```
--- Signaling Port Number set ---

Current Signaling Port Number: 64000

Change Signaling Port Number? [Y (change)/N (cur-
rent)/Q(quit)]: y



Input new Signaling Port Number (1024-65535):
65000
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the port number of PHI signaling.
Port number: 1024~65535
(default = 64000)

Note: Specify the same port number assigned on SIP server.

- RTP Start Port Number set

  Assign the RTP start port number.

```
--- RTP Start Port Number set ---

Current RTP Start Port Number: 1024

Change RTP Start Port Number Port Number? [Y
(change)/N (current)/Q(quit)]: y



Input new RTP Start Port Number (1024-65512): 1024
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the first port number to be used for RTP.
Port number: 1024~65512
(default = 1024)

Note: Assign any even-numbered port number to the RTP start port. The specified data + 1 (the next odd-numbered port number) is assigned as the RTCP port number.

Note: 24 ports are occupied following the RTP start port. More than 24 of consecutive vacant ports must be reserved from the specified port number to the last 65535.

- Signaling QOS set

  Assign the ToS data added to signaling session.

```
--- Signaling QOS set ---

Current Signaling QOS: IP Precedence [0xC0]

Change Signaling QOS? [Y (change)/N (current)/Q(quit)]: y




QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:i
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Select the QoS type.
I: IP Precedence
D: DIFFSERV

When I: IP Precedence is selected:

```
QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:i
PRECEDENCE(0-7: 6):6
DELAY(0/1): 0


THROUGHPUT(0/1: 0):0


RELIABILITY(0/1: 0):0


COST(0/1:0):0
```

Precedence in IP network (0-7) (6: Default)

Precedence of Low Delay in IP network
0: Not specified (Default)
1: Specified

Precedence of Throughput in IP network
0: Not specified (Default)
1: Specified

Precedence of Reliability in IP network
0: Not specified (Default)
1: Specified

Precedence of Lower Cost in IP network
0: Not specified (Default)
1: Specified

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



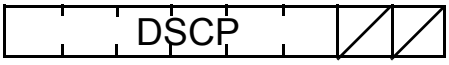
Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

When D: DIFFSERV is selected:

```
QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:d
DSCP (0-63: 48): 48
```

Enter DSCP value (0-63)
(Default: 48)

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



DSCP = Differentiated Service Code Point (6 bits)

- VLAN Information set

  Assign the VLAN data.

```
--- VLAN Information set ---

Current VLAN Information:
  Device VLAN 1   ID   COS   IP Address      Subnetmask
                  1    7     10.41.1.200     255.255.255.0
```

Current data setting is displayed.

`Change VLAN Information? [Y (change)/N (current)/ Q(quit)]: y`	Asked whether to change the displayed data. Y: To change the displayed data N: Not change Q: Quit Standard mode
`Input new VLAN ID (0-4094): 1`	VLAN ID: 0-4094
`Input new COS (0-7): 6`	CoS setting: 0-7
`Input new IP Address: 10.41.1.200`	Enter the IP address of VLAN.
`Input new Subnet mask: 255.255.255.0`	Enter the subnet mask of VLAN.

Note: Do not assign the following addresses (network address, broadcast address) to MG(BRI).
(example)
- IP address 192.168.1.0/Subnet mask 255.255.255.0 (192.168.1.0 is network address, improper)
- IP address 176.16.0.0/Subnet mask 255.255.0.0 (176.16.0.0 is network address, improper)
- IP address 192.168.1.255/Subnet mask 255.255.255.0 (192.168.1.255 is broadcast address, improper)
- IP address 176.16.255.255/Subnet mask 255.255.0.0 (176.16.255.255 is broadcast address, improper)

As IP address of MG(BRI), Default Gateway, and the Telephony Server is get by DHCP server, there is no need to assign these network data on MG(BRI) side. IP addresses listed below, however, need to be assigned on DHCP server side. **Note 4**

- IP address of Default Gateway
- IP address of the Telephony Server **Note 5**

Note 4: Check the number of IP address saved in DHCP server is sufficient so as to get IP address of MG(BRI) anytime.

Note 5: DHCP option setting is as follows:
Class: Global
Name: Not specified, but do not enter the same option name in duplicate
Data: IP address
Array: Checked
Code: 162

<Standard mode for w/o DHCP server and w/ DNS server configuration>

- DNS IP Address set

  Assign the IP address of DNS server.

`--- DNS IP Address set ---`	
`Current DNS IP Address: 0.0.0.0`	Current data setting is displayed.

```
Change DNS IP Address? [Y (change)/N (current)/
Q(quit)]: y


Input new DNS IP Address: 10.40.1.150
```

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the IP address of DNS server.

- IP Address & Subnetmask set

  Assign the IP address and Subnet Mask of MG(BRI).

```
--- IP Address & Subnetmask set ---


Current IP Address: 0.0.0.0
Current Subnetmask: 0.0.0.0


Change IP Address and Subnetmask? [Y (change)/N
(current)/Q(quit)]: y


Input new IP Address: 10.40.1.100
Input new Subnet mask: 255.255.255.0
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the IP address of MG(BRI).

Enter the Subnet Mask of MG(BRI).

Note: Do not assign the following addresses (network address, broadcast address) to MG(BRI).
(example)
- IP address 192.168.1.0/Subnet mask 255.255.255.0 (192.168.1.0 is network address, improper)
- IP address 176.16.0.0/Subnet mask 255.255.0.0 (176.16.0.0 is network address, improper)
- IP address 192.168.1.255/Subnet mask 255.255.255.0 (192.168.1.255 is broadcast address, improper)
- IP address 176.16.255.255/Subnet mask 255.255.0.0 (176.16.255.255 is broadcast address, improper)

- Host Name set

  Assign the host name of MG(BRI).

```
--- Host Name set ---


Current Host Name: blank
```

Current data setting is displayed.

```
Change Host Name? [Y (change)/N (current)/
Q(quit)]: y


Is there the Host Name? [Y/N]: y


Input new Host Name: mgbri.nec.com
```

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Asked whether to use host name.
Y: Use host name
N: Not use host name

Enter the MG(BRI)'s host name in full-domain. (up to 63-byte of characters, . (period) and - (hyphen) is available)

- Default Gateway IP Address set

  Assign the IP address of Default Gateway.

```
--- Default Gateway IP Address set ---


Current Default Gateway: 0.0.0.0


Change Default Gateway? [Y (change)/N (current)/
Q(quit)]: y


Input new Default Gateway: 10.40.1.254
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the IP address of Default Gateway.

Note: Specify the Default Gateway in the same subnet of MG(BRI).

- SIP Server Host Name set

  Assign the host name of SIP server. **Note 6**

```
--- SIP Server Host Name set ---


Current SIP Server and Host Name:
SIP Server      Host Name
```

1 blank 2 blank 3 blank 4 blank 5 blank 6 blank 7 blank 8 blank 9 blank 10 blank 11 blank 12 blank 13 blank 14 blank 15 blank 16 blank 17 blank 18 blank 19 blank 20 blank	Current data setting is displayed.
Change SIP Server Information? [Y (change)/N (current)/Q(quit)]: y	Asked whether to change the displayed data. Y: To change the displayed data N: Not change Q: Quit Standard mode
Input new SIP Server (1-20): 1	Enter the SIP server number.
Is there the Host Name? [Y/N]: y	Asked whether to use host name. Y: Use host name N: Not use host name
Input new Host Name: SVR1.nec.com	Enter the SIP server's host name in full-domain. (up to 63-byte of characters, . (period) and - (hyphen) is available)
Continue? [Y (continue)/N (exit)]: n	Asked whether to continue this command setting. Y: Continue this command to set other SIP server data N: Go on to the next command

Note 6: SIP server refers to the Telephony Server.

- Ethernet Speed set

  Assign the LAN interface data.

--- Ethernet Speed set --- Current LAN Speed: 100MBPS_FD	Current data setting is displayed.

```
Change LAN Speed? [Y (change)/N (current)/
Q(quit)]: y



Input new Speed [1 (AUTO)/2 (100M)/3(10M)]: 1
```

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Select the transmission speed of LAN interface.
1: Auto negotiation (default)
2: 100 Mbps fixed mode
3: 10 Mbps fixed mode

Note: DUPLEX setting is not displayed when Auto negotiation is selected.

Note: Assign the proper speed adjusting the network devices (router, HUB) on the destination.

- Signaling Port Number set

  Assign the port number of PHI signaling [PHI = internal controlling function in SIP server (i.e. SP-PHI)].

```
--- Signaling Port Number set ---


Current Signaling Port Number: 64000


Change Signaling Port Number? [Y (change)/N (cur-
rent)/Q(quit)]: y



Input new Signaling Port Number (1024-65535):
65000
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the port number of PHI signaling.
Port number: 1024~65535
(default = 64000)

Note: Specify the same port number assigned on SIP server.

- RTP Start Port Number set

  Assign the RTP start port number.

```
--- RTP Start Port Number set ---


Current RTP Start Port Number: 1024


Change RTP Start Port Number Port Number? [Y
(change)/N (current)/Q(quit)]: y
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

```
Input new RTP Start Port Number (1024-65512): 1024
```

Enter the first port number to be used for RTP.
Port number: 1024~65512
(default = 1024)

Note: Assign any even-numbered port number to the RTP start port. The specified data + 1 (the next odd-numbered port number) is assigned as the RTCP port number.

Note: 24 ports are occupied following the RTP start port. More than 24 of consecutive vacant ports must be reserved from the specified port number to the last 65535.

- Signaling QOS set

  Assign the ToS data added to signaling session.

```
--- Signaling QOS set ---

Current Signaling QOS: IP Precedence [0xC0]

Change Signaling QOS? [Y (change)/N (current)/Q(quit)]: y




QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:d
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Select the QoS type.
I: IP Precedence
D: DIFFSERV

When I: IP Precedence is selected:

```
QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:i
PRECEDENCE(0-7: 6):6
DELAY(0/1): 0


THROUGHPUT(0/1: 0):0


RELIABILITY(0/1: 0):0


COST(0/1:0):0
```

Precedence in IP network (0-7) (6: Default)

Precedence of Low Delay in IP network
0: Not specified (Default)
1: Specified

Precedence of Throughput in IP network
0: Not specified (Default)
1: Specified

Precedence of Reliability in IP network
0: Not specified (Default)
1: Specified

Precedence of Lower Cost in IP network
0: Not specified (Default)
1: Specified

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



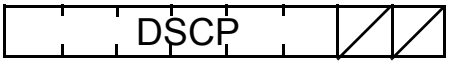
Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

When D: DIFFSERV is selected:

```
QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:d
DSCP (0-63: 48): 48
```

Enter DSCP value (0-63)
(Default: 48)

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



DSCP = Differentiated Service Code Point (6 bits)

- VLAN Information set

  Assign the VLAN data.

```
--- VLAN Information set ---

Current VLAN Information:
  Device VLAN 1   ID   COS   IP Address      Subnetmask
                  1    7     10.41.1.200     255.255.255.0
```

Current data setting is displayed.

`Change VLAN Information? [Y (change)/N (current)/ Q(quit)]: y`	Asked whether to change the displayed data. Y: To change the displayed data N: Not change Q: Quit Standard mode
`Input new VLAN ID (0-4094): 1`	VLAN ID: 0-4094
`Input new COS (0-7): 6`	CoS setting: 0-7
`Input new IP Address: 10.41.1.200`	Enter the IP address of VLAN.
`Input new Subnet mask: 255.255.255.0`	Enter the subnet mask of VLAN.

Note: Do not assign the following addresses (network address, broadcast address) to MG(BRI).
(example)
- IP address 192.168.1.0/Subnet mask 255.255.255.0 (192.168.1.0 is network address, improper)
- IP address 176.16.0.0/Subnet mask 255.255.0.0 (176.16.0.0 is network address, improper)
- IP address 192.168.1.255/Subnet mask 255.255.255.0 (192.168.1.255 is broadcast address, improper)
- IP address 176.16.255.255/Subnet mask 255.255.0.0 (176.16.255.255 is broadcast address, improper)

As IP address of MG(BRI), Default Gateway, and the Telephony Server is get by DHCP server, there is no need to assign these network data on MG(BRI) side. IP addresses listed below, however, need to be assigned on DHCP server side. **Note 7**

- IP address of Default Gateway
- IP address of the Telephony Server **Note 8**

Note 7: Check the number of IP address saved in DHCP server is sufficient so as to get IP address of MG(BRI) anytime.

Note 8: DHCP option setting is as follows.
Class: Global
Name: Not specified, but do not enter the same option name in duplicate
Data: IP address
Array: Checked
Code: 162

<Standard mode for w/o DHCP server and w/o DNS server configuration>

- IP Address & Subnetmask set

  Assign the IP address and Subnet Mask of MG(BRI).

```
--- IP Address & Subnetmask set ---

Current IP Address: 0.0.0.0
Current Subnetmask: 0.0.0.0

Change IP Address and Subnetmask? [Y (change)/N
(current)/Q(quit)]: y

Input new IP Address: 10.40.1.100
Input new Subnet mask: 255.255.255.0
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the IP address of MG(BRI).

Enter the Subnet Mask of MG(BRI).

Note: Do not assign the following addresses (network address, broadcast address) to MG(BRI).
(example)
- IP address 192.168.1.0/Subnet mask 255.255.255.0 (192.168.1.0 is network address, improper)
- IP address 176.16.0.0/Subnet mask 255.255.0.0 (176.16.0.0 is network address, improper)
- IP address 192.168.1.255/Subnet mask 255.255.255.0 (192.168.1.255 is broadcast address, improper)
- IP address 176.16.255.255/Subnet mask 255.255.0.0 (176.16.255.255 is broadcast address, improper)

- Host Name set

  Assign the host name of MG(BRI).

```
--- Host Name set ---

Current Host Name: blank

Change Host Name? [Y (change)/N (current)/
Q(quit)]: y

Is there the Host Name? [Y/N]: y

Input new Host Name: mgbri.nec.com
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Asked whether to use host name.
Y: Use host name
N: Not use host name

Enter the MG(BRI)'s host name in full-domain. (up to 63-byte of characters, . (period) and - (hyphen) is available)

- Default Gateway IP Address set

  Assign the IP address of Default Gateway.

```
--- Default Gateway IP Address set ---

Current Default Gateway: 0.0.0.0

Change Default Gateway? [Y (change)/N (current)/
Q(quit)]: y


Input new Default Gateway: 10.40.1.254
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the IP address of Default Gateway.

Note: Specify the Default Gateway in the same subnet of MG(BRI).

- SIP Server IP Address & Host Name set

  Assign the IP address, port number, and host name of SIP server. **Note 9**

```
--- SIP Server IP Address & Host Name set ---

Current SIP Server/IP Address/Port Number/Host Name:
SIP Server    IP Address    Port Number   Host Name
1             0.0.0.0       0             blank
2             0.0.0.0       0             blank
3             0.0.0.0       0             blank
4             0.0.0.0       0             blank
5             0.0.0.0       0             blank
6             0.0.0.0       0             blank
7             0.0.0.0       0             blank
8             0.0.0.0       0             blank
9             0.0.0.0       0             blank
10            0.0.0.0       0             blank
11            0.0.0.0       0             blank
12            0.0.0.0       0             blank
13            0.0.0.0       0             blank
14            0.0.0.0       0             blank
15            0.0.0.0       0             blank
16            0.0.0.0       0             blank
17            0.0.0.0       0             blank
18            0.0.0.0       0             blank
19            0.0.0.0       0             blank
20            0.0.0.0       0             blank


Change SIP Server Information? [Y (change)/N (cur-
rent)/Q(quit)]: y


Input new SIP Server (1-20): 1
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the SIP server number.

```
Input new IP Address: 10.41.1.150
Input new Port Number: 5060
Is there the Host Name? [Y/N]: y


Input new Host Name: SVR1.nec.com


Continue? [Y (continue)/N (exit)]: n
```

Enter the IP address of SIP server. **Note 10**

Enter the port number of SIP server.

Asked whether to use host name.
Y: Use host name
N: Not use host name

Enter the SIP server's host name in full-domain. (up to 63-byte of characters, . (period) and - (hyphen) is available)

Asked whether to continue this command setting.
Y: Continue this command to set other SIP server data
N: Go on to the next command

Note 9: SIP server refers to the Telephony Server.

Note 10: LAN1 of the Telephony Server is used for the communication between SIP server and MG(BRI). So assign IP address of LAN1 on the Telephony Server here. In the case of Dual Configuration, assign IP address of LAN1 on Telephony Server#0.

- Ethernet Speed set

  Assign the LAN interface data.

```
--- Ethernet Speed set ---


Current LAN Speed: 100MBPS_FD


Change LAN Speed? [Y (change)/N (current)/
Q(quit)]: y



Input new Speed [1 (AUTO)/2 (100M)/3(10M)]: 1
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Select the transmission speed of LAN interface.
1: Auto negotiation (default)
2: 100 Mbps fixed mode
3: 10 Mbps fixed mode

Note: DUPLEX setting is not displayed when Auto negotiation is selected.

Note: Assign the proper speed adjusting the network devices (router, HUB) on the destination.

- Signaling Port Number set

  Assign the port number of PHI signaling [PHI = internal controlling function in SIP server (i.e. SP-PHI)].

```
--- Signaling Port Number set ---
```

```
Current Signaling Port Number: 64000


Change Signaling Port Number? [Y (change)/N (cur-
rent)/Q(quit)]: y



Input new Signaling Port Number (1024-65535):
65000
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the port number of PHI signaling.
Port number: 1024~65535
(default = 64000)

Note: Specify the same port number assigned on SIP server.

- RTP Start Port Number set

  Assign the RTP start port number.

```
--- RTP Start Port Number set ---


Current RTP Start Port Number: 1024


Change RTP Start Port Number Port Number? [Y
(change)/N (current)/Q(quit)]: y



Input new RTP Start Port Number (1024-65512): 1024
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Enter the first port number to be used for RTP.
Port number: 1024~65512
(default = 1024)

Note: Assign any even-numbered port number to the RTP start port. The specified data + 1 (the next odd-numbered port number) is assigned as the RTCP port number.

Note: 24 ports are occupied following the RTP start port. More than 24 of consecutive vacant ports must be reserved from the specified port number to the last 65535.

- Signaling QOS set

  Assign the ToS data added to signaling session.

```
--- Signaling QOS set ---

Current Signaling QOS: IP Precedence [0xC0]

Change Signaling QOS? [Y (change)/N (current)/Q(quit)]: y




QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:d
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Select the QoS type.
I: IP Precedence
D: DIFFSERV

When I: IP Precedence is selected:

```
QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:i
PRECEDENCE(0-7: 6):6
DELAY(0/1): 0


THROUGHPUT(0/1: 0):0


RELIABILITY(0/1: 0):0


COST(0/1:0):0
```

Precedence in IP network (0-7) (6: Default)

Precedence of Low Delay in IP network
0: Not specified (Default)
1: Specified

Precedence of Throughput in IP network
0: Not specified (Default)
1: Specified

Precedence of Reliability in IP network
0: Not specified (Default)
1: Specified

Precedence of Lower Cost in IP network
0: Not specified (Default)
1: Specified

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



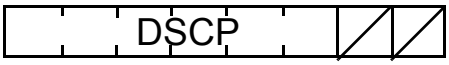
Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

When D: DIFFSERV is selected:

```
QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:d
DSCP (0-63: 48): 48
```

Enter DSCP value (0-63)
(Default: 48)

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



DSCP = Differentiated Service Code Point (6 bits)

- VLAN Information set

  Assign the VLAN data.

```
--- VLAN Information set ---

Current VLAN Information:
  Device VLAN 1   ID   COS   IP Address      Subnetmask
                  1    7     10.41.1.200     255.255.255.0

Change VLAN Information? [Y (change)/N (current)/
Q(quit)]: y


Input new VLAN ID (0-4094): 1
Input new COS (0-7): 6
Input new IP Address: 10.41.1.200
Input new Subnet mask: 255.255.255.0
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

VLAN ID: 0-4094

CoS setting: 0-7

Enter the IP address of VLAN.

Enter the subnet mask of VLAN.

Note: Do not assign the following addresses (network address, broadcast address) to MG(BRI).
(example)
- IP address 192.168.1.0/Subnet mask 255.255.255.0 (192.168.1.0 is network address, improper)
- IP address 176.16.0.0/Subnet mask 255.255.0.0 (176.16.0.0 is network address, improper)
- IP address 192.168.1.255/Subnet mask 255.255.255.0 (192.168.1.255 is broadcast address, improper)
- IP address 176.16.255.255/Subnet mask 255.255.0.0 (176.16.255.255 is broadcast address, improper)

As IP address of MG(BRI), Default Gateway, and the Telephony Server is get by DHCP server, there is no need to assign these network data on MG(BRI) side. IP addresses listed below, however, need to be assigned on DHCP server side. **Note 11**

- IP address of Default Gateway
- IP address of the Telephony Server **Note 12**

Note 11: Check the number of IP address saved in DHCP server is sufficient so as to get IP address of MG(BRI) anytime.

Note 12: DHCP option setting is as follows.
Class: Global
Name: Not specified, but do not enter the same option name in duplicate
Data: IP address
Array: Checked
Code: 162

4.5.4 Custom Mode

SET Command

1. SET DEFAULT_GATEWAY

   Assign the IP address of Default Gateway.

```
MG-BRI>set default_gateway P1

Default configuration is '0.0.0.0',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

P1: IP address of Default Gateway (default: 0.0.0.0)

Note: Specify the Default Gateway in the same subnet of MG(BRI).

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

2. SET DHCP_SV

   Assign whether to use DHCP Server or not.

```
MG-BRI>set dhcp_sv
Input new DHCP Interface [E(enable)/D(disable)]:d

Default configuration is 'DISABLE',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

DISABLE=Not using DHCP server
ENABLE=Using DHCP server

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

3. SET DNS_IPADDRESS

   Assign the IP Address of DNS server.

```
MG-BRI>set dns_ipaddress
IP Address: 10.41.1.150
```

Enter the IP address of DNS server (default: 0.0.0.0)
e.g. 10.41.1.150

```
Default configuration is '0.0.0.0',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

Note: Enter 0.0.0.0 when DNS server is not used.

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

4. SET DNS_SV

Assign whether to use DNS server or not.

```
MG-BRI>set dns_sv
DNS Interface [E(enable)/D(disable)]: e


Default configuration is 'DISABLE',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

DISABLE: Not using DNS server
ENABLE: Using DNS server
(default: DISABLE)

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

5. SET FAX_DETECTION_TIME

Assign the effective switching timer for FAX

```
MG-BRI > set fax_detection_time
Input (0/1-5/6-9): 1



Default configuration is '1',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

0: No switching to FAX
1-5: Effective switching timer (minute)
(Default: 1 minute)
6-9: Switching always effective

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

6. SET HC_RCV_TIMER

Assign the Time-out value for Telephony Server Health Check waiting process.

```
MG-BRI > set hc_rcv_timer
Health-Check Receive Timer (120-300/30): 150
```

Effective range: 120-300 in 30-second step (default: 150 seconds)

```
Default configuration is '150',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

7. SET INTERFACE

Assign the speed and activation mode of Ether controller.

```
MG-BRI > set interface
SPEED [1(AUTO)/2(100M)/3(10M)]: 1


Default configuration is 'AUTO',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

AUTO: AUTO Negotiation (default)
100M: 100Mbps Fixed mode
10M: 10Mbps Fixed mode

Note: DUPLEX setting is displayed when SPEED "2: 100M" or "3: 10M" is selected.
F (full) = Full-duplex mode
H (half) = Half-duplex mode

Note: Assign the proper speed adjusting the network devices (router, HUB) on the destination.

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

8. SET LAN_ERROR_CHECK

Assign the interval to detect LAN cable fall-off

```
MG-BRI> set lan_error_check
LAN Error Check Timer (100-1000/10): 1000


Default configuration is '1000',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

Effective range: 100-1000 in 10-msec step (default: 1000)

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

9. SET ONE_TIME_PASS

Assign the one time password to be used for the first registration after connected to network.

```
MG-BRI> set one_time_pass
```

```
One Time Password: 1234


Default configuration is 'blank',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

Enter any password in 4~10 characters.
(available characters are 0-9, *, # only)

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

10. SET OWN_IPADDRESS

Assignment of IP Address, Subnet Mask, and Host Name of MG(BRI) itself.

```
MG-BRI>set own_ipaddress
OWN IP address: 10.41.1.100

Subnet mask: 255.255.255.0

Is there the Host Name? [Y/N]: y


Host Name: mgbri.nec.com



Default configuration is '0.0.0.0/0.0.0.0/blank',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

Assign the IP Address of MG(BRI).
(Default: 0.0.0.0)

Assign the Subnet Mask of MG(BRI).
(Default: 0.0.0.0)

Asked whether to use host name.
Y: Use host name
N: Not use host name

Assign the MG(BRI)'s host name in full-domain, up to 63-byte of characters, . (period) and - (hyphen) is available.
(Default: blank)

Note: Assign the IP Address first, then Subnet Mask.

Note: Do not assign the following addresses (network address, broadcast address) to MG(BRI).
(example)
- IP address 192.168.1.0/Subnet mask 255.255.255.0 (192.168.1.0 is network address, improper)
- IP address 176.16.0.0/Subnet mask 255.255.0.0 (176.16.0.0 is network address, improper)
- IP address 192.168.1.255/Subnet mask 255.255.255.0 (192.168.1.255 is broadcast address, improper)
- IP address 176.16.255.255/Subnet mask 255.255.0.0 (176.16.255.255 is broadcast address, improper)

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

11. SET RTP_START_PORT_NO

Specify the first port number to be used for RTP.

```
MG-BRI>set rtp_start_port_no
Port Number (1024-65512): 1024

Default configuration is '1024',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

Port number (1024-65512)
(default: 1024)

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

Note: Assign any even-numbered port number to the RTP start port. The specified data + 1 (the next odd-numbered port number) is automatically assigned as the RTCP port number.

Note: 24 ports are occupied following the RTP start port. More than 24 of consecutive vacant ports must be reserved from the specified port number to the last 65535.

12. SET SIGNALING_PORT_NO

Assign the port number to be used for PHI signaling.

```
MG-BRI>set signaling_port_no
Port Number (1024-65535): 64000

Default configuration is '64000',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

Port number (1024-65535)
(default: 64000)

Note: PHI is the internal controlling function in SIP server, that is, SP-PHI in the Telephony Server. Specify the same port number assigned on SIP server.

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

13. SET SIGNALING_QOS

Assign the ToS value added to signaling (SIP server signaling) session.

```
MG-BRI>set signaling_qos
QOS [I(IP PRECEDENC)/D(DIFFSERV): IP PRECEDENCE]: P1
```

P1: I/D
I: IP Precedence type data assignment
D: DIFFSERV type data assignment

- When P1=IP PRECEDENCE is specified:

```
QOS[I(IP PRECEDENCE)/D(DIFFSERV):I]:I
```

I: When (IP PRECEDENCE) is selected

```
PRECEDENCE(0-7:6):6

DELAY(0/1:0):0


THROUGHPUT(0/1:0):0


RELIABILITY(0/1:0):0


COST(0/1:0):0


Default Configuration is 'IP PRECEDENCE[0xC0]',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

Precedence in IP network (0-7)
(6: Default)

Precedence of Low Delay in IP network
0: Not specified (Default)
1: Specified

Precedence of Throughput in IP network
0: Not specified (Default)
1: Specified

Precedence of Reliability in IP network
0: Not specified (Default)
1: Specified

Precedence of Lower Cost in IP network
0: Not specified (Default)
1: Specified

Note: Meaning of ToS field for IP Precedence type is as follows.



Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

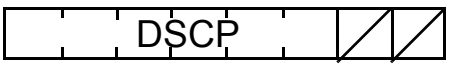
- When P1 = Diffserv is specified:

```
QOS[I(IP PRECEDENCE)/D(DIFFSERV):I]:D
DSCP(0-63:48):48

Default Configuration is 'IP PRECEDENCE[0xC0]',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

D: When (Diffserv) is selected.
Enter DSCP value (0-63)
(Default: 48)

Note: Meaning of ToS field for Diffserv type is as follows.



DSCP = Differentiated Service Code Point (6 bits)

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

14. SET SIPSV_IPADDRESS

Assign the IP address, port number, and host name of SIP server.

```
MG-BRI>set sipsv_ipaddress
```

```
SIP Server (1-20): 1

IP Address: 10.41.1.150


Port Number: 5060

Is there the Host Name? [Y/N]: y


Input new Host Name: SVR1.nec.com


Default configuration is '0.0.0.0/5060/blank',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

Enter the SIP server number. Up to 20 SIP servers can be set in a network.

Enter the IP address of SIP server. **Note 1** (Default: 0.0.0.0)
e.g. 10.41.1.150

Enter the port number of SIP server.
1024-65535 (Default: 5060)

Asked whether to use host name.
Y: Use host name
N: Not use host name

Enter the SIP server's host name in full-domain. (up to 63-byte of characters, . (period) and - (hyphen) is available)

Note 1: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

15. SET SMOOTH_PAD

Assign the Smooth PAD

```
MG-BRI>set smooth_pad
Input Smooth PAD(0/1/2/3/4/5=OFF/+2dBm/-5dBm/-2dBm/0dBm/-4dBm): 1




Default configuration is '1',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

Specify the mode
0: DSP Smooth PAD is not used
1: +2 dBm (default)
2: -5 dBm
3: -2 dBm
4: 0 dBm
5: -4 dBm

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

16. SET VALUE

Assign the VALUE

- When assigning whether to use MG Based Call Retention or not. **Note 2**, **Note 3**

```
MG-BRI>set VALUE CONFIG CALL_HOLD P1




Configuration data was changed into 'P1'.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: ENABLE / DISABLE

ENABLE=MG Based Call Retention is enabled
DISABLE=MG Based Call Retention is disabled (default)

Note 2: By setting "ENABLE" by this command, if a network failure occurred between Telephony Server and MG (BRI), the call will be retained. However, re-registration to the Telephony Server will not be executed.

Note 3: "CONFIG CALL_HOLD" must be entered in upper case letters.

Note: Other than "ENABLE" or "DISABLE" must not be entered for "P1".

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

- When assigning the time-out value for RTP_STOP_DETECT. **Note 4**, **Note 5**, **Note 6**

```
MG-BRI>set VALUE CONFIG RTP_STOP_DETECT P1




Configuration data was changed into 'P1'.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: Time-out value for RTP_STOP_DETECT.

Effective range: 3-32 seconds (default: 3 seconds)

Note 4: Assign this value as one of the conditions for MG Based Call Retention to determine that the call is released. The call will be determined released if RTP is not received exceeding the assigned time-out value during call retention.

Note 5: "CONFIG RTP_STOP_DETECT" must be entered in upper case letters.

Note 6: Execute the "SAVE" command before finishing the maintenance command to reflect change.

17. SET VLAN

Assign the Tag VLAN information.

```
MG-BRI>set vlan
VLAN_ID(0-4094):1
```

VLAN ID: 0-4094 (default: 0)

```
COS(0-7):6
IP Address:10.41.1.200
Subnet mask:255.255.255.0
Default configuration is 'Not use VLAN/VLAN ID=0',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

CoS setting: 0-7

IP address of VLAN

Subnet mask of VLAN

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

Note: Do not assign the following addresses (network address, broadcast address) to MG(BRI).
(example)
- IP address 192.168.1.0/Subnet mask 255.255.255.0 (192.168.1.0 is network address, improper)
- IP address 176.16.0.0/Subnet mask 255.255.0.0 (176.16.0.0 is network address, improper)
- IP address 192.168.1.255/Subnet mask 255.255.255.0 (192.168.1.255 is broadcast address, improper)
- IP address 176.16.255.255/Subnet mask 255.255.0.0 (176.16.255.255 is broadcast address, improper)

As IP address of MG(BRI), Default Gateway, and SIP server is gotten by DHCP server, there is no need to assign these network data on MG(BRI) side. IP addresses listed below, however, need to be assigned on DHCP server side. **Note 7**

- IP address of Default Gateway
- IP address of SIP server **Note 8**, **Note 9**

Note 7: Check the number of IP address saved in DHCP server is sufficient so as to get IP address of MG(BRI) anytime.

Note 8: DHCP option setting is as follows:
Class: Global
Name: Not specified, but do not enter the same option name in duplicate
Data: IP address
Array: Checked
Code: 162

Note 9: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

18. SET WARNING_TONE_CONTROL

Assign whether to use warning tone when LAN failure or not.

```
MG-BRI>set warning_tone_control
Warning Tone Control (0-3): 3




Default configuration is '3',
if you will not change a configuration by using this command.
In order to make a setup reflect and keep, re-starting is
required after saving a configuration data by SAVE command.
```

Setting of Mode (Default: 3)

0: Do not send warning tone
1: Send warning tone to IP network side.
2: Send warning tone to ISDN side.
3: Send warning tone to IP network and ISDN.

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

SHOW Command

1. SHOW CONFIG

   Displays the list of current configuration data.

```
MG-BRI>show config

[CONFIG]
LAN_SPEED=AUTO
DHCP=ENABLE
OWN_ADDR=0.0.0.0
SUBNET_MASK=0.0.0.0
DEFAULT_GATEWAY=0.0.0.0
SIPSV_ADDR1=0.0.0.0
SIPSV_PORT1=64000
SIG_QOS=1,0xC0
SIGNALING_PORT=64000
START_PORT=1024
VLAN_NUM_1=0
FAX_TIME=1
MUSIC_LEVEL=0
SMOOTH_PAD=1
LAN_ERROR_CHECK=1000
HC_RCV_TIMER=150
WARNING_TONE_CONTROL=3
SINT_MODE=0
CALL_HOLD=ENABLE
RTP_STOP_DETECT=3
```

2. SHOW DEFAULT_GATEWAY

   Displays the current setting of Default Gateway.

```
MG-BRI>show default_gateway
Default Gateway is 10.40.1.254
```

3. SHOW DHCP_SV

   Displays the current setting of DHCP server.

```
MG-BRI>show dhcp_sv
DHCP is ENABLE
```

This example shows the DHCP server is “Enable.”

4. SHOW DNS_IPADDRESS

   Displays the current IP address setting of DNS server.

```
MG-BRI>show dns_ipaddress
```

```
DNS IP address is 10.40.1.150
```

5. SHOW DNS_SV

   Displays the current setting of DNS server.

```
MG-BRI>show dns_sv
DNS is ENABLE
```

This example shows the DNS server is “Enable.”

6. SHOW FAX_DETECTION_TIME

   Displays the current setting of effective timer for FAX switching.

```
MG-BRI>show fax_detection_time
FAX Enable Timer is 1 minute.
```

7. SHOW HC_RCV_TIMER

   Displays the current setting of Time-out timer for SIP server Health Check packet waiting process.

```
MG-BRI>show hc_rcv_timer
Health-Check Receive Timer Timeout is 150 seconds.
```

8. SHOW INTERFACE

   Displays the current setting for speed and activation mode of Ethernet controller.

```
MG-BRI>show interface
Ethernet Speed          DUPLEX
100MBPS                 FULL
```

9. SHOW LAN_ERROR_CHECK

   Displays the interval to detect LAN cable fall-off.

```
MG-BRI>show lan_error_check
LAN Error Check Timer is 100 ms.
```

10. SHOW ONE_TIME_PASS

    Displays the current setting of one time password.

```
MG-BRI>show one_time_pass
One Time Password is 123456.
```

11. SHOW OWN_IPADDRESS

Displays the current setting of IP Address, Subnet Mask, and Host Name of MG(BRI) itself.

```
MG-BRI>show own_ipaddress
IP Address    Subnetmask      Host Name
10.41.1.100   255.255.255.0   mgbri.nec.com
```

12. SHOW RTP_START_PORT_NO

Displays the current setting of RTP Start Port Number.

```
MG-BRI>show rtp_start_port_no
RTP start port number is 1024.
```

13. SHOW SIGNALING_PORT_NO

Displays the current setting of Signaling Port number

```
MG-BRI>SHOW SIGNALING_PORT_NO
Signaling port number is 64000.
```

14. SHOW SIGNALING_QOS

Displays the current setting of QoS data for signaling session.

```
MG-BRI>show signaling_qos
Signaling QOS is 0xC0 (QOS=IP PRECEDENCE)
PRECEDENCE          =6
DELAY               =0
THROUGHPUT          =0
RELIABILITY         =0
COST                =0
```

This example is assigned with IP Precedence.

15. SHOW SIPSV_IPADDRESS

Displays the current setting of SIP server's IP address, port number, and host name.

```
MG-BRI> show sipsv_ipaddress

SIP Server   IP Address   Port Number  Host Name
```

```
1             10.41.1.150   5060          SVR1.nec.com
2             0.0.0.0       0             blank
3             0.0.0.0       0             blank
4             0.0.0.0       0             blank
5             0.0.0.0       0             blank
6             0.0.0.0       0             blank
7             0.0.0.0       0             blank
8             0.0.0.0       0             blank
9             0.0.0.0       0             blank
10            0.0.0.0       0             blank
11            0.0.0.0       0             blank
12            0.0.0.0       0             blank
13            0.0.0.0       0             blank
14            0.0.0.0       0             blank
15            0.0.0.0       0             blank
16            0.0.0.0       0             blank
17            0.0.0.0       0             blank
18            0.0.0.0       0             blank
19            0.0.0.0       0             blank
20            0.0.0.0       0             blank
```

Note: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

16. SHOW SMOOTH_PAD

Displays the current Smooth PAD mode.

```
MG-BRI>show smooth_pad
Smooth PAD mode is OFF.
```

17. SHOW VLAN

Displays the current VLAN setting.

```
MB-BRI>show vlan
DEVICE   ID   COS   IPADDRESS     SUBNETMASK
VLAN1    1     6    10.41.1.200   255.255.255.0
```

18. SHOW WARNING_TONE_CONTROL

Displays the current setting whether to send warning tone in the case of LAN failure.

```
MG-BRI>show waring_tone_control
Warning Tone Control of IP Network is 3 (IP & ISDN side).
```

SAVE CONFIG, EXIT, REBOOT Command

- SAVE CONFIG Command

  This command is used to save the modified configuration data to the FlashROM.

```
MG-BRI>save config

** Don't power of in progress **
Do you need save? [Y/N]: Y

Preservation of configuration data has been saved.
Re-starting is required for making a setup reflect!!
```

Enter "Y" to execute data saving.

Result is displayed.

Note: Configuration data will not be saved when any error occurs while SAVE CONFIG command is in process.

- EXIT Command

  This command is used to exit the configuration command of MG(BRI).

  Save the latest configuration using SAVE command and then exit. Confirmation message appears when the configuration has not been saved.

```
MG-BRI>exit

Configuration data was changed.
** Don't power off in progress **

y:Save and Exit
n:Exit without saving
c:Cancel
[y/n/c]:y

Configuration data has been saved.

finished!
```

Enter "Y" to execute this command.

- REBOOT Command

  This command is used to reboot the MG(BRI).

```
MG-BRI>reboot
Do you need reboot? [Y/N]: Y

[createRamDrb]New File System is Created
Attached TCP/IP interface to axDev unit 0
```

Enter "Y" to execute the command.

Boot message will be displayed.

Note: When configuration data has been modified, use REBOOT command after executing SAVE command. The check message below appears whether to save or not save the modified data when SAVE command has not been executed.

```
Configuration data was changed.
** Don't power off in progress**

y: Save and Exit
n: Exit without saving
c: Cancel
[y/n/c]: y

Configuration data has been saved.
finished!
```

Enter "y" to save and execute rebooting.

4.6 Maintenance Command (*SP-3826 BRI MG SIP BSC PROG-A Issue 5.0 or later*)

SETUP COMMAND

Set the basic data for connecting network by "SETUP SP" command depending on your LAN environment. Enter "SETUP SP" following the prompt.

- To startup SETUP SP:

```
MG-BRI(SIP)> SETUP SP
```

Enter "SETUP SP" following the prompt.

- Setting DHCP server enable/disable:

```
--- DHCP Interface set ---
Current DHCP Interface: ENABLE
Change DHCP Interface? [Y(change)/
N(current)/Q(quit)]: Y


Input new DHCP Interface [E(enable)/
D(disable)]: D
```

The current setting is displayed.

Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Specify whether to use DHCP server.
E=Use DHCP server
D=Not use DHCP server (default)

- Setting DNS server enable/disable:

```
--- DNS Interface set ---
Current DNS Interface: DISABLE
Change DNS Interface? [Y(change)/
N(current)/Q(quit)]: Y


Input new DNS Interface [E(enable)/
D(disable)]: E
```

The current setting is displayed.

Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Specify whether to use DNS server.
E=Use DNS server
D=Not use DNS server (default)

- Setting DNS server IP Address:

```
--- DNS IP Address set ---
Current DNS IP Address: 0.0.0.0
Change DNS IP Address? [Y(change)/N(cur-
rent)/Q(quit)]: Y


Input new DNS IP Address: 10.41.1.150
```

The current setting is displayed.

Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Enter new IP address of DNS server (e.g. 10.41.1.150)

Note: This setting is required when DNS server is “E (enable)”.

- Setting IP Address and Subnet Mask of MG(BRI):

```
--- IP Address & Subnetmask set ---

Current IP Address: 0.0.0.0
Current Subnetmask: 0.0.0.0

Change IP Address & Subnetmask?
[Y(change)/N(current)/Q(quit)]: Y


Input new IP Address: 10.41.1.100
Input new Subnetmask: 255.255.255.0
```

The current setting is displayed.

Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Enter new IP address of MG(BRI) (e.g. 10.41.1.100)
Enter new Subnet Mask (e.g. 255.255.255.0)

Note: Do not assign network address and broadcast address for MG(BRI) setting. See the examples below:
(Example 1) Network address cannot be assigned as IP address of MG(BRI).
IP address: 192.168.1.0
Subnet mask: 255.255.255.0
(Example 2) Network address cannot be assigned as IP address of MG(BRI).
IP address: 172.16.0.0
Subnet mask: 255.255.0.0
(Example 3) Broadcast address cannot be assigned as IP address of MG(BRI).
IP address: 192.168.1.255
Subnet mask: 255.255.255.0
(Example 4) Broadcast address cannot be assigned as IP address of MG(BRI).
IP address: 172.16.255.255
Subnet mask: 255.255.0.0

- Setting Host name of MG(BRI):

```
--- Host Name set ---

Current Host Name: blank

Change Host Name? [Y(change)/N(current)/
Q(quit)]: Y


Input new Host Name: mgbri.nec.com
```

Line 2: The current setting is displayed.

Line 3: Asked whether to change the host name.
Y=change
N=not change
Q=quit this setting

Line 4: Enter new host name of MG(BRI) in full-domain format.

Note: Up to 63 characters of alphanumerics, “. (period)”, and “- (hyphen)” is available.

- Setting Default Gateway IP Address:

```
--- Default Gateway IP Address set ---

Current Default Gateway: 0.0.0.0

Change Default Gateway? [Y(change)/N(cur-
rent)/Q(quit)]: Y


Input new Default Gateway: 10.41.1.254
```

The current setting is displayed.

Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Enter new IP address of Default Gateway
(e.g. 10.41.1.254)

Note: Make sure to set the Default Gateway to place on the same subnet with MG(BRI).

- Setting IP Address, Port Number, and Host Name of SIP server

```
--- SIP Server IP Address & Host Name set ---

Current SIP Server/IP Address/Port Number/Host Name:

SIP Server      IP Address      Port Number     Host Name
1               0.0.0.0         5060            blank
2               0.0.0.0         5060            blank
3               0.0.0.0         5060            blank
:               :               :               :
:               :               :               :
20              0.0.0.0         5060            blank

Change SIP Server Information? [Y(change)/N(current)/Q(quit)]: Y

Input new SIP Server (1-20): 1

Input new IP Address: 10.41.1.200

Input new Port Number: 5060

Is there the Host Name? [Y/N]: Y

Input new Host Name: SVR1.nec.com

Continue? [Y(continue)/N(exit)]: N
```

Line 4~Line 9: The current setting of SIP server (IP address, port number, and host name) is displayed.
Line 10: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 11: Enter the number of SIP server [1-20]
Line 12: Enter the IP address of SIP server (e.g. 10.41.1.200) **Note 1**
Line 13: Enter the port number of SIP server (default=5060)
Line 14: Asked whether to use host name.
Y=Use host name
N=Not use host name
Line 15: Enter new host name of SIP server in full-domain format.
Up to 63 characters of alphanumerics, ". (period)", and "- (hyphen)" is available.
Line 16: Asked whether to continue the setting of other SIP server.
Y=Continue to register other SIP server
N=Exit this command and move on to the next command setting

Note: This setting is required when DNS server is "D (disable)".

Note 1: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

- Setting Ethernet Speed

```
--- Ethernet Speed set ---

Current LAN Speed: AUTO

Change LAN Speed? [Y(change)/N(current)/
Q(quit)]: Y


Input new Speed [1(AUTO)/2(100M)/3(10M)]: 2



Input new DUPLEX [F(full)/H(half)]: F
```

The current setting is displayed.

Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Select the communication speed of LAN interface
1=Auto negotiation (default)
2=100Mbps fixed mode
3=10Mbps fixed mode

Select the Duplex mode of LAN interface **Note 2**
F=Full duplex mode
H=Half duplex mode

Note 2: When the communication speed of LAN interface is "1 (Auto negotiation)", this setting is not required.

- Setting Signaling Port Number

```
--- Signaling Port Number set ---
```

```
Current Signaling Port Number: 5060

Change Signaling Port Number? [Y(change)/
N(current)/Q(quit)]: Y


Input new Signaling Port Number (1024-65535):
5060
```

The current setting is displayed.

Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Enter the port number of PHI signaling.
Port number: 1024-65535
(default = 5060)

Note: Specify the same port number assigned on SIP server.

- Setting RTP Start Port Number

```
--- RTP Start Port Number set ---

Current RTP Start Port Number: 1024

Change RTP Start Port Number? [Y(change)/
N(current)/Q(quit)]: Y


Input new RTP Start Port Number (1024-65512):
1024
```

The current setting is displayed.

Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Enter the first port number to be used for RTP.
Port number: 1024-65512
(default = 1024)

Note: Assign any even-numbered port number to the RTP start port. The specified data + 1 (the next odd-numbered port number) is assigned as the RTCP port number.

Note: 24 ports are occupied following the RTP start port. More than 24 of consecutive vacant ports must be reserved from the specified port number to the last 65535.

- Signaling QOS set

  Assign the ToS data added to signaling session.

```
--- Signaling QOS set ---


Current Signaling QOS: IP Precedence [0xC0]

Change Signaling QOS? [Y (change)/N (current)/Q(quit)]: y




QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:d
```

Current data setting is displayed.

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

Select the QoS type.
I: IP Precedence
D: DIFFSERV

When I: IP Precedence is selected:

```
QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:i
PRECEDENCE(0-7: 6):6
DELAY(0/1): 0


THROUGHPUT(0/1: 0):0


RELIABILITY(0/1: 0):0


COST(0/1:0):0
```

Precedence in IP network (0-7) (6: Default)

Precedence of Low Delay in IP network
0: Not specified (Default)
1: Specified

Precedence of Throughput in IP network
0: Not specified (Default)
1: Specified

Precedence of Reliability in IP network
0: Not specified (Default)
1: Specified

Precedence of Lower Cost in IP network
0: Not specified (Default)
1: Specified

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



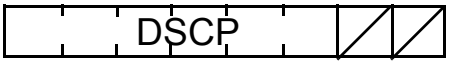
Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

When D: DIFFSERV is selected:

```
QoS [I (IP PRECEDENCE)/D (DIFFSERV): IP PRECEDENCE]:d
DSCP (0-63: 48): 48
```

Enter DSCP value (0-63)
(Default: 48)

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



DSCP = Differentiated Service Code Point (6 bits)

- VLAN Information set

  Assign the VLAN data.

```
--- VLAN Information set ---

Current VLAN Information:
       Device     ID  COS  IP Address      Subnetmask
       VLAN 1     1   7    10.41.1.200     255.255.255.0
```

Current data setting is displayed.

```
Change VLAN Information? [Y (change)/N (current)/
Q(quit)]: y


Input new VLAN ID (0-4094): 1
Input new COS (0-7): 6
Input new IP Address: 10.41.1.200
Input new Subnet mask: 255.255.255.0
```

Asked whether to change the displayed data.
Y: To change the displayed data
N: Not change
Q: Quit Standard mode

VLAN ID: 0-4094

CoS setting: 0-7

Enter the IP address of VLAN.

Enter the subnet mask of VLAN.

Note: A maximum one of VLAN can be registered.

Note: When using VLAN, assign “0.0.0.0” for IP address of actual LAN by using “SET OWN_IPADDRESS” command.

Note: If “0” is assigned for VLAN ID, VLAN will be disabled.

Note: Do not assign the following addresses (network address, broadcast address) to MG(BRI).
(example)
- IP address 192.168.1.0/Subnet mask 255.255.255.0 (192.168.1.0 is network address, improper)
- IP address 176.16.0.0/Subnet mask 255.255.0.0 (176.16.0.0 is network address, improper)
- IP address 192.168.1.255/Subnet mask 255.255.255.0 (192.168.1.255 is broadcast address, improper)
- IP address 176.16.255.255/Subnet mask 255.255.0.0 (176.16.255.255 is broadcast address, improper)

- Save the assigned configuration data at the last of SETUP SP command to complete network setting.

```
**Don't power off in progress**
Do you save the configuration data? (Y/N):Y


Configuration data has been saved.
Re-starting is required for making a setup
reflect!!
SP mode setting succeeded.
```

Asked whether to save the assigned data.
Y=Save
N=Not save

Result is displayed.

Note: If abnormal data is entered four times continuously, the setup will be quit without saving all the assigned configuration data.

Note: If the setup is quit on the way, all of the assigned configuration data will not be saved.

SET Command

1. SET CALL_HOLD

Specify whether to use MG Based Call Retention or not.

```
MG-BRI(SIP)> SET CALL_HOLD P1




CALL HOLD setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: ENABLE / DISABLE
ENABLE=MG Based Call Retention is enabled
DISABLE=MG Based Call Retention is disabled (default)

The result is shown.

Note: By setting “ENABLE” by this command, if a network failure occurred between the Telephony Server and MG (BRI), the call will be retained. However, re-registration to the Telephony Server will not be executed.

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

2. SET DEFAULT_GATEWAY

Specify the IP address of Default Gateway.

```
MG-BRI(SIP)> SET DEFAULT_GATEWAY P1



Default Gateway setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: IP address of Default Gateway (default: 0.0.0.0)

The result is shown.

Note: Specify the Default Gateway in the same subnet of MG(BRI).

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

3. SET DHCP_SV

Specify whether to use a DHCP Server or not.

```
MG-BRI(SIP)> SET DHCP_SV P1




DHCP setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: ENABLE / DISABLE
ENABLE=Using a DHCP server
DISABLE=Not using a DHCP server

The result is shown.

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

4. SET DNS_IPADDRESS

Assign the IP Address of DNS server.

```
MG-BRI(SIP)> SET DNS_IPADDRESS P1


DNS IP address setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: IP address of DNS server (default: 0.0.0.0)

The result is shown.

Note: Enter 0.0.0.0 when DNS server is not used.

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

5. SET DNS_SV

Assign whether to use DNS server or not.

```
MG-BRI(SIP)> SET DNS_SV P1



DNS setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: ENABLE / DISABLE
ENABLE: Using DNS server
DISABLE: Not using DNS server
(default: DISABLE)

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

6. SET DTMF_IN

Assign whether Inband DTMF is used or not.

```
MG-BRI(SIP)> SET DTMF_IN P1



Inband DTMF Relay setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: ON / OFF
ON=In-band DTMF is valid
OFF=In-band DTMF is invalid
(default)

The result is shown.

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

Note: Inband DTMF Relay is valid only when G.711 is used as CODEC for voice communication. Pay attention to the CODEC settings because the Inband DTMF Relay does not identify the type of CODEC.

7. SET FAX_DETECTION_TIME

Assign the effective switching timer for FAX

```
MG-BRI(SIP)> SET FAX_DETECTION_TIME P1




FAX Enable Timer setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: Assignment of effective time
0: No switching to FAX
1-5: Effective switching timer (minute)
(Default: 1 minute)
6-9: Switching always effective

The result is shown.

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

8. SET HC_RCV_TIMER

Assign the Time-out value for Telephony Server Health Check waiting process.

```
MG-BRI(SIP)> SET HC_RCV_TIMER P1




Health-Check Receive Timer setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: Specify Time (Second) (30 second interval)
Effective range: 120-300 in 30-second step (default: 150 seconds)

The result is shown.

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

9. SET INTERFACE

Assign the speed and activation mode of Ether controller.

```
MG-BRI(SIP)> SET INTERFACE
SPEED [1(AUTO)/2(100M)/3(10M)]: 3




DUPLEX [F(FULL)/H(HALF)]: F
```

AUTO: AUTO Negotiation (default)
100M: 100Mbps Fixed mode
10M: 10Mbps Fixed mode

FULL: Full-duplex mode
HALF: Half-duplex mode

```
Ethernet Speed setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

The result is shown.

Note: DUPLEX setting will not be effective when “AUTO” was chosen for speed.

Note: Assign the proper speed adjusting the network devices (router, HUB) on the destination.

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

10. SET LAN_ERROR_CHECK

Assign the interval to detect LAN cable fall-off

```
MG-BRI(SIP)> SET LAN_ERROR_CHECK P1



LAN Error Check Timer setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: Specify Time (milli-second)
(10 milli-second interval)
Effective range: 100-1000 in 10-msec step (default: 1000)

The result is shown.

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

11. SET ONE_TIME_PASS

Assign the one time password to be used for the first registration after connected to network.

```
MG-BRI(SIP)> SET ONE_TIME_PASS P1



One time password setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: Enter any password in 4~10 characters.
(available characters are 0-9, *, # only)

The result is shown.

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

Note: Assigned One Time Password is deleted from the configuration setting when the first registration is completed.

12. SET OWN_IPADDRESS

Assignment of IP Address, Subnet Mask, and Host Name of MG(BRI) itself.

```
MG-BRI(SIP)> SET OWN_IPADDRESS P1 P2 P3



IP Address setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: Assign the IP Address of MG(BRI).
(Default: 0.0.0.0)

P2: Assign the Subnet Mask of MG(BRI).
(Default: 0.0.0.0)

P3: Assign the MG(BRI)'s host name in full-domain, up to 63-byte of characters, . (period) and - (hyphen) is available.
(Default: blank)

The result is shown.

Note: Assign the IP Address first, then Subnet Mask.

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

Note: Do not assign the following addresses (network address, broadcast address) to MG(BRI).
(example)
- IP address 192.168.1.0/Subnet mask 255.255.255.0 (192.168.1.0 is network address, improper)
- IP address 176.16.0.0/Subnet mask 255.255.0.0 (176.16.0.0 is network address, improper)
- IP address 192.168.1.255/Subnet mask 255.255.255.0 (192.168.1.255 is broadcast address, improper)
- IP address 176.16.255.255/Subnet mask 255.255.0.0 (176.16.255.255 is broadcast address, improper)

13. SET RTP_START_PORT_NO

Specify the first port number to be used for RTP.

```
MG-BRI(SIP)> SET RTP_START_PORT_NO P1


RTP Start Port Number setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: Port number (1024-65512)
(default: 1024)

The result is shown.

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

Note: Assign any even-numbered port number to the RTP start port. The specified data + 1 (the next odd-numbered port number) is automatically assigned as the RTCP port number.

Note: 24 ports are occupied following the RTP start port. More than 24 of consecutive vacant ports must be reserved from the specified port number to the last 65535.

14. SET RTP_STOP_DETECT

Specify a time-out value for MG Based Call Retention.

```
MG-BRI(SIP)> SET RTP_STOP_DETECT P1




RTP Stop Detect Timer setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: Time-out value for RTP reception. (one second interval)
3-32 seconds (default: 3 seconds)=Effective range

The result is shown.

Note: Specify this value as one of the conditions for MG Based Call Retention to determine that the call is released. The call will be determined released if RTP is not received exceeding the assigned timer value during call retention.

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

15. SET SIGNALING_PORT_NO

Assign the port number to be used for PHI signaling.

```
MG-BRI(SIP)> SET SIGNALING_PORT_NO P1


Signaling port number setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: Port number (1024-65535)
(default: 5060)

The result is shown.

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

16. SET SIGNALING_QOS

Assign the ToS value added to signaling (SIP server signaling) session.

```
MG-BRI(SIP)> SET SIGNALING_QOS
QOS [I(IP PRECEDENC)/D(DIFFSERV): IP PRECEDENCE]: P1
```

P1: I/D
I: IP Precedence type data assignment
D: DIFFSERV type data assignment

- When P1=IP PRECEDENCE is specified:

```
QOS[I(IP PRECEDENCE)/D(DIFFSERV):I]:I
PRECEDENCE(0-7:6):6

DELAY(0/1:0):0


THROUGHPUT(0/1:0):0


RELIABILITY(0/1:0):0


COST(0/1:0):0



Signaling QoS setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

I: When (IP PRECEDENCE) is selected

Precedence in IP network (0-7)
(6: Default)

Precedence of Low Delay in IP network
0: Not specified (Default)
1: Specified

Precedence of Throughput in IP network
0: Not specified (Default)
1: Specified

Precedence of Reliability in IP network
0: Not specified (Default)
1: Specified

Precedence of Lower Cost in IP network
0: Not specified (Default)
1: Specified

The result is shown.

Note: Meaning of ToS field for IP Precedence type is as follows.



Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

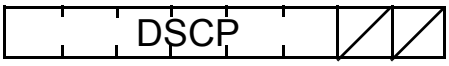
- When P1 = Diffserv is specified:

```
QOS[I(IP PRECEDENCE)/D(DIFFSERV):I]:D
DSCP(0-63:48):48
```

D: When (Diffserv) is selected.

Enter DSCP value (0-63)
(Default: 48)

Note: Meaning of ToS field for Diffserv type is as follows.



DSCP = Differentiated Service Code Point (6 bits)

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

17. SET SIP_MADDR

Select the mode to use the maddr parameter in Via header of SIP message or not.

```
MG-BRI(SIP)> SET SIP_MADDR P1




SIP maddr setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: Select the mode
Effective range: 0-3 (Default: 1)
0: Not to be use.
1: To be used for reception.
2: To be used for transmission.
3: To be used for reception and transmission.

The result is shown.

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

Note: The maddr parameter indicates that it is the destination IP address of SIP response in Via header of SIP message. MG-BRI will operate as follows depending on the setting.

- 0: Not to be used.
Even if maddr parameter is in Via header of SIP request received by MG-BRI, SIP response will be transferred to the originating IP address without using the maddr parameter. The maddr parameter will not be added to Via header of SIP request to be transferred from MG-BRI.

- 1: To be used for reception.
If maddr parameter is in Via header of SIP request received by MG-BRI, SIP response will be transferred to the originating IP address designated by the maddr parameter. The maddr parameter will not be added to Via header of SIP request to be transferred from MG-BRI.

- 2: To be used for transmission.
Even if maddr parameter is in Via header of SIP request received by MG-BRI, SIP response will be transferred to the originating IP address of SIP request without using the maddr parameter. The maddr parameter will be added to the Via header of SIP request to be transferred from MG-BRI. In this case, specify own IP address.

3: To be used for reception and transmission.
If maddr parameter is in Via header of SIP request received by MG-BRI, SIP response will be transferred to the originating IP address designated by the maddr parameter. The maddr parameter will be added to Via header of SIP request to be transferred from MG-BRI.

18. SET SIP_RPORT

Select the mode to use the rport parameter in Via header of SIP message or not.

```
MG-BRI(SIP)> SET SIP_RPORT P1




SIP rport setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: Select the mode
Effective range: 0-3 (Default: 1)
0: Not to be use.
1: To be used for reception.
2: To be used for transmission.
3: To be used for reception and transmission.

The result is shown.

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

Note: The rport parameter indicate that the destination of SIP response is the originating port of SIP request in Via header of SIP message. MG-BRI will operate as follows depending on the setting.

- 0: Not to be used.
Even if rport parameter is in Via header of SIP request received by MG-BRI, SIP response will be transferred to the port number written in Via header of SIP request without using the rport parameter. The rport parameter will not be added to Via header of SIP request to be transferred from MG-BRI.

- 1: To be used for reception.
If rport parameter is in Via header of SIP request received by MG-BRI, SIP response will be transferred to the originating port of SIP request. The rport parameter will not be added to Via header of SIP request to be transferred from MG-BRI.

- 2: To be used for transmission.
Even if rport parameter is in Via header of SIP request received by MG-BRI, SIP response will be transferred to the port number written in Via header of SIP request without using the rport parameter. The rport parameter will be added to the Via header of SIP request to be transferred from MG-BRI.

3: To be used for reception and transmission.
If rport parameter is in Via header of SIP request received by MG-BRI, SIP response will be transferred to the originating port of SIP request. The rport parameter will be added to Via header of SIP request to be transferred from MG-BRI.

19. SET SIPSV_IPADDRESS

Assign the IP address, port number, and host name of SIP server.

```
MG-BRI(SIP)> SET SIPSV_IPADDRESS
SIP Server (1-20): 1
```

Enter the SIP server number. Up to 20 SIP servers can be set in a network.

```
IP Address: 10.41.1.150


Port Number: 5060

Is there the Host Name? [Y/N]: y
Host Name: SVR1.nec.com



SIP server setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

Enter the IP address of SIP server. (Default: 0.0.0.0)
e.g. 10.41.1.150

Enter the port number of SIP server. **Note 3**
1024-65535 (Default: 5060)

Enter the SIP server's host name in full-domain. (up to 63-byte of characters, . (period) and - (hyphen) is available)

The result is shown.

Note: Up to 20 SIP servers can be set in a network.

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

Note 3: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

20. SET SMOOTH_PAD

Assign the Smooth PAD

```
MG-BRI(SIP)> SET SMOOTH_PAD P1









Smooth PAD Mode setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

Specify the mode
0: DSP Smooth PAD is not used
1: +2 dBm (default)
2: -5 dBm
3: -2 dBm
4: 0 dBm
5: -4 dBm

The result is shown.

Note: Execute the "SAVE" command before finishing the maintenance command to reflect change.

21. SET SUBSCRIBE_RETRY

Select the regeneration mode for SIP SUBSCRIBE session.

```
MG-BRI(SIP)> SET SUBSCRIBE_RETRY P1




SIP Subscribe Retry setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: ENABLE / DISABLE

ENABLE=Session is regenerated.
DISABLE=Session is not regenerated (default)

The result is shown.

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

22. SET VLAN

Assign the Tag VLAN information.

```
MG-BRI(SIP)> SET VLAN
VLAN_ID(0-4094):1
COS(0-7):6
IP Address:10.41.1.200
Subnet mask:255.255.255.0

VLAN setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

VLAN ID: 0-4094 (default: 0)
CoS setting: 0-7
IP address of VLAN
Subnet mask of VLAN

The result is shown.

Note: A maximum one of VLAN can be registered.

Note: When using VLAN, assign “0.0.0.0” for IP address of actual LAN by using “SET OWN_IPADDRESS” command.

Note: Do not assign the following addresses (network address, broadcast address) to MG(BRI).
(example)
- IP address 192.168.1.0/Subnet mask 255.255.255.0 (192.168.1.0 is network address, improper)
- IP address 176.16.0.0/Subnet mask 255.255.0.0 (176.16.0.0 is network address, improper)
- IP address 192.168.1.255/Subnet mask 255.255.255.0 (192.168.1.255 is broadcast address, improper)
- IP address 176.16.255.255/Subnet mask 255.255.0.0 (176.16.255.255 is broadcast address, improper)

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

Note: If “0” is assigned for VLAN ID, VLAN will be unavailable.

23. SET WARNING_TONE_CONTROL

Assign whether to use warning tone when LAN failure or not.

```
MG-BRI(SIP> SET WARNING_TONE_CONTROL P1




Warning Tone Control setting succeeded.
In order to make a setup reflect. re-starting is
required after saving a configuration data
by SAVE command.
```

P1: Setting of Mode (Default: 3)

0: Do not send warning tone
1: Send warning tone to IP network side.
2: Send warning tone to ISDN side.
3: Send warning tone to IP network and ISDN.

The result is shown.

Note: Execute the “SAVE” command before finishing the maintenance command to reflect change.

SHOW Command

1. SHOW CALL_HOLD

   Display the current setting of MG Based Call Retention.

```
MG-BRI(SIP)> SHOW CALL_HOLD
CALL HOLD is DISABLE.
```

2. SHOW CONFIG

   Displays the list of current configuration data.

```
MG-BRI(SIP)> SHOW CONFIG

[CONFIG]
LAN_SPEED=100MBPS_FD
DHCP_SV=ENABLE
DNS_SV=ENABLE
DNS_ADDR=192.168.1.1
OWN_ADDR=192.168.1.100
OWN_NAME=mgbrisip
SUBNET_MASK=255.255.255.0
DEFAULT_GATEWAY=192.168.1.254
SIPSV_ADDR1=192.168.1.10
SIPSV_PORT1=5060
SIPSV_NAME1=sipsv
SIPSV_ADDR2=0.0.0.0
SIPSV_PORT2=5060
SIPSV_NAME2=blank
SIPSV_ADDR3=0.0.0.0
SIPSV_PORT3=5060
SIPSV_NAME3=blank
:
:
```

3. SHOW DEFAULT_GATEWAY

   Displays the current setting of Default Gateway.

```
MG-BRI(SIP)> SHOW DEFAULT_GATEWAY
Default Gateway is 192.168.1.254
```

4. SHOW DHCP_SV

   Displays the current setting of DHCP server.

```
MG-BRI(SIP)> SHOW DHCP_SV
DHCP is ENABLE
```

This example shows the DHCP server is “Enable.”

5. SHOW DNS_IPADDRESS

Displays the current IP address setting of DNS server.

```
MG-BRI(SIP)> SHOW DNS_IPADDRESS
DNS IP address is 192.168.1.1
```

6. SHOW DNS_SV

Displays the current setting of DNS server.

```
MG-BRI(SIP)> SHOW DNS_SV
DNS is ENABLE
```

This example shows the DNS server is “Enable.”

7. SHOW DTMF_IN

Display the current setting of DTMF relay of in-band signaling.

```
MG-BRI(SIP)> SHOW DTMF_IN
Inband DTMF Relay is OFF.
```

The current setting is displayed.

8. SHOW FAX_DETECTION_TIME

Displays the current setting of effective timer for FAX switching.

```
MG-BRI(SIP)> SHOW FAX_DETECTION_TIME
FAX Enable Timer is 1 min.
```

9. SHOW HC_RCV_TIMER

Displays the current setting of Time-out timer for SIP server Health Check packet waiting process.

```
MG-BRI(SIP)> SHOW HC_RCV_TIMER
Health-Check Receive Timer Timeout is 150 sec.
```

10. SHOW INTERFACE

Displays the current setting for speed and activation mode of Ethernet controller.

```
MG-BRI(SIP)> SHOW INTERFACE

Ethernet SPEED          DUPLEX
100MBPS                 FULL
```

11. SHOW LAN_ERROR_CHECK

Displays the interval to detect LAN cable fall-off.

```
MG-BRI(SIP)> SHOW LAN_ERROR_CHECK
LAN Error Check Timer is 1000.
```

12. SHOW ONE_TIME_PASS

Displays the current setting of one time password.

```
MG-BRI(SIP)> SHOW ONE_TIME_PASS
One Time Password is 12345#.
```

13. SHOW OWN_IPADDRESS

Displays the current setting of IP Address, Subnet Mask, and Host Name of MG(BRI) itself.

```
MG-BRI(SIP)> SHOW OWN_IPADDRESS
IP Address      Subnetmask      Host Name
192.168.1.100   255.255.255.0   mgbrisip
```

14. SHOW RTP_START_PORT_NO

Displays the current setting of RTP Start Port Number.

```
MG-BRI(SIP)> SHOW RTP_START_PORT_NO
RTP start port number is 1024.
```

15. SHOW RTP_STOP_DETECT

Displays the current setting of RTP Stop Detect Timer.

```
MG-BRI(SIP)> SHOW RTP_STOP_DETECT
RTP Stop Detect Timer is 3 sec.
```

16. SHOW SIGNALING_PORT_NO

Displays the current setting of Signaling Port number

```
MG-BRI(SIP)> SHOW SIGNALING_PORT_NO
Signaling port number is 5060.
```

17. SHOW SIGNALING_QOS

Displays the current setting of QoS data for signaling session.

```
MG-BRI(SIP)> SHOW SIGNALING_QOS
Signaling QOS is 0xC0 (QOS=IP PRECEDENCE)
PRECEDENCE           =6
DELAY                =0
THROUGHPUT           =0
RELIABILITY          =0
COST                 =0
```

This example is assigned with IP Precedence.

18. SHOW SIP_MADDR

Displays the current setting of SIP maddr.

```
MG-BRI(SIP)> SHOW SIP_MADDR
SIP maddr is 0x01.

SEND =0
RECEIVE=1
```

19. SHOW SIP_RPORT

Displays the current setting of SIP rport.

```
MG-BRI(SIP)> SHOW SIP_RPORT
SIP rport is 0x01.

SEND =0
RECEIVE=1
```

20. SHOW SIPSV_IPADDRESS

Displays the current setting of SIP server's IP address, port number, and host name.

```
MG-BRI(SIP> SHOW SIPSV_IPADDRESS

SIP          IP           Port         Host
Server       Address      Number       Name
1            192.168.1.10 5060         sipsv
2            0.0.0.0      5060         blank
3            0.0.0.0      5060         blank
4            0.0.0.0      5060         blank
5            0.0.0.0      5060         blank
6            0.0.0.0      5060         blank
7            0.0.0.0      5060         blank
8            0.0.0.0      5060         blank
9            0.0.0.0      5060         blank
10           0.0.0.0      5060         blank
11           0.0.0.0      5060         blank
12           0.0.0.0      5060         blank
13           0.0.0.0      5060         blank
14           0.0.0.0      5060         blank
15           0.0.0.0      5060         blank
16           0.0.0.0      5060         blank
17           0.0.0.0      5060         blank
18           0.0.0.0      5060         blank
19           0.0.0.0      5060         blank
20           0.0.0.0      5060         blank
```

Note: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

21. SHOW SMOOTH_PAD

Displays the current Smooth PAD mode.

```
MG-BRI(SIP)> SHOW SMOOTH_PAD
Smooth PAD mode is 1.
```

22. SHOW SUBSCRIBE_RETRY

Displays the current setting of regeneration mode for SIP SUBSCRIBE session.

```
MG-BRI(SIP> SHOW SUBSCRIBE_RETRY
SIP Subscribe Retry is DISABLE.
```

23. SHOW VLAN

Displays the current VLAN setting.

```
MB-BRI(SIP)> SHOW VLAN
DEVICE   ID   COS   IPADDRESS       SUBNETMASK
VLAN1    1     6    192.168.10.100  255.255.255.0
```

24. SHOW WARNING_TONE_CONTROL

Displays the current setting whether to send warning tone in the case of LAN failure.

```
MG-BRI(SIP)> SHOW WARNING_TONE_CONTROL
Warning Tone Control of IP Network is 3 (IP & ISDN side).
```

SAVE CONFIG, INIT CONFIG, EXIT, REBOOT Command

- SAVE CONFIG

  This command is used to save the modified configuration data to the FlashROM.

```
MG-BRI(SIP)> SAVE CONFIG

** Don't power off in progress **
Do you need save? [Y/N]: Y

Configuration data has been saved.
Re-starting is required for making a setup reflect!!
```

Enter "Y" to execute data saving.

Result is displayed.

Note: Configuration data will not be saved when any error occurs while SAVE CONFIG command is in process.

- INIT CONFIG

  This command is used to initialize the configuration data to factory default value.

```
MG-BRI(SIP)> INIT CONFIG

*** Warning !! ***
This command initializes the configuration data.
This deletes the current setting.
Recommend to back up the setting.
Command execute or not? (Y/N) : Y

It's recommended to back up your configuration !!
really OK ? (Y/N) : Y


Initialize of configuration data was successful.
You need to setup MGBRI's config data!!
MC(SIP)>
```

Asked whether to execute initialization.
Y=Initialize
N=Not execute

Asked again for confirmation.
Y=Initialize
N=Not execute

Result is displayed.

Note: Use this command only when required to initialize all the configuration data to factory default value.

- REBOOT

  This command is used to reboot the MG(BRI).

  [Normal occasion]

```
MG-BRI(SIP)> REBOOT
Do you need reboot? [Y/N]: Y
```

Enter “Y” to execute the command.

  [When configuration data is changed]

```
MG-BRI(SIP)> REBOOT
Do you need reboot? [Y/N]: Y

Configuration data was changed.

** Don’t power off in progress**

y: Save and Reboot
n: Reboot without saving
c: Cancel

[Y/N/C]: Y

Configuration data has been saved!!
```

Enter “Y” to execute the command.

Enter “Y” to save and execute rebooting.

Note: The screen returns to the prompt of the configuration command [MG-BRI(SIP)>] if any error occurs after selecting “Y”.

- EXIT

  This command is used to exit the configuration command.

  [Normal occasion]

```
MG-BRI(SIP)> EXIT
Finished!
->
```

  [When configuration data is changed]

```
MG-BRI(SIP)> EXIT

Configuration data was changed.
** Don’t power off in progress **
```

```
y: Save and Exit.
n: Exit without saving.
c: Cancel
(Y/N/C): Y

Configuration data has been saved.

Finished!
->
```

Enter “Y” to save the changed configuration data.

Note: The screen returns to the prompt of the configuration command [MG-BRI(SIP)>] if any error occurs after selecting “Y”.

4.7 Error Message

Error Message will be displayed to force you to execute the re-registration when error has occurred during the use of configuration command.

Message	Meaning
File not found on the TFTP server.	Download file of System Data cannot be found on TFTP Server.
Command not found.	Something other than supported command was entered during command entry.
Invalid parameter.	Illegal parameter was entered while command entry.
IP address form is incorrect.	Input format of IP Address is invalid.
VLAN ID is no more registered.	Assignment cannot be executed. Exceeding the maximum number of VLAN ID.
Sub command is missing.	Sub-command was not entered during command entry.
Invalid parameter value.	The range of parameter value entered is invalid.
Invalid sub command.	Entered Sub-command is invalid.
Command is abnormally terminated.	Command has terminated abnormally.
Parameter(s) are missing.	Parameter was not entered during command entry.
Entered VLAN ID is already registered.	Specified VALN ID has already been assigned.
Entered VLAN ID is not registered.	Specified VLAN ID is not assigned.

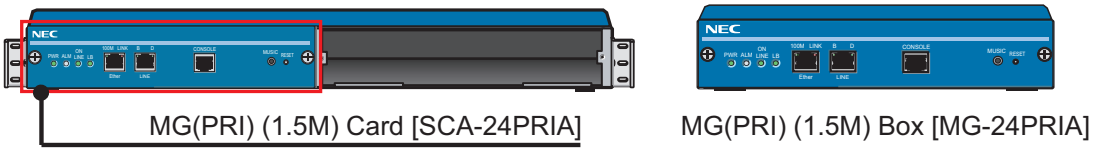
MG(PRI) (1.5M) [SCA-24PRIA/MG-24PRIA]

1 General

1.1 What is MG(PRI) CARD/MG(PRI)?

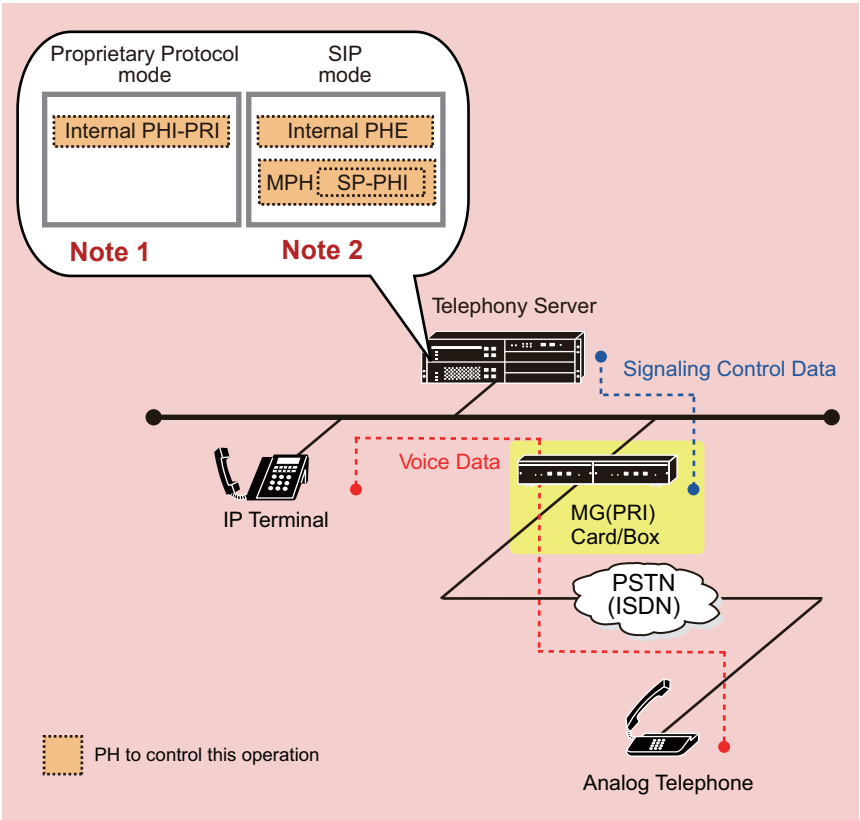
MG(PRI) is a media gateway between ISDN network and IP network to provide an efficient network through interaction with the Telephony Server. MG(PRI) is controlled by the Telephony Server, and a variety of services can be performed.

The MG(PRI) has two types: “MG(PRI) Card [SCA-24PRIA]” for Card Type and “MG(PRI) Box [MG-24PRIA]” for Box Type. The MG(PRI) Card [SCA-24PRIA] can also be accommodated in Multi Purpose Chassis (MPC). Those ones are in the following:



The general structure of this equipment is shown in the diagram below.

MG(PRI) can operate in either of two modes, SIP mode or Proprietary Protocol mode. When MG(PRI) works in SIP mode, the controlling signal between the Telephony Server and MG(PRI) adopts Session Initiation Protocol (SIP). Controlling signal and voice packets are encrypted to ensure security feature.



Note 1: For Proprietary Protocol mode, Internal PHI-PRI controls the signaling data, which is accommodated in the Telephony Server. Call control between Internal PHI-PRI and MG(PRI) is executed via TCP/IP port of the system.

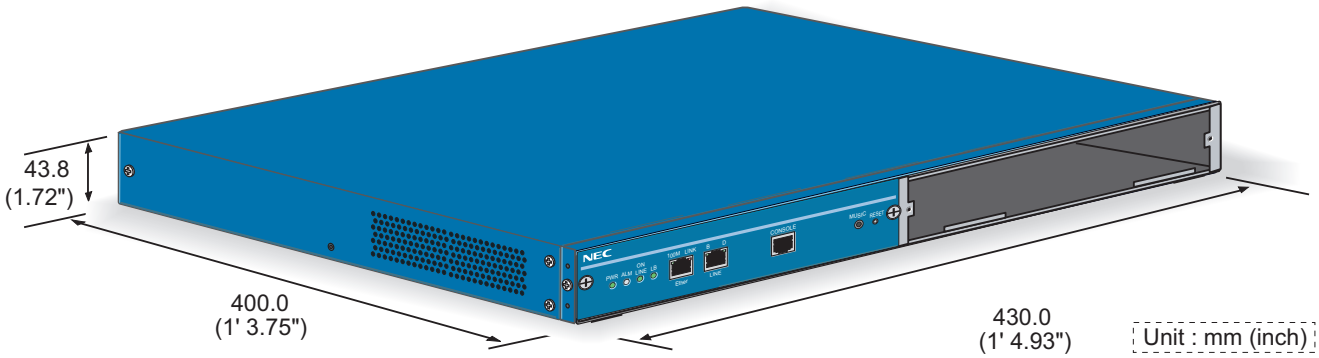
Note 2: For SIP mode, the Telephony Server acts as SIP server. In this operation, SP-PHI, which is accommodated in MPH (Multi Protocol Handler) of the Telephony Server, handles the control signal from/to MG(PRI). MPH is the interface for the control signal. Call control between SP-PHI and MG(PRI) is executed via TCP/IP port of the system.

1.2 Specifications

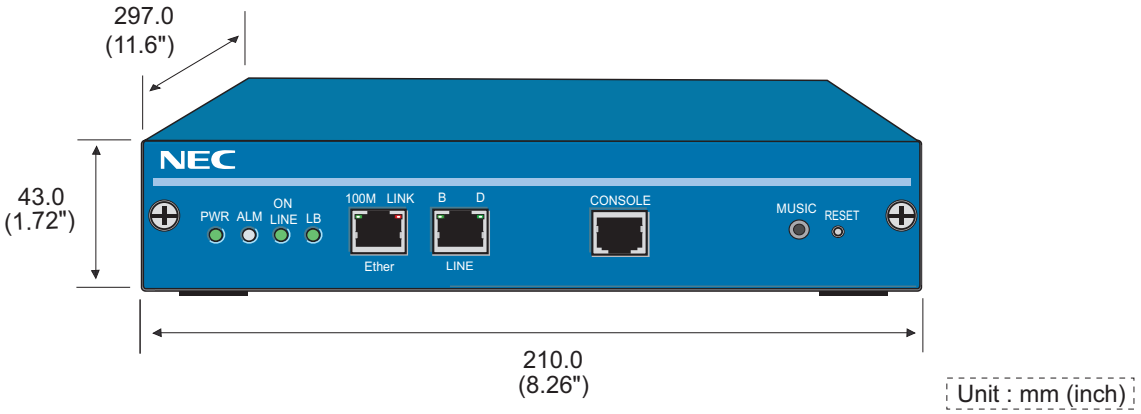
1. Dimension

- MG(PRI) Card [SCA-24PRIA]

  MG(PRI) is mounted in 1U-MPC (19-inch rack mount, 1U-box).



- MG(PRI) Box [MG-24PRIA]



2. Specifications

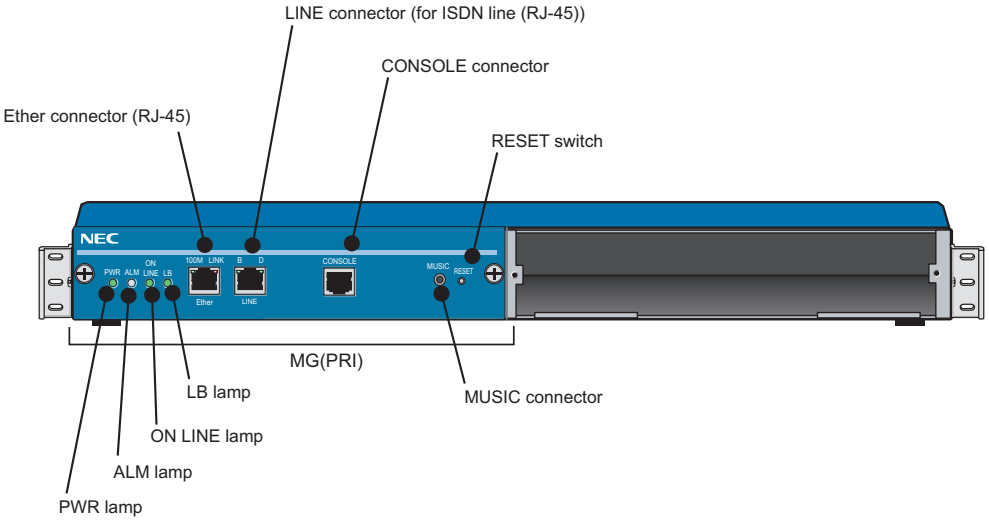
MG(PRI) Specifications

ITEM	SPECIFICATION	NOTE
CODEC	G.711	64k [bps]: PCM μ-law/A-law (Default Setting) RTP Payload cycle: 30~40 msec (in 10 msec steps)
	G.729a	8k [bps]: CS-ACELP (Reduce complexity) RTP Payload cycle: 10~40 msec (in 10 msec steps)
	G.723.1	5.3k [bps]: MP-MLQ/ACELP RTP Payload cycle: 30 or 60 msec
		6.3k [bps]: MP-MLQ/ACELP RTP Payload cycle: 30 or 60 msec
FAX	Data transmission as voice data	G.711/G.726 (ADPCM)
	FAX Relay (T.30)	FRF.11
PAD	PAD setting	-16dB ~ 20dB (one dB step) PAD is specified per route data by ARTD. In the case of tandem connection, the data is specified by APDIL.
	Smooth PAD	Selectable (OFF, Mode1-Mode5)
RTP Jitter and Buffer	Static	10~300 msec (in 10 msec steps)
	Dynamic	10~300 msec
Quality of Service (QoS)	ToS, IP Precedence	Supported
	DiffServ	Supported
VLAN	IEEE 802.1Q (Tagging VLAN), VLAN bit, Priority bit	
Echo Canceller	G.168	Tail Length is 64 msec
PRI Interface	1.5M	1.544 Mbps, B8ZS (23B+D) Specifications Layer 1: ITU-T I.431 Layer 2: ITU-T Q.921 Layer 3: ITU-T Q.931
DTMF	DTMF is applied in the following: - Proprietary Protocol mode - Transmission as voice data - RFC2833 (SIP mode only)	
IP Address Assignment	DHCP is supported	
Holding Tone	Internal hold-tone	Selectable by configuration command (1: Minuet, 2: For Elise)
	External hold-tone	Input audio source from MUSIC connector

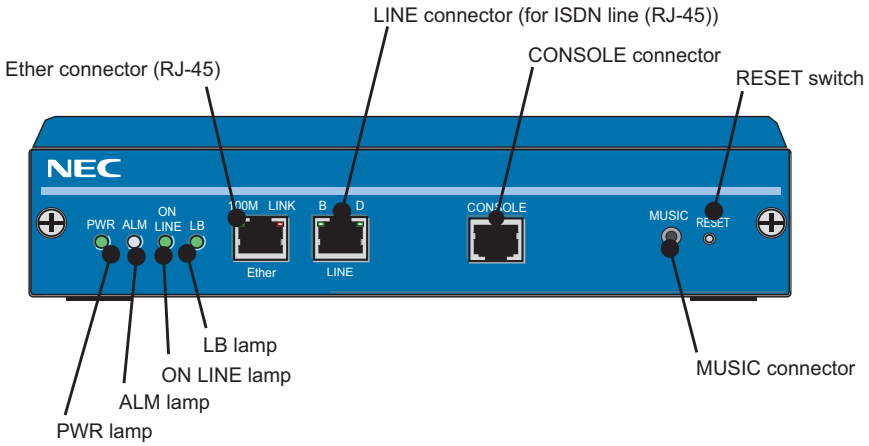
3. Layout of Connectors, Lamps, and Switches

Front View

- MG(PRI) Card [SCA-24PRIA]



- MG(PRI) Box [MG-24PRIA]



Connectors on Front Panel

CONNECTOR	FUNCTION	NOTE
Ether	LAN Interface	RJ-45 100Mbps/10Mbps, auto-negotiation (Half/Full Duplex)
LINE	ISDN line connection	RJ-45 -PRI (1.5M): 23B+D
CONSOLE	Interface for Maintenance Console	RJ-45 serial connection (CONSOLE cable RJ-45 ⇔ RS-232C is used)
MUSIC	External hold-tone connection	3.5 ϕ mini-jack (monaural type)

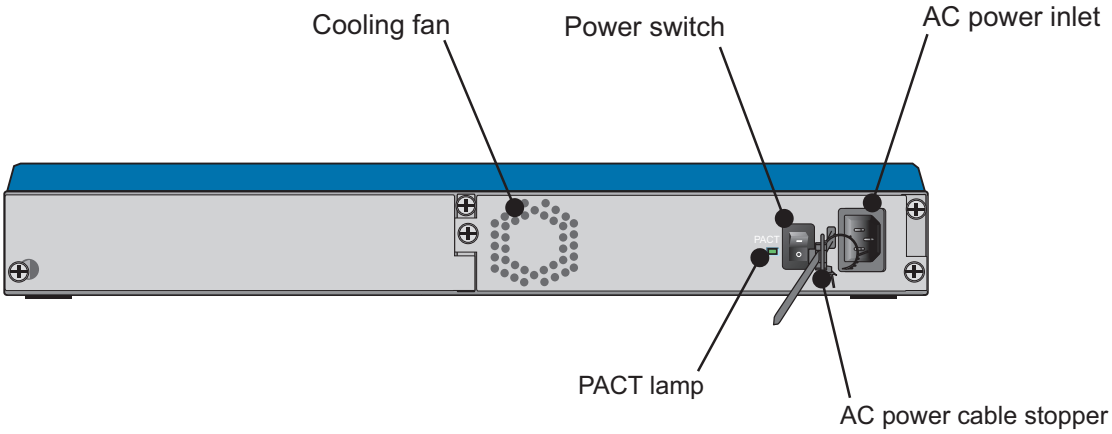
Lamps on the Front Panel

LAMP NAME		COLOR	MEANING OF INDICATION
PWR		Green	Power ON
		OFF	Power OFF
ALM **Note 1**		Red	Lights when power module failure is detected
		OFF	Normal operation
ON LINE		Green	Lights when registration is completed
		OFF	Initial setting is not completed
LB		Green	Not used **Note:** Temporary lights in initial setting
		Flash (60INT)	Flashes in loop-back mode
		OFF	Normal operation
LINE	B	Green	Lights when using two channels or more **Note:** Temporary lights in initial setting
		Flash (120INT)	Flashes when using only one channel
		OFF	Remains OFF when all the channels are idle
	D	Green	Layer 2 link is established in ISDN line **Note:** Temporary lights in initial setting
		Flash (60INT)	Flashes slow when Dch is in make-busy state
		Flash (120INT)	Flashes fast when Layer 2 link is not established
		OFF	Dch is not assigned
Ether	LINK	Green	Lights when establishing Layer 1 link **Note:** Lights when physically connected to IP network.
		Flash	Flashes (in 0.2-second cycle) when sending/receiving IP Packet
		OFF	Layer 1 link is not established
	100M	Green	Lights when transmission speed is 100 Mbps
		OFF	Remains OFF when transmission speed is 10 Mbps

Note 1: For ALM lamp on MG-24PRIA, it always remains OFF.

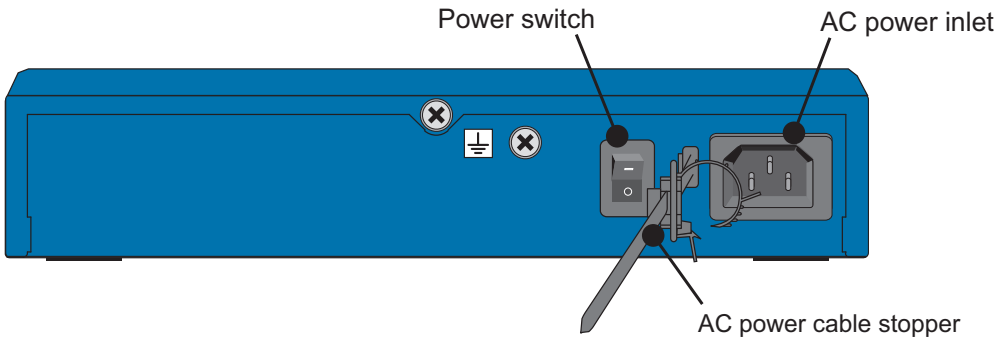
Rear View

- MG(PRI) Card [SCA-24PRIA]



Note: This figure is an example when 1U-MPC is in single power configuration. Prepare one more power unit (optional) for dual power configuration. (See the Appliance Model Installation Manual for the power unit mounting procedure.)

- MG(PRI) Box [MG-24PRIA]



Connectors, Lamps, and Switches on Rear Panel

NAME	FUNCTION	
AC power inlet	Connected to AC-DC adapter with an attached three-polar grounded AC power cable (Cable Length: 3 m [9.8 ft.])	AC 100V (50/60 Hz) ± 10% AC 120V (50/60 Hz) ± 10% AC 230V (50/60 Hz) ± 10% AC 240V (50/60 Hz) ± 10%
Power switch	Power ON/OFF switching	
PACT lamp **Note 2**	Indicates the state in power unit	Lights green: Normal operation OFF: Power failure

Note 2: PACT lamp is only for SCA-24PRIA, MG-24PRIA does not have PACT lamp.

Note: For the safety measures against static electricity, lightning strike, and other electrical surges, be sure to make proper connection to grounding (less than 10 Ω). As MG(PRI) has ISDN interface, if the line cable is struck by lightning directly, the lightning might cause damage to MG(PRI) and AC power cable without Ground connection.

4. Port Numbers

The following provides the port number to be used in MG(PRI). If a firewall is used in your network, do not block the following ports.

- When using SIP mode.

PORT NO.	PATH	FUNCTION	NOTE
5060	SP-PHI↔MG	SIP	Local console can modify the port number.
1024-64510	Peer to Peer	RTP	Local console can modify the port number.

- When using Proprietary Protocol mode

PORT NO.	PATH	FUNCTION	NOTE
7500	Internal PHI-PRI←MG(PRI)	iLP-PM	-
1024~	Peer to Peer	H.245	-
1024~64510	Peer to Peer	RTP	Can be changed by configuration command on local console
10001	-	Preparation for H.245	-
3456	MG(PRI)↔DRS	Registration	Can be changed by ADTM command Can be changed by configuration command on local console
64000~65024	Internal PHI-PRI→MG(PRI)	iLP-PM	Can be changed by ADTM command

5. Available Channels When Using SIP Mode

The number of channels that are processed depends on codec and payload cycle used by MG(PRI) in SIP mode. Therefore, adjustments will be needed, such as placing unnecessary channels into the Make Busy status.

See VoIP Encryption [V-27] in Data Programming Manual - Business for the number of available channels on the encryption status of this component.

1.3 Requirements

(1) Hardware Requirements

- PC running Terminal Software (for Maintenance Console)
- Cables

LAN Cable:Use any of the following cables for connecting to LAN.
10BASE-T:Unshielded Twisted-pair (UTP) Straight-through Cable Category 3 or higher, (a maximum of 100 m)
100BASE-TX:Unshielded Twisted-pair (UTP) Straight-through Cable Category 5 or higher, (a maximum of 100 m)
Line Cable:For the connection to ISDN network (T point), use a 0.5ϕ Twisted-pair Cable for DSU with an RJ-45 Modular Jack.
CONSOLE Cable:RJ-45 ⇔ RS-232C serial cable (for maintenance console)
Audio Cable:Microphone output (for external hold-tone source)
3.5 ϕ mini-jack (monaural type)

(2) Firmware Program

- Installed Firmware: SP-3884 MG PRI PROG-A

(3) Environmental Requirements

- Operational Temperature Range: 0°C to 40°C (32°F to 104°F)
- Operational Humidity Range: 20% to 90% (not condensing)
- Main Source Power: 100 VAC / 120 VAC / 230 VAC / 240 VAC (50/60 Hz) ±10%

1.4 Service Conditions

(1) MG(PRI) occupies four groups (1HW) of virtual speech channel. One HW (32 channels) can only be used as virtual speech channel of MG(PRI) even when only one channel is assigned.
The virtual speech channel of MG(PRI) cannot coexist in the same HW with the virtual speech channel of other type of MG devices. Also the virtual speech channel cannot coexist in the same HW with the virtual speech channel of CCIS over IP using Internal PHC.

(2) Virtual speech channel (Bch and Dch) can be assigned to Virtual PIR (Assign with ASYDL SYS1 INDEXes 556 and 557).

(3) Dch cannot be shared by multiple MG(PRI)s.

(4) Voice communication and unrestricted digital data transmission is supported by MG(PRI). Only 64kbps data transmission is supported. 128kbps data transmission, H0 switching, Dch packet, and Bch packet are not supported.

(5) When FAX communication is used via MG(PRI), assign the following data by ARTI/ARTIN command.
- CDN71: FXD (IP FAX data)
- CDN72: FXJS (Jitter Buffer size of IP FAX)
- CDN73: FXPT (Payload type for IP FAX)
- CDN74: FXPS (Payload size for IP FAX)

(6) The connection via NAT (Network Address Translation), IP masquerade, internet connection, and dial-up access are not supported.

(7) Available interface is limited to Q.931, and only the public ISDN network can be used. The connection to private ISDN line and PRI terminal is not supported.

(8) When a network failure occurs between Telephony Server and MG(PRI), the PRI line of MG(PRI) will be in a link down state.

Note: For the details of this condition for UG50, refer to Peripheral Equipment Description (UG50).

(9) The fault detection for ISDN line is operated in the same way as that in the ordinary ISDN lines (both Layer 1 and Layer 2). Call origination/termination cannot be activated during network failure.

(10) CODEC is assigned by AMGVL command. G.711 and 40 milliseconds are supplied default. Payload type and size needs to be assigned after you confirm the setting condition of MG(PRI). (Contact your local NEC dealer for further information.)

(11) Assign the different route numbers for MG(PRI) SIP mode, for MG(PRI) Proprietary mode, for PRT circuit card respectively.

(12) Timing processing of guard timer for originating call is dealt with the Telephony Server side. Assign the timer by ASYD SYS1, INDEX 474. When not assigned, default data 256 milliseconds is applied.

(13) [S-127D] Serial Call - D cannot be used to the call termination via MG(PRI).

(14) There are the following restrictions when using REMOTE ACCESS TO SYSTEM [R-2] or AUTOMATED ATTENDANT [A-82].

- If any virtual registers cannot be seized, other registers (**Note 1**) are seized.
- When any registers cannot be seized, calling party hears busy tone.
- The sum total of virtual registers and other registers (**Note 1**) per LP cannot exceed 64 channels.

Note 1: In this context, other registers are:
- Originating register trunk (RT: 902)
- Incoming register trunk (RT: 903)
- PBR for Automated Attendant Service (RT: 906)
- CRT (RT: 933)

- Echo Canceller setting on ARTD/APDIL command is applied.

- PAD setting on ARTD/APDIL command is applied.

(15) Requirements to use MG(PRI) in Network Mode are as follows:

Note: Network Mode is not supported for UG50.

(a) Data settings for MG(PRI) (1.5M) [SCA-24PRIA/MG-24PRIA]

PCPro	Data Assignment
ARTD	CDN30 (PAD control) = 7 (OFF; 0 db)
	CDN64 (User/Net identification for ISDN) =1 (Network side)

Configuration Command	Data Assignment
PRI_T1_1	Dch Mode = 1 (Network Mode)

(b) Clock mode setting for MG(PRI) (1.5M) [SCA-24PRIA/MG-24PRIA]

Specify the clock mode (**Note 2**) of the MG(PRI) as “Primary.”

Configuration Command	Data Assignment
PRI_COMMON1	Clock Mode = 1 (Primary)

Note 2: Clock mode defines whether the transmit clock operates as a primary clock (which uses its own internal timing) or secondary clock (which synchronizes to the primary clock). Clock mode settings must be consistent between the MG(PRI) and the opposite Telephony Server.

(16) The following are particular to Proprietary Protocol mode:

- Assign ASYDL, SYS1, Index 880, bit=1 to enable Internal PHI-PRI. When the setting of ASYDL, SYS1, Index 880, Bit 1 (Internal PHI-PRI/BRI) is modified, initialize the Internal PHI-PRI module with the ADPM command.
- When the Telephony Server is in Dual Configuration, LAN1 must be used as the interface of the Telephony Server side. This setting can be assigned by ADTM command.
- QoS setting to Internal PHI-PRI is assigned by AMGIL command on MG(PRI) basis.
- Alternate routing is proceeded according to the LCR programming in case of TCP/IP failure.
- Echo Canceller setting on ARTD/APDIL command is applied.
- PAD setting on ARTD/APDIL command is applied.
- System Message 33-R/33-S is output in the case of MG(PRI) failure.
- System Message 33-R/33-S is output when TCP link failure between Internal PHI-PRI and MG(PRI) is detected. When the TCP link failure continues more than one minute, System Message 3-D (Lock-up Failure) is output.

(17) The following are particular to SIP mode:

- VoIP Encryption [V-27] is supported in SIP mode.
- Location Diversity [L-55] is supported in SIP mode.
- To use SIP mode in MG(PRI), assign ASYDL, SYS1, Index 885, bit=1 to enable SIP function in SIP server (Telephony Server).
- If you add any trunk to MG running in a network by using ATRK command, it will cause re-registration and disconnect the lines connected via the MG.

<Conditions Specific to UMGi/RNIP System>

Service conditions in the UMGi/RNIP system are described below.

(1) Virtual Speech/Signal Channel can be assigned to the Virtual PIR.

(2) PHI-PRI is stored in the System Processor of CCN.

(3) PHI-PRI handles a control signal between MG(PRI) and PHI-PRI. Control signal is handled with TCP/IP port on the System Processor of CCN.

(4) For Proprietary Protocol Mode, register the MG(PRI) only in the CCN.

(5) There are the following restrictions when using incoming calls with REMOTE ACCESS TO SYSTEM [R-2] or AUTOMATED ATTENDANT [A-82].

- Virtual Register in the node to which Virtual Speech Channel is registered is seized. Register in other node cannot be seized. If Virtual Register cannot be seized.
- When Virtual Register cannot be seized, calling party hears busy tone.

2 Installation

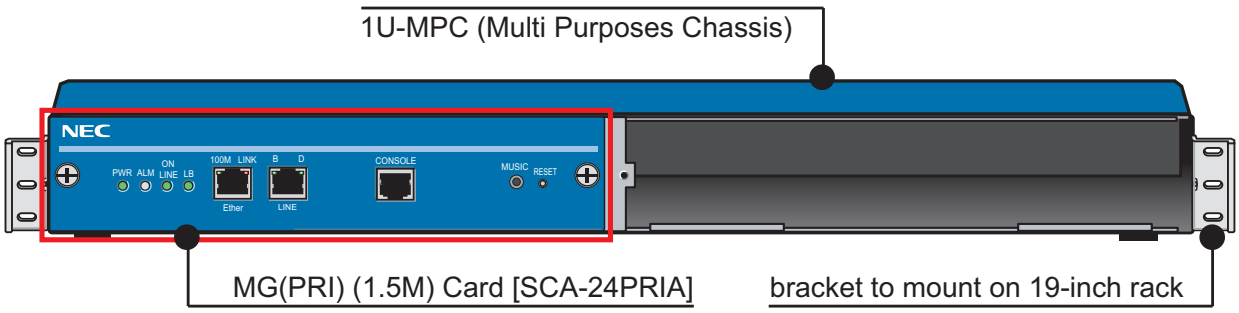


This section shows how to install the hardware required for using MG(PRI). Be sure to take measures for anti-static electricity.

2.1 How to Set MG(PRI)

- SCA-24PRIA

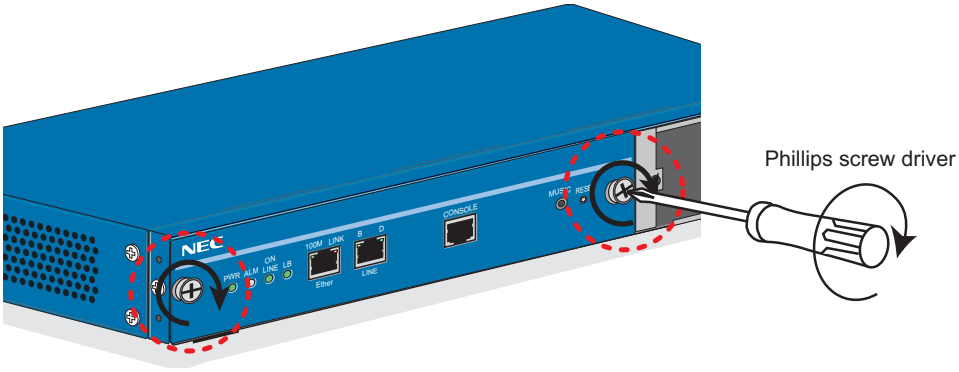
Note: This figure is an example to mount an MG(PRI) in the left slot on 1U-MPC.



STEP 1: Insert MG(PRI) to 1U-MPC

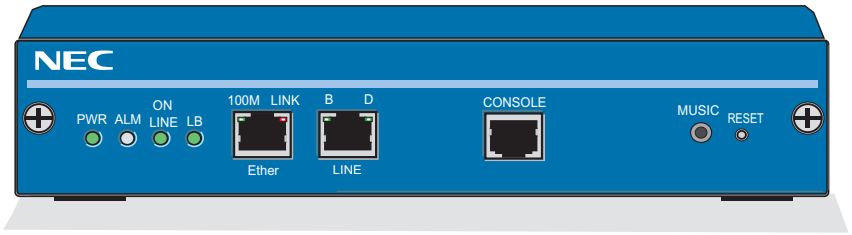


STEP 2: Secure the MG(PRI) to 1U-MPC fixing two screws on right and left sides.



- MG(PRI) Box [MG-24PRIA]

MG(PRI) is set as the following. Be sure to place MG(PRI) on the flat surface.



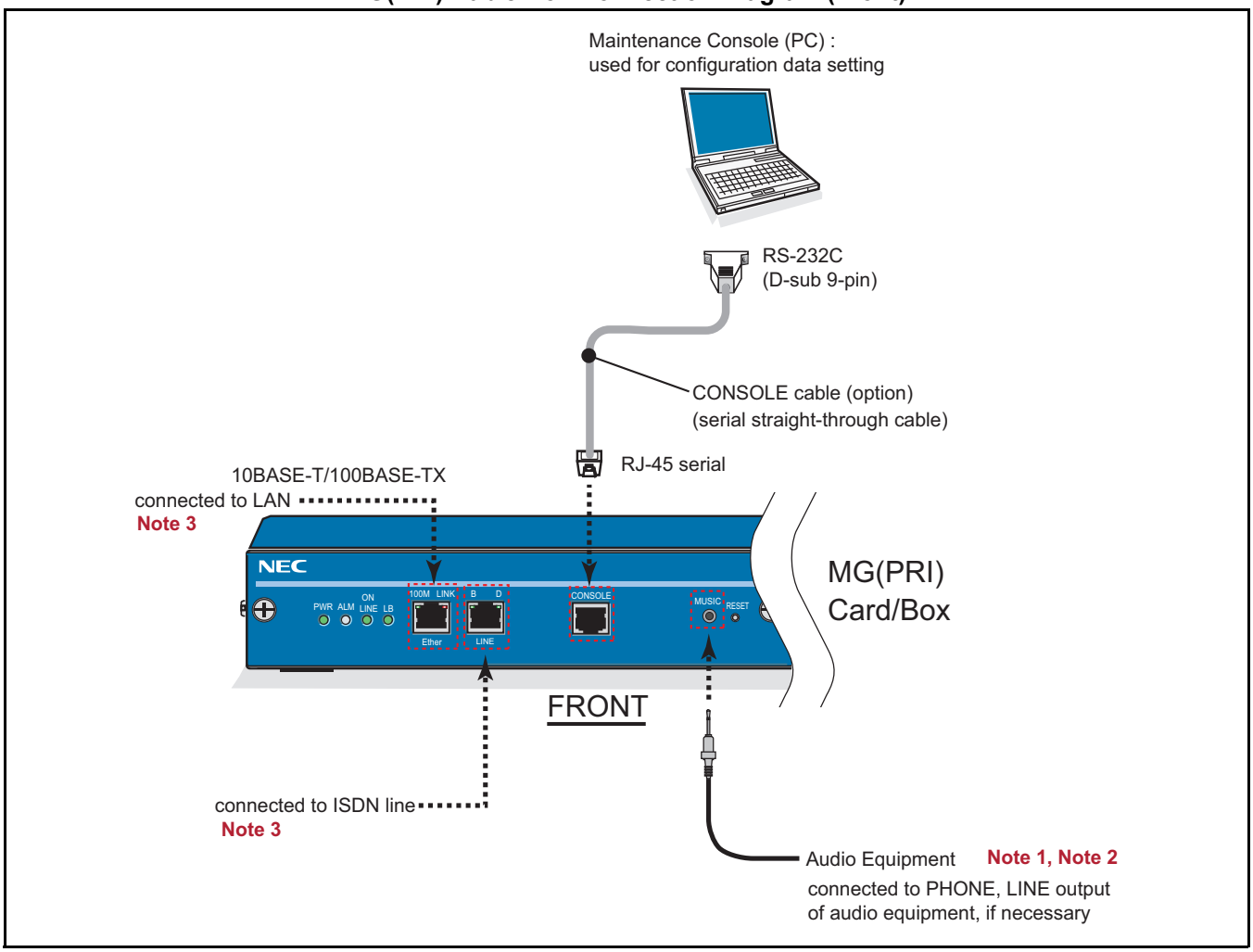
2.2 Cable Connection

This section shows the cable connection to the MG(PRI). MG(PRI) provides the following interfaces:

- Connection to LAN
- Connection to ISDN
- Serial Port Connection to Maintenance Console
- Connection to Audio Equipment for external music-on-hold
- Power Supply

Connect the required cables according to the system configuration. General description of cable connection for MG(PRI) is explained in the diagram below.

MG(PRI) Cable/Box Connection Diagram (Front)



Note 1: Cable of external hold tone source needs to be conformed with all-purpose 3.5ϕ mono-aural ear phone jack. Adjustment of output level for external hold tone source needs to be started from low and to higher to avoid over-current. The tuning of volume level sent is to be done by monitoring from the telephone terminal connected over the ISDN network and tuning the output level of external hold tone source. Input impedance from the external hold tone source needs to be within the ranges of 8Ω - 50kΩ. Make sure not to exceed this range.

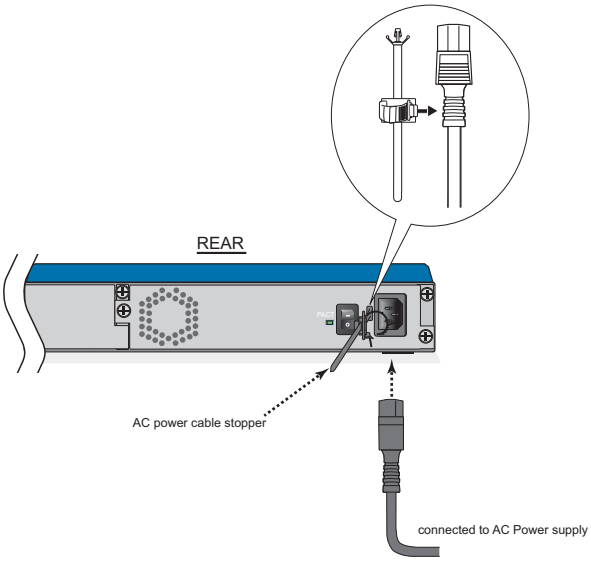
Note 2: If audio equipment has a ground terminal, be sure to make proper connection to grounding of audio equipment.

Note 3: Do not connect LAN and ISDN line here. These cables are connected in Section 3 Startup MG(PRI) and Basic Tests.

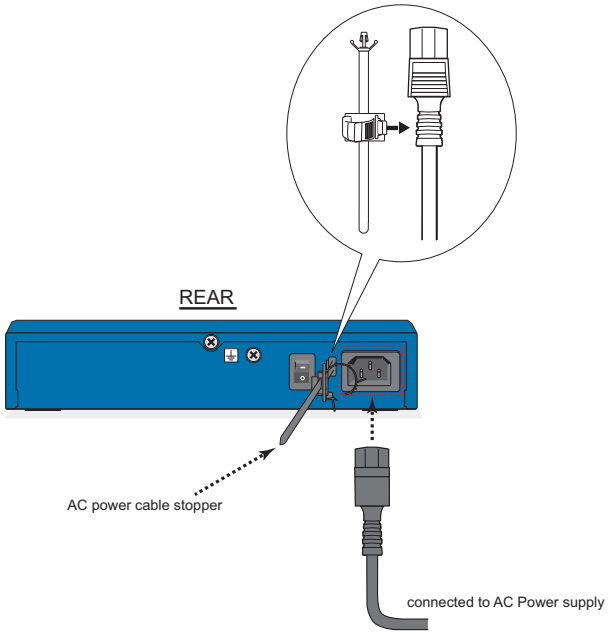
STEP 1: AC power cable connection

Connect the AC power cable to AC Power Inlet on the rear panel of 1U-MPC. Fix the AC power cable with the stopper.

- MG(PRI) Card [SCA-24PRIA]



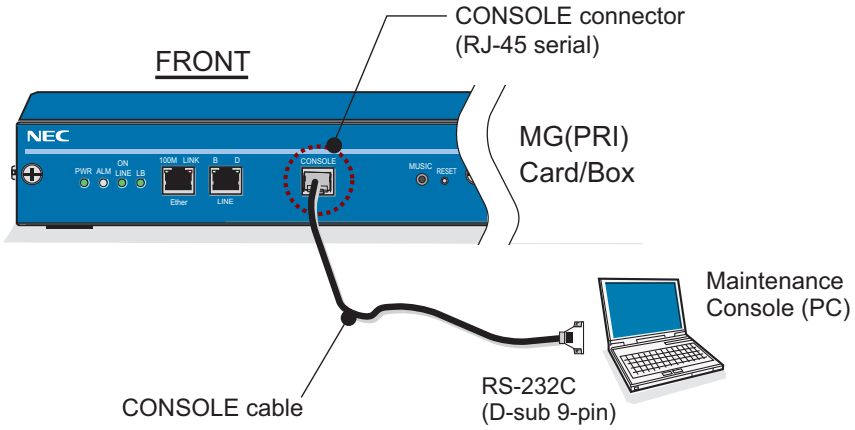
- MG(PRI) Box [MG-24PRIA]



Connect the other end of the power cable to appropriate AC supply.

Note: For the safety measures against static electricity, lightning strike, and other electrical surges, be sure to make proper connection to grounding (less than 10 Ω). As MG(PRI) has ISDN interface, if the line cable is struck by lightning directly, the lightning might cause damage to MG(PRI) and AC power cable without Ground connection.

STEP 2: Connect a maintenance terminal (PC) to CONSOLE connector using CONSOLE cable. The following shows the case of connection to CONSOLE connector of SCA-24PRIA.



Note: ISDN Lines and LAN cables are connected in Section 3 Startup MG(PRI) and Basic Tests. Do not connect these cables here.

3 Startup MG(PRI) and Basic Tests

This section explains procedures for startup and basic tests. Follow the procedure below depending on the registration mode.

STEP 1: Data Assignment by PCPro

When Proprietary Protocol mode
1. Internal PHI-PRI Data Assignment
2. MG(PRI) Data Assignment

When SIP mode
1. Internal PHE Data Assignment
2. SP-PHI Data Assignment
3. MG(PRI) Data Assignment
4. Security Data Assignment

STEP 2: VT-100 Compliant Terminal Software Setting on Maintenance Console

1. Connection between PC (maintenance console) and CONSOLE Connector
2. Terminal Software Activation
3. Setting of Terminal Software

STEP 3: Power ON

STEP 4: Configuration Command Assignment

When Proprietary Protocol mode
1. Selection whether to use DHCP server
2. Network Data Assignment

When SIP mode
1. One Time Password Assignment
2. Selection whether to use DHCP/DNS server
3. Network Data Assignment

STEP 5: Cable Connection

1. Connection between MG(PRI) and LAN
2. Connection between ISDN line and MG

STEP 6: Basic Test Procedures

1. Basic Connection Test
2. Alarm Information Check
3. Loop-Back Test

END

3.1 Data Assignment by PCPro

This section explains the data assignment procedures to the Telephony Server by PCPro. Besides, this section consists of two parts; procedure for Proprietary Protocol Mode and procedure for SIP mode. The following explains the procedure by each mode.

<Before Taking Procedures>

- Unstable network environment such as using NAT and dial-up connection is not preferred.
- Connecting ISDN is applied for not tie line but PSTN using the following protocol:
  - North America: **Bellcore NI-2 AT&T NO5ESS DMS-100**
- If an access list is applied to the network, looking into all the communication flows, classify the priorities to make the network effective. The throughput will become low if the settings are inappropriate. The following is an example:

PRIORIY	PACKET KIND
1 (High)	Network Control Packet, ICMP, etc.
2	Console Control
3	VPN Authentication, H323, etc.
4	RTP
5	FTP, HTTP, etc.
6 (Low)	Other packets

- Check the availability if MG is connected to the following equipment by tandem connection.

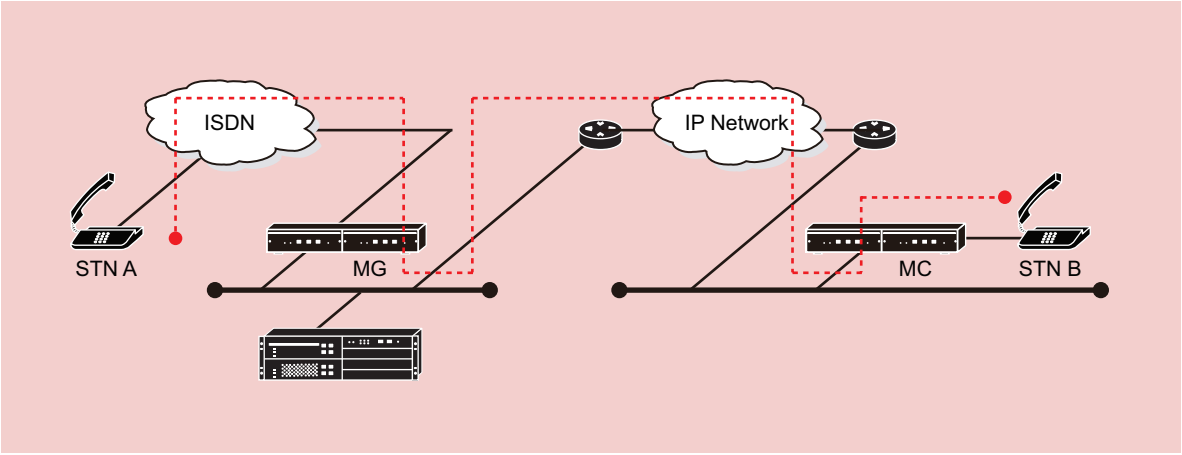
Tandem Connection Availability

CONNECTING EQUIPMENT		AVAIL-ABILITY	DESCRIPTION
MC **Note 1**		–	Not recommended because -Voice quality may be degraded due to multiple conversion. -Delay may be increased due to excessive jitter buffer insertion.
COT **Note 2**		–	Voice speech and FAX relay are available. However, DTMF relay is not guaranteed. (Input level can be lower than minimum DTMF detection level -27.0 dBm because of line loss at public network side.)
TLT **Note 2**		√	Design your private network so that DTMF input level at MG(PRI) may be larger than -27.0 dBm. If not DTMF relay is not guaranteed.
PRI/BRI		√	
TDM64K	EC enabled	√	
	EC disabled	–	
TDM32K	EC enabled	√	
	EC disabled	–	
TDM Less Than 32K		–	Not recommended because voice quality may be degraded due to data conversion.

- : Not guaranteed √ : Available

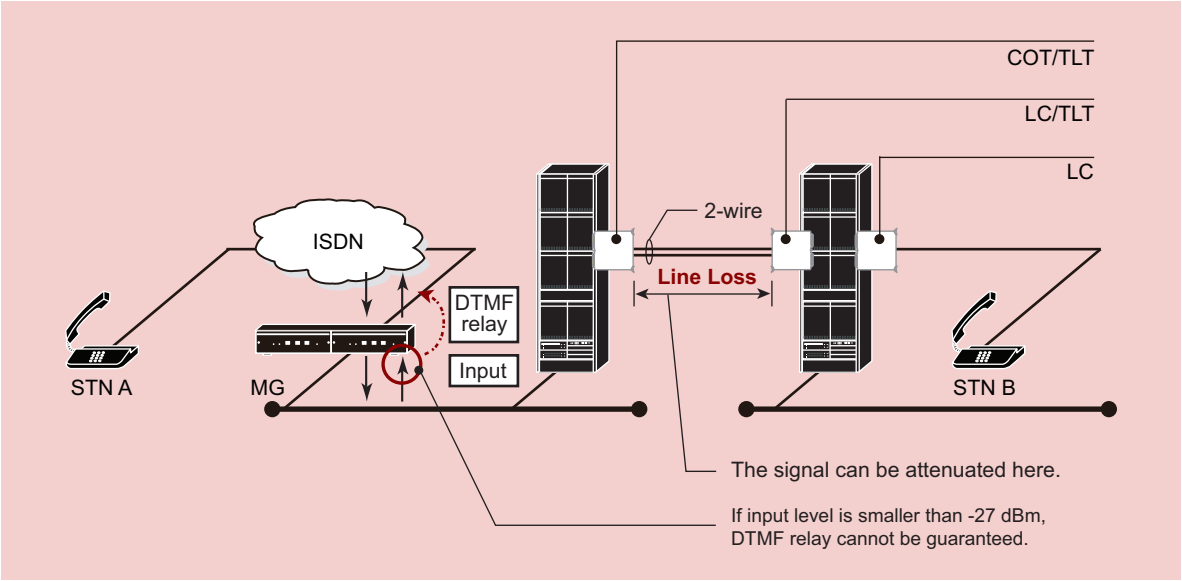
Note 1: Tandem here stands for a connection that is established over multiple networks such as shown in the following figure.

Connection between STN A and STN B cannot be guaranteed.



Note 2: For a tandem connection involving Central Office Trunk (COT) and Loop Dialing Trunk (LDT), input level can be lower than minimum DTMF detection level (-27.0 dBm) at MG(PRI) because of Line Loss between two switches.

If input level at MG(PRI) is lower than minimum DTMF detection level, DTMF relay cannot be guaranteed.



<When Proprietary Protocol mode>

MG(PRI) can be registered to either Internal PHI-PRI or SP-PHI. When registering to Internal PHI-PRI, it works using Proprietary Protocol, which is called Proprietary Protocol mode. The following explains MG(PRI) data assignment for Proprietary Protocol mode. When registering to SP-PHI (SIP mode), refer to page 653.

[1] Internal PHI-PRI Data Assignment

When MG(PRI) is used in Proprietary Protocol mode, MG(PRI) is registered to Internal PHI-PRI embedded in the Telephony Server. So Internal PHI-PRI data assignment is necessary.

Internal PHI-PRI data once assigned apply to all devices using Internal PHI-PRI. But "LAN Interface to be used" for MG(PRI) assigned by ADTM is independent (**Note 3**). If the Telephony Server connected to MG(PRI) is in Dual Configuration, this LAN Interface must be LAN1. See the following for the procedure.

Note 3: The Port Number is shared.

ADTM (Assignment of Data for TCP/IP Module)

Assign LAN Interface to be used.

Internal PHI-PRI: LAN1 (fixed when Dual Configuration)

Note: When the LAN Interface to be used is switched in this command, initialize Internal PHI-PRI module in ADPM command.

[2] MG(PRI) Data Assignment

Assign the necessary System Data for using the MG.

STEP 1: ASYD (Assignment of System Data)

SYS1

INDEX 64, b0: 0/1=μ-law/A-law of CODEC (depends on the country)
INDEX 186, b6=1 (ISDN is in service)
INDEX 187=00 (Fixed)
INDEX 474 Guard Timer for Originating Call (MTC×TC)
bit 0-3: MTC (Timer Counter)
bit 4-6: TC (Timer Class), assign 1H (64 milliseconds)

STEP 2: ARTD (Assignment of Route Class Data)

Assign the route class data on Virtual Speech Channel and Virtual Signaling Channel. The following is an example when the Virtual Signaling Channel=10 and the Virtual Speech Channel =20:

RT=10 (Virtual Signaling Channel)
RT=20 (Virtual Speech Channel)

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

- For ISDN Trunk Data

RT=20 (Virtual Speech Channel)

CDN	2	(ONSG)=	2
	4	(INSG)=	2
	5	(TF) =	3
	6	(TCL) =	1
	7	(L/T) =	1
	8	(RLP) =	2
	10	(SMDR) =	1
	15	(LSG) =	12
	28	(ANS) =	1
	30	(PAD) =	4
	31	(OGRL)=	1
	32	(ICRL)=	1
	34	(GUARD)=	1
	45	(A/D) =	1
	50	(DPLY)=	1
	60	(TC/EC)=	1
	65	(INT) =	**Note 4**
	66	(DC) =	**Note 5**

RT=10 (Virtual Signaling Channel)

CDN	2	(ONSG)=	2
	4	(INSG)=	2
	6	(TCL) =	1
	7	(L/T) =	1
	8	(RLP) =	2
	15	(LSG) =	13
	28	(ANS) =	1
	30	(PAD) =	7
	65	(INT) =	**Note 4**
	66	(DC) =	**Note 5**

The other data should be “0” (default data).

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

Note 4: INT (CDN65): 1N-ISDN2
2Australia
4ITU (CCITT), ETSI (PRI)
5AT&T (#4/#5 ESS)
6ETSI (BRI)
7NT DMS 100 / DMS 250

Note 5: In the case of “SUB ADDRESS - ADDRESSING”, assign “0”. (Refer to SUB ADDRESS-ADDRESSING [S-95] in Data Programming Manual - ISDN.)
In the case of “DID ADDRESSING”, refer to DIRECT INWARD DIALING (DID) ADDRESSING [D-123] in Data Programming Manual - ISDN.

- For Q-SIG Trunk Data

RT=20 (Virtual Speech Channel)

CDN	2	(ONSG)= 2	
	4	(INSG)= 2	
	5	(TF) = 3	
	6	(TCL) = 4	
	7	(L/T) = 1	
	8	(RLP) = 2	
	15	(LSG) = 12	
	28	(ANS) = 1	
	30	(PAD) = 4	**Note 6**
	31	(OGRL)= 1	
	32	(ICRL)= 1	
	34	(GUARD)=1	
	45	(A/D) = 1	
	49	(TRKS)= 0/1	**Note 7**
	50	(DPLY)= 1	**Note 8**
	60	(TC/EC)= 1	
	65	(INT) = 10	
	66	(DC) = 15	**Note 9**
	113	(UUI) = 1	**Note 10**
	118	(BOB)= 1	**Note 11**

RT=10 (Virtual Signaling Channel)

CDN	2	(ONSG)= 2	
	4	(INSG)= 2	
	5	(TF) = 3	
	6	(TCL) = 4	
	7	(L/T) = 1	
	15	(LSG) = 13	
	30	(PAD) = 7	
	31	(OGRL)= 1	
	32	(ICRL)= 1	
	34	(GUARD)=1	
	45	(A/D) = 1	
	65	(INT) = 10	
	118	(BOB)= 1	**Note 11**

The other data should be “0” (default data).

Note 6: Depending on the level diagram of the network, data “4” is standard.

Note 7: Each office must be assigned a different value to avoid collision at the time of call origination.

Note 8: Assign “1” when the number display on LCD of terminal is required.

Note 9: ACDD is not available if DC = 15.

Note 10: Assign “1” when the User-to-User Signaling notification is required.

Note 11: Assign “1” when the multi-rate bearer service is used.

Note: To provide the system with channel negotiation, see 7. Q-SIG CHANNEL NEGOTIATION in Chapter 3 of Data Programming Manual - ISDN.

STEP 3: ARTI (Assignment of Trunk Application Data)

Assign the application data for Trunk in Virtual Speech Channel.

RT=10 (Virtual Signaling Channel)
RT=20 (Virtual Speech Channel)
CDN68 (VIR): 2 (MG connection)

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

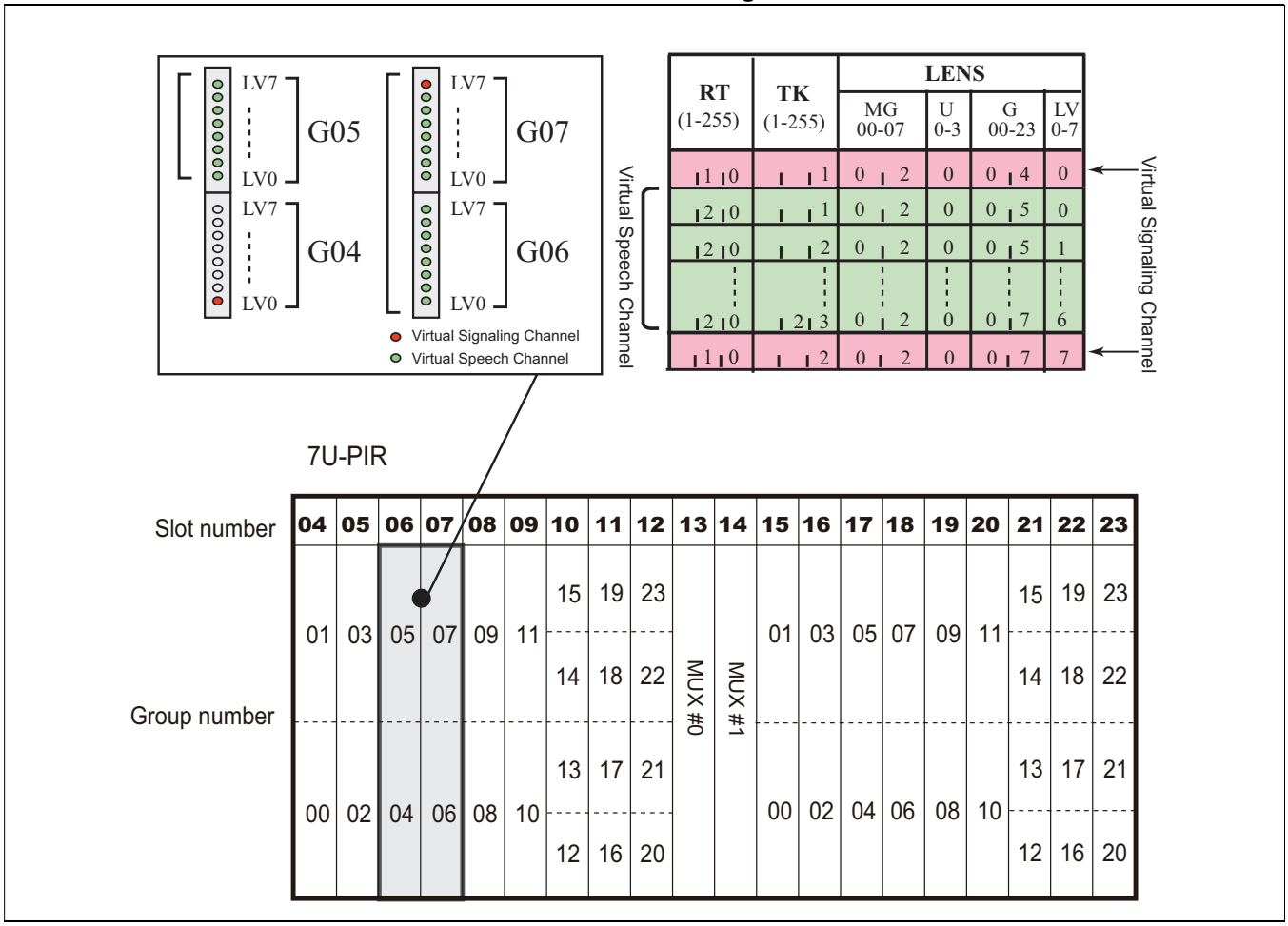
To use FAX, specify the FAX relay settings in the following:

CDN71 (FXD)
CDN72 (FXJS)
CDN73 (FXPT)
CDN74 (FXPS): This parameter appears when 1 (G.711) or 2 (G.726) is selected in FXPT.

STEP 4: ATRK (Assignment of Trunk Data)

Assign the Trunk Data to Virtual Speech Channel. The following is an example for assigning channel data of PRI (1.5M). Note that the data setting for Dch must be performed after the ACIC1 command assignment.

Trunk Data Setting



Note: Virtual trunk occupies 1HW (4-Group). For example, if one channel is registered for Virtual Trunk, the whole HW is occupied exclusively for the Virtual Trunk.

Note: Do not assign the trunk data to even-numbered MG, U=0, and G=00. It is not available for MG(PRI).

Note: Be sure to assign route data by ARTD/ARTI in advance before assigning trunk data by ATRK.

Note: The total number of B-channels must not exceed 460 per two Module Group (MG) pair. i.e. MG2/3, MG4/5 and MG6/7

STEP 5: ADPC (Assignment of Determinate Point Code Data)

Assign the Point Code (1~16383) on Virtual Speech Channel and Virtual Signaling Channel. Note that the Point Code must be different from the Point Code for CCIS. (ISDN does not actually use the Point Code but it is necessary to develop the office data.)

Note: NDM command (ADPCN) cannot be used here.

STEP 6: ACSC (Assignment of CSC Data)

Assign Virtual Speech Channel into the even-numbered (130~254) CSC group, and Virtual Signaling Channel into the odd-numbered CSC group.

Note: NDM command (ACSCN) cannot be used here.

- PRI (1.5M): 23B+D setting.

CSCG	CICG	CCH		
		MG (00-07)	U (0-3)	G (00-23)
130/131	0	02	0	04
	1	02	0	04
	2	02	0	04
	3	02	0	04
	4	02	0	04
	5	02	0	04
	6	02	0	04
	7	02	0	04

STEP 7: ACIC1 (Assignment of CIC Code Data 1)

Assign the accommodated location of Virtual Signaling Channel to the Point Code.

Note: NDM command (ACIC1N) cannot be used here.

PC: Point Code specified by ADPC
CSCG: CSC group of Virtual Signaling Channel specified by ACSC

STEP 8: ACIC2 (Assignment of CIC Code Data 2) ** Required only for Q-SIG trunk.*

Assign the CIC Number and accommodated location of Virtual Speech Channel to the Point Code.

PC: Point Code specified by ADPC
CIC: The same CIC number must be given to one speech line between two nodes.
LENS: Accommodated location of Virtual Speech Channel

STEP 9: ATRK (Assignment of Trunk Data)

Assign the Trunk Data to Virtual Signaling Channel, referring to page 649.

STEP 10:MBTK (Make Busy of Trunk)

Cancel the Make-Busy of Virtual Speech Path.

RT: Route Number
TK: Trunk Number
MB: 0=Make-Busy Cancel

STEP 11:AMGIL (Assignment of Media Gateway Information for LDM)

Note: Make sure to assign in order of ATRK → AMGIL.

Assign MG(PRI).

MG-ID: MAC Address of MG(PRI) (6 byte of HEX data)
** MAC address is labeled on the left front of MG(PRI) (below PWR lamp).*
FUNCTION: Setting (to assign MG information)
KIND: ISDN Trunk (PRI 1.5M)
UG50 Multi-Slot Mode:
Select this check box if registering UG50 in Multi-slot mode.
LINE: 0 (fixed)
CH: 0 (fixed)
LENS: Accommodating Location of Virtual Speech Channel.
Assign the first channel of HW to which Virtual Speech/Signal Channel is allocated.
** Make sure that LENS assigned here already has been assigned by the ATRK.*
Retry: Number of retry to request connection to MG(PRI).
CALL HOLD (MG-PRI Call Hold Service):
Select this check box to enable CALL PROTECTED RE-REGISTRATION [C-203].
Setting Type of Signaling Packet Service:
QoS settings of signal path (ToS value applied when Internal PHI-PRI connects to MG(PRI))

STEP 12:AMGVL (Assignment of Media Gateway Voice Control Data for LDM)

Assign the Voice control data to connect to MG(PRI).

A RT (Storing MG): Route number of virtual speech channel used for MG(PRI).
TYPE: Select “Route Specified” or “Location ID Specified”.
B RT (MG Storing): Displayed when TYPE=Route Specified is selected.
Used when connecting MG and MG in Tandem. Assign the route number of virtual speech channel for the destination MG.
B LOC-ID: Displayed when TYPE=Location ID Specified is selected.
Assign the location ID where the destination IP station belongs. (Preferred)

Setting of Jitter Buffer:JB_MIN [0-30 (×10 milliseconds)], JB_MAX [0-30 (×10 milliseconds)]
Setting Type of Voice Packet Service: IP PRECEDENCE [0-7]/DIFFSERV [00-63]
Setting of Payload: TYPE, SIZE **Note 12**

Note 12: For using this parameter, refer to "Payload Setting for Each IP Equipment" in the System Description.

RESET THE MG(PRI) BY PUSHING RESET BUTTON AFTER ASSIGNING DATA.

[*] Data Deletion

Deletion must be operated in the reverse order of assignment. Make sure to delete in the order of AMGIL → ATRK. (Confirm there is no data left in AMGIL before deleting ATRK)

<When SIP mode>

MG(PRI) can be registered to either Internal PHI-PRI or SP-PHI. When registering to SP-PHI, it works using SIP, which is called SIP mode. The following explains MG(PRI) data assignment for SIP mode. When registering to Internal PHI-PRI (Proprietary Protocol mode), refer to page 645.

[1] Internal PHE Data Assignment

When MG(PRI) is used in SIP mode, MG(PRI) is registered to SP-PHI embedded in the Telephony Server. SP-PHI is accommodated and controlled by MPH, which is also embedded in the Telephony Server. For the use of MPH, it is required to make Internal PHE function valid. So Internal PHE data assignment is necessary.

[2] SP-PHI Data Assignment

When MG(PRI) is used in SIP mode, MG(PRI) is registered to SP-PHI embedded in the Telephony Server. So SP-PHI data assignment is necessary.

[3] MG(PRI) Data Assignment

Assign the necessary System Data for using the MG.

STEP 1: ASYD (Assignment of System Data)

SYS1

INDEX 64, b0: 0/1=μ-law/A-law of CODEC (depends on the country)
INDEX 186, b6=1 (ISDN is in service)
INDEX 187=00 (Fixed)
INDEX 474 Guard Timer for Originating Call (MTC×TC)
bit 0-3: MTC (Timer Counter)
bit 4-6: TC (Timer Class), assign 1H (64 milliseconds)

STEP 2: ASYDL (Assignment of System Data for LDM)

SYS1
INDEX 810, b2 0/1 = -/External Music-on-Hold takes precedence **Note 13**

Note 13: This is available when Music-on-Hold by AMGIL is invalid.

STEP 3: ARTD (Assignment of Route Class Data)

Assign the route class data on Virtual Speech Channel and Virtual Signaling Channel. The following is an example when the Virtual Signaling Channel=10 and the Virtual Speech Channel =20:

RT=10 (Virtual Signaling Channel)
RT=20 (Virtual Speech Channel)

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

- For ISDN Trunk Data

RT=20 (Virtual Speech Channel)

CDN			
	2	(ONSG)=	2
	4	(INSG)=	2
	5	(TF) =	3
	6	(TCL) =	1
	7	(L/T) =	1
	8	(RLP) =	2
	10	(SMDR) =	1
	15	(LSG) =	12
	28	(ANS) =	1
	30	(PAD) =	4
	31	(OGRL)=	1
	32	(ICRL)=	1
	34	(GUARD)=	1
	45	(A/D) =	1
	50	(DPLY)=	1
	60	(TC/EC)=	1
	65	(INT) =	**Note 14**
	66	(DC) =	**Note 15**

RT=10 (Virtual Signaling Channel)

CDN			
	2	(ONSG)=	2
	4	(INSG)=	2
	6	(TCL) =	1
	7	(L/T) =	1
	8	(RLP) =	2
	15	(LSG) =	13
	28	(ANS) =	1
	30	(PAD) =	7
	65	(INT) =	**Note 14**
	66	(DC) =	**Note 15**

The other data should be “0” (default data).

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

Note 14: INT (CDN65):1N-ISDN2
2Australia
4ITU (CCITT), ETSI (PRI)
5AT&T (#4/#5 ESS)
6ETSI (BRI)
7NT DMS 100 / DMS 250

Note 15: In the case of “SUB ADDRESS - ADDRESSING”, assign “0”. (Refer to SUB ADDRESS-ADDRESSING [S-95] in Data Programming Manual - ISDN.)
In the case of “DID ADDRESSING”, refer to DIRECT INWARD DIALING (DID) ADDRESSING [D-123] in Data Programming Manual - ISDN.

- For Q-SIG Trunk Data

RT=20 (Virtual Speech Channel)

CDN			
2	(ONSG)	2	
4	(INSG)	2	
5	(TF)	3	
6	(TCL)	4	
7	(L/T)	1	
8	(RLP)	2	
15	(LSG)	12	
28	(ANS)	1	
30	(PAD)	4	**Note 16**
31	(OGRL)	1	
32	(ICRL)	1	
34	(GUARD)	1	
45	(A/D)	1	
49	(TRKS)	0/1	**Note 17**
50	(DPLY)	1	**Note 18**
60	(TC/EC)	1	
65	(INT)	10	
66	(DC)	15	**Note 19**
113	(UUI)	1	**Note 20**
118	(BOB)	1	**Note 21**

RT=10 (Virtual Signaling Channel)

CDN			
2	(ONSG)	2	
4	(INSG)	2	
5	(TF)	3	
6	(TCL)	4	
7	(L/T)	1	
15	(LSG)	13	
30	(PAD)	7	
31	(OGRL)	1	
32	(ICRL)	1	
34	(GUARD)	1	
45	(A/D)	1	
65	(INT)	10	
118	(BOB)	1	**Note 21**

The other data should be “0” (default data).

Note 16: Depending on the level diagram of the network, data “4” is standard.

Note 17: Each office must be assigned a different value to avoid collision at the time of call origination.

Note 18: Assign “1” when the number display on LCD of terminal is required.

Note 19: ACDD is not available if DC = 15.

Note 20: Assign “1” when the User-to-User Signaling notification is required.

Note 21: Assign “1” when the multi-rate bearer service is used.

Note: To provide the system with channel negotiation, see 7. Q-SIG CHANNEL NEGOTIATION in Chapter 3 of Data Programming Manual - ISDN.

STEP 4: ARTI (Assignment of Trunk Application Data)

Assign the application data for Trunk in Virtual Speech Channel.

RT=10 (Virtual Signaling Channel)
RT=20 (Virtual Speech Channel)
CDN68 (VIR)=2 (MG connection)

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

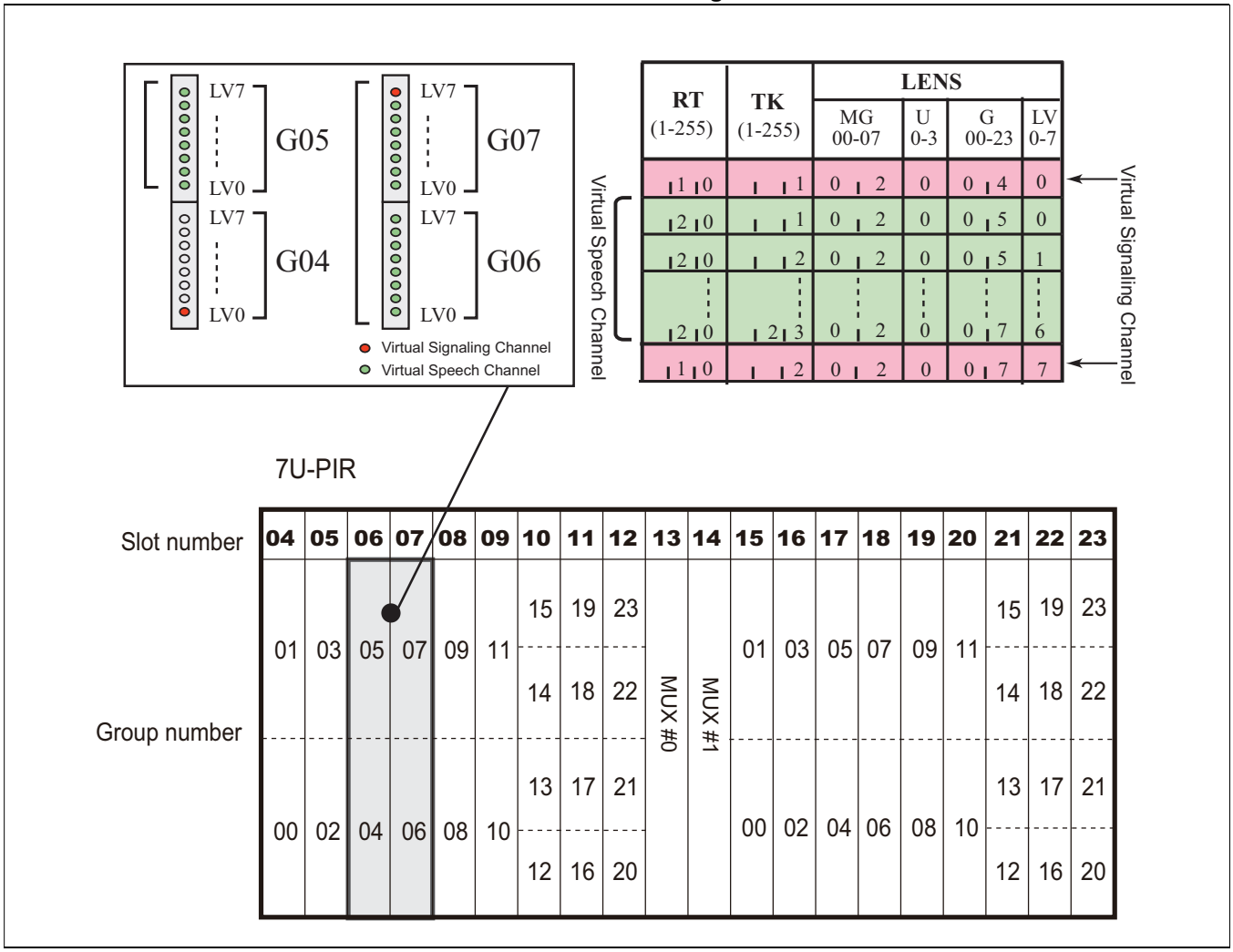
To use FAX, specify the FAX relay settings in the following:

CDN71 (FXD)
CDN72 (FXJS)
CDN73 (FXPT)
CDN74 (FXPS): This parameter appears when 1 (G.711) or 2 (G.726) is selected in FXPT.

STEP 5: ATRK (Assignment of Trunk Data)

Assign the Trunk Data to Virtual Speech Channel. The following is an example for assigning channel data of PRI (1.5M). Note that the data setting for Dch must be performed after the **ACIC1** command assignment

Trunk Data Setting



Note: Virtual trunk occupies 1HW (4-Group). For example, if one channel is registered for Virtual Trunk, the whole HW is occupied exclusively for the Virtual Trunk.

Note: Do not assign the trunk data to even-numbered MG, U=0, and G=00. It is not available for MG(PRI).

Note: Be sure to assign route data by ARTD/ARTI in advance before assigning trunk data by ATRK.

Note: The total number of B-channels must not exceed 460 per two Module Group (MG) pair. i.e. MG2/3, MG4/5 and MG6/7

STEP 6: ADPC (Assignment of Determinate Point Code Data)

Assign the Point Code (1~16383) on Virtual Speech Channel and Virtual Signaling Channel. Note that the Point Code must be different from the Point Code for CCIS. (ISDN does not actually use the Point Code but it is necessary to develop the office data.)

Note: NDM command (ADPCN) cannot be used here.

STEP 7: ACSC (Assignment of CSC Data)

Assign Virtual Speech Channel into the even-numbered (130~254) CSC group, and Virtual Signaling Channel into the odd-numbered CSC group.

Note: NDM command (ACSCN) cannot be used here.

- PRI (1.5M): 23B+D setting.

CSCG	CICG	CCH		
		MG (00-07)	U (0-3)	G (00-23)
130/131	0	02	0	04
	1	02	0	04
	2	02	0	04
	3	02	0	04
	4	02	0	04
	5	02	0	04
	6	02	0	04
	7	02	0	04

STEP 8: ACIC1 (Assignment of CIC Code Data 1)

Assign the accommodated location of Virtual Signaling Channel to the Point Code.

Note: NDM command (ACIC1N) cannot be used here.

PC: Point Code specified by ADPC
CSCG: CSC group of Virtual Signaling Channel specified by ACSC

STEP 9: ACIC2 (Assignment of CIC Code Data 2) ** Required only for Q-SIG trunk.*

Assign the CIC Number and accommodated location of Virtual Speech Channel to the Point Code.

PC: Point Code specified by ADPC
CIC: The same CIC number must be given to one speech line between two nodes.
LENS: Accommodated location of Virtual Speech Channel

STEP 10:ATRK (Assignment of Trunk Data)

Assign the Trunk Data to Virtual Signaling Channel, referring to page 657.

STEP 11:MBTK (Make Busy of Trunk)

Cancel the Make-Busy of Virtual Speech Path.

RT: Route Number
TK: Trunk Number
MB: 0(Make-Busy Cancel)

STEP 12:AMGIL (Assignment of Media Gateway Information for LDM)

Note: Make sure to assign in order of ATRK → AMGIL.

Assign MG(PRI).

MG-ID: MAC Address of MG(PRI) (6 byte of HEX data)
** MAC address is labeled on the left front of MG(PRI) (below PWR lamp).*
FUNCTION: Setting (to assign MG information)
KIND: ISDN Trunk (PRI 1.5M) [SIP]
UG50 Multi-Slot Mode:
Select this check box if registering UG50 in Multi-slot mode.
LINE: 0 (fixed)
CH: 0 (fixed)
LENS: Accommodating Location of Virtual Speech Channel.
Assign the first channel of HW to which Virtual Speech/Signal Channel is allocated.
** Make sure that LENS assigned here already has been assigned by the ATRK.*
Setting Type of Signaling Packet Service:
QoS settings of signal path (ToS value applied when MG(PRI) connects to Internal PHIPRI)
Music On Hold Exists: **Note 22**
Select this check box if configuring Music On Hold.
Music On Hold:
Select one among:
External Music on hold (default setting)/Internal Music on hold1/Internal Music on hold2
External Music On Hold Input Gain Adjustment:
Select one from the following options:
0: 0dB
1: -10dB (gain)
2: -15dB (gain)
3: -20dB (gain)
4-15: Not used
Country Code:
Australia
Brazil
China
Hong Kong
Japan
Korea

Malaysia
Mexico
New Zealand
North America
Singapore
Sri Lanka
Taiwan
Thailand
Thailand (EGAT)
U.K
Other

Law of A/D conversion:
Choose either μ law or A law.

Note 22: Not supported for UG50. For further information, refer to Peripheral Equipment Description (UG50).

STEP 13:AMGVL (Assignment of Media Gateway Voice Control Data for LDM)

Assign the Voice control data to connect to MG(PRI).

A RT (Storing MG): Route number of virtual speech channel used for MG(PRI).
TYPE: Select “Route Specified” or “Location ID Specified”.
B RT (MG Storing): Displayed when TYPE=Route Specified is selected.
Used when connecting MG and MG in Tandem. Assign the route number of virtual speech channel for the destination MG.
B LOC-ID: Displayed when TYPE=Location ID Specified is selected.
Assign the location ID where the destination IP station belongs. (Preferred)
Setting of Jitter Buffer:JB_MIN [0-30 (×10 milliseconds)], JB_MAX [0-30 (×10 milliseconds)]
Setting Type of Voice Packet Service: IP PRECEDENCE [0-7]/DIFFSERV [00-63]
Setting of Payload: TYPE, SIZE **Note 23**

Note 23: For using this parameter, refer to "Payload Setting for Each IP Equipment" in the System Description.

[4] Security Data Assignment

Assign authentication data for SIP Mode.

STEP 1: ASECL (Assignment of Media Gateway Voice Control Data for LDM)

Specify a one-time password and the available period.

<Certified Terminal Assignment>
One-Time Password:Enter a one-time password.[4-10 digits]
Available Period: Specify the available period. This command assigns one-time password and its available period.

Note: To perform Authentication feature, assign the same one-time password in MG(PRI). At initial startup of registration mode, MG(PRI) will ask you to input the one-time password for authentication. For more information, refer to page 669.

RESET THE MG(PRI) BY PUSHING RESET BUTTON AFTER ASSIGNING DATA.

[*] Data Deletion

Deletion must be operated in the reverse order of assignment. Make sure to delete in the order of AMGIL → ATRK. (Confirm there is no data left in AMGIL before deleting ATRK)

3.2 VT-100 Compliant Terminal Software Setting on Maintenance Console



Note: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data.

STEP 1: Connect a PC (maintenance console) to CONSOLE connector.

STEP 2: Run the VT-100 compliant terminal software (e.g. HyperTerminal) on the Maintenance Console.

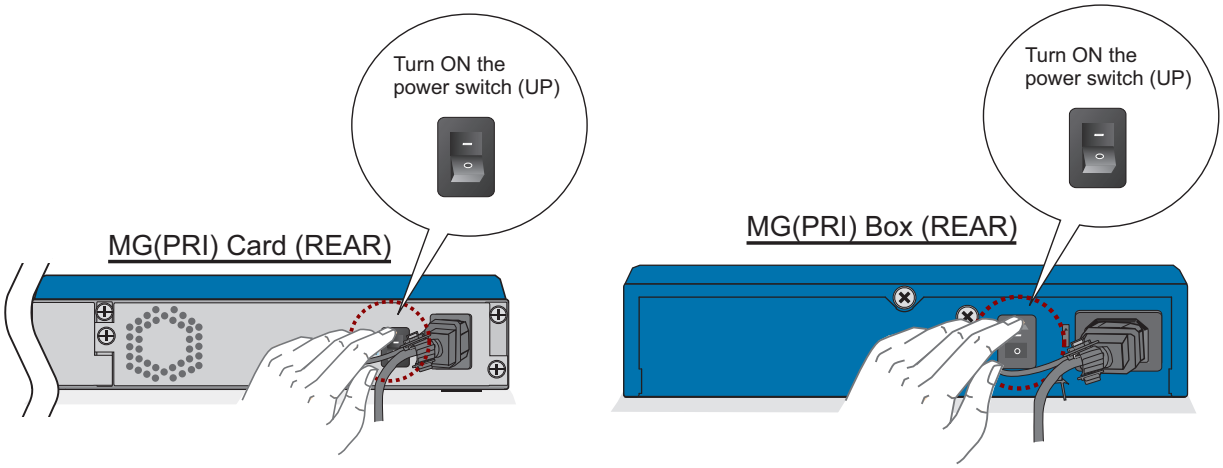
STEP 3: Set the parameter of the terminal software as follows:

- Port: *COM1 (depending on PC setting)*
- Baud Rate: *9600 bps*
- Data: *8 bits*
- Parity: *None*
- Stop Bit: *1*
- Flow Control: *None*

3.3 Power On

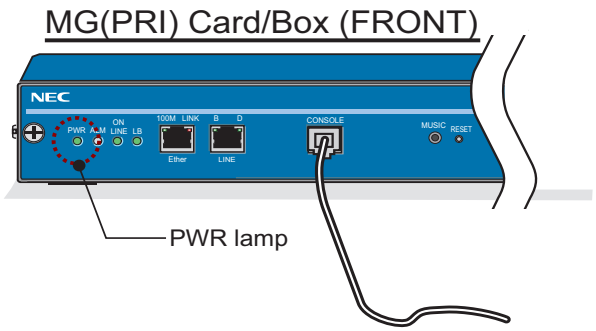


STEP 1: Turn ON the power switch (UP) on the rear side of MG(PRI).



Note: When the 1U-MPC has already turned on, press “RESET” button on the front panel of MG(PRI) Card to restart the card and start its boot program.

STEP 2: Make sure the LED indicates normal status.
- PWR LED lights green.
- (Boot program automatically starts.)



3.4 Configuration Command Assignment

Assign the network data to MG(PRI) by configuration command operation on the maintenance console.

This section consists of two parts; procedure for Proprietary Protocol mode and procedure for SIP mode. The following explains the procedure by each mode.

Note: "DRS (Device Registration Server)" used in this section refers to the Telephony Server. When MG(PRI) works in Proprietary Protocol mode, the Telephony Server acts as DRS, which is controlling function of the Telephony Server.

Note: "SIP server" used in this section refers to the Telephony Server. When MG(PRI) works in SIP mode, the Telephony Server acts as SIP server.

Note: The setting data here is an example. Assign the network data according to your network configuration.

<When Proprietary Protocol Mode>

Assign the configuration data for MG(PRI) in Proprietary Protocol mode. About the configuration data for SIP mode, refer to page 669.

STEP 1: When the boot program is started, the initial display below is displayed on the screen.

```
DP OK

MG-ID: xxxxxx
Boot program version : SP3839 SH7751R CBOOT-1 PROG-A [xx.xx.xx.xx]
Main program version : SP3884 MG PRI PROG-A [xx.xx.xx.xx]
H/W PKG information  : CA-CC00 001
DSP information      : DSP-K-AC49kernel [xx.xx.xx.xx]
DSP information      : DSP-P-AC490012ae3-S [xx.xx.xx.xx]


Starting Boot program.....
--- Online program Initial start --- (wait for a while)
 :
 :(Omitted)
 :

 No One Time Password!!

 Please input a one time password.
 One Time Password : q
```

Note: The default of registration mode is SIP mode, therefore, enter “q” as one-time password to switch to the Proprietary Protocol mode. After that, enter a command within 20 seconds because MG(PRI) automatically resets its mode in 20 seconds.

STEP 2: Type “usrConsole” at the indicated OS prompt and press the ENTER key.

If a prompt (->) displays on the screen, press the Enter key.

```
->
->usrConsole
```

STEP 3: MG(PRI)’s command prompt appears as follows.

```
MG Maintenance command
MG-PRI>
```

Note: If a prompt does not appear on the screen, press the Enter key to display a prompt.

STEP 4: Type “SETUP TP” to set the network data referring to page 704, also set the following network data depending on your LAN environment.

There are two ways to set the network data;

- When DHCP server is used
- When DHCP server is NOT used

- **When DHCP server is used**

As DHCP server automatically assigns IP addresses to MG(PRI), Default Gateway, and the Telephony Server, there is no need to assign these network data on MG(PRI) side. IP addresses listed below, however, have to be prepared in DHCP server side. **Note 1**

- IP address of Default Gateway
- IP address and port number of DRS **Note 2**

Note: Check the number of IP addresses saved in DHCP server is sufficient to provide IP addresses for MG(PRI)s anytime.

Note 1: DHCP option setting is as follows:
Class: Global
Name: Not specified, but do not enter the same option name in duplicate
Data: IP address
Array: Checked
Code: 161
Refer to DHCP Server Setup in the System Description for more information on DHCP Server Optional Setting.

Note 2: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

- **When DHCP server is NOT used**

  Set the following data on MG(PRI) side. **Note 3**

  - DHCP Server Setting

```
MG-PRI> SET DHCP DISABLE

DHCP setting succeeded
```

  - IP address and subnet mask of MG(PRI)

```
MG-PRI> SET IPADDRESS 10.10.10.170 255.255.255.0

IP Address setting succeeded.
```

  - IP address of Default Gateway

```
MG-PRI> SET DEFAULTROUTE 10.10.10.255

Default Gateway setting succeeded.
```

  - IP address and port number of DRS **Note 4**

```
MG-PRI> SET DRSADDRESS

DRS Unit (1: Primary/2: Secondary/3: Tertiary/4: Fourth): 1
DRS IP Address: 10.10.10.30
DRS Port Number: 5060

DRS setting succeeded.
```

  - IP address of Default Gateway

```
MG-PRI> SET INTERFACE

SPEED (AUTO/100M/10M):AUTO
Ethernet Speed setting succeeded.
```

Note 3: IP addresses assigned here are not effective when DHCP server is set to “Enabled”. Be sure to assign “SET DHCP DISABLED” before starting the IP address setting.

Note 4: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

STEP 5: Save the configuration data assigned

.

```
MG-PRI>SAVE CONFIG

** Don't power off in progress **
Do you need save? [Y/N]:Y
Erase start...
Erase OK!
Write start...
Write OK!

Configuration data has been saved.
Re-starting is required for making a setup reflect!!
```

STEP 6: Reboot the MG(PRI) by entering reboot command.
Turning OFF and ON/Pressing RESET button also reset the MG(PRI).

```
MG-PRI> REBOOT

Do you need reboot? [Y/N]:Y
```

Note: MG-ID (MAC Address of MG(PRI)) is displayed after rebooting. The MG-ID needs to be assigned in AMGIL command.

<When SIP Mode>

Assign the configuration data for MG(PRI) in SIP mode. About the configuration data for Proprietary Protocol mode, refer to page 665.

STEP 1: When the boot program is started, the initial display below is displayed on the screen.

The default of registration mode is SIP mode, therefore, the system will require a one-time password for authentication at initial startup. Enter the same password with one entered in SIP server. As long as you don't enter a one-time password, you cannot go to the next step.

```
DP OK

MG-ID: xxxxxx
Boot program version : SP3839 SH7751R CBOOT-1 PROG-A
[xx.xx.xx.xx]
Main program version : SP3884 MG PRI PROG-A [xx.xx.xx.xx]
H/W PKG information  : CA-CC00 001
DSP information      : DSP-K-AC49kernel [xx.xx.xx.xx]
DSP information      : DSP-P-AC490012ae3-S [xx.xx.xx.xx]


Starting Boot program.....
--- Online program Initial start --- (wait for a while)
 :
 :(Omitted)
 :

 No One Time Password!!

 Please input a one time password.
 One Time Password : •••••

Erase start...
Erase OK!
Write start...
Write OK!

 One time password setting succeeded.
```

STEP 2: Type "usrConsole" at the indicated OS prompt and press the ENTER key.

If a prompt (->) displays on the screen, press the Enter key.

```
->
->usrConsole
```

STEP 3: MG(PRI)'s command prompt appears as follows.

```
MG Maintenance command
MG-PRI(SIP)>
```

Note: If a prompt does not appear on the screen, press the Enter key to display a prompt.

STEP 4: Type "SETUP SP" to set the network data referring to page 700, also set the following network data depending on your LAN environment.

There are two ways to set the network data;

- When DHCP server is used
- When DHCP server is NOT used

- **When DHCP server is used**

As DHCP server automatically assigns IP addresses to MG(PRI), Default Gateway, and the Telephony Server, there is no need to assign these network data on MG(PRI) side. IP addresses listed below, however, have to be prepared in DHCP server side. **Note 5**

- IP address of Default Gateway
- IP address and port number of SIP Server **Note 6**

** Check the number of IP addresses saved in DHCP server is sufficient to provide IP addresses for MG(PRI)s anytime.*

Note 5: DHCP option setting is as follows.
Class: Global
Name: Not specified, but do not enter the same option name in duplicate
Data: IP address
Array: Checked
Code: 162
Refer to "DHCP Server Setup" in System Description for more information on DHCP Server Optional Setting.

Note 6: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

- **When DHCP server is NOT used**

  Set the following data on MG(PRI) side. **Note 7**

  - DHCP Server Setting

```
MG-PRI(SIP)> SET DHCP DISABLE

DHCP setting succeeded
```

  - IP address and subnet mask of MG(PRI)

```
MG-PRI(SIP)> SET IPADDRESS 10.10.10.170 255.255.255.0

IP Address setting succeeded.
```

  - IP address of Default Gateway

```
MG-PRI(SIP)> SET DEFAULTROUTE 10.10.10.255

Default Gateway setting succeeded.
```

  - IP address, port number, and host name of SIP Server **Note 8**
    Host name can be omitted.

```
MG-PRI(SIP)> SET SIPSV_IPADDRESS

SIP Server (1-20):1
IP Address:10.41.1.150
Port Number:5060
Is there the Host Name ? [Y/N]:Y
Host Name:SRV1.nec.com
SIP server setting succeeded.
```

  - LAN Interface Setting

```
MG-PRI(SIP)> SET INTERFACE

SPEED (AUTO/100M/10M):AUTO
Ethernet Speed setting succeeded.
```

  - DNS Setting
    Enable/Disable DNS. Specify the IP address of DNS when enabling DNS.

```
MG-PRI(SIP)> SET DNS_SW

DNS interface(Enable/Disable) [Disable]:ENABLE
DNS IP Address [0.0.0.0]:10.40.1.150

DNS Setting succeeded.
```

- Host Name of MG(PRI)
  Specify the host name of MG(PRI) when DNS Server is enabled.

```
MG-PRI(SIP)> SET OWN_NAME mgpri.nec.com

Own name setting succeeded.
```

Note 7: IP addresses assigned here will not be effective if DHCP server is set to “Enabled”. Be sure to assign “SET DHCP DISABLED” before starting the IP address setting.

Note 8: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

STEP 5: Save the configuration data assigned

.

```
MG-PRI(SIP)> SAVE CONFIG

** Don’t power off in progress **
Do you need save? [Y/N]:Y
Erase start...
Erase OK!
Write start...
Write OK!

Configuration data has been saved.
Re-starting is required for making a setup reflect!!
```

STEP 6: Reboot the MG(PRI) by entering reboot command.
Turning OFF and ON/Pressing RESET button also reset the MG(PRI)

```
MG-PRI(SIP)>REBOOT
Do you need reboot? [Y/N]:Y
```

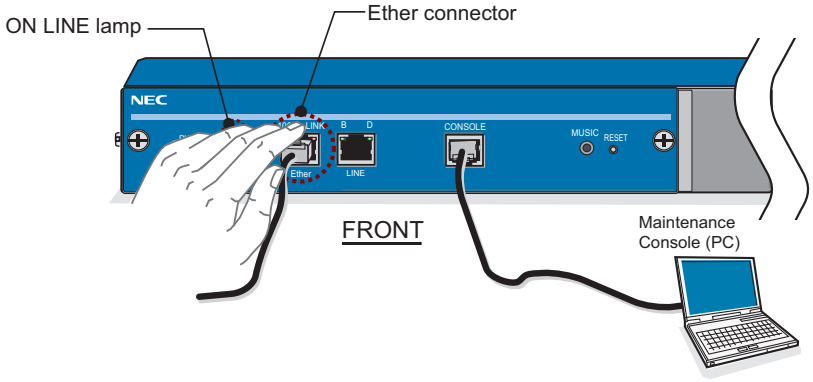
Note: MG-ID (MAC Address of MG(PRI)) is displayed after rebooting. The MG-ID needs to be assigned in AMGIL command.

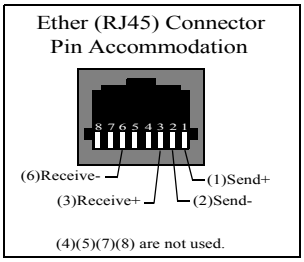
3.5 Cable Connection

STEP 1: Connect MG(PRI) to the LAN.

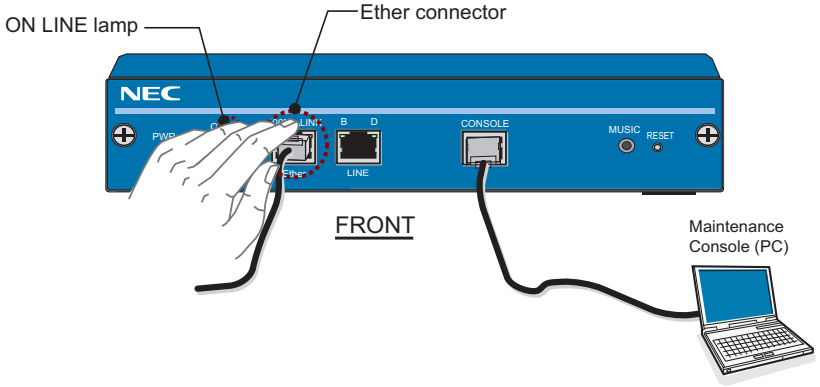
Insert LAN cable into the Ether connector on the front panel of the MG(PRI). ON LINE lamp lights green in a few minutes when connection succeeded.

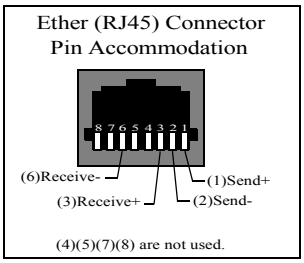
- SCA-24PRIA





- MG-24PRIA

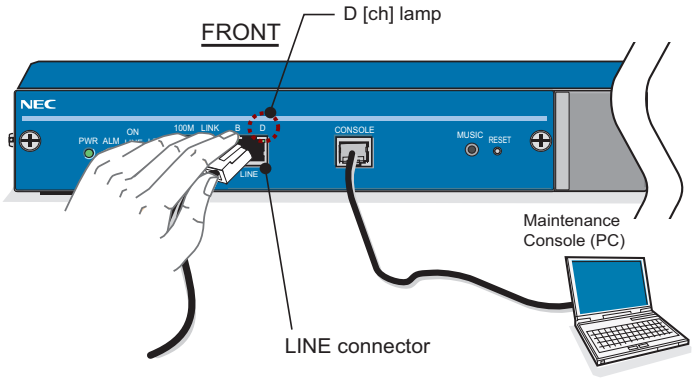


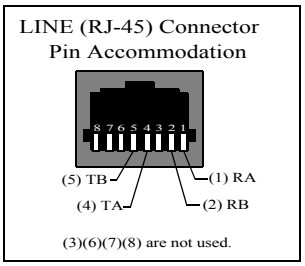


STEP 2: Connect ISDN line to MG(PRI).

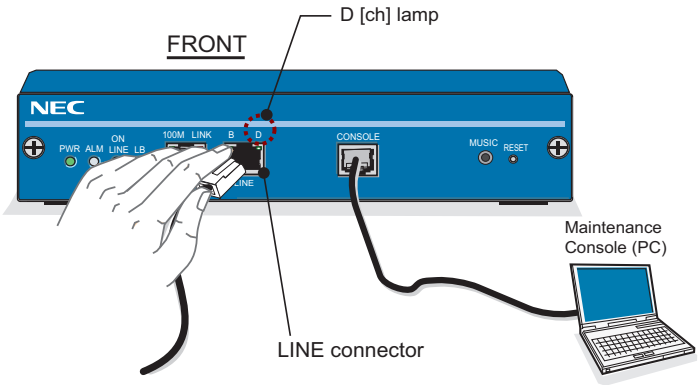
Insert LINE cable of DSU into LINE connector on the front panel of the MG(PRI). Check the D lamp of LINE flashes → steady lights in green when connection succeeded.

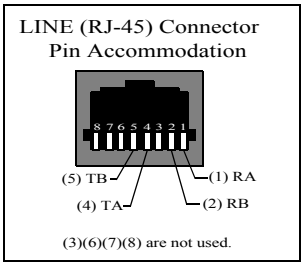
- SCA-24PRIA





- MG-24PRIA





3.6 Basic Test Procedures

Operation of MG(PRI) can be checked from the visual inspection of lamp display.

Lamps on the Front Panel

LAMP NAME		COLOR	MEANING OF INDICATION
PWR		Green	Power ON
		OFF	Power OFF
ALM **Note 1**		Red	Lights when power module failure is detected
		OFF	Normal operation
ON LINE		Green	Lights when registration is completed
		Flash (60INT)	Flashes during initial setting is proceeded
		OFF	Initial setting is not completed
LB		Green	Not used **Note:** Temporary lights in initial setting
		Flash (60INT)	Flashes in loop-back mode
		OFF	Normal operation
LINE	B	Green	Lights when using two channels or more **Note:** Temporary lights in initial setting
		Flash (120INT)	Flashes when using only one channel
		OFF	Remains OFF when all the channels are idle
	D	Green	Layer 2 link is established in ISDN line **Note:** Temporary lights in initial setting
		Flash (60INT)	Flashes slow when Dch is in make-busy state
		Flash (120INT)	Flashes fast when Layer 2 link is not established
		OFF	Dch is not assigned
Ether	LINK	Green	Lights when establishing Layer 1 link **Note:** Lights when physically connected to IP network.
		Flash	Flashes (in 0.2-second cycle) when sending/receiving IP Packet
		OFF	Layer 1 link is not established
	100M	Green	Lights when transmission speed is 100 Mbps
		OFF	Remains OFF when transmission speed is 10 Mbps

Note 1: For ALM lamp on MG-24PRIA, it always remains OFF.

Note: When the lamps remain the following status for a long time, any failure might occur in initial setting. Make sure of the cable connection and the office data assignment to solve the problem.

PWR	ON LINE	LB	LINE		CAUSE OF ERROR
			B	D	
ON	OFF	ON	ON	OFF	Registration NG on IP part
ON	ON	ON	ON	OFF	Initial setting NG on ISDN part
ON	ON	OFF	OFF	Flash	Layer 2 is not established in ISDN part
ON	ON	OFF	OFF	OFF	D-channel has not been specified yet.

[1] Basic Connection Test

STEP 1: Is the PWR lamp lighting green?

[No]

- Check the AC power cable is firmly inserted.
- Check the PWR switch is ON.
- Check the AC power cable from the AC power inlet is firmly connected to power source.

[Lights green]

Go on to STEP 2.

STEP 2: Is the LINK lamp lighting green?

[No]

- MG(PRI) may not be physically connected to the LAN. Check the LAN cable between MG(PRI) and networking device. (Also check the power of Switching HUB and Routers are turned ON.)
- Check that correct cable is used (Use the Straight-through Cable)
- Check that the cable is not damaged. (Test the continuity in the LAN cable.)

Replace the LAN cable or the network device if the problem is still not cleared.

[Lights green]

This lamp turns ON when MG(PRI) initially starts up and connection to LAN is established.

Go on to STEP 3.

STEP 3: Is the ON LINE lamp lighting green?

[No]

- Check the data assignment of the Telephony Server side and MG(PRI) side.

  - Telephony server: Is the data assignment on each PCPro command correct?
  - MG(PRI): Check the configuration data assigned from the maintenance console.

[Lights green]

Go on to STEP 4.

STEP 4: Is the D lamp on LINE connector lighting green?

[No]

- Check the system message of the Telephony Server.
- Check the MG(PRI) is physically connected to ISDN network.

  Also confirm the line cable between;

  - MDF and MG(PRI)
  - MDF and DSU
- Check whether the line cable is not damaged. (Test the continuity of the line cable.)
- Check the data assignment of Telephony Server side and MG(PRI) side.

  - Telephony server: Is the data assignment on each PCPro command correct?
  - MG(PRI): Check the configuration data assigned from the maintenance console.

[Lights green]

Go on to STEP 5.

STEP 5: Speech test through MG(PRI). Call origination/termination OK?

[Call origination/termination does not operate normally]

- Check the system message of the Telephony Server.
- Check the MG(PRI) is physically connected to ISDN network.

  Also confirm the line cable between:

  - MDF and MG(PRI)
  - MDF and DSU
- Check that the cable is not damaged. (Test the continuity in the LAN cable.)

- Check the data assignment of the Telephony Server side and MG(PRI) side.

  - Telephony server: Is the data assignment on each PCPro command correct?
  - MG(PRI): Check the configuration data assigned from the maintenance console.

- Check the contract status of the ISDN line.

[B lamp of LINE does not flash/light]

- Indicates that all channels are in idle state, check the office data assignment.

[B lamp of LINE lights/flashes]

- Flashes: Only one channel is currently used.
- Lights: Two or more channels are currently used.

[Call originated/terminated normally], [Call quality is adequate]

Connection test is completed.

[2] Alarm Information Check

- Check the Alarm Lamps. If the red lamp lights, search the cause of fault and perform the appropriate operations.

Note: ALM Lamp Check is available for SCA-24PRIA only.

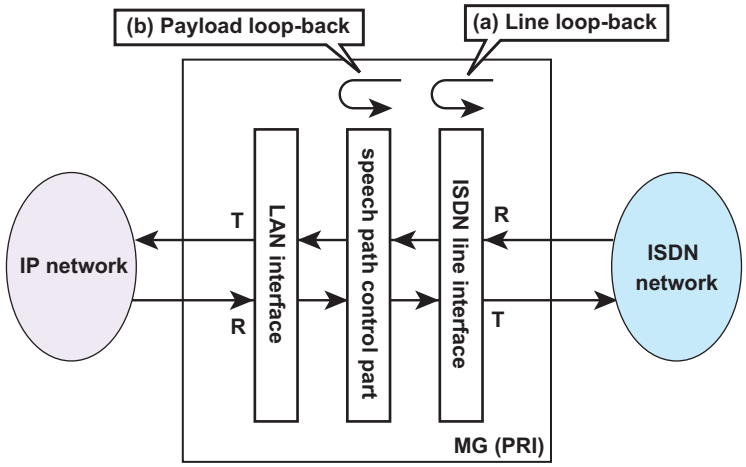
- Check the system message.
  1. Display the system message using DFTD command.
  2. See the system message and confirm whether any failure occurs on MG(PRI). Recover it if needed.

3-D	Lock-Up Failure (Permanent) **Note 2**
3-H	Digital Line Warning
3-I	Digital Line Failure
13-H	CCS Link Failure (Permanent)
13-I	CCS Link Failure (Temporary)
13-J	Restoration From CCIS Link Failure
33-R	IP PKG Warning
33-S	IP PKG Failure
33-T	IP PKG Restore

Note 2: When TCP error keeps occurring for 90 seconds or more, this message is output.

[3] Loop-Back Test

Execute the loop-back test on the maintenance console.



(a) Line Loop-Back

All the channels (23ch) are looped back to ISDN on the ISDN line interface of MG(PRI).

(b) Payload Loop-Back

All the channels (23ch) are looped back to ISDN on the speech path control part of MG(PRI).

Note: The difference between Line Loop-Back and Payload Loop-Back is;

All the processes in Line Loop-Back follow the timing of ISDN side. There are some processes following the timing of system side in Payload Loop-Back. In other words, bit error may occur when the system does not synchronize with ISDN in Payload Loop-Back. Bit error is not considered in Line Loop-Back.

4 Operation and Maintenance

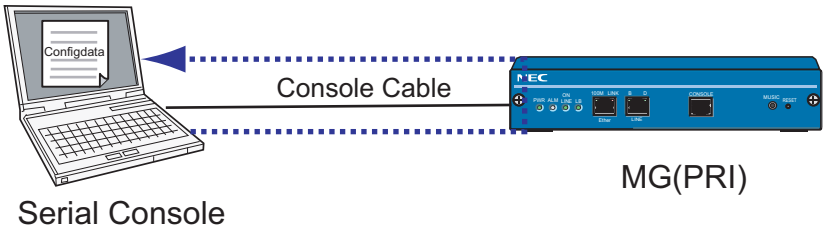
This section explains the operation and maintenance procedure of MG(PRI). Configuration data is assigned by using Maintenance Console (PC).

4.1 How to Back Up And Restore Config Data by Serial Connection (Local Download)

This config download/upload is performed one by one, connecting a PC to each MG(PRI) with a Console Cable (RS232C <-> RJ-45) and a LAN cable. Prepare the following:

- Console Cable (RS232C <-> RJ-45) cable is required.
- Serial terminal emulation program (such as HyperTerminal) is required
- LAN cable (crossover) is required for restoring config data.
- PCPro has to be installed in advance.

- Backing Up Config Data By Serial Connection



STEP 1 Power off MG(PRI) and disconnect it from the network.

STEP 2 Connect PC to MG(PRI) by using Console Cable (RS232C <-> RJ-45) cable.

STEP 3 Power on MG(PRI).

STEP 4 Activate HyperTerminal and set the following:
Bit per second:9600bps
Data bits:8bit
Parity:None
Stop bit:1bit
Flow control:None

STEP 5 Select **[Transfer]** -> **[Capture File...]**.

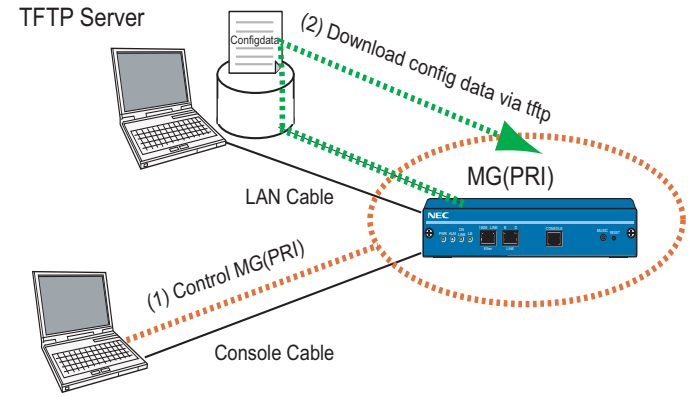
STEP 6 Send File screen is displayed. Specify a file name to be saved, and then click the Start button.

STEP 7 After a prompt (->) is displayed, enter "`usrConsole`".

STEP 8 After a prompt ("`>MG-PRI`" or "`>MG-PRI`(SIP)") is displayed, enter "`show config`" to display configuration data of the MG(PRI).

STEP 9 Select **[Transfer]** -> **[Capture Text]** -> **[Stop]** to save the config file shown in screen.

- Restoring Config Data By Serial Connection And TFTP Connection



Note: TFTP server and Serial Console both can be performed in single Personal Computer.

STEP 1 Power off MG(PRI) and disconnect it from the network.

STEP 2 Connect Serial Console to MG(PRI) by using a Console Cable (RS232C <-> RJ-45) cable.

STEP 3 Connect TFTP server to MG(PRI) by using a LAN cable.

<Data Assignment on TFTP Server>

STEP 4 If the name of the backup config file is not sysdata, rename it to "sysdata".

STEP 5 Put the file in the root folder of TFTP server, and then start the TFTP server program.

STEP 6 Permit read behavior of this folder. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on Serial Console>

STEP 7 Power on MG(PRI).

STEP 8 Activate HyperTerminal and set the following:
Bit per second:9600bps
Data bits:8bit
Parity:None
Stop bit:1bit
Flow control:None

STEP 9 After a prompt (->) is displayed, enter "`usrConsole`".

STEP 10 After a prompt (">`MG-PRI`" or ">`MG-PRI`(SIP)") is displayed, enter "`get configdata <TFTP's IP Address>`" to download configuration data into MG(PRI).

STEP 11 Confirm that "`successfully completed`" is displayed in the screen, indicating the upload to TFTP server is completed normally.

STEP 12 To reflect the configuration data that is downloaded from TFTP server, save it by entering "`save config`" and reboot MG(PRI) by entering "`reboot`".

STEP 13 Exit the HyperTerminal by selecting **[File]** -> **[Exit]**.

<Confirmation of MG(PRI)>

STEP 14 Connect the MG(PRI) to the network.

STEP 15 Confirm that MG(PRI) is normally registered in system after reboot. Use the DISD/FPTS commands in PCPro. For more information, refer to the Command Manual.

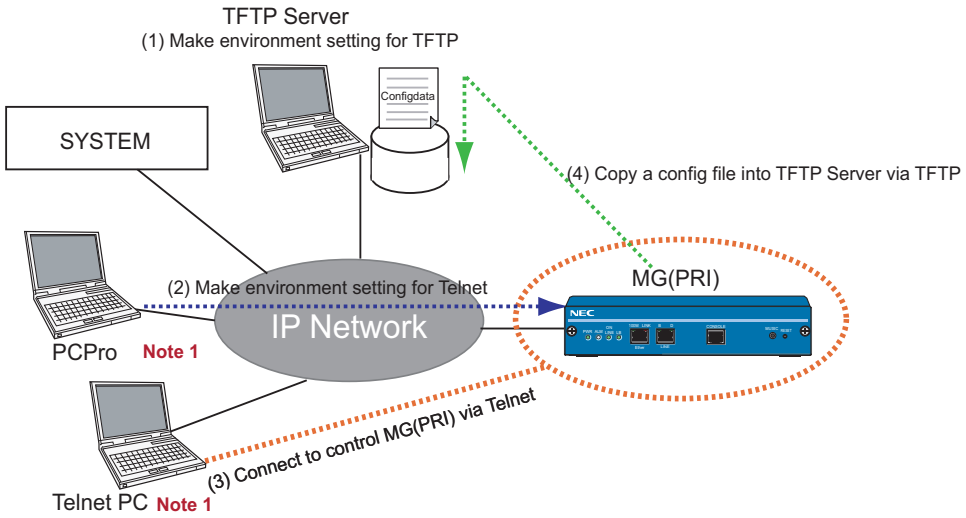
STEP 16 Check that calls via MG(PRI) can be made.

4.2 How to Back Up and Restore Config Data by TFTP Connection (Remote Download)

This config download/upload is performed via TFTP.
Prepare the following:

- PC that is capable of Telnet and TFTP features.
- All the PCs have to belong to the same segment with MG(PRI).
- TFTP server has to be installed in advance.
- PCPro has to be installed in advance.
- MG(PRI) is already registered to system and it is operating normally.

• Backing Up Config Data via TFTP



Note 1: PCPro and Telnet both can be performed by single Personal Computer.

Make sure of the connectivity in the following:

- Make sure that PCPro is able to log on to the Telephony Server.

- Check the connectivity from TFTP server to the Telephony Server by using Ping command.

- Make sure that TFTP client is able to connect to FTP server.

<Data Assignment on TFTP Server>

STEP 1 Create a folder to back up configuration data.

STEP 2 Start the TFTP server program.

STEP 3 Assign the folder as root folder, and then permit write and read behavior for this directory. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on PCPro>

STEP 4 To search for the LENS of the target MG(PRI), use the IPAN command.

STEP 5 To make environment setting for Telnet, use the ATUD command.
- Specify the LENS, which is belonging to the target MG(PRI).
- Specify a user ID and a password, which are required for logging in to MG(PRI) via Telnet.
- Input any value from 0 to 255 for USER LEVEL because MG(PRI) does not use USERLEVEL.
- For VALID TIME, input a total of time required for completing this procedures.

Note: A user ID and a password are temporary and used for download; you can specify them as you like providing the user ID is a max 20 ASCII characters and the password is 8 - 20 ASCII characters.

STEP 6 After completing the above, click the Set button.

<Data Assignment on Telnet PC>

STEP 7 Start a command prompt and enter "`telnet <MG(PRI)'s IP Address>`" to connect MG(PRI) via Telnet.

STEP 8 Log in to the target MG(PRI) by entering the userID and the password, which are set in the AUTD command.

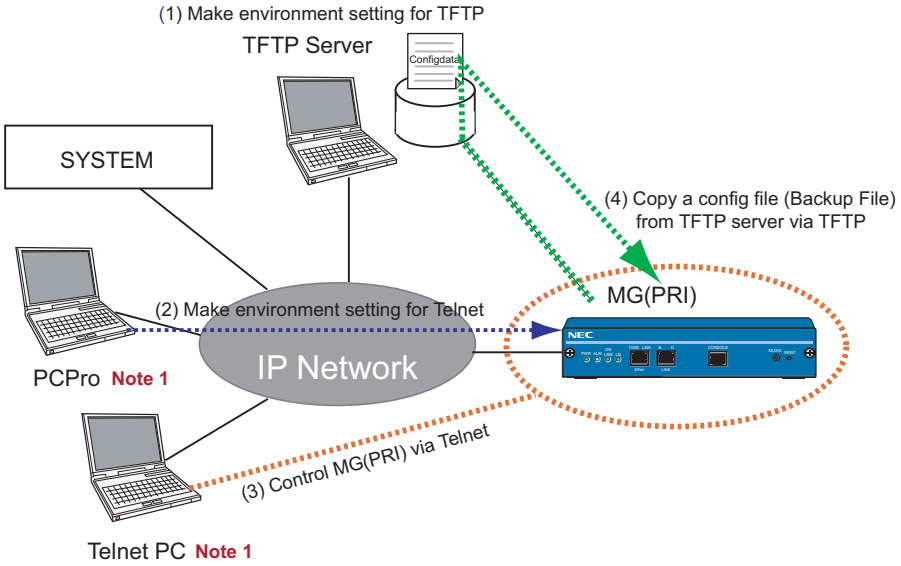
STEP 9 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 10 After a prompt ("`>MG-PRI`" or "`>MG-PRI`(SIP)") is displayed, enter "`put configdata <<TFTP's IP Address>`" to download configuration data to MG(PRI).

STEP 11 Confirm that "successfully completed" is displayed in the command prompt, indicating the upload to TFTP server is completed normally.

STEP 12 Exit the HyperTerminal by selecting **[File]** -> **[Exit]**.

- Restoring Config Data via TFTP



Note 1: PCPro and Telnet both can be performed by single Personal Computer.

<Data Assignment on TFTP Server>

STEP 1 If the name of the backup config file is not sysdata, rename it to “sysdata”.

STEP 2 Put the file in the root folder of TFTP server, and then start the TFTP server program.

STEP 3 Permit read behavior of this folder. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on PCPro>

STEP 4 To search for the LENS of the target MG(PRI), use the IPAN command.

STEP 5 To make environment setting for Telnet, use the ATUD command.
- Specify the LENS, which is belonging to the target MG(PRI).
- Specify a user ID and a password, which are required for logging in to MG(PRI) via Telnet.
- Input any value from 0 to 255 for USER LEVEL because MG(PRI) does not use USERLEVEL.
- For VALID TIME, input a total of time required for completing this procedures.

Note: A user ID and a password are temporary and used for download; you can specify them as you like providing the user ID is a max 20 ASCII characters and the password is 8 - 20 ASCII characters.

STEP 6 After completing the above, click the Set button.

<Data Assignment on Telnet PC>

STEP 7 Start a command prompt and enter "`telnet <MG(PRI)'s IP Address>`" to connect MG(PRI) via Telnet.

STEP 8 Log in to the target MG(PRI) by entering userID and password, which are set in the AUTD command.

STEP 9 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 10 After a prompt ("`>MG-PRI`" or "`>MG-PRI(SIP)`") is displayed, enter "`get configdata <TFTP's IP Address>`" to download configuration data into MG(PRI).

STEP 11 Confirm that "successfully completed" is displayed in the command prompt, indicating the upload to TFTP server is completed normally.

STEP 12 To reflect the configuration data that is downloaded from TFTP server, save it by entering "`save config`" and reboot MG(PRI) by entering "`reboot`".

STEP 13 Exit the HyperTerminal by selecting **[File]** -> **[Exit]**.

<Confirmation of MG(PRI)>

STEP 14 Confirm that MG(PRI) is normally registered in system after reboot. Use the DISD commands. For more information, refer to the Operation and Maintenance Manual.

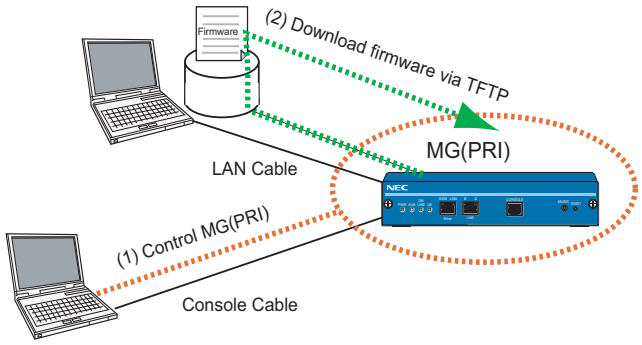
STEP 15 Check that calls via MG(PRI) can be made.

4.3 How to Upgrade Firmware by Serial Connection (Local Download)

This firmware upgrade is performed one by one, connecting a PC to each MG(PRI) with a Console Cable (RS232C <-> RJ-45) and a LAN cable. Prepare the following:

- Firmware for upgrade
- Console Cable (RS232C <-> RJ-45) and LAN cable (crossover) are required.
- Serial terminal emulation program (such as HyperTerminal) is required
- TFTP server has to be installed in advance.

TFTP Server (IP Address: 10.41.1.250)

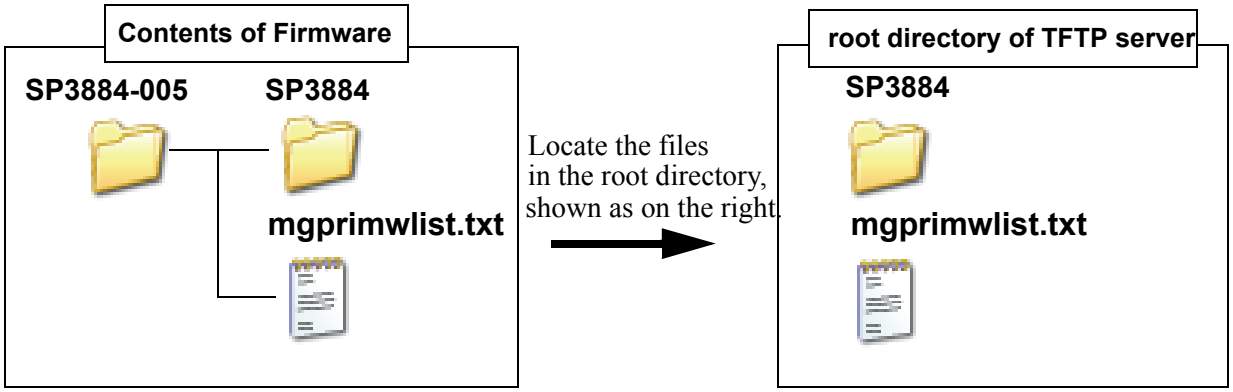


Note: TFTP server and Serial Console both can be performed by single Personal Computer.

STEP 1 Disconnect the MG(PRI) from the network.

STEP 2 Connect PC(s) to MG(PRI) with LAN connector and Console Cable (RS232C <-> RJ-45) both.

STEP 3 Put the firmware files (For example, SP3884) and mpgrimwlist.txt for upgrade in the root folder of TFTP server.



EXAMPLE:

SP3884-005
- **Issue Number (ISSUE5)**
- **Firmware Number**

STEP 4 Permit read behavior of this directory. For more information, refer to the appropriate manual attached to the TFTP server program.

STEP 5 Set network environment for the TFTP server.
IP Address: 10.41.1.250
Subnet mask: 255.255.255.0

STEP 6 Start the TFTP program.

STEP 7 Power on MG(PRI).

STEP 8 Activate HyperTerminal and set the following:
Bit per second:9600bps
Data bits:8bit
Parity:None
Stop bit:1bit
Flow control:None

STEP 9 After a prompt ("`>MG-PRI`" or "`>MG-PRI(SIP)`") is displayed, enter "`download`".

STEP 10 When "`Do you need download?`" message is displayed, enter "`y`".

STEP 11 The current settings of MG(PRI) are displayed, and then the screen asks you to input TFTP Server IP Address. Enter a TFTP server IP address.

STEP 12 The current settings of MG(PRI) and TFTP server are displayed. Make sure of the settings. If you need to modify the settings, select a number (1-4) to modify the item. If all the settings are correct, enter "`y`".

STEP 13 Download menu is displayed, and then select "`1`" (Download of all programs).

STEP 14 IP address information setting is displayed, and then select "`1`" (current setting).

STEP 15 Other configuration setting is displayed, and then select "`2`" (current setting).
After download process is completed, MG(PRI) will reboot.

STEP 16 Turn off and on the power of the MG(PRI).

STEP 17 After a prompt (`->`) is displayed, enter "`dispver`" to display the firmware information of MG(PRI).

STEP 18 After a prompt (`->`) is displayed again, enter "`usrConsole`".

STEP 19 Make sure that a new firmware has been installed by checking the following:

```
->dispver
                          Boot Number                    Boot Issue
Boot program version      SP3839 SH7751R CBOOT-1 PROG-A [03.00.00.00]

                          Main Name             Main Issue
Main program version      SP3884 MG PRI PROG-A [05.00.00.00]
|
|---TC version            TC-Program           [04.00.00.00]
|---DSP kernel version    DSP-K-AC49kernel     [01.07.06.00]
|---DSP program version   DSP-P-AC490012ae3-S  [01.07.08.02]
|---Tone version          Tone version         [04.00.00.00]
```

STEP 20 Enter "`show config`" to confirm the config data.

<Confirmation of MG(PRI)>

STEP 21 Connect the MG(PRI) to a network.

STEP 22 To confirm MG(PRI) is properly operating with the upgraded firmware, make a call to the MG(PRI). Check that you can hear RBT.

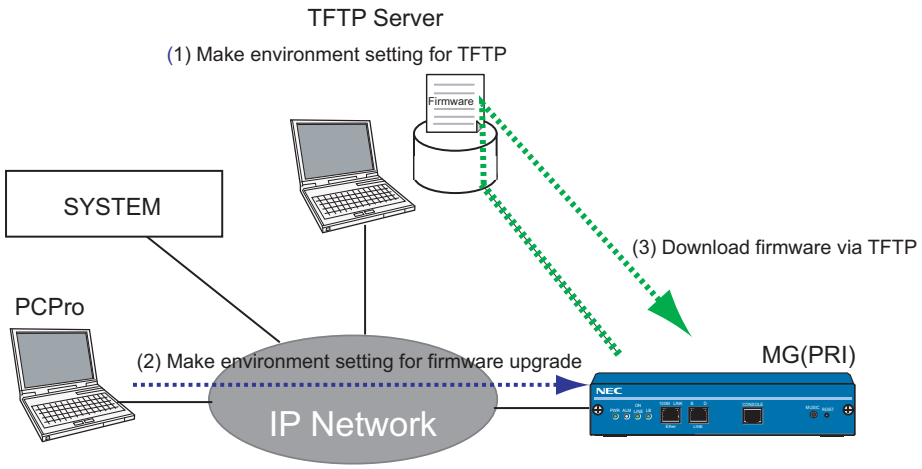
STEP 23 Receive a call via the MG(PRI), and confirm that you can talk to each other.

STEP 24 After all the tasks are completed, write down/label the firmware version in the back of the MG(PRI). For example, 2A is indicated for Version 2. 3A is indicated for Version 3.

4.4 How to Upgrade Firmware by FTP (Remote Download)

This upgrading process can be performed up to eight MG(PRI)s at once.
Prepare the following:

- Firmware for upgrade
- PCs have to belong to the same segment with MG(PRI).
- FTP server has to be installed in advance.
- PCPro has to be installed in advance.
- MG(PRI) is already registered to system and it is operating normally.

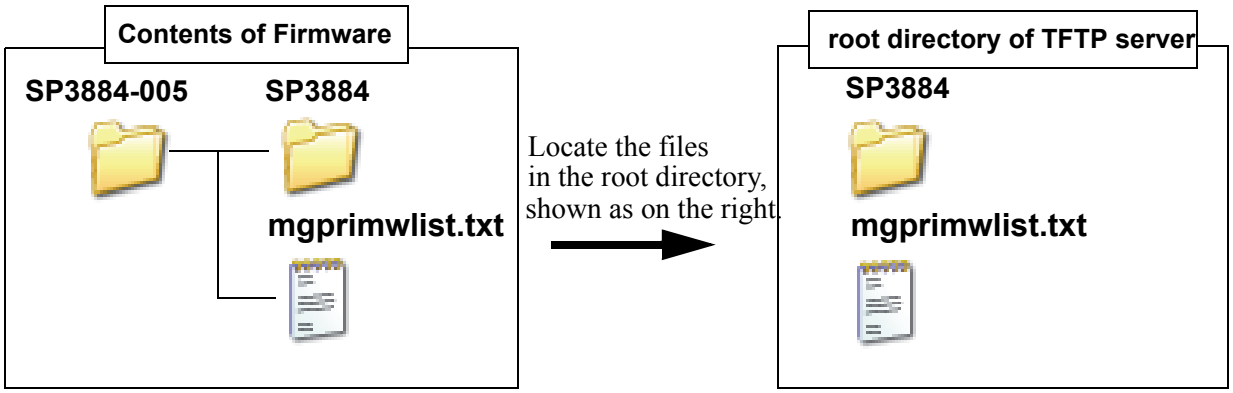


Make sure of the connectivity in the following:

- Make sure that PCPro is able to log on to the Telephony Server.
- Check the connectivity from FTP server to the Telephony Server by using Ping command.
- Make sure that FTP client is able to connect to FTP server.

<Data Assignment on FTP Server>

STEP 1 Put the firmware files (For example, SP3884) and mpgrimwlist.txt for upgrade in the root folder of FTP server.



EXAMPLE:



STEP 2 Set read permission for this directory. For more information, refer to the appropriate manual attached to the FTP server program.

<Data Assignment on PCPro>

STEP 3 Activate the ATDL command.
Select Terminal Type in Terminal Specifying Type, and then select PRI2.0 MG.
Specify the Hardware Type in HWTP and Hardware Version in HWVER.
Set the File Name.

STEP 4 Click the Add to Terminal List button.

STEP 5 After the PRI2.0 MGs are displayed in the Terminal List, select the appropriate PRI2.0 MG to be upgraded the firmware.

STEP 6 Select an item of External Server from FTP Server Type in the Setting for Download field.
Input the IP address of FTP server.
Input Login Name and Password for logging in to FTP server if required.
Select an item of Parallel in Download Method.
Select an item of Specify File Storage Directory, and specify the directory name.
Select an item of Parallel in Download Method.

STEP 7 Click the EXUECUTE button to upgrade the firmware to the target MG(PRI)s.
"Upgrade is succeeded" is displayed. Note that version information in the screen is not updated at this time. If the upgrade is failed, click the Close button, and then go back to STEP3.

STEP 8 After upgrade is completed, click the Close button. In the main screen, click the Exit button to close the ATDL command.

STEP 9 To confirm the firmware, activate the DIPI command.
The file name is indicated in the following:

05.00.00.00
└ ISSUE NUMBER

STEP 10 Select **Media Converter** in Functionality Type, and then click the Execute button.

STEP 11 Confirm that the firmwares in the appropriate ones are upgraded.

<Confirmation of MG(PRI)>

STEP 12 To confirm MG(PRI) is properly operating with the upgraded firmware, make a call to the MG(PRI). Check that you can hear RBT.

STEP 13 Receive a call via the MG(PRI), and confirm that you can talk to each other.

STEP 14 After all the tasks are completed, write down/label the firmware version in the back of the MG(PRI). For example, 2A is indicated for Version 2. 3A is indicated for Version 3.

4.5 How to Use Maintenance Command

Configuration command is used just for modifying the default data. Data is to be modified only when it is required and to the necessary part.

Note: Note the following conditions:

- "SIP server" used in this section refers to the Telephony Server. When MG(PRI) works in SIP mode, the Telephony Server acts as SIP server.
- "DRS (Device Registration Server)" used in this section refers to the Telephony Server. When MG(PRI) works in Proprietary Protocol mode, the Telephony Server acts as DRS, which is controlling function of the Telephony Server.
- When an event causing a restart of the device, such as Health Check timeout, occurs during startup of the configuration command, it takes about five minutes to start the rebooting after you exit from the configuration command or enter the last command.
- If you input "exit" after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

Starting Configuration Command

(1) Connect a PC to MG(PRI) using CONSOLE cable and run terminal software (e.g. HyperTerminal) on the PC.

(2) Set the parameter of the terminal software as follows:

- Port: COM1
- Baud Rate: 9600 bps
- Data: 8 bits
- Parity: None
- Stop Bit: 1
- Flow Control: None

(3) Enter *usrConsole* after the OS prompt. Then the MG(PRI)'s prompt below appears.

- When Proprietary Protocol Mode is used

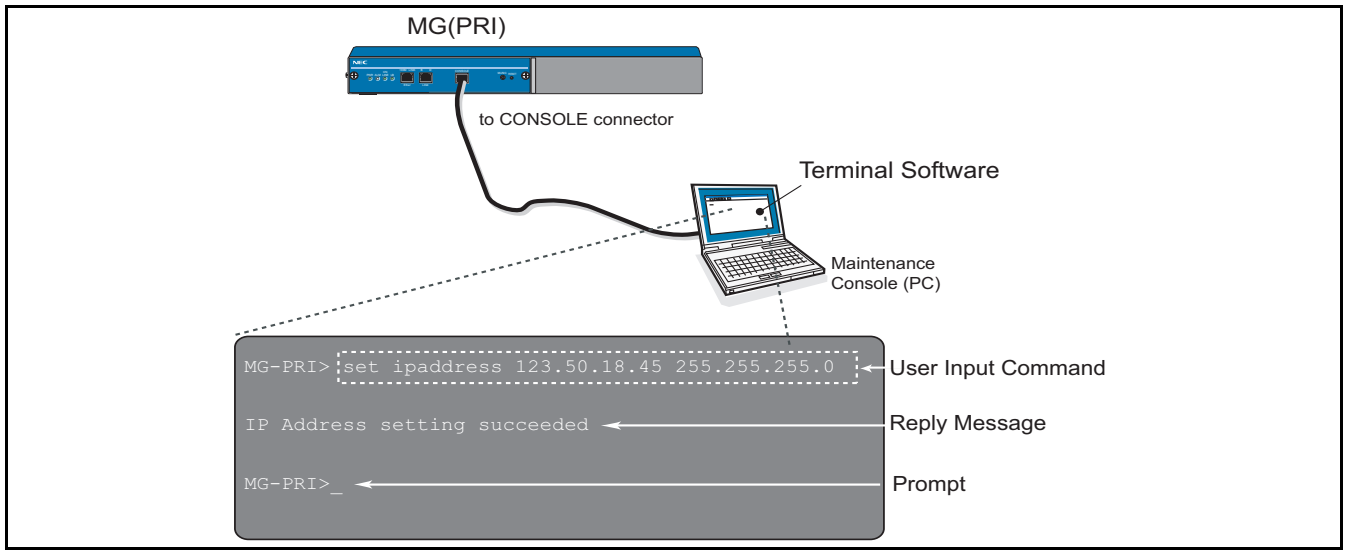
```
MG-PRI>_
```

- When SIP mode is used

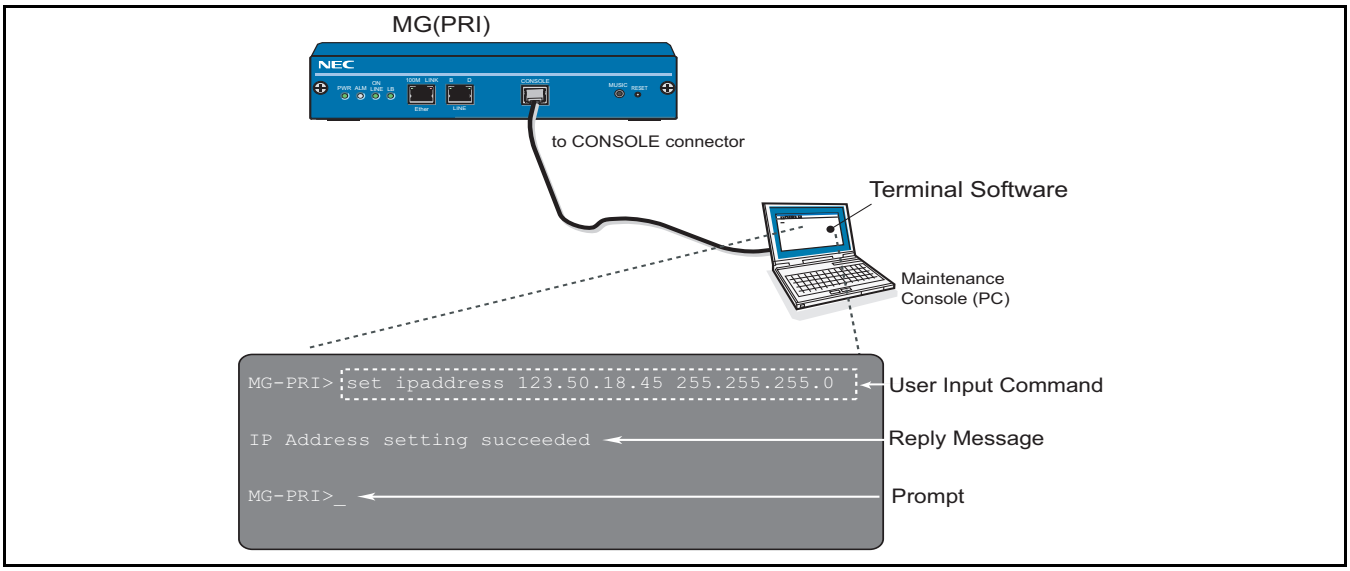
```
MG-PRI(SIP)>_
```

Example Indication

- SCA-24PRIA



- MG-24PRIA



The user input command above is consist of a several components. The following describes these components using one of the ***set*** commands.

```
MG-PRI> set ipaddress 192.168.0.11 255.255.255.0
        1   2         3            4
1: Command
2: Sub Command
3: Parameter 1
4: Parameter 2
```

Note: The number of parameters to be specified is different depending on the command.

```
MG-PRI> SET DRSQOS
QOS (TOS/DIFFSERV:TOS):TOS
                      5
5: Set Value (or Default Value)
```

In ***SET*** command, some of the sub commands can be specified with hexadecimal numbers (called Set Value), which determine a group of the detailed values. It is also possible to omit its parameters; the interactive guidance will help you specifying its detailed values. The following shows these patterns:

When the parameters are specified:

```
MG -PRI> SET PRI_T1_1 90B8

set value is 0x90B8

setting succeeded.
In order to make a setup reflect and keep, re-starting is required
after saving a configuration file by SAVE command.
```

Set Value

When the parameters are Not specified:

```
MG -PRI> SET PRI_T1_1

Dch Control          ( 0/1: 1 ): 1
Dch Mode             ( 0/1: 0 ): 0
Dch Signal Logic     ( 0/1: 0 ): 0
Dch-1 Drop/Insert    ( 0/1: 1 ): 1
Dch-2 Drop/Insert    ( 0/1: 0 ): 0
Drop/Insert Mode     ( 0/1: 0 ): 0
Data Transfer Speed  ( 0-2: 0 ): 0
Drop/Insert Time Slot ( 0-23: 23 ): 23
Dch Signaling Set    (0/1: 0): 0
set value is 0x90B8

setting succeeded.
In order to make a setup reflect and keep, re-starting is required
after saving a configuration file by SAVE command.
```

How to Read Maintenance Command

The commands in this section are explained with defined characters. These characters' meanings are in the following:

CHARACTERS	MEANING
Δ	Blank
P1, *P2*, *P3*	Parameters
[ ]	Parameter Option (indicates Not essential)

Configuration Command List

The maintenance console uses the commands listed on the table below.

List of Maintenance Command

COMMAND	No.	SUB COMMAND	FUNCTION	PAGE
SETUP	1	SP	Set up network environment for MG(PRI) SIP mode.	page 700
	2	TP	Set up network environment for MG(PRI) Proprietary Protocol Mode.	page 704
SET	1	CALL_HOLD	Set MG Based Call Retention	page 707
	2	COS	Modifies the COS (Class of Service) of VLAN	page 707
	3	DEFAULTROUTE	Assigns Default Gateway	page 707
	4	DHCP	Selects whether the DHCP feature is enabled	page 707
	5	DNS_SW	Selects whether the DNS feature is enabled	page 708
	6	DRSADDRESS	Assigns the IP address and port number of DRS	page 708
	7	DRSQOS	Specifies QoS setting of DRS session	page 708
	8	DTMF_IN	Assigns the DTMF relay of in-band signaling	page 710
	9	E_T_TIME	Specifies the period to be executed echo canceller training	page 710
	10	E_T_WAITTIME	Specifies waiting time before starting echo canceller training	page 710
	11	EC_TRAINING	Sets echo canceller training	page 711
	12	FAX_ECM	Assigns whether FAX ECM is valid or invalid	page 711
	13	FAXERRORDETECT	Specifies the FAX switching time	page 711
	14	HC_RCV_TIMER	Specifies the time recognized as timeout in receiving Health Check.	page 711
	15	INTERFACE	Assigns the connection mode for LAN interface	page 712
	16	IPADDRESS	Assigns IP address and subnet mask	page 712
	17	ONE_TIME_PASS	Specifies one-time password.	page 713
	18	OWN_NAME	Assigns own host name.	page 713
		PAD0	Specifies PAD setting	page 713
		PAD1	Specifies setting for flexible PAD 1	page 715
		PAD2	Specifies setting for flexible PAD 2	
		PAD3	Specifies setting for flexible PAD 3	
	19	PAD4	Specifies setting for flexible PAD 4	
	20	PRI_COMMON1	Specifies common setting 1 of PRI (1.5M)	page 718
	21	PRI_LOOPBACK	Specifies loopback settings	page 719
	22	PRI_T1_1	Specifies function setting on Dch of PRI (1.5M)	page 721
	23	PRI_T1_2	Specifies function settings 1 (Alarm/Signaling) on Dch of PRI (1.5M)	page 722
	24	PRI_T1_3	Specifies function settings 3 (Signaling) on Dch of PRI (1.5M)	page 723
	25	RTP_STOP_DETECT	Specifies the time-out value for RTP reception	page 724
	26	SIGNAL-ING_PORT_NO	Specifies a Signaling Port Number for SIP Mode.	page 724
	27	SIGNALING_QOS	Assigns the QoS of Signaling Port Number for SIP Mode.	page 724
	28	SIPSV_IPADDRESS	Specifies the network settings of SIP Server.	page 725
	29	SMOOTH_PAD	Specifies smooth PAD mode of DSP	page 726
	30	STARTPORT	Specifies RTP starting port	page 726
	31	TCP_TIMER	Specifies the timer waiting for TCP link connection	page 726
	32	VLAN	Sets VLAN	page 726
	33	WARNING_TONE	Sets Warning Tone	page 727

Note: First assign the network data to MG(PRI) according to your network environment.

List of Maintenance Command (Continued)

COMMAND	No.	SUB COMMAND	FUNCTION	PAGE
SHOW	1	CALL_HOLD	Displays the state of MG Based Call Retention setting	page 728
	2	CONFIG	Displays the state of DHCP setting	page 728
	3	DHCP	Displays the state of DHCP setting	page 728
	4	DNS_SW	Displays the DNS setting	page 728
	5	DRSADDRESS	Displays the setting of DRS (IP address and port No.)	page 728
	6	DRSQOS	Displays the QoS setting of DRS session	page 729
	7	DTMF_IN	Displays the DTMF relay of in-band signaling	page 729
	8	E_T_TIME	Displays the period to be executed echo canceller training	page 729
	9	E_T_WAITTIME	Displays waiting time before starting echo canceller training	page 730
	10	EC_TRAINING	Displays echo canceller training setting	page 730
	11	FAX_ECM	Displays the FAX ECM setting	page 730
	12	FAXERRORDETECT	Displays the FAX switching time	page 730
	13	HC_RCV_TIMER	Displays the time recognized as timeout in receiving Health Check.	page 730
	14	INTERFACE	Displays the connection mode.	page 730
	15	IPADDRESS	Displays IP address, netmask, and default Gateway.	page 731
	16	ONE_TIME_PASS	Displays the one-time password.	page 731
	17	OWN_NAME	Displays the own host name.	page 731
	18	PAD0	Displays PAD setting	page 731
	19	PAD1	Displays settings for flexible PAD 1	
	20	PAD2	Displays settings for flexible PAD 2	
	21	PAD3	Displays settings for flexible PAD 3	
	22	PAD4	Displays settings for flexible PAD 4	
	23	PRI_COMMON1	Displays common setting 1 of PRI (1.5M)	page 732
	24	PRI_LOOPBACK	Displays MB of loopback and Dch	page 732
	25	PRI_T1_1	Displays function settings on Dch of PRI (1.5M)	page 733
	26	PRI_T1_2	Displays function settings 1 (Alarm/Signaling) on Dch of PRI (1.5M)	
	27	PRI_T1_3	Displays function settings 2 (Signaling) on Dch of PRI (1.5M)	
	28	RTP_STOP_DETECT	Display the time-out value for RTP reception	page 733
	29	SIGNALING_PORT_-NO	Displays the Signaling Port Number for SIP Mode.	page 733
	30	SIGNAL-ING_PORT_QOS	Displays the QoS of Signaling Port Number for SIP Mode.	page 734
	31	SIPSV_IPADDRESS	Displays the network settings of SIP Server.	page 734
	32	SMOOTH_PAD	Displays the setting of Smooth PAD mode	page 734
	33	STARTPORT	Displays the number of RTP Start Port	page 735
	34	TCP_TIMER	Displays the setting of the timer for TCP link connection	page 735
	35	VERSION	Displays the release version of firmware and hardware	page 736
	36	VLAN	Displays the state of VLAN setting	page 737
	37	WARNING_TONE	Displays the setting of Warning Tone	page 737
PING		-	Checks the connectivity of network	page 737
DELETE		VLAN	Deletes the VLAN setting designating by the VLAN ID	page 738
SAVE		CONFIGDATA	Saves the configuration data	page 738
GET		CONFIGDATA	Downloads a system data file from specified TFTP server	page 738
PUT		CONFIGDATA	Uploads a system data file to specified TFTP server	page 739
REBOOT		-	Reboots the MG	page 739
EXIT		-	Exits the maintenance command	page 739
INIT		CONFIG	Initialize the config command	page 740

Input the desired command, sub command and each required parameter after the prompt ("MG-PRI>" as an example here) is indicated. Parameters vary depending on the specified command. When each data (command name, sub command name, parameter) is specified correctly, the command executes the required data processing, and then informs the processed result on the screen. When finishing this program, you may input "EXIT" (or "exit") after a prompt.

Note: While the maintenance command program is activated, it also provides help function for referring to available command and sub command. After a prompt is indicated, request to list up the target help by inputting "?", "command name + ?", or "command name + sub command name + ?" after the prompt, and press the Enter key.
The example below shows the screen when executing help function regarding "set" and "set ipaddress."

```
MG-PRI(SIP)>set
?
 COS              Setting COS
 DEFAULTROUTE     Setting Default Gateway
 DHCP             Setting DHCP
    :
    :
MG-PRI(SIP)>set ipaddress ?
 xxx.xxx.xxx.xxx  IP Address

MG-PRI(SIP)>set ipaddress 10.41.204.180 ?
 xxx.xxx.xxx.xxx  Subnetmask

MG-PRI(SIP)>
```

4.6 SETUP Command

1. SETUP△SP

This command is used to set up network environment of MG(PRI) SIP mode.

```
MG-PRI(SIP)>SETUP SP
---DHCP Interface set---
Current DHCP Interface:ENABLE                                  The current setting is displayed.
Change DHCP Interface? [Y (change)/N (current)/Q               1) Select the DHCP setting.
(quit)]: Y                                                       Y: Change the setting
                                                                 N: Remain the current setting
                                                                 Q: Exit the command
Input new DHCP Interface [E (enable)/D (disable)]:D            2) Enable/Disable the DHCP
                                                               Server.
                                                                 E: Enable a new DHCP Server
                                                               (default)
                                                                 D: Disable DHCP Server
--- DNS Interface set ---
Current DNS Interface: DISABLE                                 The current setting is displayed.
Change DNS Interface? [Y (change)/N (current)/                 3) Select the DNS setting.
Q(quit)]: Y                                                      Y: Change the setting
                                                                 N: Remain the current setting
                                                                 Q: Exit the command
--- DNS IP Address set ---
Current DNS IP Address: 0.0.0.0                                The current setting is displayed.
Change DNS IP Address ? [Y(change)/N(current)/                 3) Select the DNS setting.
Q(quit)]:y                                                       Y: Change the DNS IP Address.
Input new DNS IP Address: 10.40.1.150                            N: Remain the DNS IP Address.
                                                                 Q: Exit the command
--- IP Address & Subnetmask set ---
Current IP Address: 0.0.0.0                                    The current setting is displayed.
Current Subnetmask: 255.255.255.255
Change IP Address and Subnetmask? [Y (change)/N (cur-          6) Select the network setting of
rent)/Q(quit)]: Y                                              MG(PRI).
                                                                 Y: Change the setting
                                                                 N: Remain the current setting
                                                                 Q: Exit the command
Input new IP Address: 10.41.1.100                              7) Specify a new IP address.
Input new Subnet mask: 255.255.255.0                           8) Specify a new subnet mask.
--- Host Name set ---
Current Host Name: No Value                                    The current setting is displayed.
```

```
Change Host Name? [Y (change)/N (current)/Q(quit)]: Y
```

9) Select the host name setting of MG(PRI).
Y: Change the setting
N: Remain the current setting
Q: Exit the command

```
Input new Host Name: mgpri.nec.com
```

10) Specify a new host name.

```
--- Default Gateway IP Address set ---
Current Default Gateway: 0.0.0.0
```

The current setting is displayed.

```
Change Default Gateway? [Y (change)/N (current)/
Q(quit)]: Y
```

11) Select the default gateway setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

```
Input new Default Gateway: 10.41.1.254
```

12) Specify the IP address of the default gateway. Note that default gateway should be located in the same segment with MG(PRI).

```
--- SIP Server IP Address & Host Name set ---
Current SIP Server/IP Address/Port Number/Host Name:
SIP Server IP Address Port Number Host Name
1           0.0.0.0    5060
2           0.0.0.0    5060
3           0.0.0.0    5060
4           0.0.0.0    5060
5           0.0.0.0    5060
6           0.0.0.0    5060
7           0.0.0.0    5060
8           0.0.0.0    5060
9           0.0.0.0    5060
10          0.0.0.0    5060
11          0.0.0.0    5060
12          0.0.0.0    5060
13          0.0.0.0    5060
14          0.0.0.0    5060
15          0.0.0.0    5060
16          0.0.0.0    5060
17          0.0.0.0    5060
18          0.0.0.0    5060
19          0.0.0.0    5060
20          0.0.0.0    5060
```

The current setting is displayed.

```
Change SIP Server Information? [Y (change)/N (cur-
rent)/Q(quit)]: Y
```

13) Select the SIP Server setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

```
Input new SIP Server (1-20): 1
```

14) Specify the number of SIP Server to be modified.

```
Input new IP Address: 10.41.1.200
```

15) Specify the IP address of SIP Server. **Note 1**

```
Input new Port Number: 5060
Is there the Host Name? [Y/N]: Y


Input new Host Name: SVR1.nec.com

Continue? [Y (continue)/N (exit)]: N




--- Ethernet Speed set ---
Current LAN Speed: auto
Change LAN Speed? [Y (change)/N (current)/Q(quit)]: Y



Input new Speed [1 (AUTO)/2 (100M)/3(10M)]: 2



Input new DUPLEX [F (full)/H (half)]: F









 ** Don't power off in progress **
 Do you save the configuration data? [Y/N] :Y



 Configuration data has been saved.
 Re-starting is required for making a setup reflect!!
 SP mode setting succeeded.
```

16) Specify a new port number.

17) Select the host name setting.
Y: Use the host name
N: Do not use the host name

18) Specify the host name of SIP Server.

19) Select whether you continue to set up the host name or not.
Y: Continue the SIP Server setting
N: Exit the SIP Server setting

The current setting is displayed.

20) Select the LAN setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

21) Select the LAN speed.
1: Auto Negotiation (Default)
2: 100Mbps
3: 10Mbps

22) Select the LAN mode.
F: Full Duplex mode
H: Half Duplex mode

Note: This is not displayed when Auto Negotiation is selected.

23) Select whether you save the configuration data or not.
Y: Save the configuration data
N: Do not save the configuration data

Result is displayed.

Note 1: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

Note: The following are examples that cannot be used in the MG(PRI) setting:
(Example1) Network address cannot be assigned as IP address of MG(PRI).
IP address:192.168.1.0
Subnet mask: 255.255.255.0
(Example2) Broadcast address cannot be assigned as IP address of MG(PRI).
IP address:192.168.1.255
Subnet mask: 255.255.255.0

Note: If you enter an invalid value, the system continues to respond to it until three times. If the invalid value is entered in four times, the system forcibly discards the configuration data and exits the SP Setup.

Note: If the setup is finished by quit(q) command, data assigned until that time will be discarded.

2. **SETUP∆TP**

This command is used to set up network environment of MG(PRI) Proprietary Protocol Mode.

```
MG-PRI(SIP)>SETUP TP
---DHCP Interface set---
Current DHCP Interface:ENABLE
Change DHCP Interface? [Y (change)/N (current)/Q
(quit)]: Y


Input new DHCP Interface [E (enable)/D (disable)]:D




--- IP Address & Subnetmask set ---
Current IP Address: 0.0.0.0
Current Subnetmask: 255.255.255.255
Change IP Address and Subnetmask? [Y (change)/N (cur-
rent)/Q(quit)]: Y




Input new IP Address: 10.41.1.100

Input new Subnet mask: 255.255.255.0

--- Default Gateway IP Address set ---
Current Default Gateway: 0.0.0.0
Change Default Gateway? [Y (change)/N (current)/
Q(quit)]: Y




Input new Default Gateway: 10.41.1.254




--- DRS IP Address set ---
Current DRS Server/IP Address/Port Number:
Primary     DRS Address     0.0.0.0     , Port 3456
Secondary   DRS Address     0.0.0.0     , Port 3456
Tertiary    DRS Address     0.0.0.0     , Port 3456
Fourth      DRS Address     0.0.0.0     , Port 3456
```

The current setting is displayed.

1) Select the DHCP setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

2) Enable/Disable the DHCP Server.
E: Enable a new DHCP Server (default)
D: Disable DHCP Server

The current setting is displayed.

3) Select the network setting of MG(PRI).
Y: Change the setting
N: Remain the current setting
Q: Exit the command

4) Specify the IP address of MG(PRI).

5) Specify the subnet mask of MG(PRI).

The current setting is displayed.

6) Select the default gateway setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

7) Specify the IP address of the default gateway. Note that default gateway should be located in the same segment with MG(PRI).

The current setting is displayed.

```
Change DRS Information? [Y (change)/N (current)/
Q(quit)]: Y


Input DRS unit (1:Primary/2:Secondary/3:Tertiary
/4:Fourth):1



Input DRS IP Address :10.41.1.200

Input DRS Port Number :3456

Continue? [Y (continue)/N (exit)]: N



--- Ethernet Speed set ---
Current LAN Speed: auto
Change LAN Speed? [Y (change)/N (current)/Q(quit)]: Y



Input new Speed [1 (AUTO)/2 (100M)/3(10M)]: 2



Input new DUPLEX [F (full)/H (half)]: F









 ** Don't power off in progress **
 Do you save the configuration data? [Y/N] :Y



 Configuration data has been saved.
 Re-starting is required for making a setup reflect!!
 TP mode setting succeeded.
```

8) Select the DRS setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

9) Select the applying type for DRS.
1=Primary
2=Secondary
3=Tertiary
4=Fourth

10) Specify the IP address of the DRS. **Note 2**

11) Specify the port number of the DRS.(Default:3456)

12) Select whether you continue to set up the SIP Server or not.
Y: Continue the SIP Server setting
N: Exit the SIP Server setting

The current setting is displayed.

13) Select the LAN setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

14) Select the LAN speed.
1: Auto Negotiation (Default)
2: 100Mbps
3: 10Mbps

15) Select the LAN mode.
F: Full Duplex mode
H: Half Duplex mode

Note: This is not displayed when Auto Negotiation is selected.

16) Select whether you save the configuration data or not.
Y: Save the configuration data
N: Do not save the configuration data

Result is displayed.

Note 2: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

Note: The following are examples that cannot be set in the MG(PRI) setting:

(Example1) Network address cannot be assigned as IP address of MG(PRI).
IP address:192.168.1.0
Subnet mask: 255.255.255.0

(Example2) Broadcast address cannot be assigned as IP address of MG(PRI).
IP address:192.168.1.255
Subnet mask: 255.255.255.0

Note: If you enter an invalid value, the system continues to respond to it until three times. If the invalid value is entered in four times, the system forcibly discards the configuration data and exits the SP Setup.

Note: If the setup is finished by quit(q) command, data assigned until that time will be discarded.

4.7 SET Command

1. **SET∆CALL_HOLD∆*P1***

This command is used to set MG Based Call Retention. By setting "ENABLE" by this command, if a network failure occurred between the Telephony Server and MG(PRI), the call will be retained. However, re-registration to the Telephony Server will not be executed. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET CALL_HOLD DISABLE



 CALL HOLD setting succeeded.
```

P1-ENABLE / DISABLE
ENABLE=MG Based Call Retention is enabled
DISABLE=MG Based Call Retention is disabled (default)

Result is displayed.

2. **SET∆COS∆*P1*∆*P2***

This command is used to modify Class of Service (COS). Using this command is available while VLAN is working. Note that VLAN setting is required before this setting. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET COS 1 7



 COS setting succeeded.
```

P1-VLAN ID
1-4094=VLAN_ID
P2-COS value
0-7=COS

Result is displayed.

3. **SET∆DEFAULTROUTE∆*P1***

This command is used to specify IP address for Default Gateway. Note that default route be located at the same segment with MG(PRI). To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET DEFAULTROUTE 10.10.10.255

 Default Gateway setting succeeded.
```

P1-Specify Default Gateway address
e.g. 10.10.10.255

Result is displayed.

4. **SET∆DHCP∆*P1***

This command is used to enable/disable a DHCP server. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET DHCP ENABLE



 DHCP setting succeeded.
```

P1- Enter the following after the command name
ENABLE=DHCP is valid (default)
DISABLE=DHCP is invalid

Result is displayed.

5. **SETΔDNS_SW**

This command is used to enable/disable DNS server. A bracket ([ ]) shows the current setting. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)> SET DNS_SW
DNS interface (Enable/Disable)
[DISABLE] : ENABLE
DNS IP Address [0.0.0.0] :
10.41.1.150
 DNS setting succeeded.
```

P1- Enter the following after the command name
ENABLE=DNS is valid (default)
DISABLE=DNS is invalid

Result is displayed.

6. **SETΔDRSADDRESS**

This command is used to specify IP address for DRS.To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET DRSADDRESS
DRS Unit (1:Primary/2:Secondary/3:Tertiary/4:Fourth):1
DRS IP Address: 150.12.0.254
DRS Port Number: 3456




 DRS setting succeeded.
```

1) Select the applying type for DRS
1=Primary
2=Secondary
3=Tertiary
4=Fourth
2) Specify IP address **Note 1**
3) Specify port number of DRS (default: 3456)

Result is displayed.

Note 1: About IP address of DRS (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

7. **SETΔDRSQOS**Δ[*P1*]Δ[*P2*]

This command is used to specify Quality of Service (QOS) such as IP Precedence and Differentiated Service (DIFFSERV) for DRS. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET DRSQOS TOS 0xC0
```

P1-Specify a type of services
TOS: IP Precedence
DIFFSERV: Differentiated Service
CLEAR: Clear the data
P2-Specify a value
00-FF (In the case of TOS)
0-63 (In the case of DIFFSERV)

When P1 is not entered:

```
MG-PRI(SIP)>SET DRSQOS
QOS (TOS/DIFFSERV:TOS):TOS
```

1) Specify **TOS** for QOS

```
PRECEDENCE     (0-7:6):6

DELAY          (0/1:0):0

THROUGHPUT     (0/1:0):0

RELIABILITY    (0/1:0):0

COST           (0/1:0):0

 DRS QoS setting succeeded.(0xC0)
```

2) Specify precedence (Default: 6)
0-7 (low-high)

3) Select a type of delay (Default: 1)
0/1=Normal/Delay

4) Select a type of throughput (Default: 1)
0/1=Normal/High Throughput

5) Select a type of reliability (Default: 0)
0/1=Normal/High Reliability

6) Select a type of cost (Default: 0)
0/1=Normal/Cost Precedence

Result is displayed.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data in ToS field for IP Precedence is shown below:



Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

```
MG-PRI(SIP)>SET DRSQOS
QOS (TOS/DIFFSERV:TOS):DIFFSERV
DSCP(0-63:0):48

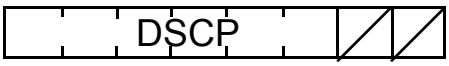
 DRS QoS setting succeeded. (0xC0)
```

1) Specify **DIFFSERV** for QOS

2) Specify Diffserv Codepoint (DSCP)
0-63=DSCP

Result is displayed.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data in ToS field for Diffserv is shown below:



DSCP = Differentiated Service Code Point (6 bits)

When P1=TOS:

```
MG-PRI(SIP)>SET DRSQOS TOS 0xC0

 DRS QoS setting succeeded.(0xC0)
```

P2-Specify a value
0x02-0xFF (In the case of TOS)

Result is displayed.

When P1=DIFFSERV:

```
MG-PRI(SIP)>SET DRSQOS DIFFSERV 48

 DRS QoS setting succeeded.(0xC0)
```

P2-Specify a value
0-63 (In the case of DIFFSERV)

Result is displayed.

When P1=CLEAR:

```
MG-PRI(SIP)>SET DRSQOS CLEAR
 DRS QoS setting succeeded.(0x00)
```

Result is displayed.

8. **SET∆DTMF_IN∆***P1*

This command is used to specify whether Inband DTMF is used or not.

```
MG-PRI(SIP)>SET DTMF_IN ON


 Inband DTMF Relay setting succeeded.
```

P1-Select either
OFF=DTMF relay of in-band signaling is not used (default)
ON=DTMF relay of in-band signaling is used

Result is displayed.

Note: DTMF relay of in-band signaling is effective only for the speech transferring of CODEC G.711. As this function cannot distinguish the CODEC type, make sure the CODEC type of MG(PRI) is adjusted for this function.

9. **SET∆E_T_TIME∆***P1*

This command is used to specify the executing time of Echo Canceller Training Feature. To make this assignment effective, it is required to execute the “SAVE” command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET E_T_TIME 16


 EC Training Feature Timer setting succeeded.
```

P1-Specify a executing time before the training feature starts (ms)
0-32=Executing Time (1 counter indicates 10ms)

Result is displayed.

10. **SET∆E_T_WAITTIME∆***P1*

This command is used to specify the waiting time before the Training Feature mode of Echo Canceller begins. Echo Canceller Feature is used to prevent initial Echo (ranging from 500 to 1ms) from occurring in the beginning of speech to the Telephony Server. To make this assignment effective, it is required to execute the “SAVE” command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET E_T_WAITTIME 0



 EC Training Start Wait Timer setting succeeded.
```

P1-Specify a waiting time before the training feature starts (ms)
0-100=Waiting Time (1 counter indicates 10ms)

Result is displayed.

11. **SET∆EC_TRAINING∆***P1*

This command is used to enable/disable the Training Feature mode of Echo Canceller. Echo Canceller Feature is used to prevent initial Echo (ranging from 500 to 1ms) from occurring in the beginning of speech to the Telephony Server. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET EC_TRAINING ON



 EC Training Feature setting succeeded.
```

P1-Specify the following:
ON=Training function is valid
OFF=Training function is invalid
ONCE=Training function is valid only once (default)

Result is displayed.

12. **SET∆FAX_ECM**

This command is used to enable/disable the FAX ECM. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET FAX_ECM
ECM (ON/OFF: OFF):OFF

 Fax ecm setting succeeded.
```

ON=FAX ECM is valid
OFF=FAX ECM is invalid (default)

Result is displayed.

13. **SET∆FAXERRORDETECT∆***P1*

This command is used to specify the available time to be switched to FAX mode. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET FAXERRORDETECT 1



 FAX Enable Timer setting succeeded.
```

P1-Specify the available time to switch to FAX.
0=FAX switching is unavailable.
1-5=Available time to be switched to FAX (minutes)
OFF=Always-on FAX switching

Result is displayed.

14. **SET∆HC_RCV_TIMER∆***P1*

This command is used to specify a value recognized as timeout in receiving Health Check. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET HC_RCV_TIMER 120



 Impedance setting succeeded.
```

P1-Specify a time (second) recognized as timeout in receiving Health Check.
120-300=Available time.(Default: 150)

Result is displayed.

15. **SET∆INTERFACE**

This command is used to specify the specifications of connection mode. Assign a correct setting corresponding to connecting network equipment. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET INTERFACE
SPEED(AUTO/100M/10M):100M



DUPLEX(FULL/HALF):HALF


 Ethernet Speed setting succeeded.
```

1) Select a line speed
AUTO=Auto Negotiation (default)
100M=100M
10M=10M

2) Select a type of duplex (not displayed when SPEED=AUTO)
FULL=Full duplex
HALF=Half duplex

Result is displayed.

16. **SET∆IPPADDRESS∆***P1*∆*P2*

This command is used to specify IP Address and subnet mask for MG. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET IPADDRESS 10.4.1.1 255.255.255.0

 IP Address setting succeeded.
```

P1-Specify the IP address
P2-Specify the subnet mask

Result is displayed.

Note: The designated IP address cannot be applied when DHCP is set to "Enabled." Be sure to assign the DHCP setting to "Disable" before performing this IP address assignment.

Note: The following are examples that cannot be used in the MG(PRI) setting:

(Example1) Network address cannot be assigned as IP address of MG(PRI).
IP address:192.168.1.0
Subnet mask: 255.255.255.0

(Example2) Broadcast address cannot be assigned as IP address of MG(PRI).
IP address:192.168.1.255
Subnet mask: 255.255.255.0

17. **SET∆ONE_TIME_PASS**

This command is used to specify one-time password for SIP Mode. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET ONE_TIME_PASS
One Time Password: •••••
Erase start...
Erase OK!
Write start...
Write OK!
 One time password setting succeeded.
```

P1-Specify a password.

Result is displayed.

18. **SET∆OWN_NAME**

This command is used to specify a host name for MG(PRI). To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET OWN_NAME nec
 Own name setting succeeded.
```

P1-Specify a full domain name.

Result is displayed.

19. **SET∆PAD0∆**[*P1*]

This command is used to specify PAD 0 data for PRI (1.5M). To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

When P1 is not entered:

```
MG-PRI(SIP)>SET PAD0
A-law/μ-law Setting     (0-4: 0):0

PAD Selection           (0/1: 0):0

PAD Control             (0-3: 0):0

PAD Pattern No.         (0-4: 0):0
```

1) Select a type of CODEC
0=MGC Control (Telephony Server System Data) (default)
1=μ-law
2=A-law
3=Convert from A-law to μ-law
4=Convert from μ-law to A-law

2) Select a type of PAD selection
0=Standard (default)
1=Flexible

3) Select a type of PAD Control
0=Receiving Control (MG→ISDN Network) (default)
1=Sending Control (ISDN Network→MG)
2=Fixed to ARTD
3=Sending/Receiving Control

4) Select the number of PAD Pattern
0-4=Pattern Number (default value: 0)

Note: For more detailed information about the PAD patterns, see the tables below.

```
Data PAD Pattern No.    (0-4: 0):0


 set value is 0x0000
 setting succeeded.
```

5) Select the number of Data PAD Pattern
0=64K(default)
1-4=Not available

Result is displayed.

When P1=0000:

```
MG-PRI(SIP)>SET PAD0 0000

 set value is 0x0000
 setting succeeded.
```

P1-Specifying a set value
0000-FFFF= Set value (default value: 0000)

Result is displayed.

The sending (snd) and receiving (rcv) values vary depending on PAD settings of ARTD (Telephony Server settings) and PAD Pattern Number. The following are divided into two sheets in the case of the A-Law/μ-Law settings, which describe the snd/rcv values:

PAD Control Settings (A-Law/μ-Law)

PAD Data	Pattern 1		Pattern 2		Pattern 3		Pattern 4		Pattern 5	
ARTD	snd	rcv	snd	rcv	snd	rcv	snd	rcv	snd	rcv
0	8	8	3	9	8	8	0	8	7	7
1	2	2	-3	3	2	2	8	16	1	1
2	4	4	3	3	4	4	8	4	3	3
3	6	6	0	6	12	12	4	12	5	5
4	8	8	3	9	8	8	0	8	7	7
5 (Data PAD)	Maintenance Console Settings									
7	0	0	0	0	0	0	0	0	0	0

PAD Control Settings (A-Law↔μ-Law)

PAD Data	Pattern 1		Pattern 2		Pattern 3		Pattern 4		Pattern 5	
ARTD	snd	rcv	snd	rcv	snd	rcv	snd	rcv	snd	rcv
0	8	8	0	8	8	8	8	8	8	8
1	0	0	0	2	0	0	0	0	0	0
2	4	4	0	4	4	4	4	4	4	4
3	6	6	0	12	6	6	6	6	6	6

PAD Control Settings (A-Law↔μ-Law)

PAD Data	Pattern 1		Pattern 2		Pattern 3		Pattern 4		Pattern 5	
ARTD	**snd**	**rcv**	**snd**	**rcv**	**snd**	**rcv**	**snd**	**rcv**	**snd**	**rcv**
4	8	8	0	8	8	8	8	8	8	8
5 (Data PAD)	Maintenance Console Settings									
7	through	through	through	through	through	through	through	through	through	through

Note: The snd or rcv value might be 0 dB, depending on the PAD control settings.

20. **SET**Δ**PAD***P1*Δ[*P2*]

This command is used to specify PAD data for PRI (1.5M). Before using this command, set Flexible (***1***) in PAD selection of SET PAD0. For more information about the procedures, refer to the next page. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command. The following is an example of PAD1.

When P2 is not entered:

```
MG-PRI(SIP)>SET PAD1
```

P1-Specifying a PAD number
1-4=PAD Number
The available PAD number varies depending on the ARTD settings (Telephony Server side).

ARTD PAD	AVAILABLE PAD NUMBER
0/4	PAD4
1	PAD1
2	PAD2
3	PAD3
5/6/7	Not available

```
Flexible PAD #1-Recv((-16db)-(20dB): 0):0
Flexible PAD #1-Send((-16db)-(20dB): 0):0
```

1) Specify Flexible PAD for receiving
(ISDN Network→MG)
(-16db)-(20db): Flexible PAD for receiving
(default value: 0)

Note: Send or receive might be 0 depending on the PAD control setting.

2) Specify Flexible PAD for sending
(MG→ISDN Network
(-16db)-(20db): Flexible PAD for sending
(default value: 0)

0:	0dB	**-1:**	-1dB (GAIN)
1:	1dB (LOSS)	**-2**:	-2dB (GAIN)
2:	2dB (LOSS)	**-3**:	-3dB (GAIN)
:	:	**:**	:
18:	18dB (LOSS)	**-14**:	-14dB (GAIN)
19:	19dB (LOSS)	**-15**:	-15dB (GAIN)
20:	20dB (LOSS)	**-16**:	-16dB (GAIN)

```
set value is 0x0000
setting succeeded.
```

Result is displayed.

When P2=0000:

```
MG-PRI(SIP)>SET PAD1 0000


set value is 0x0000
setting succeeded.
```

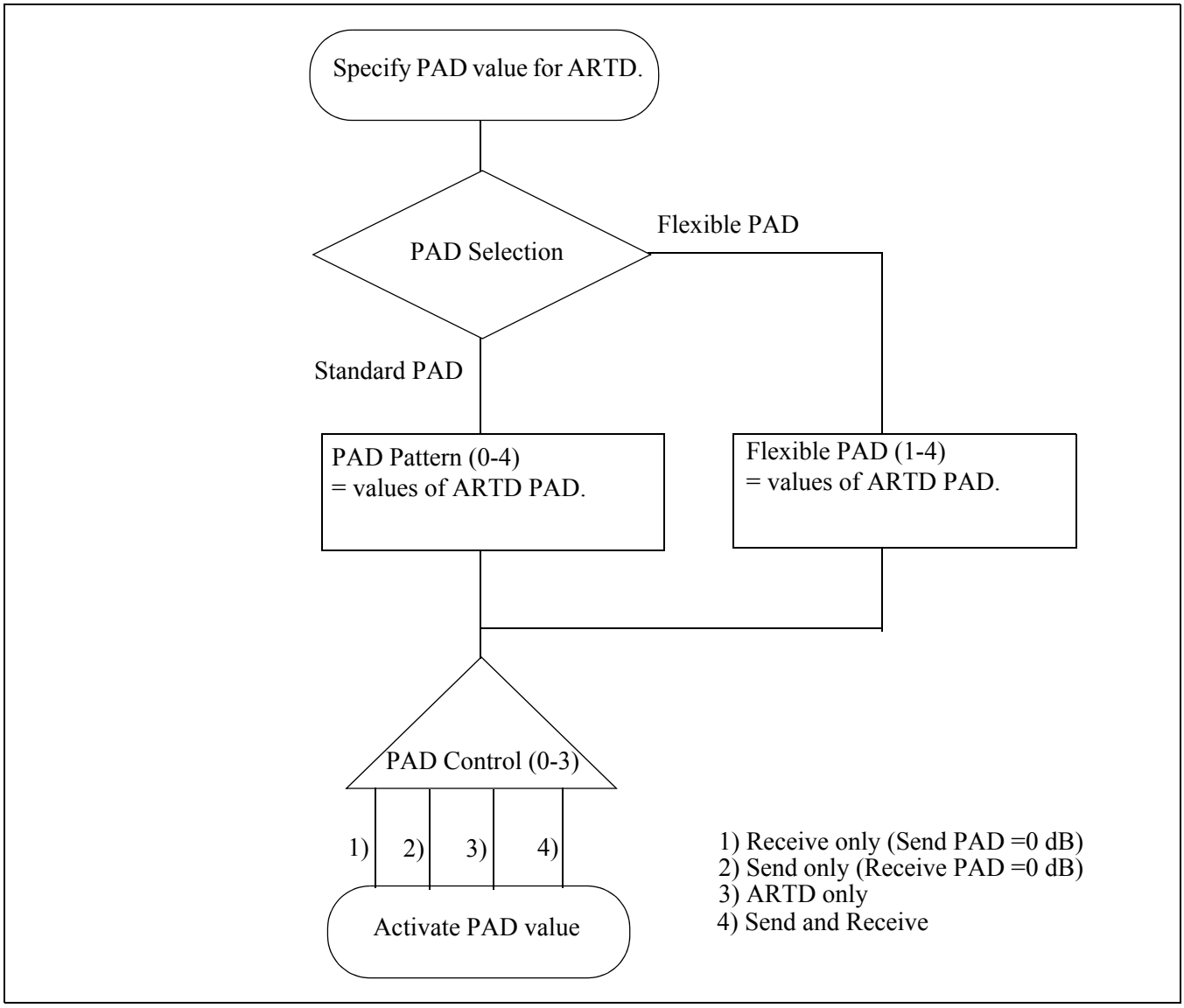
P1-Specifying a PAD number
1-4=PAD Number
P2-Specifying a set value
0000-FFFF= Set value (default value: 0000)

Result is displayed.

<EXAMPLE OF PAD DATA>

- ARTD: PAD = 4
- Flexible PAD Send = -4dB(GAIN)
- Flexible PAD Recv = 0dB

To specify the above settings, perform the following steps:
STEP1) PAD0: PAD Selection =1 (Flexible)
STEP2) PAD0: PAD Control =3 (Send/Receive Control)
STEP3) PAD4: Flexible PAD #4-Recv=0
Flexible PAD #4-Recv=24



21. **SET∆PRI_COMMON1∆**[*P1*]

This command is used to specify common data 1 for PRI (1.5M). When not specifying an attribute on the interactive setting, the original setting keeps being used. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

When P1 is not entered:

`MG-PRI(SIP)>SET PRI_COMMON1`	
`Remote Alarm Sending (0/1:0):0`	1) Disable/Enable Remote Alarm Sending **0/1**=Enable(default)/Disable
`Signal All 1 (0/1:0):0`	2) Disable/Enable Signal All **0/1**=Disable(default)/Enable
`Idle Code Sending (0/1:0):0`	3) Disable/Enable Idle Code Sending **0/1**=Disable(default)/Enable
`Dch Back-up (0/1:0):0`	4) Disable/Enable Dch Back-up **0/1**=Disable(default)/Enable
`Layer 1 Alarm Sending (0/1:0):0`	5) Disable/Enable Layer 1 Alarm Sending **0/1**=Enable(default)/Disable
`Haul Mode (0/1:0):0`	6) Disable/Enable Haul Mode **0**=Short (default) **1**=Long
`EC NLP Control (0/1:1):1`	7) Disable/Enable EC NLP Control **0/1**=Disable/Enable (default)
`EC NLP Mode (0/1:0):0`	8) Specify EC NLP Mode **0**=Background Noise (default) **1**=Fixed Level
`EC 2100Hz Detect (0/1:0):0`	9) Disable/Enable EC 2100Hz Detect **0/1**=Disable(default)/Enable
`Music Int/Ext (0/1:0):0`	10) Select Music Source **0**=Internal (default) **1**=External
`Music No. (0-12:5):5`	11) Specify Music-on-Hold **0**=For Elise **5**=Minuet (default)
`Clock Mode (0/1:0):0`	12) Specify clock mode **0**=Secondary (default) *for User Mode **1**=Primary *for Network Mode **Note 2**
`Layer1 Alarm Display (0/1:1):1`	13) Disable/Enable Layer 1 Alarm LED display **0/1**=Enable/Disable (default)
`set value is 0x0215` `setting succeeded.`	Result is displayed.

Note 2: Network Mode is not supported for UG50.

When P1=0215:

```
MG-PRI(SIP)>SET PRI_COMMON1 0215

 set value is 0x0215
 setting succeeded.
```

P1-Specify a set value
0000-FFFF= Set value (default value: 0215)

Result is displayed.

22. **SETΔPRI_LOOPBACKΔ[P1]**

This command is used to specify Loop-back data for PRI (1.5M). To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

When P1 is not entered:

```
MG-PRI(SIP)>SET PRI_LOOPBACK
Local Loop Back     (0/1:0):0

Line Loop Back      (0/1:0):0

Payload Loop Back   (0/1:0):0

Dch Make Busy       (0/1:0):0

Dch Loop Back       (0/1:0):0

Dch Self-test       (0/1:0):0

 set value is 0x0000
 setting succeeded.
```

1) Enable/Disable Internal Loop-back
0 (fixed)

2) Enable/Disable Line Loop-back
0/1=Disable(default)/Enable

3) Enable/Disable Payload Loop-back
0/1=Disable(default)/Enable

4) Enable/Disable Dch Make-Busy
0/1=Disable(default)/Enable

5) Enable/Disable Dch Loop-back
0 (fixed)

6) Enable/Disable Dch Self-Test
0 (fixed)

Result is displayed.

When P1=0000:

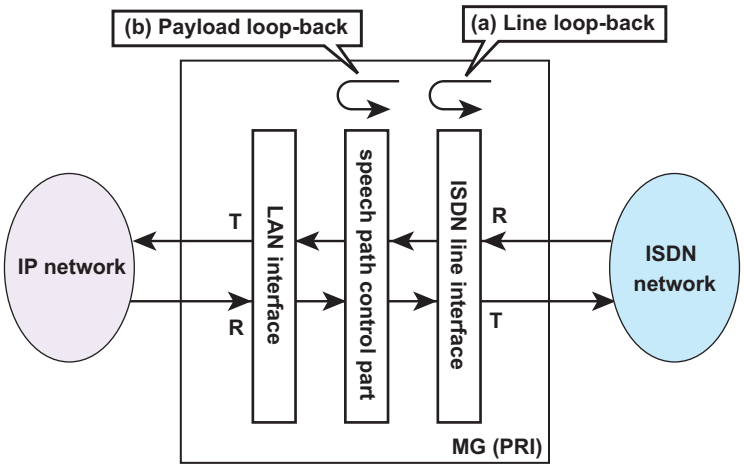
```
MG-PRI(SIP)>SET PRI_LOOPBACK 0000

 set value is 0x0000
 setting succeeded.
```

P1-Specify a set value
0000-FFFF= Set value (default value: 0000)

Result is displayed.

Note: The trace of Loop-back test varies depending on its setting. The following describes its loop-back traces by each.



(a) Line Loop-back

The line interface part of MG(PRI) sends back all the channels from ISDN network. Normally, this loop-back will work with the timing of ISDN.

(b) Payload Loop-back

The speech path control part of MG(PRI) sends back all the channels from ISDN network. Differing from Line Loop-back, a part of Payload Loop-back works with the timing of ISDN; an error may occur unless MG(PRI) and ISDN are synchronized.

23. **SET∆PRI_T1_1∆**[*P1*]

This command is used to specify PRI (1.5M) Dch data. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

When P1 is not entered:

```
MG-PRI(SIP)>SET PRI_T1_1
Dch Control              (0/1: 1):1

Dch Mode                 (0/1: 0):0




Dch Signal Logic         (0/1: 0):0


Dch-1 Drop/Insert        (0/1: 1):1

Dch-2 Drop/Insert        (0/1: 0):0

Drop/Insert Mode         (0/1: 0):0


Data Transfer Speed      (0-2: 0):0



Drop/Insert Time Slot    (0-23: 23):23

Dch Signaling set        (0/1: 0):0

 set value is 0x90B8
 setting succeeded.
```

1) Enable/Disable Dch Control
0/1=Disable/Enable (default)

2) Enable/Disable Dch Mode
0=User Mode (default)
1=Network Mode **Note 3**
Check connectivity for network in advance if you will use Network Mode.

3) Specify Dch Signal Logic
0=Positive Logic (default)
1=Negative Logic

4) Enable/Disable Dch 1
0/1=Disable/Enable (default)

5) Enable/Disable Dch 2
0 (fixed)

6) Drop/Insert Mode
0=Fixed value (default)
1=Set value

7) Specify Data Transfer Speed
0=64K (default)
1=56K
2=48K

8) Specify the number of Time Slots
0-23= Number of Time Slots (default value: 23)

9) Specify Dch Signaling Set
0 (fixed)

Result is displayed.

Note 3: Network Mode is not supported for UG50.

When P1=90B8:

```
MG-PRI(SIP)>SET PRI_T1_1 90B8

 set value is 0x90B8
 setting succeeded.
```

P1-Specify a set value
0000-FFFF= Set value (default value: 90B8)

Result is displayed.

24. **SET∆PRI_T1_2∆**[*P1*]

This command is used to specify alarm and signaling data for PRI (1.5M). To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

When P1 is not entered:

```
MG-PRI(SIP)>SET PRI_T1_2
Remote Alarm                (0/1: 0):0
Alarm Operation Mode        (0/1: 0):0
Alarm Release Timing        (0/1: 0):0
Alarm Detect/Release Type   (0/1: 0):0
Line Signal                 (0/1: 0):0
Multi Frame                 (0/1: 0):0
Signaling In Channel        (0/1: 0):0
Dch Mode                    (0/1: 0):0
Equalizer                   (0-4: 0):0
 set value is 0x0000
 setting succeeded.
```

1) Specify Remote Alarm
0=Data Link, Fs bit (default)
1=In Channel

2) Enable/Disable Alarm Operation Mode
0/1=Enable (default)/Disable

3) Specify Alarm Release Timing
0=Short (default)
1=Long

4) Specify Alarm Detect/Release Type
0=Normal (default)
1=AT&T

5) Specify Line Signal
0=Binary 8 Zero Substitution (B8ZS) (default)
1=Alternate Mark Inversion with Zero Code Suppression (AMI ZCS)

6) Specify Multi Frame
0=24 Multi Frame (default)
1=12 Multi Frame

7) Specify Signaling in Channels
0 (fixed)

8) Specify Dch Mode
0=ITU-T (default)
1=AT&T

9) Specify Equalizer
0=0-40m (default)
1=41-80m
2=81-121m
3=122-161m
4=162m or more

Result is displayed.

When P1=1000:

```
MG-PRI(SIP)>SET PRI_T1_2 0000

 set value is 0x0000
 setting succeeded.
```

P1-Specify a set value
0000-FFFF= Set value (default value: 0000)

Result is displayed.

25. **SET∆PRI_T1_3∆**[*P1*]

This command is used to specify signaling data for PRI (1.5M). To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.
When P1 is not entered:

```
MG-PRI(SIP)>SET
PRI_T1_3
4K Data Link            (0/1: 0):0

G.704 Mode              (0/1: 0):0

BOS/MOS Operation       (0-3: 0):0

Signaling A Logic-Recv  (0/1: 1):1

Signaling Pattern-Recv  (0-3: 2):2

Signaling A Logic-Send  (0/1: 1):1

Signaling Pattern-Send  (0-3: 2):2

 set value is 0x00CC
 setting succeeded.
```

1) Specify 4K Data Link
0=MOS (default)
1=BOS

2) Specify G.704 Mode
0=ITU-T G.704 (default)
1=JG.704

3) Specify BOS/MOS Operation
When 0 is specified for 4K Data Link:
0=Sending MOS Message periodically/ Receiving MOS Message (default)
1=Sending Mark /Receiving MOS Message
2=Sending MOS Flag /Receiving MOS Message
3=Sending MOS Flag /Not Receiving MOS Message
When 1 is specified for 4K Data Link
-When 0 is specified for G.704 Mode:
0=Sending 7E, 7E /Receiving BOS Message
1=Sending FF, FF /Receiving BOS Message
2=Sending FF, 7E /Receiving BOS Message
3=Sending FF, FF /Not Receiving BOS Message
-When 1 is specified for G.704 Mode:
0=Sending 7E, 7E /Receiving BOS Message
1=Sending 00, 00 /Receiving BOS Message
2=Sending 00, 00 /Receiving BOS Message
3=Sending 00, 00 /Not Receiving BOS Message

4) Specify Signaling A Logic-Recovery
1 (fixed)

5) Specify Signaling Pattern Recovery
2 (fixed)

6) Enable/Disable Signaling A Logic Sending
1 (fixed)

7) Specify Signaling Pattern Sending
2 (fixed)

Result is displayed.

When P1=00CC:

```
MG-PRI(SIP)>SET PRI_T1_3 00CC

 set value is 0x00CC
 setting succeeded.
```

P1-Specify a set value
0000-FFFF= Set value (default value: 00CC)

Result is displayed.

26. **SET∆RTP_STOP_DETECT∆***P1*

This command is used to specify a time-out value as one of the conditions for MG Based Call Retention to determine that the call is released. The call will be determined released if RTP is not received exceeding the assigned time-out value during call retention. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET RTP_STOP_DETECT 3



 RTP Stop Detect Timer setting succeeded.
```

P1-Specify the time-out value for RTP reception.
3-32 seconds (default: 3 seconds)=Effective range

Result is displayed.

27. **SET∆SIGNALING_PORT_NO∆***P1*

This command is used to specify a port number to be used for PHI-PRI. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET SIGNALING_PORT_NO 65535



 Signaling port number setting succeeded.
```

P1-Specify a port number to be used for PHI-PRI.
1024-65535=Port Number (Default: 5060)

Result is displayed.

28. **SET∆SIGNALING_QOS∆***P1∆P2*

This command is used to specify the type of Quality of Service (QoS), which can be selected in Type of Service (TOS) or Differentiated Service (DIFFSERV) either. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET SIGNALING_QOS TOS 0xC0









 Signaling QoS setting succeeded.(0xC0)
```

P1-Specify the type of QoS.
TOS=IP Precedence type.
DIFFSERV=DIFFSERV type
CLEAR=Clear the current setting
P2-Specify a value of QoS directly.
0x00-0xFF=ToS value
0-63=DIFFSERV value

Result is displayed.

When P1 and P2 are omitted (When TOS is selected)

```
MG-PRI(SIP)>SET SIGNALING_QOS
QOS(TOS/DIFFSERV: TOS):TOS
PRECEDENCE (0-7:6): 6

DELAY (0/1: 0): 0


THROUGHPUT (0/1: 0): 0
```

Specify the precedence in IP network.
0-7=the precedence in IP network (Default:6)

Enable/Disable Low Delay Precedence in IP network.
0=Disabled (Default)
1=Enabled

Enable/Disable Throughput Precedence in IP network.
0=Disabled (Default)
1=Enabled

```
RELIABILITY(0/1: 0): 0


COST (0/1: 0): 0


 Signaling QoS setting succeeded.(0xC0)
```

Enable/Disable Reliable Precedence in IP network.
0=Disabled (Default)
1=Enabled

Enable/Disable Low Cost Precedence in IP network.
0=Disabled (Default)
1=Enabled

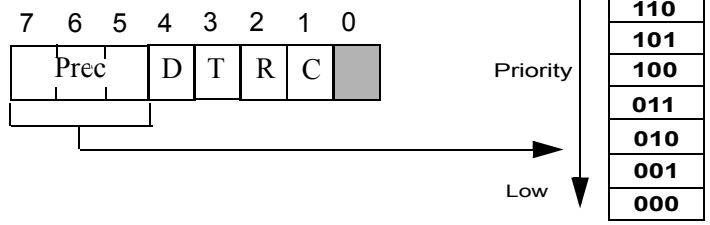
When P1 and P2 are omitted (When DIFFSERV is selected)

```
MG-PRI(SIP)>SET SIGNALING_QOS
QOS(TOS/DIFFSERV:DIFFSERV): DIFFSERV
DSCP(0-63: 48): 48


 Signaling QoS setting succeeded.(0xC0)
```

Specify a Differentiated Service Code Point (DSCP) value.
0-68=DSCP value (Default:48)

When selecting TOS (IP Precedence Type)



Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

When selecting Diffserv



29. SETΔSIPSV_IPADDRESS

This command is used to specify the network setting of SIP Server. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET SIPSV_IPADDRESS
SIP Server (1-20): 1

IP Address: 10.41.1.150

Port Number: 5060

Is there the Host Name? [Y/N]: Y
```

Specify the number of SIP Servers to be used.
1-20: The number of SIP Servers to be used

Specify the IP address of SIP Server. (Default: 0.0.0.0)
Note 4

Specify a port number to be used in the SIP Server.
1024-65535: Port Number (Default: 5060)

```
Host Name: SVR1.nec.com


 SIP server setting succeeded.
```

Specify the host name by fully domain name. A characters can be specified up to 63 bytes (including hyphen and full stop).

Result is displayed.

Note 4: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

30. **SET∆SMOOTH_PAD∆***P1*

This command is used to specify Smooth PAD mode of DSP. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET SMOOTH_PAD 2




Smooth PAD Mode setting succeeded.
```

P1-Specify a value of Smooth PAD mode.
OFF=Set Smooth PAD to OFF
1=+2dBm (Default)
2=-5dBm
3=-2dBm
4=0dBm
5=-4dBm

Result is displayed.

31. **SET∆STARTPORT∆***P1*

This command is used to specify the starting port of RTP. Enter an even number for the RTP. The odd number (the even number +1) is assigned for RTCP. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET STARTPORT 1024

 RTP Start Port Number setting succeeded.
```

P1-Specify the port number to start RTP
1024-64510= Port Number (Default: 1024)

Result is displayed.

32. **SET∆TCP_TIMER∆***P1*

This command is used to specify the timer waiting for TCP link connection.

```
MG-PRI(SIP)>SET TCP_TIMER 60




 TCP Link Connect Timer Timeout setting succeeded.
```

P1-Specify the waiting time (30 seconds interval)
60-80 =effective waiting time (Default: 60)

Result is displayed.

33. **SET∆VLAN**

This command is used to specify the settings for VLAN. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command. In MG, one VLAN can be created per network.

```
MG-PRI(SIP)>SET VLAN
Please enter a parameter
```

```
VLAN ID (1-4094):1

COS (0-7):0

 VLAN setting succeeded.
```

1) Specify VLAN ID
1-4094=VLAN ID

2) Specify COS
0-7=COS

Result is displayed.

34. **SET∆WARNING_TONE∆***P1*

```
MG-PRI(SIP)>SET WARNING_TONE 0




 Warning Tone Control setting succeeded.
```

P1-Specify a set value (Default: 0)
0= No Warning Tone
1= Not Used
2= Not Used
3= Send Warning Tone

Result is displayed.

4.8 SHOW Command

1. **SHOW∆CALL_HOLD**

   1.This command is used to display the current MG Based Call Retention settings.

```
MG-PRI(SIP)>SHOW CALL_HOLD

CALL HOLD is DISABLE
```

The current setting is displayed.

2. **SHOW∆CONFIG**

   This command is used to display the current network settings.

```
MG-PRI(SIP)>SHOW CONFIG
[SYSTEM]
DEBUG_LEVEL=0
DHCP_BKUP=OFF
DHCP_SAVE=OFF
REGISTER_MODE=SP

[IP]
OWN_ADDR=10.41.1.100
SUBNET_MASK255.255.255.0
DEFAULT_GATEWAY=10.41.1.254
:
:
```

The current setting is displayed.

3. **SHOW∆DHCP**

   This command is used to display whether DHCP is enabled at current network.

```
MG-PRI(SIP)>SHOW DHCP
 DHCP is ENABLE
```

The current setting is displayed.

4. **SHOW∆DNS_SW**

   This command is used to display whether DNS is enabled at current network.

```
MG-PRI(SIP)>SHOW DNS_SW
 DNS interface : DISABLE
 DNS IP address : 10.41.1.150
```

The current setting is displayed.

5. **SHOW∆DRSADDRESS∆**[*P1*]

   This command is used to display the status of DRS.

   Note: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

When P1=1 (Primary DRS) is not entered:

```
MG-PRI(SIP)>SHOW DRSADDRESS
Primary   DRS Address 10.41.1.100, Port 3456
Secondary DRS Address 10.41.1.101, Port 3457
Tertiary  DRS Address 10.41.1.102, Port 3458
Fourth    DRS Address 10.41.1.103, Port 3459
```

The current setting is displayed.

When P1=1 (Primary DRS) is entered:

```
MG-PRI(SIP)>SHOW DRSADDRESS 1



 Primary DRS Address 10.41.1.100, Port 3456
```

P1-Select the DRS to be displayed.
1=Primary DRS
2=Secondary DRS
3=Tertiary DRS
4=Fourth DRS

The current setting is displayed.

6. **SHOW∆DRSQOS**

This command is used to display the QOS setting for DRS session. The following is an example in the case of TOS setting.

```
MG-PRI(SIP)>SHOW DRSQOS
 DRS QoS is 0xC0.(QOS=TOS)
 PRECEDENCE=6
 DELAY=0
 THROUGHPUT=0
 RELIABILITY=0
 COST=0
```

The current setting is displayed.
- QOS
- PRECEDENCE (**0-7** (low-high))
- Delay (**0/1**=Normal/Delay)
- THROUGHPUT (**0/1**=Normal/High Throughput)
- RELIABILITY (**0/1**=Normal/High Reliability)
- COST (**0/1**=Normal/Cost Precedence)
- DSCP (0-63)

7. **SHOW∆DTMF_IN**

This command is used to display the current setting of DTMF relay of in-band signaling.

```
MG-PRI(SIP)>SHOW DTMF_IN
 Inband DTMF Relay is OFF.
```

The current setting is displayed.

8. **SHOW∆E_T_TIME**

This command is used to display an executing time of EC Training feature.

```
MG-PRI(SIP)>SHOW E_T_TIME
 EC Training Feature Time is 32.
```

The current setting is displayed.

9. **SHOW∆E_T_WAITTIME**

This command is used to display the waiting time (ms) before starting EC training feature. 1 counter indicates 10ms.

```
MG-PRI(SIP)>SHOW E_T_WAITTIME
 EC Training Start Wait Time is 10.
```

The current setting is displayed.

10. **SHOW∆EC_TRAINING**

This command is used to display the training feature of Echo Canceller (EC). Echo Canceller Feature is used to prevent initial Echo (ranging from 500 to 1ms) from occurring in the beginning of speech to Telephony Server

```
MG-PRI(SIP)>SHOW EC_TRAINING
 EC Training Feature is ON.
```

The current setting is displayed.

11. **SHOW∆FAX_ECM**

This command is used to display the setting of FAX ECM.

```
MG-PRI(SIP)>SHOW FAX_ECM
 Fax ecm is OFF.
```

The current setting is displayed.

12. **SHOW∆FAXERRORDETECT**

This command is used to display an available time to be switched to FAX.

```
MG-PRI(SIP)>SHOW FAXERRORDETECT
 FAX Enable Timer is 1 minute.
```

The current setting is displayed.

13. **SHOW∆HC_RCV_TIMER**

This command is used to display the time for timeout in receiving Health Check.

```
MG-PRI(SIP)>SHOW HC_RCV_TIMER
 Health-Check Receive Timer Timeout is 150 seconds.
```

The current setting is displayed.

14. **SHOW∆INTERFACE**

This command is used to display the connection mode of LAN interface.

```
MG-PRI(SIP)>SHOW INTERFACE
 Setting: Auto-negotiation
 Status: Speed is 100Mbps, DUPLEX:HALF
```

The current setting is displayed.

15. **SHOW∆IPADDRESS**

This command is used to display the IP address of LAN interface.

```
MG-PRI(SIP)>SHOW IPADDRESS
 IP Address       222.1.12.3
 Subnetmask       255.255.255.0
 Default Gateway  222.1.12.254
```

The current setting is displayed.

16. **SHOW∆ONE_TIME_PASS**

This command is used to display the one-time password.

```
MG-PRI(SIP)>SHOW ONE_TIME_PASS
 One time password is 123456.
```

The current setting is displayed.

17. **SHOW∆OWN_NAME**

This command is used to display the host name of MG(PRI).

```
MG-PRI(SIP)>SHOW OWN_NAME
 Own Name : mgpri.nec.com
```

The current setting is displayed.

18. **SHOW∆PAD***P1*

This command is used to display the specified PAD register for voice quality tuning. The following is an example in the case of displaying PAD0.

```
MG-PRI(SIP)>SHOW PAD0

 value is 0x0000
 A-law/u-law Setting:0  :0
 PAD Selection          :0
 PAD Control            :0
 PAD Pattern No.        :0
 Data PAD Pattern No.   :0
```

P1-Specify the register number to be displayed.
0-4=PAD Register Number

The current setting is displayed.

- CODEC
  0=MGC Control (Telephony Server System Data)
  1=μ-law
  2=A-law
  3=Convert from A-law to μ-law
  4=Convert from μ-law to A-law
- PAD selection (0/1=Standard/Flexible)
- PAD Control
  0=Receiving Control (MG→ISDN Network)
  1=Sending Control (ISDN Network→MG)
  2=Fixed to ARTD
  3=Sending/Receiving Control
- PAD Pattern number (0-4)
- Data PAD Pattern Number
  0=64K
  1-4=Not used
- Flexible PAD #***N***-Recv (0-36)
- Flexible PAD #***N***-Send (0-36)

19. **SHOW∆PRI_COMMON1**

This command is used to display the common settings 1 for trunk.

```
MG-PRI(SIP)>SHOW PRI_COMMON1
value is 0x0215
Remote Alarm Sending    :0
Signal All 1            :0
Idle Code Sending       :0
Dch Back-up             :0
Layer 1 Alarm Sending   :0
Haul Mode               :0
EC NLP Control          :1
EC NLP Mode             :0
EC 2100Hz Detect        :0
Music Int/Ext           :0
Music No.               :5
Clock Mode              :0
Layer 1 Alarm Display   :1
```

The current setting is displayed.

- Remote Alarm Sending (0/1=Enable/Disable)
- Signal All 01(0/1=Disable/Enable)
- Idle Code Sending (0/1=Disable/Enable)
- Dch Back-up (0/1=Disable/Enable)
- Layer 1 Alarm Sending (0/1=Enable/Disable)
- Haul Mode (0/1=Short/Long)
- EC NLP Control (0/1=Disable/Enable)
- Disable/Enable EC NLP Mode (0/1=Background Noise/Fixed Level)
- Disable/Enable EC 2100Hz Detect (0/1=Disable/Enable)
- Select Music Source (0/1=Internal/External)
- Music No. (0=Fur Elise/1=Maiden's prayer/5=Minuet)
- Clock mode (0/1=Secondary/Primary)
- Layer 1 Alarm LED display (0/1=Enable/Disable)

20. **SHOW∆PRI_LOOPBACK**

This command is used to display the loop-back settings for TC.

```
MG-PRI(SIP)>SHOW PRI_LOOPBACK
 value is 0x0000
 Local Loop Back     :0
 Line Loop Back      :0
 Payload Loop Back   :0
 Dch Make Busy       :0
 Dch Loop Back       :0
 Dch Self-test       :0
```

The current setting is displayed.

- Internal Loop-back (0/1=Disable/Enable)
- Line Loop-back (0/1=Disable/Enable)
- Payload Loop-back (0/1=Disable/Enable)
- Dch Make-Busy (0/1=Disable/Enable)
- Dch Loop-back0 (0: Fixed)
- Dch Self-Test (0: Fixed)

21. **SHOW∆PRI_T1_***P1*

This command is used to display the specified T type settings for TC. The following is an example when selecting 1 in T type.

```
MG-PRI(SIP)>SHOW PRI_T1_1

 value is 0x90B8
 Dch Control            :1
 Dch Mode               :0
 Dch Signal Logic       :0
 Dch-1 Drop/Insert      :1
 Dch-2 Drop/Insert      :0
 Drop/Insert Mode       :0
 Data Transfer Speed    :0
 Drop/Insert Time Slot  :23
 Dch Signaling set      :0
```

P1-Specify a type of T carrier.
1-3=T type

The current setting is displayed.

<T1_1>
- Dch Control (0/1=Disable/Enable)
- Dch Mode (0/1=User/Network)
- Dch Signal Logic (0/1=Positive Logic/Negative Logic)
- Dch-1 (0/1=Disable/Enable)
- Dch-2 (0: Fixed)
- Mode (0/1=Fixed value/Set value)
- Data Transfer Speed (0=64K/1=56K/2=48K)
- Time Slot (0-23)
- Dch Signaling Set (0: Fixed)

<T1_2>
- Remote Alarm (0/1=Data Link, Fs bit/In Channel)
- Alarm Operation Mode (0/1=Enable/Disable)
- Alarm Release Timing (0/1=Short/Long)
- Alarm Detect/Release Type (0/1=Normal/AT&T)
- Line Signal(0/1=B8ZS/AMI ZCS)
- Multi Frame(0/1=24 Multi Frame/12 Multi Frame)
- Signaling in Channels (0: Fixed)
- Dch Mode (0/1=ITU-T/AT&T)
- Equalizer (0=0-40m/1=41-80m/2=81-121m/3=122-161m/ 4=162m or more)

<T1_3>
4K Data Link(0/1=MOS/BOS)
- G.704 Mode(0/1=ITU-T G.704/JG.704)
- BOS/MOS Operation (refer to page 723)
- Signaling A Logic-Recovery (1: Fixed)
- Signaling Pattern Recovery (2: Fixed)
- Signaling A Logic Sending (1: Fixed)
- Signaling Pattern Sending (2: Fixed)

22. **SHOW∆RTP_STOP_DETECT**

This command is used to display the time-out value for RTP reception.

```
MG-PRI(SIP)>RTP_STOP_DETECT
 RTP Stop Detect Timer is 3sec.
```

The current setting is displayed.

23. **SHOW∆SIGNALING_PORT_NO**

This command is used to display the port number of signaling.

```
MG-PRI(SIP)>SIGNALING_PORT_NO
 Signaling port number is 5060.
```

The current setting is displayed.

24. **SHOW∆SIGNALING_QOS**

This command is used to display the QoS of signaling.

```
MG-PRI(SIP)>SIGNALING_QOS
 Signaling QOS is 0xC0. (QOS = TOS)

 PRECEDENCE =6
 DELAY =0
 THROUGHPUT =0
 RELIABILITY =0
 COST =0
```

The current setting is displayed.

25. **SHOW∆SIPSV_IPADDRESS**

This command is used to display the network settings of SIP Server.

```
MG-PRI(SIP)>SHOW SIPSV_IPADDRESS
 SIP Server   IP Address    Port Number   Host Name
 1            0.0.0.0       0
 2            0.0.0.0       0
 3            0.0.0.0       0
 4            0.0.0.0       0
 5            0.0.0.0       0
 6            0.0.0.0       0
 7            0.0.0.0       0
 8            0.0.0.0       0
 9            0.0.0.0       0
 10           0.0.0.0       0
 11           0.0.0.0       0
 12           0.0.0.0       0
 13           0.0.0.0       0
 14           0.0.0.0       0
 15           0.0.0.0       0
 16           0.0.0.0       0
 17           0.0.0.0       0
 18           0.0.0.0       0
 19           0.0.0.0       0
 20           0.0.0.0       0
```

The current setting is displayed.

Note: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

26. **SHOW∆SMOOTH_PAD**

This command is used to display Smooth PAD mode of DSP.

```
MG-PRI(SIP)>SHOW SMOOTH_PAD
 Smooth PAD Mode is 2.
```

The current setting is displayed.

27. **SHOW∆STARTPORT**

This command is used to display the start port of RTP.

```
MG-PRI(SIP)>SHOW STARTPORT
 RTP Start Port Number is 1024.
```

The current setting is displayed.

28. **SHOW∆STATUS**

This command is used to display the status of MG(PRI).

```
MG-PRI(SIP)>SHOW STATUS
Register Mode        : SP
MAC Address          : 00:00:4c:a4:00:01
Link State           : Up
Speed                : 100Mbps
Duplex               : Full
VLAN Mode            : Enable
DHCP Mode            : Disable
IP Address           : 10.10.10.98
Subnet Mask          : 255.255.255.0
Default Gateway      : 10.10.10.254
DNS Mode             : Enable
DNS Server Address   : 10.10.10.150
Encryption           :
  +--SIP Encrypt     : --
  +--RTP Encrypt     : Enable
Current Sipsv        : 0.0.0.0
Address              : Offline
Registration Status
  +--Registration is Started now
```

The current setting is displayed.

29. **SHOW∆TCP_TIMER**

This command is used to display the setting of the timer for TCP Link Connection

```
MG-PRI(SIP)>SHOW TCP_TIMER
 TCP Link Connect Timer Timeout is 60 seconds.
```

The current setting is displayed.

30. **SHOW∆VERSION**

This command is used to display information about hardware, boot program, and firmware.

```
MG-PRI(SIP)>SHOW VERSION
MG Maintenance command Version
      Version Information
 Hardware      :CA-CC00 2A
 Boot program  :SP3839  SH7751R CBOOT-1 PROG-A [03.00.00.00]
 Firmware(NC)  :SP3884  MG PRI PROG-A [05.00.00.00]
 Firmware(TC)  :        TC-Program    [04.00.00.00]
 AC490  kernel Ver   :01.07
        Revision     :06
        Patch        :
        PatchNumber  :
        Reserved     :
        Month        :05
        Day          :09
        year         :2005
        Name         :AC49kernel
 AC490  MainProgram  :01.07
        Revision     :08
        Patch        :pp
        PatchNumber  :02
        Reserved     :
        Month        :06
        Day          :02
        year         :2005
        Name         :AC490012ae3-S
 AC490  Driver Ver   :107
        SubVersion   :06
        Date         :01.05.2005
        Comment      :
```

The current setting is displayed.

31. **SHOW∆VLAN∆**[*P1*]

This command is used to display the VLAN.

When P1 is not entered:

```
MG-PRI(SIP)>SHOW VLAN
 DEVICE  ID   COS   IPADDRESS      SUBNETMASK
 VLAN1   1    0     10.123.123.123  255.255.255.0
```

The current setting is displayed.

When P1=1:

```
MG-PRI(SIP)>SHOW VLAN

 DEVICE  ID   COS   IPADDRESS      SUBNETMASK
 VLAN1   1    0     10.123.123.123  255.255.255.0
```

P1- Specify VLAN ID.
If omitted, all the VLAN are displayed.

32. **SHOW∆WARNING_TONE**

This command is used to display the warning tone setting.

```
MG-PRI(SIP)>SHOW WARNING_TONE
 Warning Tone Control of IP Network is 3 (IP&ISDN side).
```

4.9 PING Command

1. **PING∆***P1*

This command is used to check the connectivity of network.

```
MG-PRI(SIP)>PING 10.41.1.100
PING 10.41.1.100: icmp_seq=0. time=0. ms
PING 10.41.1.100: icmp_seq=1. time=0. ms
PING 10.41.1.100: icmp_seq=2. time=0. ms
PING 10.41.1.100: icmp_seq=3. time=0. ms
----10.41.1.100 PING Statistics----
4 packets transmitted, 4 packets received, 0% packet loss
round-trip (ms)   min/avg/max = 0/0/0
```

P1-Specify IP address
Result is displayed.

4.10 DELETE Command

1. **DELETE∆VLAN∆*P1***

This command is used to delete VLAN. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>DELETE VLAN 1
 VLAN deleting succeeded.
```

P1-Specify VLAN ID

Result is displayed.

4.11 SAVE Command

1. **SAVE∆CONFIGDATA**

This command is used to save the configuration data.

```
MG-PRI(SIP)>SAVE CONFIGDATA
 ** Don't power off in progress **
 Do you need save? [Y/N]: Y

Erase start...
Erase OK!
Write start...
Write OK!
 Configuration data has been saved.
 Re-starting is required for making a setup reflect!!
```

Y: The data is saved
N: The data is not saved

Result is displayed.

4.12 GET Command

1. **GET∆CONFIGDATA∆*P1***

This command is used to download configuration data from TFTP server.

```
MG-PRI(SIP)>GET CONFIGDATA 10.10.10.10

 The download of configuration data was successful.
```

P1-Specify the IP address of TFTP server after the command name.

Result is displayed.

4.13 PUT Command

1. **PUT∆CONFIGDATA∆*P1***

This command is used to upload a configuration data to specified TFTP server:

```
MG-PRI(SIP)>PUT CONFIGDATA 10.10.10.20

 The upload of configuration data was successful.
```

P1-Specify the IP address of TFTP server after the command name.

Result is displayed.

4.14 REBOOT Command

1. **REBOOT**

This command is used to reboot the MG.

```
MG-PRI(SIP)>REBOOT
 Do you need reboot? [Y/N]: Y
```

Y=Reboot
N=Not reboot

4.15 EXIT Command

1. **EXIT**

This command is used to exit the program.

Normal operation:

```
MG-PRI(SIP)>EXIT
->
```

Returns to OS prompt.

When configuration data is changed, the following is displayed according to the changed data:

```
MG-PRI(SIP)>EXIT
Configuration data was changed.
** Don't power off in progress **
y: Save and Exit.
n: Exit without saving.
c: Cancel
[y/n/c]: y

 Configuration data has been saved.
```

y=Save the file and exit the program
n=Exit the command without saving
c=Cancel the command

Enter "y" to save the changed data and exit the configuration command.

Result is displayed.

4.16 INITIAL Command

1. INIT∆CONFIG

This command is used to initialize the config data in MG(PRI).

```
MG-PRI(SIP)>INIT CONFIG
 ***Warning!***
 This command is for initializing config data.
 If this command is executed, your configuration is deleted!!
 really OK ? [Y/N]:Y

 It is recommended to back up your configuration !!
 really OK?[Y/N]:Y
Erase start...
Erase OK!
Write start...
Write OK!

 Initializing of configuration data is successful.
 you need to setup MGPRI's config data!!
```

4.17 Error Messages

When an error occurs in using the maintenance command, error message is indicated to show the cause for helping the reassignment of required data.

List of Error Messages

MESSAGE	CAUSE
File not found on the TFTP server.	System data cannot be found and downloaded in the TFTP Server.
Command not found.	An entered command is not supported.
Invalid parameter.	Invalid parameters are entered with a command.
IP address form is incorrect.	An entered IP address is incorrect in the input format.
VLAN ID is no more registered.	Registered VLAN IDs exceeded a maximum.
Sub command is missing.	Sub command is necessary when the command is entered.
Invalid parameter value.	The parameter is out of range.
Invalid sub command.	The sub command is incorrect.
No response from CPU (TC).	There is no response from other CPUs.
Command is abnormally terminated.	The command failed to complete.
Parameter(s) are missing.	Parameter(s) are necessary when the command is entered.
Entered VLAN ID is already registered.	Specified VLAN ID is duplicated.
Entered VLAN ID is not registered.	Specified VLAN ID is invalid.

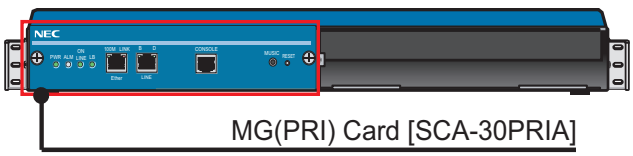
MG(PRI) (2M) [SCA-30PRIA/MG-30PRIA]

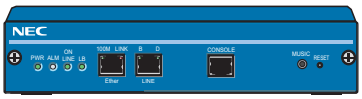
1 General

1.1 What is MG(PRI)?

MG(PRI) is a media gateway between ISDN network and IP network to provide an efficient network through interaction with the Telephony Server. MG(PRI) is controlled by the Telephony Server, and a variety of services can be performed.

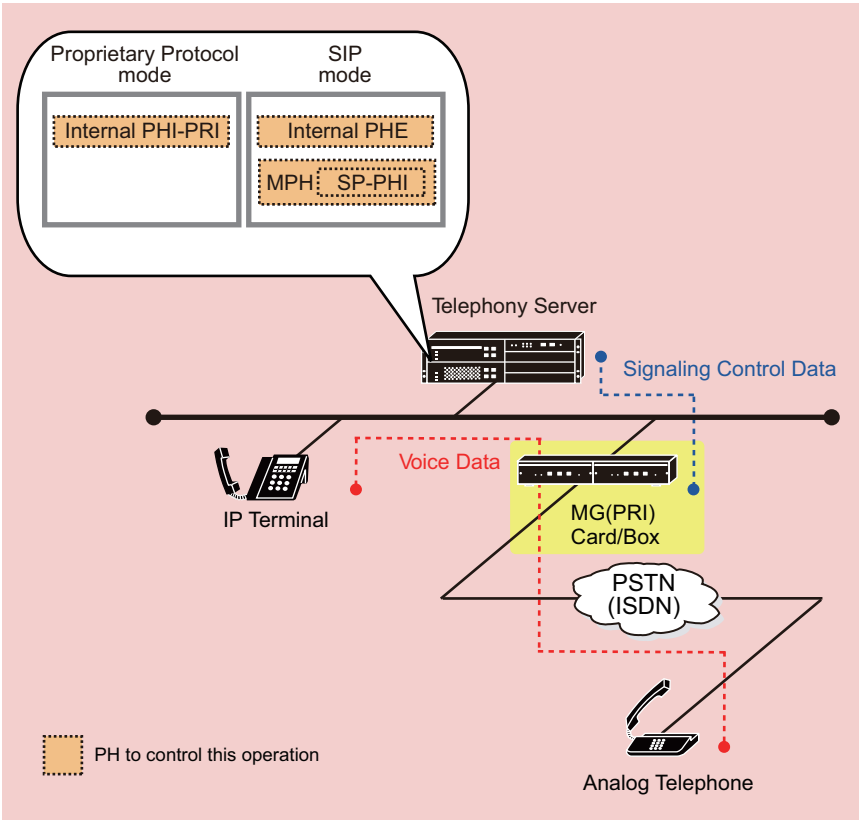
The MG(PRI) has two types: “MG(PRI) Card [SCA-30PRIA]” for Card Type, “MG(PRI) Box [MG-30PRIA]” for Box Type. The MG(PRI) Card [SCA-30PRIA] can also be accommodated in Multi Purpose Chassis (MPC). Those ones are in the following:





The general structure of this equipment is shown in the diagram below.

MG(PRI) can operate in either two mode, SIP mode or Proprietary Protocol mode. When MG(PRI) works in SIP mode, the controlling signal between the Telephony Server and MG(PRI) adopts Session Initiation Protocol (SIP). Controlling signal and voice packets are encrypted to ensure security feature.



Note: For Proprietary Protocol mode, Internal PHI-PRI controls the signaling data, which is accommodated in the Telephony Server. Call control between Internal PHI-PRI and MG(PRI) is executed via TCP/IP port of the system.

Note: For SIP mode, the Telephony Server acts as SIP server. In this operation, SP-PHI, which is accommodated in MPH (Multi Protocol Handler) of the Telephony Server, handles the control signal from/to MG(PRI). MPH is the interface for the control signal. Call control between SP-PHI and MG(PRI) is executed via TCP/IP port of the system.

The number of channels that are processed depends on codec and payload cycle used by MG(PRI) in SIP mode. Therefore, adjustments will be needed, such as placing unnecessary channels into the Make Busy status. The following table shows the number of available channels depending on the encryption status of MG(PRI) in SIP mode.

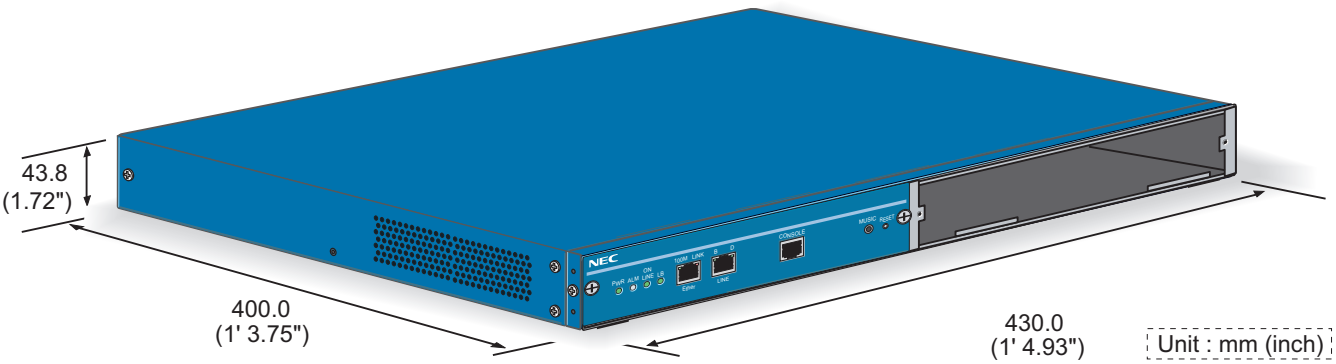
Non-Encrypted						Encrypted					
	10ms	20ms	30m	40ms	60ms		10ms	20ms	30m	40ms	60ms
G.711	15ch	26ch	30ch	30ch	-	G.711	10ch	17ch	22ch	27ch	-
G.729a	16ch	30ch	30ch	30ch	-	G.729a	10ch	20ch	28ch	30ch	-
G.723.1	-	-	30ch	-	30ch	G.723.1	-	-	28ch	-	30ch

1.2 Specifications

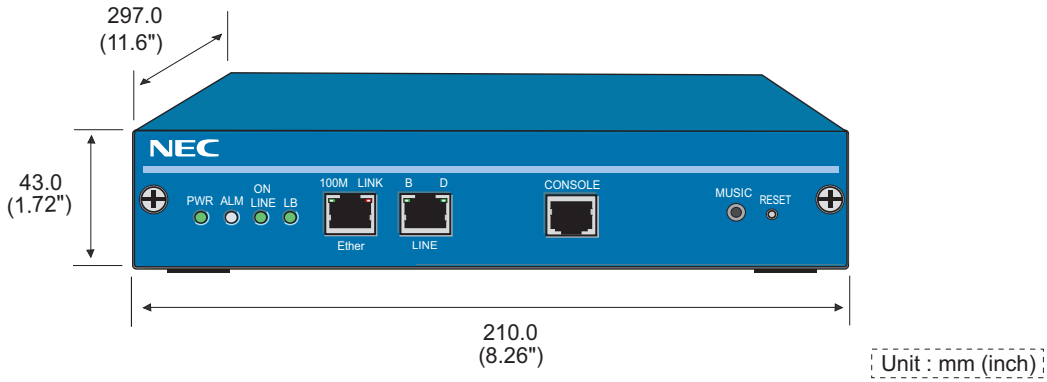
1. Dimension

- MG(PRI) Card [SCA-30PRIA]

  MG(PRI) is mounted in 1U-MPC (19-inch rack mount, 1U-box).



- MG(PRI) Box [MG-30PRIA]



2. Specifications

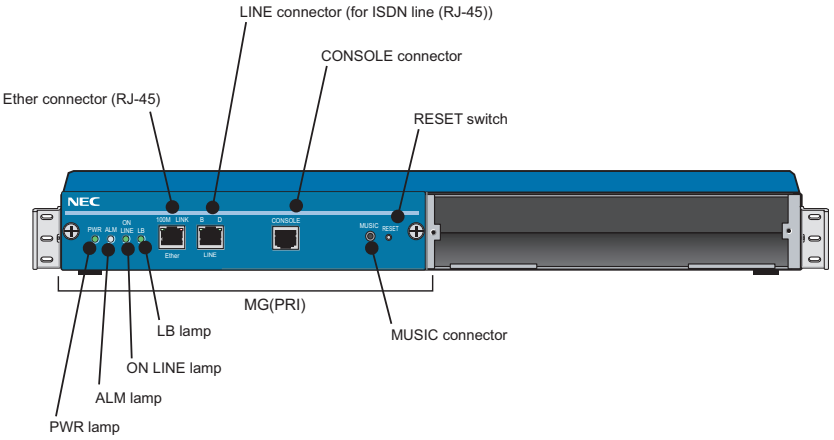
MG(PRI) Specifications

ITEM	SPECIFICATION	NOTE
CODEC	G.711	64k [bps]: PCM μ-law/A-law (Default Setting) RTP Payload cycle: 30~40 msec (in 10 msec steps)
	G.729a	8k [bps]: CS-ACELP (Reduce complexity) RTP Payload cycle: 10~40 msec (in 10 msec steps)
	G.723.1	5.3k [bps]: MP-MLQ/ACELP RTP Payload cycle: 30 or 60 msec
		6.3k [bps]: MP-MLQ/ACELP RTP Payload cycle: 30 or 60 msec
FAX	Data transmission as voice data	G.711/G.726 (ADPCM)
	FAX Relay (T.30)	FRF.11
PAD	PAD setting	-16dB ~ 20dB (one dB step) PAD is specified per route data by ARTD. In the case of tandem connection, the data is specified by APDIL.
	Smooth PAD	Selectable (OFF, Mode1-Mode5)
RTP Jitter and Buffer	Static	10~300 msec (in 10 msec steps)
	Dynamic	10~300 msec
Quality of Service (QoS)	ToS, IP Precedence	Supported
	DiffServ	Supported
VLAN	IEEE 802.1Q (Tagging VLAN), VLAN bit, Priority bit	
Echo Canceller	G.168	Tail Length is 64 msec
PRI Interface	2M	2.048 Mbps, HDB3 (30B+D) Specifications Layer 1: ITU-T I.431 ETSI ETS 300 011 Layer 2: ITU-T Q.921 ETSI ETS 300 125 Layer 3: ITU-T Q.931 ETSI ETS 300 102
DTMF	DTMF is applied in the following: - Proprietary Protocol Mode - Transmission as voice data - RFC2833 (SIP Mode only)	
IP Address Assignment	DHCP is supported	
Holding Tone	Internal hold-tone	Selectable by configuration command (1: Minuet, 2: For Elise)
	External hold-tone	Input audio source from MUSIC connector

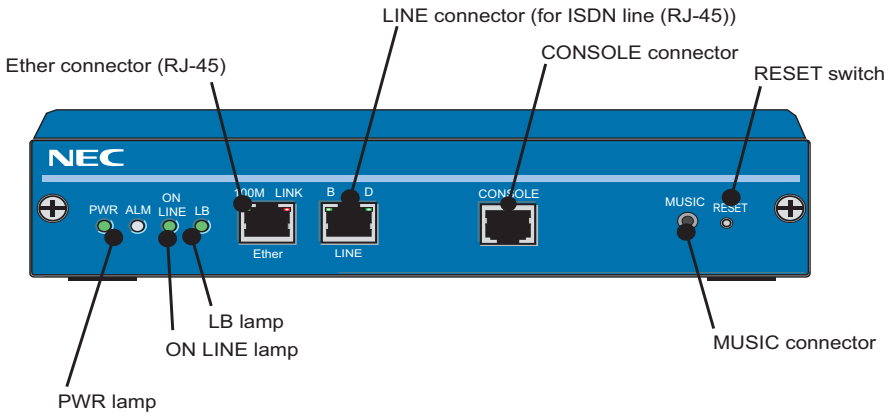
3. Layout of Connectors, Lamps, and Switches

Front View

- MG(PRI) Card [SCA-30PRIA]



- MG(PRI) Box [MG-30PRIA]



Connectors on Front Panel

CONNECTOR	FUNCTION	NOTE
Ether	LAN Interface	RJ-45 100Mbps/10Mbps, auto-negotiation (Half/Full Duplex)
LINE	ISDN line connection	RJ-45 -PRI (2M): 30B+D
CONSOLE	Interface for Maintenance Console	RJ-45 serial connection (CONSOLE cable RJ-45 ⇔ RS-232C is used)
MUSIC	External hold-tone connection	3.5 ϕ mini-jack (monaural type)

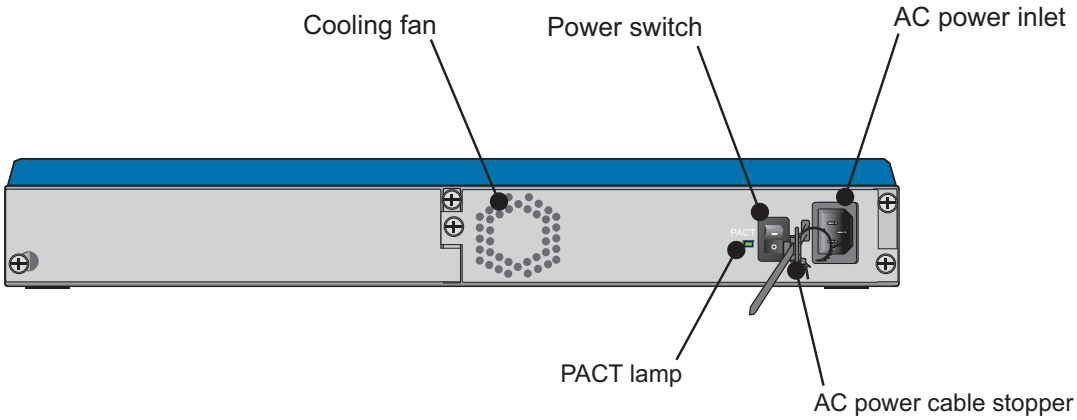
Lamps on the Front Panel

LAMP NAME		COLOR	MEANING OF INDICATION
PWR		Green	Power ON
		OFF	Power OFF
ALM **Note 1**		Red	Lights when power module failure is detected
		OFF	Normal operation
ON LINE		Green	Lights when registration is completed
		OFF	Initial setting is not completed
LB		Green	Not used **Note:** Temporary lights in initial setting
		Flash (60INT)	Flashes in loop-back mode
		OFF	Normal operation
LINE	B	Green	Lights when using two channels or more **Note:** Temporary lights in initial setting
		Flash (120INT)	Flashes when using only one channel
		OFF	Remains OFF when all the channels are idle
	D	Green	Layer 2 link is established in ISDN line **Note:** Temporary lights in initial setting
		Flash (60INT)	Flashes slow when Dch is in make-busy state
		Flash (120INT)	Flashes fast when Layer 2 link is not established
		OFF	Dch is not assigned
Ether	LINK	Green	Lights when establishing Layer 1 link **Note:** Lights when physically connected to IP network.
		Flash	Flashes (in 0.2-second cycle) when sending/receiving IP Packet
		OFF	Layer 1 link is not established
	100M	Green	Lights when transmission speed is 100 Mbps
		OFF	Remains OFF when transmission speed is 10 Mbps

Note 1: For ALM lamp on MG-30PRIA, it always remains OFF.

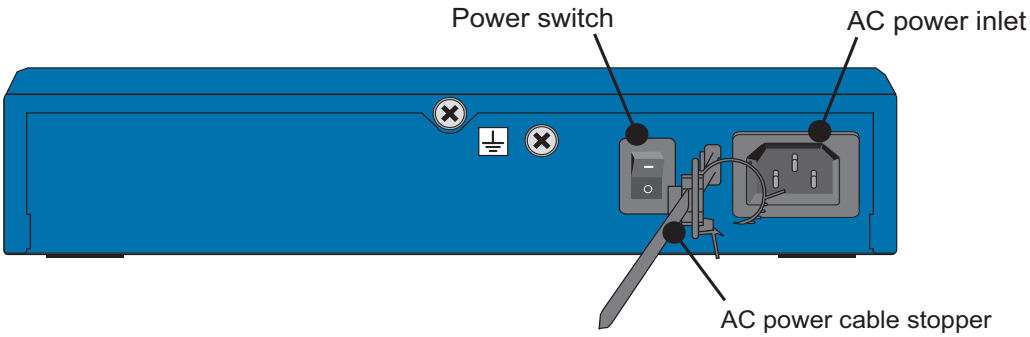
Rear View

- MG(PRI) Card [SCA-30PRIA]



Note: This figure is an example when 1U-MPC is in single power configuration. Prepare one more power unit (optional) for dual power configuration. (See the Appliance Model Installation Manual for the power unit mounting procedure.)

- MG(PRI) Box [MG-30PRIA]



Connectors, Lamps, and Switches on Rear Panel

NAME	FUNCTION	
AC power inlet	Connected to AC-DC adapter with an attached three-polar grounded AC power cable (Cable Length: 3 m [9.8 ft.])	AC 100V (50/60 Hz) ± 10% AC 120V (50/60 Hz) ± 10% AC 230V (50/60 Hz) ± 10% AC 240V (50/60 Hz) ± 10%
Power switch	Power ON/OFF switching	
PACT lamp **Note 2**	Indicates the state in power unit	Lights green: Normal operation OFF: Power failure

Note 2: PACT lamp is only for SCA-30PRIA. MG-30PRIA does not have PACT lamp.

Note: For the safety measures against static electricity, lightning strike, and other electrical surges, be sure to make proper connection to grounding (less than 10 Ω). As MG(PRI) has ISDN interface, if the line cable is struck by lightning directly, the lightning might cause damage to MG(PRI) and AC power cable without Ground connection.

(1) Port Numbers

The following provides the port number to be used in MG(PRI). If a firewall is used in your network, do not block the following ports.

- When using SIP mode.

PORT NO.	PATH	FUNCTION	NOTE
5060	SP-PHI↔MG	SIP	Local console can modify the port number.
1024-64510	Peer to Peer	RTP	Local console can modify the port number.

- When using Proprietary Protocol mode

PORT NO.	PATH	FUNCTION	NOTE
7500	Internal PHI-PRI←MG(PRI)	iLP-PM	-
1024~	Peer to Peer	H.245	-
1024~64510	Peer to Peer	RTP	Can be changed by configuration command on local console
10001	-	Preparation for H.245	-
3456	MG(PRI)↔DRS	Registration	Can be changed by ADTM command Can be changed by configuration command on local console
64000~65024	Internal PHI-PRI→MG(PRI)	iLP-PM	Can be changed by ADTM command

(2) Available Channels When Using SIP Mode

The number of channels that are processed depends on codec and payload cycle used by MG(PRI) in SIP mode. Therefore, adjustments will be needed, such as placing unnecessary channels into the Make Busy status.

See VoIP Encryption [V-27] in Data Programming Manual - Business for the number of available channels on the encryption status of this component.

1.3 Requirements

1. Hardware Requirements

   - PC running Terminal Software (for Maintenance Console)
   - Cables

   LAN Cable:Use any of the following cables for connecting to LAN.
   10BASE-T:Unshielded Twisted-pair (UTP) Straight-through Cable Category 3 or higher, (a maximum of 100 m)
   100BASE-TX:Unshielded Twisted-pair (UTP) Straight-through Cable Category 5 or higher, (a maximum of 100 m)
   Line Cable:For the connection to ISDN network (T point), use a 0.5ϕ Twisted-pair Cable for DSU with an RJ-45 Modular Jack.
   CONSOLE Cable:RJ-45 ⇔ RS-232C serial cable (for maintenance console)
   Audio Cable:Microphone output (for external hold-tone source)
   3.5 ϕ mini-jack (monaural type)

2. Firmware Program

   - Installed Firmware: SP-3884 MG PRI PROG-A

3. Environmental Requirements

   - Operational Temperature Range: 0°C to 40°C (32°F to 104°F)
   - Operational Humidity Range: 20% to 90% (not condensing)
   - Main Source Power: 100 VAC / 120 VAC / 230 VAC / 240 VAC (50/60 Hz) ±10%

1.4 Service Conditions

1. MG(PRI) occupies four groups (1HW) of virtual speech channel. One HW (32 channels) can only be used as virtual speech channel of MG(PRI) even when only one channel is assigned.
   The virtual speech channel of MG(PRI) cannot coexist in the same HW with the virtual speech channel of other type of MG devices. Also the virtual speech channel cannot coexist in the same HW with the virtual speech channel of CCIS over IP using Internal PHC.
2. Virtual speech channel (Bch and Dch) can be assigned to Virtual PIR (Assign with ASYDL SYS1 INDEXes 556 and 557).
3. Dch cannot be shared by multiple MG(PRI)s.
4. Voice communication and unrestricted digital data transmission is supported by MG(PRI). Only 64kbps data transmission is supported. 128kbps data transmission, H0 switching, Dch packet, and Bch packet are not supported.
5. When FAX communication is used via MG(PRI), assign the following data by ARTI/ARTIN command.
   - CDN71: FXD (IP FAX data)
   - CDN72: FXJS (Jitter Buffer size of IP FAX)
   - CDN73: FXPT (Payload type for IP FAX)
   - CDN74: FXPS (Payload size for IP FAX)
6. The connection via NAT (Network Address Translation), IP masquerade, internet connection, and dial-up access are not supported.
7. Available interface is limited to Q.931, and only the public ISDN network can be used. The connection to private ISDN line and PRI terminal is not supported.
8. When a network failure occurs between Telephony Server and MG(PRI), the PRI line of MG(PRI) will be in a link down state.

   Note: For the details of this condition for UG50, refer to Peripheral Equipment Description (UG50).
9. The fault detection for ISDN line is operated in the same way as that in the ordinary ISDN lines (both Layer 1 and Layer 2). Call origination/termination cannot be activated during network failure.
10. CODEC is assigned by AMGVL command. G.711 and 40 milliseconds are supplied default. Payload type and size need to be assigned after you confirm the setting condition of MG(PRI). (Contact your local NEC dealer for further information.)
11. Assign the different route numbers for MG(PRI) SIP Mode, for MG(PRI) Proprietary Mode, for PRT circuit card respectively.
12. Timing processing of guard timer for originating call is dealt with the Telephony Server side. Assign the timer by ASYD SYS1, INDEX 474. When not assigned, default data 256 milliseconds is applied.
13. [S-127D] Serial Call - D cannot be used to the call termination via MG(PRI).
14. There are the following restrictions when using REMOTE ACCESS TO SYSTEM [R-2] or AUTOMATED ATTENDANT [A-82].
    - If any virtual registers cannot be seized, other registers (**Note 1**) are seized.
    - When any registers cannot be seized, calling party hears busy tone.
    - The sum total of virtual registers and other registers (**Note 1**) per LP cannot exceed 64 channels.

Note 1: In this context, other registers are:
- Originating register trunk (RT: 902)
- Incoming register trunk (RT: 903)
- PBR for Automated Attendant Service (RT: 906)
- CRT (RT: 933)

- Echo Canceller setting on ARTD/APDIL command is applied.
- PAD setting on ARTD/APDIL command is applied.

15. Requirements to use MG(PRI) in Network Mode are as follows:

Note: Network Mode is not supported for UG50.

(a) Data settings for MG(PRI) (2M) [SCA-30PRIA/MG-30PRIA]

PCPro	Data Assignment
ARTD	CDN30 (PAD control) = 7 (OFF; 0 db)
	CDN64 (User/Net identification for ISDN) =1 (Network side)

Configuration Command	Data Assignment
PRI_T1_1	Dch Mode = 1 (Network Mode)

(b) Clock mode setting for MG(PRI) (2M) [SCA-30PRIA/MG-30PRIA]

Specify the clock mode (**Note 2**) of the MG(PRI) as "Primary."

Configuration Command	Data Assignment
PRI_COMMON1	Clock Mode = 1 (Primary)

Note 2: Clock mode defines whether the transmit clock operates as a primary clock (which uses its own internal timing) or secondary clock (which synchronizes to the primary clock). Clock mode settings must be consistent between the MG(PRI) and the opposite Telephony Server.

16. The following are particular to Proprietary Protocol Mode:

    - Assign ASYDL SYS1 INDEX 880 Bit=1 to enable Internal PHI-PRI function. When the setting of ASYDL, SYS1, INDEX880, Bit 1 (Internal PHI-PRI/BRI) is modified, initialize the Internal PHI-PRI module with the ADPM command.

    - When the Telephony Server is in Dual Configuration, LAN1 must be used as the interface of the Telephony Server side. This setting can be assigned by ADTM command.

    - QoS setting to Internal PHI-PRI is assigned by AMGIL command on MG(PRI) basis.

    - Alternate routing is proceeded according to the LCR programming in case of TCP/IP failure.

    - Echo Canceller setting on ARTD/APDIL command is applied.

    - PAD setting on ARTD/APDIL command is applied.

    - System Message 33-R/33-S is output in the case of MG(PRI) failure.

    - System Message 33-R/33-S is output when TCP link failure between Internal PHI-PRI and MG(PRI) is detected. When the TCP link failure continues more than one minute, System Message 3-D (Lock-up Failure) is output.

17. The following are particular to SIP Mode:

    - To use SIP Mode in MG(PRI), assign ASYDL SYS1 INDEX 885 bit=1 to enable SIP function in the Telephony Server.

    - If you add any trunk to MG running in a network by using ATRK command, it will cause re-registration and disconnect the lines connected via the MG.

18. The following are particular to UMGi:

    -Virtual Speech/Signal Channel can be assigned to the Virtual PIR.

    -PHI-PRI is stored in the System Processor of CCN.

    -PHI-PRI handles a control signal between MG(PRI) and PHI-PRI. Control signal is handled with TCP/IP port on the System Processor of CCN.

    -For Proprietary Protocol Mode, register the MG(PRI) only in the CCN.

    -There are the following restrictions when using incoming calls with REMOTE ACCESS TO SYSTEM [R-2] or AUTOMATED ATTENDANT [A-82].

    - Virtual Register in the node to which Virtual Speech Channel is registered is seized. Register in other node cannot be seized.

    - When Virtual Register cannot be seized, calling party hears busy tone.

2 Installation

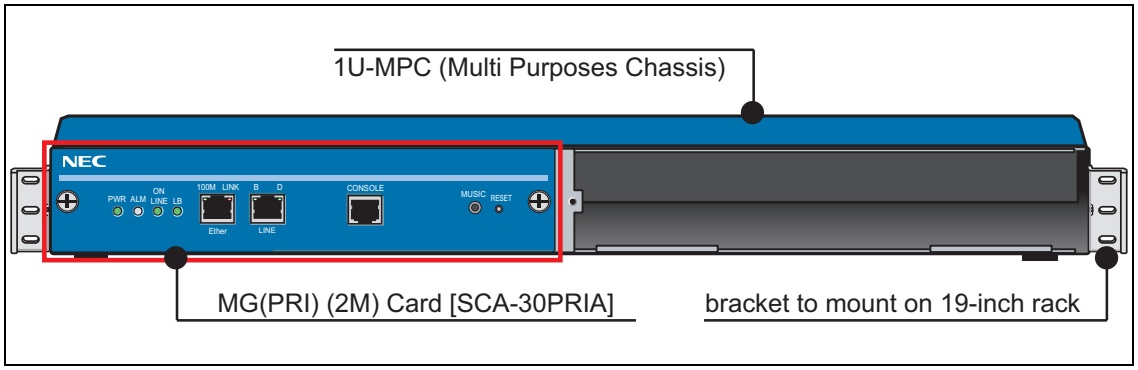
This section shows how to mount MG(PRI). Be sure to take measures to anti-static electricity.



2.1 How to Set MG(PRI)

- SCA-30PRIA

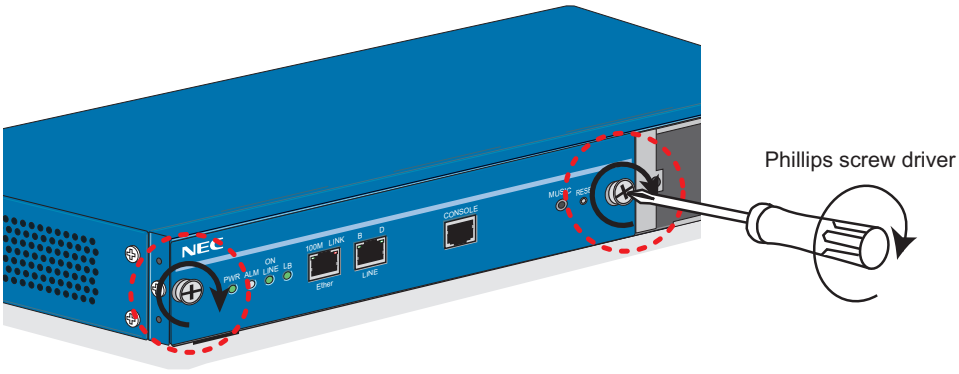
Note: This figure is an example to mount an MG(PRI) in the left slot on 1U-MPC.



STEP 1: Insert MG(PRI) to 1U-MPC



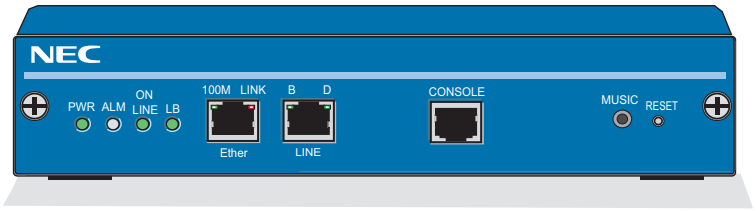
STEP 2: Secure the MG(PRI) to 1U-MPC fixing two screws on right and left sides.



- MG(PRI) Box [MG-30PRIA]

MG(PRI) is set as the following. Be sure to place MG(PRI) on the flat surface.





2.2 Cable Connection

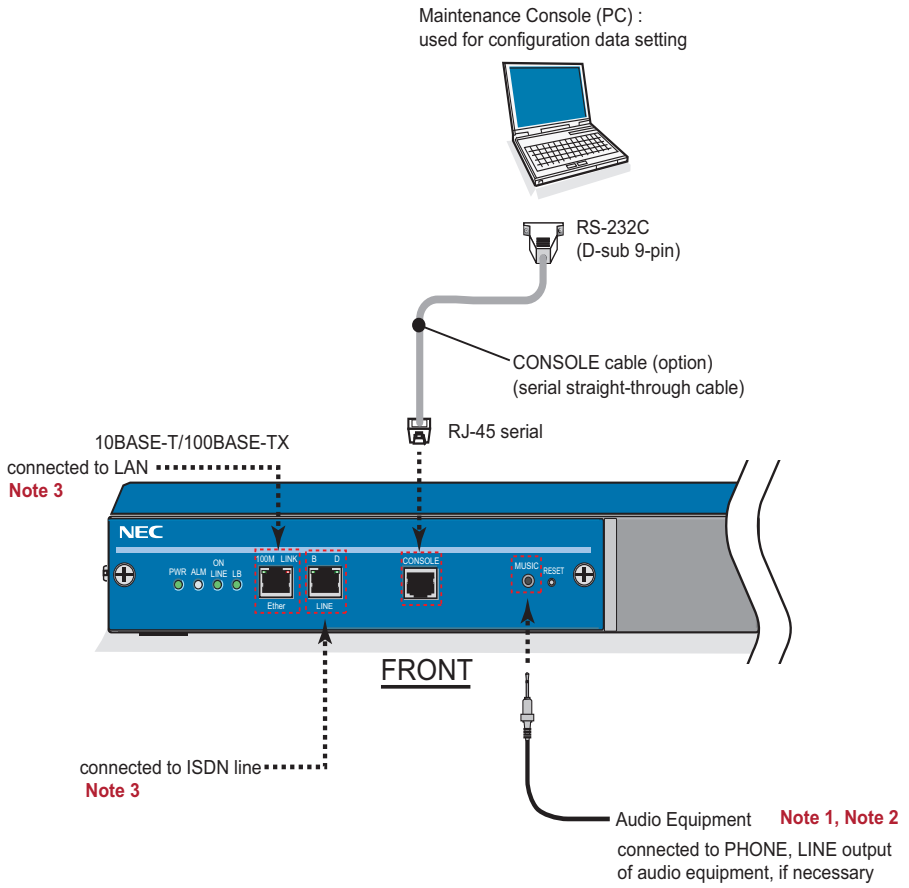
This section shows the cable connection to the MG(PRI). MG(PRI) provides the following interfaces:

- Connection to LAN
- Connection to ISDN
- Serial Port Connection to Maintenance Console
- Connection to Audio Equipment for external music-on-hold
- Power Supply

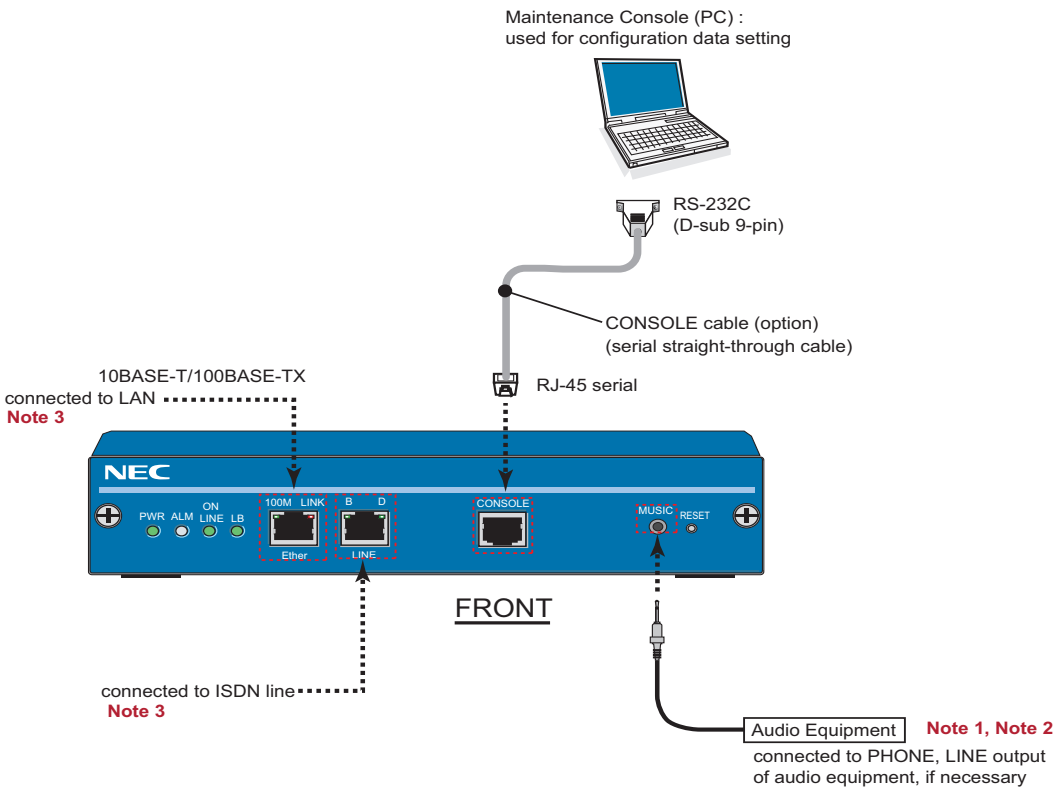
Connect the required cables according to the system configuration. General description of cable connection for MG(PRI) is explained in the diagram below.

MG(PRI) Cable Connection Diagram (Front)

- SCA-30PRIA



- MG(PRI) Box [MG-30PRIA]



Note 1: Cable of external hold tone source needs to be conformed with all-purpose 3.5ϕ monoaural ear phone jack. Adjustment of output level for external hold tone source needs to be started from low and to higher to avoid over-current. The tuning of volume level sent is to be done by monitoring from the telephone terminal connected over the ISDN network and tuning the output level of external hold tone source. Input impedance from the external hold tone source needs to be within the ranges of 8Ω - 50kΩ. Make sure not to exceed this range.

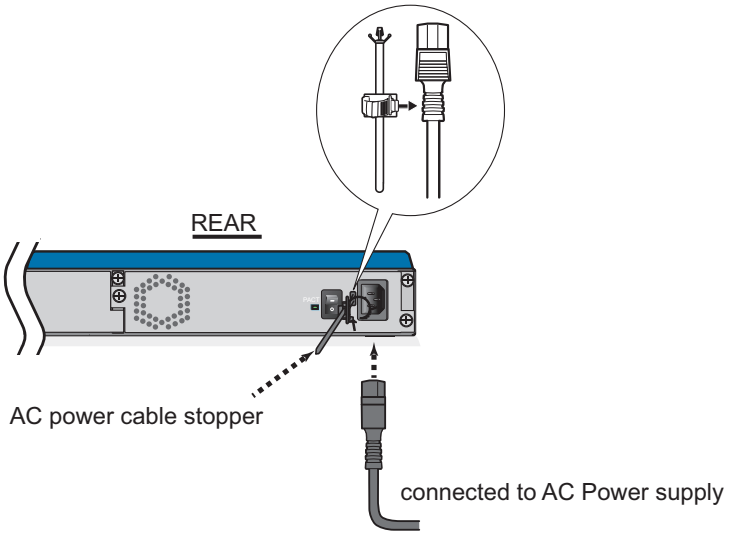
Note 2: If audio equipment has a ground terminal, be sure to make proper connection to grounding of audio equipment.

Note 3: Do not connect LAN and ISDN line here. These cables are connected in Section 3 Start-up MG(PRI) and Basic Tests.

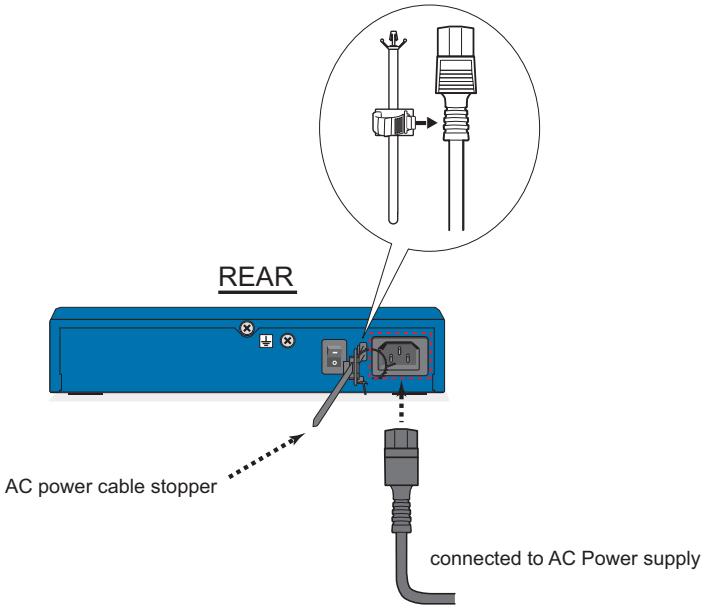
STEP 1: AC power cable connection

Connect the AC power cable to AC Power Inlet on the rear side of MG(PRI). Fix the AC power cable with the stopper.

- MG(PRI) Card [SCA-30PRIA]



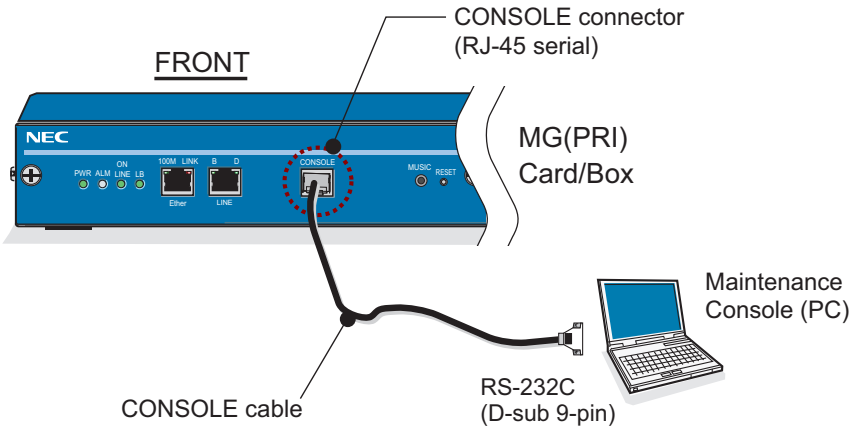
- MG(PRI) Box [MG-30PRIA]



Connect the other end of the power cable to appropriate AC supply.

Note: For the safety measures against static electricity, lightning strike, and other electrical surges, be sure to make proper connection to grounding (less than 10 Ω). As MG(PRI) has ISDN interface, if the line cable is struck by lightning directly, the lightning might cause damage to MG(PRI) and AC power cable without Ground connection.

STEP 2: Connect a maintenance terminal (PC) to CONSOLE connector using CONSOLE cable.



Note: ISDN Lines and LAN cables are connected in Section 3 Startup MG(PRI) and Basic Tests. Do not connect these cables here.

3 Startup MG(PRI) and Basic Tests

This section explains procedures for startup and basic tests. Follow the procedure below depending on the registration mode.

STEP 1: Data Assignment by PCPro

When Proprietary Protocol mode	When SIP mode
1. Internal PHI-PRI Data Assignment	1. Internal PHE Data Assignment
2. MG(PRI) Data Assignment	2. SP-PHI Data Assignment
	3. MG(PRI) Data Assignment
	4. Security Data Assignment

STEP 2: VT-100 Compliant Terminal Software Setting on Maintenance Console

1. Connection between PC (maintenance console) and CONSOLE Connector
2. Terminal Software Activation
3. Setting of Terminal Software

STEP 3: Power ON

STEP 4: Configuration Command Assignment

When Proprietary Protocol mode	When SIP mode
1. Selection whether to use DHCP server	1. One Time Password Assignment
2. Network Data Assignment	2. Selection whether to use DHCP/DNS server
	3. Network Data Assignment

STEP 5: Cable Connection

1. Connection between MG(PRI) and LAN
2. Connection between ISDN line and MG

STEP 6: Basic Test Procedures

1. Basic Connection Test
2. Alarm Information Check
3. Loop-Back Test

END

3.1 Data Assignment by PCPro

This section explains the data assignment procedures to the Telephony Server by PCPro. Besides, this section consists of two parts; procedure for Proprietary Protocol Mode and procedure for SIP Mode. The following explains the procedure by each mode.

<Before Taking Procedures>

- Unstable network environment such as using NAT and dial-up connection is not preferred.
- If an access list is applied to the network, looking into all the communication flows, classify the priorities to make the network effective. The throughput will become low if the settings are inappropriate. The following is an example:

PRIORITY	PACKET KIND
1 (High)	Network Control Packet, ICMP, etc.
2	Console Control
3	VPN Authentication, H323, etc.
4	RTP
5	FTP, HTTP, etc.
6 (Low)	Other packets

- Check the availability if MG is connected to the following equipment by tandem connection.

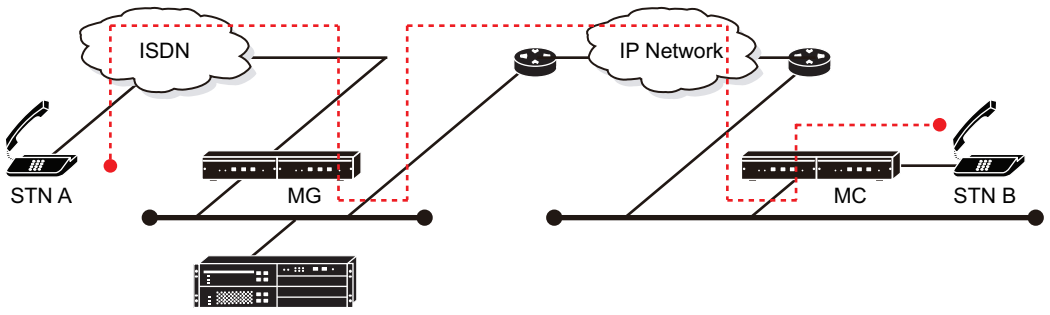
Tandem Connection Availability

CONNECTING EQUIPMENT		AVAIL-ABILITY	DESCRIPTION
MC **Note 1**		–	Not recommended because -Voice quality may be degraded due to multiple conversion. -Delay may be increased due to excessive jitter buffer insertion.
COT **Note 2**		–	Voice speech and FAX relay are available. However, DTMF relay is not guaranteed. (Input level can be lower than minimum DTMF detection level -27.0 dBm because of line loss at public network side.)
LDT **Note 2**		√	Design your private network so that DTMF input level at MG(PRI) may be larger than -27.0 dBm. If not DTMF relay is not guaranteed.
4W ODT		√	
PRI/BRI		√	
TDM64K	EC enabled	√	
	EC disabled	–	
TDM32K	EC enabled	√	
	EC disabled	–	
TDM Less Than 32K		–	Not recommended because voice quality may be degraded due to data conversion.

- : Not guaranteed √ : Available

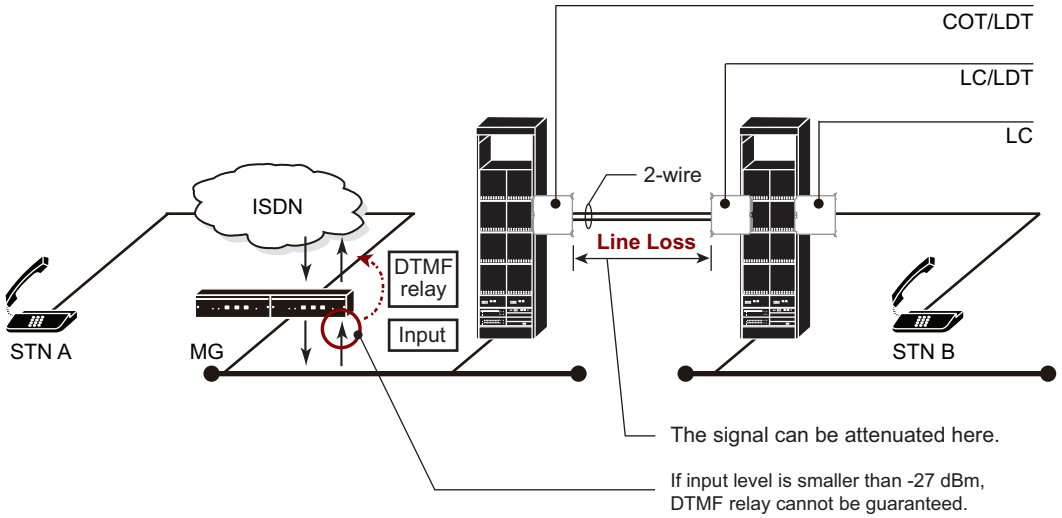
Note 1: Tandem here stands for a connection that is established over multiple networks such as shown in the following figure.

Connection between STN A and STN B cannot be guaranteed.



Note 2: For a tandem connection involving Central Office Trunk (COT) and Loop Dialing Trunk (LDT), input level can be lower than minimum DTMF detection level (-27.0 dBm) at MG(PRI) because of Line Loss between two switches.

If input level at MG(PRI) is lower than minimum DTMF detection level, DTMF relay cannot be guaranteed.



<When Proprietary Protocol mode>

MG(PRI) can be registered to either Internal PHI-PRI or SP-PHI. When registering to Internal PHI-PRI, it works using Proprietary Protocol, which is called Proprietary Protocol mode. The following explains MG(PRI) data assignment for Proprietary Protocol mode. When registering to SP-PHI (SIP mode), refer to page 772.

[1] Internal PHI-PRI Data Assignment

When MG(PRI) is used in Proprietary Protocol mode, MG(PRI) is registered to Internal PHI-PRI embedded in the Telephony Server. So Internal PHI-PRI data assignment is necessary.

Internal PHI-PRI data once assigned apply to all devices using Internal PHI-PRI. But "LAN Interface to be used" for MG(PRI) assigned by ADTM is independent (**Note 3**). If the Telephony Server connected to MG(PRI) is in Dual Configuration, this LAN Interface must be LAN1. See the following for the procedure.

Note 3: The Port Number is shared.

ADTM (Assignment of Data for TCP/IP Module)

Assign LAN Interface to be used.

Internal PHI-PRI: LAN1 (fixed when Dual Configuration)

Note: When the LAN Interface to be used is switched in this command, initialize Internal PHI-PRI module with ADPM command.

[2] MG(PRI) Data Assignment

Assign the necessary System Data for using the MG.

STEP 1: ASYD (Assignment of System Data)

SYS1

INDEX 64, b0: 0/1=μ-law/A-law of CODEC (depends on the country)
INDEX 186, b6=1 (ISDN is in service)
INDEX 187=00 (Fixed)
INDEX 474 Guard Timer for Originating Call (MTC×TC)
bit 0-3: MTC (Timer Counter)
bit 4-6: TC (Timer Class), assign 1H (64 milliseconds)

STEP 2: ARTD (Assignment of Route Class Data)

Assign the route class data on Virtual Speech Channel and Virtual Signaling Channel. The following is an example when the Virtual Signaling Channel=10 and the Virtual Speech Channel =20:

RT=10 (Virtual Signaling Channel)
RT=20 (Virtual Speech Channel)

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

- For ISDN Trunk Data

RT=20 (Virtual Speech Channel)

CDN			
	2	(ONSG)	= 2
	4	(INSG)	= 2
	5	(TF)	= 3
	6	(TCL)	= 1
	7	(L/T)	= 1
	8	(RLP)	= 2
	10	(SMDR)	= 1
	15	(LSG)	= 12
	28	(ANS)	= 1
	30	(PAD)	= 4
	31	(OGRL)	= 1
	32	(ICRL)	= 1
	34	(GUARD)	= 1
	45	(A/D)	= 1
	50	(DPLY)	= 1
	60	(TC/EC)	= 1
	63	(LYER1)	= 1
	65	(INT)	= **Note 4 Note 5**
	66	(DC)	= **Note 6**
	116	(PREF)	= 0/1 **Note 7**

RT=10 (Virtual Signaling Channel)

CDN			
	2	(ONSG)	= 2
	4	(INSG)	= 2
	6	(TCL)	= 1
	7	(L/T)	= 1
	8	(RLP)	= 2
	15	(LSG)	= 13
	28	(ANS)	= 1
	30	(PAD)	= 7
	63	(LYER1)	= 1
	65	(INT)	= **Note 4Note 5**
	66	(DC)	= **Note 6**

The other data should be “0” (default data).

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

Note 4: INT (CDN65):1 N-ISDN2
2 Australia
4 ITU (CCITT), ETSI (PRI)
5 AT&T (#4/#5 ESS)
6 ETSI (BRI)
7 NT DMS 100/DMS 250

Note 5: When you assign 65(INT)=4 (EMEA only), refer to 5. ETSI ISDN Data Assignment in Chapter 3 of Data Programming Manual - ISDN.

Note 6: In the case of “SUB ADDRESS - ADDRESSING”, assign “0”. (Refer to SUB ADDRESS-ADDRESSING [S-95] in Data Programming Manual - ISDN.)
In the case of “DID ADDRESSING”, refer to DIRECT INWARD DIALING (DID) ADDRESSING [D-123] in Data Programming Manual - ISDN.

Note 7: Required for EMEA. When you use ETSI Channel Negotiation, refer to 6. ETSI Channel Negotiation in Chapter 3 of Data Programming Manual - ISDN.

- For Q-SIG Trunk Data

RT=20 (Virtual Speech Channel)

CDN				
	2	(ONSG)	= 2	
	4	(INSG)	= 2	
	5	(TF)	= 3	
	6	(TCL)	= 4	
	7	(L/T)	= 1	
	8	(RLP)	= 2	
	15	(LSG)	= 12	
	28	(ANS)	= 1	
	30	(PAD)	= 4	**Note 8**
	31	(OGRL)	= 1	
	32	(ICRL)	= 1	
	34	(GUARD)	= 1	
	45	(A/D)	= 1	
	49	(TRKS)	= 0/1	**Note 9**
	50	(DPLY)	= 1	**Note 10**
	60	(TC/EC)	= 1	
	63	(LYER1)	= 1	
	65	(INT)	= 10	
	66	(DC)	= 15	**Note 11**
	113	(UUI)	= 1	**Note 12**
	116	(PREF)	= 0/1	**Note 13**
	118	(BOB)	= 1	**Note 14**

RT=10 (Virtual Signaling Channel)

CDN				
	2	(ONSG)	= 2	
	4	(INSG)	= 2	
	5	(TF)	= 3	
	6	(TCL)	= 4	
	7	(L/T)	= 1	
	15	(LSG)	= 13	
	30	(PAD)	= 7	
	31	(OGRL)	= 1	
	32	(ICRL)	= 1	
	34	(GUARD)	= 1	
	45	(A/D)	= 1	
	65	(INT)	= 10	
	118	(BOB)	= 1	**Note 14**

Note 8: Depending on the level diagram of the network, data “4” is standard.

Note 9: Each office must be assigned a different value to avoid collision at the time of call origination.

Note 10: Assign “1” when the number display on LCD of terminal is required.

Note 11: ACDD is not available if DC = 15.

Note 12: Assign “1” when the User-to-User Signaling notification is required.

Note 13: Required for EMEA. To provide the system with channel negotiation, see 7. Q-SIG CHANNEL NEGOTIATION in Chapter 3 of Data Programming Guide - ISDN.

Note 14: Assign “1” when the multi-rate bearer service is used.

STEP 3: ARTI (Assignment of Trunk Application Data)

Assign the application data for Trunk in Virtual Speech Channel.

RT=10 (Virtual Signaling Channel)
RT=20 (Virtual Speech Channel)
CDN68 (VIR): 2 (MG connection)
CDN89 (REGION): 1 = ETSI ISDN **Note 15**

Note 15: Required for EMEA

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

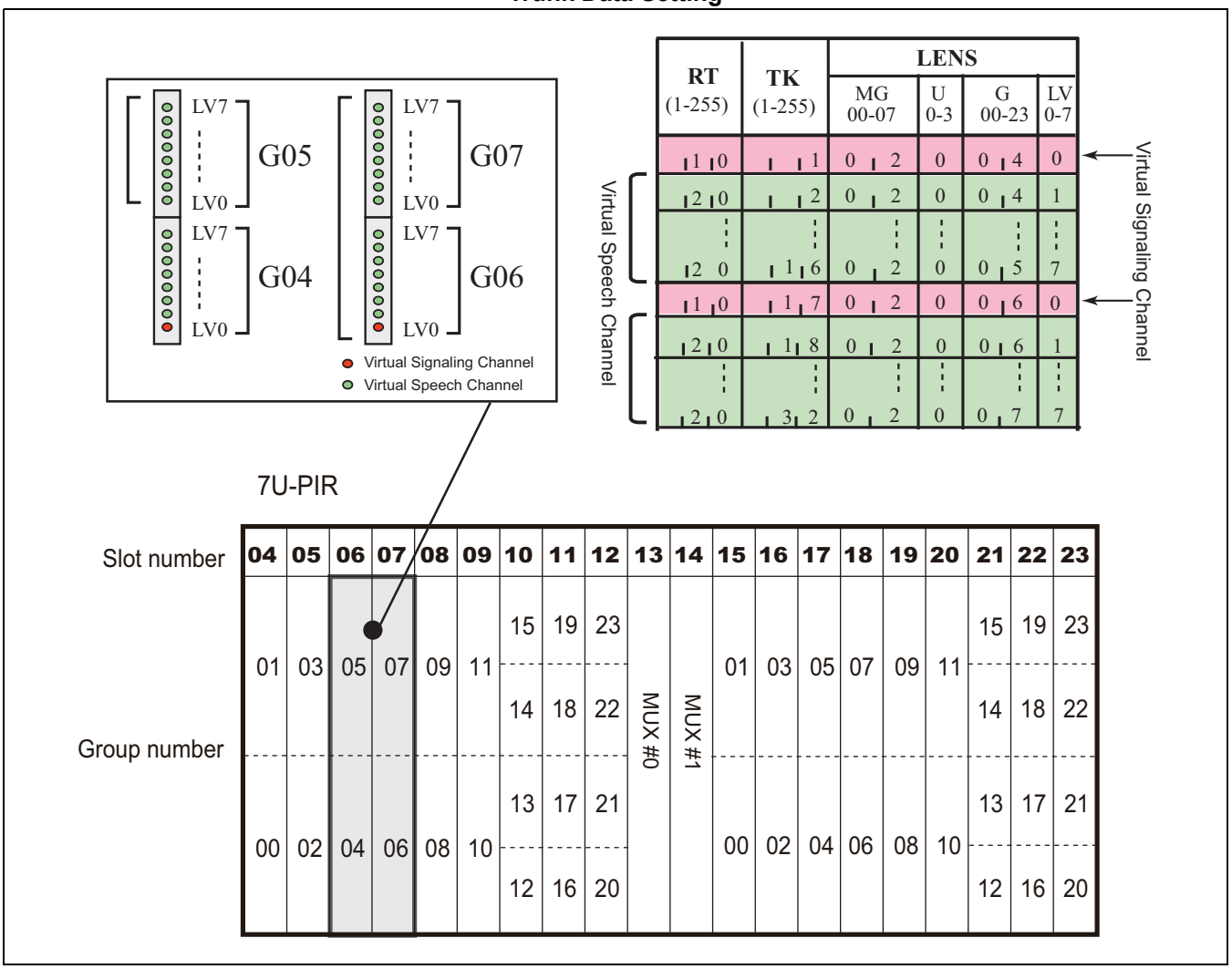
To use FAX, specify the FAX relay settings in the following:

CDN71 (FXD)
CDN72 (FXJS)
CDN73 (FXPT)
CDN74 (FXPS): This parameter appears when 1 (G.711) or 2 (G.726) is selected in FXPT.

STEP 4: ATRK (Assignment of Trunk Data)

Assign the Trunk Data to Virtual Speech Channel. The following is an example for assigning channel data of PRI (2M). Note that the data setting for Dch must be performed after the ACIC1 command assignment.

Trunk Data Setting



Note: Virtual trunk occupies 1HW (4-Group). For example, if one channel is registered for Virtual Trunk, the whole HW is occupied exclusively for the Virtual Trunk.

Note: Do not assign the trunk data to even-numbered MG, U=0, and G=00. It is not available for MG(PRI).

Note: Be sure to assign route data by ARTD/ARTI in advance before assigning trunk data by ATRK.

Note: The total number of B-channels must not exceed 460 per two Module Group (MG) pair. i.e. MG2/3, MG4/5 and MG6/7

STEP 5: ADPC (Assignment of Determinate Point Code Data)

Assign the Point Code (1~16383) on Virtual Speech Channel and Virtual Signaling Channel. Note that the Point Code must be different from the Point Code for CCIS. (ISDN does not actually use the Point Code but it is necessary to develop the office data.)

Note: NDM command (ADPCN) cannot be used here.

STEP 6: ACSC (Assignment of CSC Data)

Assign Virtual Speech Channel into the even-numbered (130~254) CSC group, and Virtual Signaling Channel into the odd-numbered CSC group.

Note: NDM command (ACSCN) cannot be used here.

- PRI (2M): 30B+D setting.

CSCG	CICG	CCH		
		MG (00-07)	U (0-3)	G (00-23)
130/131	0	02	0	04
	1	02	0	04
	2	02	0	04
	3	02	0	04
	4	02	0	04
	5	02	0	04
	6	02	0	04
	7	02	0	04

STEP 7: ACIC1 (Assignment of CIC Code Data 1)

Assign the accommodated location of Virtual Signaling Channel to the Point Code.

PC: Point Code specified by ADPC
CSCG: CSC group of Virtual Signaling Channel specified by ACSC

Note: NDM command (ACIC1N) cannot be used here.

STEP 8: ACIC2 (Assignment of CIC Code Data 2) ** Required only for Q-SIG trunk.*

Assign the CIC Number and accommodated location of Virtual Speech Channel to the Point Code.

PC: Point Code specified by ADPC
CIC: The same CIC number must be given to one speech line between two nodes.
LENS: Accommodated location of Virtual Speech Channel

STEP 9: ATRK (Assignment of Trunk Data)

Assign the Trunk Data to Virtual Signaling Channel, referring to page 768.

STEP 10: MBTK (Make Busy of Trunk)

Cancel the Make-Busy of Virtual Speech Path.

RT: Route Number
TK: Trunk Number
MB: 0=Make-Busy Cancel

STEP 11: AMGIL (Assignment of Media Gateway Information for LDM)

Note: Make sure to assign in order of ATRK → AMGIL.

Assign MG(PRI).

MG-ID: MAC Address of MG(PRI) (6 byte of HEX data)
** MAC address is labeled on the left front of MG(PRI) (below PWR lamp).*
FUNCTION: Setting (to assign MG information)
KIND: ISDN Trunk (PRI 2M)
UG50 Multi-Slot Mode:
Select this check box if registering UG50 in Multi-slot mode.
LINE: 0 (fixed)
CH: 0 (fixed)
LENS: Accommodating Location of Virtual Speech Channel.
Assign the first channel of HW to which Virtual Speech/Signal Channel is allocated.
** Make sure that LENS assigned here already has been assigned by the ATRK.*
Retry: Number of retry to request connection to MG(PRI).
CALL HOLD (MG-PRI Call Hold Service):
Select this check box to enable CALL PROTECTED RE-REGISTRATION [C-203].
Setting Type of Signaling Packet Service:QoS settings of signal path (ToS value applied when Internal PHI-PRI connects to MG(PRI))

STEP 12: AMGVL (Assignment of Media Gateway Voice Control Data for LDM)

Assign the Voice control data to connect to MG(PRI).

A RT (Storing MG): Route number of virtual speech channel used for MG(PRI).
TYPE: Select “Route Specified” or “Location ID Specified”.
B RT (MG Storing): Displayed when TYPE=Route Specified is selected.
Used when connecting MG and MG in Tandem. Assign the route number of virtual speech channel for the destination MG.
B LOC-ID: Displayed when TYPE=Location ID Specified is selected.
Assign the location ID where the destination IP station belongs. (Preferred)
Setting of Jitter Buffer:JB_MIN [0-30 (×10 milliseconds)], JB_MAX [0-30 (×10 milliseconds)]
Setting Type of Voice Packet Service: IP PRECEDENCE [0-7]/DIFFSERV [00-63]
Setting of Payload:TYPE, SIZE **Note 16**

Note 16: For using this parameter, refer to "Payload Setting for Each IP Equipment" in the System Description.

RESET THE MG(PRI) BY PUSHING RESET BUTTON AFTER ASSIGNING DATA.

[*] Data Deletion

Deletion must be operated in the reverse order of assignment. Make sure to delete in the order of AMGIL → ATRK. (Confirm there is no data left in AMGIL before deleting ATRK)

<When SIP mode>

MG(PRI) can be registered to either Internal PHI-PRI or SP-PHI. When registering to SP-PHI, it works using SIP, which is called SIP mode. The following explains MG(PRI) data assignment for SIP mode. When registering to Internal PHI-PRI (Proprietary Protocol mode), refer to page 764.

[1] Internal PHE Data Assignment

When MG(PRI) is used in SIP mode, MG(PRI) is registered to SP-PHI embedded in the Telephony Server. SP-PHI is accommodated and controlled by MPH, which is also embedded in the Telephony Server. For the use of MPH, it is required to make Internal PHE function valid. So Internal PHE data assignment is necessary.

[2] SP-PHI Data Assignment

When MG(PRI) is used in SIP mode, MG(PRI) is registered to SP-PHI embedded in the Telephony Server. So SP-PHI data assignment is necessary.

[3] MG(PRI) Data Assignment

Assign the necessary System Data for using the MG.

STEP 1: ASYD (Assignment of System Data)

SYS1

INDEX 64, b0: 0/1=μ-law/A-law of CODEC (depends on the country)
INDEX 186, b6=1 (ISDN is in service)
INDEX 187=00 (Fixed)
INDEX 474 Guard Timer for Originating Call (MTC×TC)
bit 0-3: MTC (Timer Counter)
bit 4-6: TC (Timer Class), assign 1H (64 milliseconds)

STEP 2: ASYDL (Assignment of System Data for LDM)

SYS1
INDEX 810, b2 0/1 = -/External Music-on-Hold takes precedence **Note 17**

Note 17: This is available when Music-on-Hold by AMGIL is invalid.

STEP 3: ARTD (Assignment of Route Class Data)

Assign the route class data on Virtual Speech Channel and Virtual Signaling Channel. The following is an example when the Virtual Signaling Channel=10 and the Virtual Speech Channel =20:

RT=10 (Virtual Signaling Channel)
RT=20 (Virtual Speech Channel)

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

- For ISDN Trunk Data

RT=20 (Virtual Speech Channel)

CDN	2	(ONSG)	= 2
	4	(INSG)	= 2
	5	(TF)	= 3
	6	(TCL)	= 1
	7	(L/T)	= 1
	8	(RLP)	= 2
	10	(SMDR)	= 1
	15	(LSG)	= 12
	28	(ANS)	= 1
	30	(PAD)	= 4
	31	(OGRL)	= 1
	32	(ICRL)	= 1
	34	(GUARD)	= 1
	45	(A/D)	= 1
	50	(DPLY)	= 1
	60	(TC/EC)	= 1
	63	(LYER1)	= 1
	65	(INT)	= **Note 18 Note 19**
	66	(DC)	= **Note 20**

RT=10 (Virtual Signaling Channel)

CDN	2	(ONSG)	= 2
	4	(INSG)	= 2
	6	(TCL)	= 1
	7	(L/T)	= 1
	8	(RLP)	= 2
	15	(LSG)	= 13
	28	(ANS)	= 1
	30	(PAD)	= 7
	63	(LYER1)	= 1
	65	(INT)	= **Note 18Note 19**
	66	(DC)	= **Note 20**

The other data should be “0” (default data).

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

Note 18: INT (CDN65):1 N-ISDN2
2 Australia
4 ITU (CCITT), ETSI (PRI)
5 AT&T (#4/#5 ESS)
6 ETSI (BRI)
7 NT DMS 100/DMS 250

Note 19: When you assign 65(INT)=4 (EMEA only), refer to 5. ETSI ISDN Data Assignment in Chapter 3 of Data Programming Manual - ISDN.

Note 20: In the case of “SUB ADDRESS - ADDRESSING”, assign “0”. (Refer to SUB ADDRESS-ADDRESSING [S-95] in Data Programming Manual - ISDN.)
In the case of “DID ADDRESSING”, refer to DIRECT INWARD DIALING (DID) ADDRESSING [D-123] in Data Programming Manual - ISDN.

Note 21: Required for EMEA. When you use ETSI Channel Negotiation, refer to 6. ETSI Channel Negotiation in Chapter 3 of Data Programming Manual - ISDN.

- For Q-SIG Trunk Data

RT=20 (Virtual Speech Channel)

CDN				
	2	(ONSG)	= 2	
	4	(INSG)	= 2	
	5	(TF)	= 3	
	6	(TCL)	= 4	
	7	(L/T)	= 1	
	8	(RLP)	= 2	
	15	(LSG)	= 12	
	28	(ANS)	= 1	
	30	(PAD)	= 4	**Note 22**
	31	(OGRL)	= 1	
	32	(ICRL)	= 1	
	34	(GUARD)	= 1	
	45	(A/D)	= 1	
	49	(TRKS)	= 0/1	**Note 23**
	50	(DPLY)	= 1	**Note 24**
	60	(TC/EC)	= 1	
	63	(LYER1)	= 1	
	65	(INT)	= 10	
	66	(DC)	= 15	**Note 25**
	113	(UUI)	= 1	**Note 26**
	116	(PREF)	= 0/1	**Note 27**
	118	(BOB)	= 1	**Note 28**

RT=10 (Virtual Signaling Channel)

CDN				
	2	(ONSG)	= 2	
	4	(INSG)	= 2	
	5	(TF)	= 3	
	6	(TCL)	= 4	
	7	(L/T)	= 1	
	15	(LSG)	= 13	
	30	(PAD)	= 7	
	31	(OGRL)	= 1	
	32	(ICRL)	= 1	
	34	(GUARD)	= 1	
	45	(A/D)	= 1	
	65	(INT)	= 10	
	118	(BOB)	= 1	**Note 28**

Note 22: Depending on the level diagram of the network, data “4” is standard.

Note 23: Each office must be assigned a different value to avoid collision at the time of call origination.

Note 24: Assign “1” when the number display on LCD of terminal is required.

Note 25: ACDD is not available if DC = 15.

Note 26: Assign “1” when the User-to-User Signaling notification is required.

Note 27: Required for EMEA. To provide the system with channel negotiation, see 7. Q-SIG CHANNEL NEGOTIATION in Chapter 3 of Data Programming Guide - ISDN.

Note 28: Assign “1” when the multi-rate bearer service is used.

STEP 4: ARTI (Assignment of Trunk Application Data)

Assign the application data for Trunk in Virtual Speech Channel.

RT=10 (Virtual Signaling Channel)
RT=20 (Virtual Speech Channel)
CDN68 (VIR)=2 (MG connection)

CDN89 (REGION): 1 = ETSI ISDN **Note 29**

Note 29: Required for EMEA

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

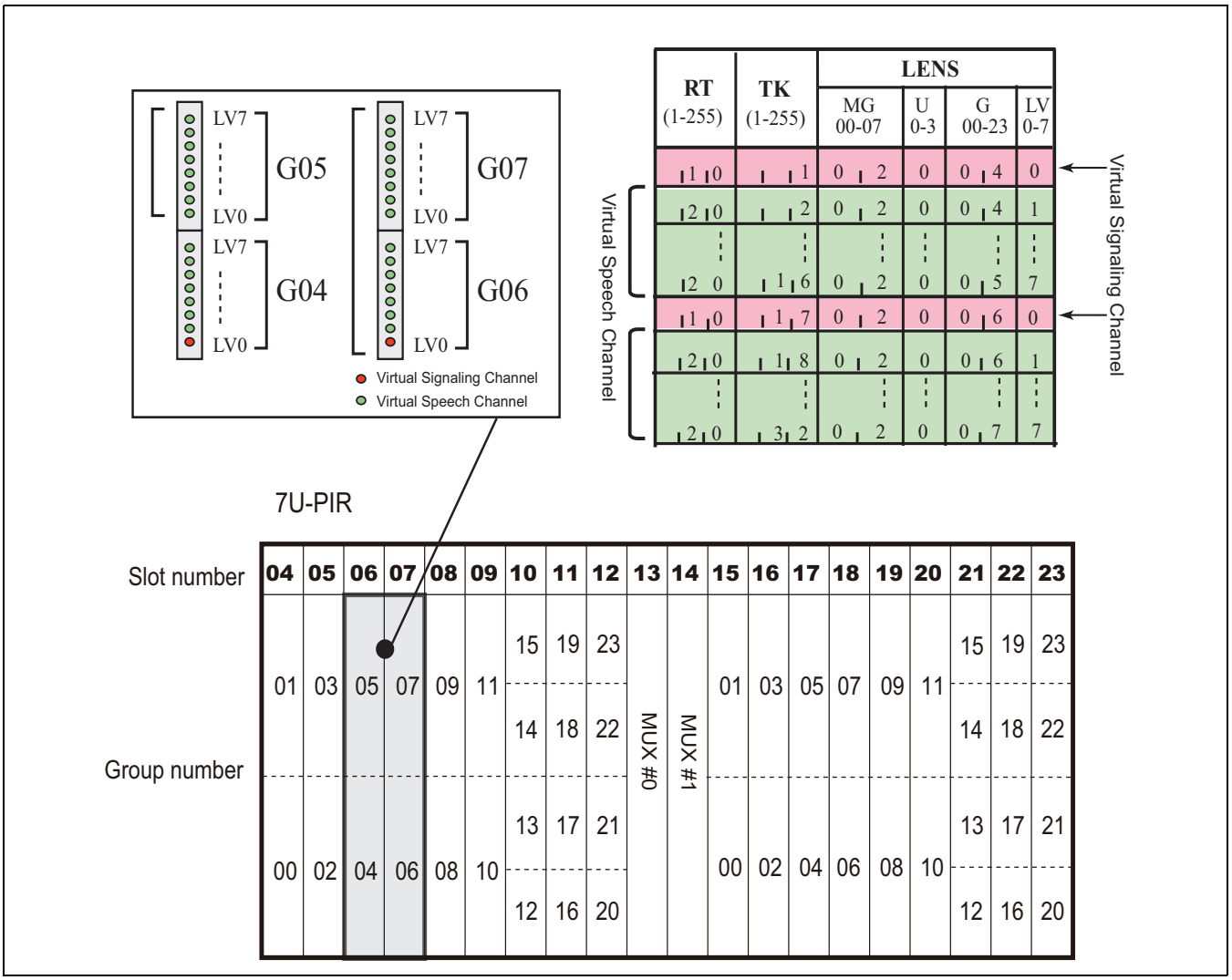
To use FAX, specify the FAX relay settings in the following:

CDN71 (FXD)
CDN72 (FXJS)
CDN73 (FXPT)
CDN74 (FXPS): This parameter appears when 1 (G.711) or 2 (G.726) is selected in FXPT.

STEP 5: ATRK (Assignment of Trunk Data)

Assign the Trunk Data to Virtual Speech Channel. The following is an example for assigning channel data of PRI (2.0M).

Trunk Data Channel



Note: Virtual trunk occupies 1HW (4-Group). For example, if one channel is registered for Virtual Trunk, the whole HW is occupied exclusively for the Virtual Trunk.

Note: Do not assign the trunk data to even-numbered MG, U=0, and G=00. It is not available for MG(PRI).

Note: Be sure to assign route data by ARTD/ARTI in advance before assigning trunk data by ATRK.

Note: The total number of B-channels must not exceed 460 per two Module Group (MG) pair. i.e. MG2/3, MG4/5 and MG6/7

STEP 6: ADPC (Assignment of Determinate Point Code Data)

Assign the Point Code (1~16383) on Virtual Speech Channel and Virtual Signaling Channel. Note that the Point Code must be different from the Point Code for CCIS. (ISDN does not actually use the Point Code but it is necessary to develop the office data.)

Note: NDM command (ADPCN) cannot be used here.

STEP 7: ACSC (Assignment of CSC Data)

Assign Virtual Speech Channel into the even-numbered (130~254) CSC group, and Virtual Signaling Channel into the odd-numbered CSC group.

Note: NDM command (ACSCN) cannot be used here.

- PRI (2M): 30B+D setting.

CSCG	CICG	CCH		
		MG (00-07)	U (0-3)	G (00-23)
130/131	0	02	0	04
	1	02	0	04
	2	02	0	04
	3	02	0	04
	4	02	0	04
	5	02	0	04
	6	02	0	04
	7	02	0	04

STEP 8: ACIC1 (Assignment of CIC Code Data 1)

Assign the accommodated location of Virtual Signaling Channel to the Point Code.

Note: NDM command (ACIC1N) cannot be used here.

PC: Point Code specified by ADPC
CSCG: CSC group of Virtual Signaling Channel specified by ACSC

STEP 9: ACIC2 (Assignment of CIC Code Data 2) ** Required only for Q-SIG trunk.*

Assign the CIC Number and accommodated location of Virtual Speech Channel to the Point Code.

PC: Point Code specified by ADPC
CIC: The same CIC number must be given to one speech line between two nodes.
LENS: Accommodated location of Virtual Speech Channel

STEP 10: ATRK (Assignment of Trunk Data)

Assign the Trunk Data to Virtual Signaling Channel, referring to page 776.

STEP 11: MBTK (Make Busy of Trunk)

Cancel the Make-Busy of Virtual Speech Path.

RT: Route Number
TK: Trunk Number
MB: 0(Make-Busy Cancel)

STEP 12: AMGIL (Assignment of Media Gateway Information for LDM)

Note: Make sure to assign in order of ATRK → AMGIL.

Assign MG(PRI).

MG-ID: MAC Address of MG(PRI) (6 byte of HEX data)
** MAC address is labeled on the left front of MG(PRI) (below PWR lamp).*
FUNCTION: Setting (to assign MG information)
KIND: ISDN Trunk (PRI 2M) [SIP]
UG50 Multi-Slot Mode:
Select this check box if registering UG50 in Multi-slot mode.
LINE: 0 (fixed)
CH: 0 (fixed)
LENS: Accommodating Location of Virtual Speech Channel.
Assign the first channel of HW to which Virtual Speech/Signal Channel is allocated.
** Make sure that LENS assigned here already has been assigned by the ATRK.*
Setting Type of Signaling Packet Service:
QoS settings of signal path (ToS value applied when MG(PRI) connects to Internal PHIPRI)
Music On Hold Exists: **Note 30**
Select this check box if configuring Music On Hold.
Music On Hold:
Select one among:
External Music on hold (default setting)/Internal Music on hold1/Internal Music on hold2
External Music On Hold Input Gain Adjustment:
Select one from the following options:
0: 0dB
1: -10dB (gain)
2: -15dB (gain)
3: -20dB (gain)
4-15: Not used
Country Code:
Australia
Brazil
China
Hong Kong
Japan
Korea

Malaysia
Mexico
New Zealand
North America
Singapore
Sri Lanka
Taiwan
Thailand
Thailand (EGAT)
U.K
Other

Law of A/D conversion:
Choose either μ law or A law.

Note 30: Not supported for UG50. For further information, refer to Peripheral Equipment Description (UG50).

STEP 13: AMGVL (Assignment of Media Gateway Voice Control Data for LDM)

Assign the Voice control data to connect to MG(PRI).

A RT (Storing MG): Route number of virtual speech channel used for MG(PRI).
TYPE: Select “Route Specified” or “Location ID Specified”.
B RT (MG Storing): Displayed when TYPE=Route Specified is selected.
Used when connecting MG and MG in Tandem. Assign the route number of virtual speech channel for the destination MG.
B LOC-ID: Displayed when TYPE=Location ID Specified is selected.
Assign the location ID where the destination IP station belongs. (Preferred)
Setting of Jitter Buffer:JB_MIN [0-30 (×10 milliseconds)], JB_MAX [0-30 (×10 milliseconds)]
Setting Type of Voice Packet Service: IP PRECEDENCE [0-7]/DIFFSERV [00-63]
Setting of Payload:TYPE, SIZE **Note 31**

Note 31: For using this parameter, refer to "Payload Setting for Each IP Equipment" in the System Description.

[4] Security Data Assignment

Assign authentication data for SIP Mode.

STEP 1: ASECL (Assignment of Media Gateway Voice Control Data for LDM)

Specify a one-time password and the available period.

<Certified Terminal Assignment>
One-Time Password:Enter a one-time password.[4-10 digits]
Available Period: Specify the available period.This command assigns one-time password and its available period.

Note: To perform Authentication feature, assign the same one-time password in MG(PRI). At initial startup of registration mode, MG(PRI) will ask you to input the one-time password for authentication. For more information, refer to page 787.

RESET THE MG(PRI) BY PUSHING RESET BUTTON AFTER ASSIGNING DATA

[*] Data Deletion

Deletion must be operated in the reverse order of assignment. Make sure to delete in the order of AMGIL → ATRK. (Confirm there is no data left in AMGIL before deleting ATRK)

3.2 VT-100 Compliant Terminal Software Setting on Maintenance Console



Note: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data.

STEP 1: Connect a PC (maintenance console) to CONSOLE connector.

STEP 2: Run the VT-100 compliant terminal software (e.g. HyperTerminal) on the Maintenance Console.

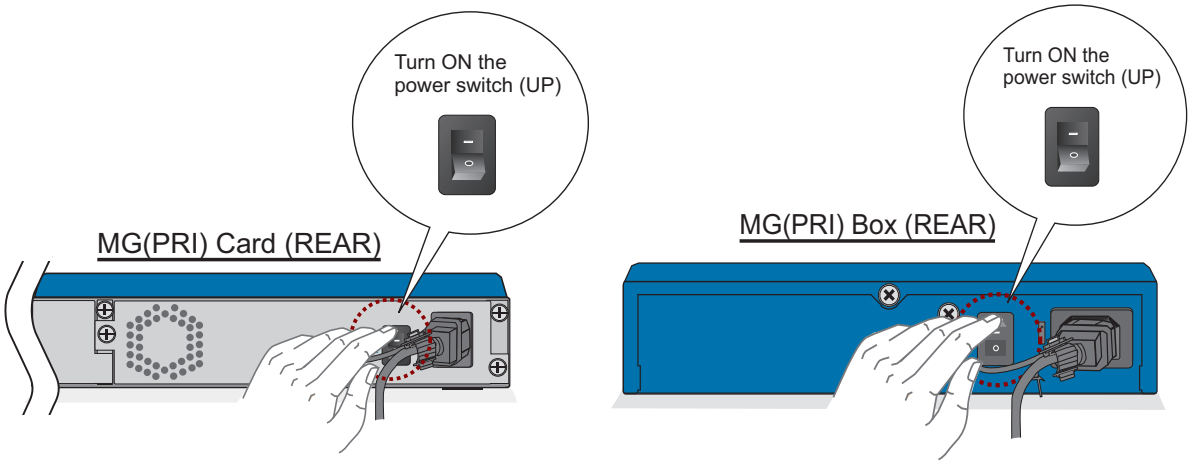
STEP 3: Set the parameter of the terminal software as follows:

- Port: *COM1 (depending on PC setting)*
- Baud Rate: *9600 bps*
- Data: *8 bits*
- Parity: *None*
- Stop Bit: *1*
- Flow Control: *None*

3.3 Power On

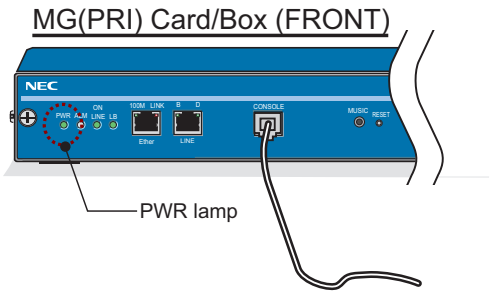


STEP 1: Turn ON the power switch (UP) on the rear side of MG(PRI).



Note: When the 1U-MPC has already turned on, press “RESET” button on the front panel of MG(PRI) Card to restart the card and start its boot program.

STEP 2: Make sure the LED indicates normal status.
- PWR LED lights green.
- (Boot program automatically starts.)



3.4 Configuration Command Assignment

Assign the network data to MG(PRI) by configuration command operation on the maintenance console.

This section consists of two parts; procedure for Proprietary Protocol mode and procedure for SIP mode. The following explains the procedure by each mode.

Note: "DRS (Device Registration Server)" used in this section refers to the Telephony Server. When MG(PRI) works in Proprietary Protocol mode, the Telephony Server acts as DRS, which is controlling function of the Telephony Server.

Note: "SIP server" used in this section refers to the Telephony Server. When MG(PRI) works in SIP mode, the Telephony Server acts as SIP server.

Note: The setting data here is an example. Assign the network data according to your network configuration.

<When Proprietary Protocol Mode>

Assign the configuration data for MG(PRI) in Proprietary Protocol mode. About the configuration data for SIP mode, refer to page 787.

STEP 1: When the boot program is started, the initial display below is displayed on the screen.

```
DP OK

MG-ID: xxxxxx
Boot program version : SP3839 SH7751R CBOOT-1 PROG-A [xx.xx.xx.xx]
Main program version : SP3884 MG PRI PROG-A [xx.xx.xx.xx]
H/W PKG information  : CA-CC00 001
DSP information      : DSP-K-AC49kernel [xx.xx.xx.xx]
DSP information      : DSP-P-AC490012ae3-S [xx.xx.xx.xx]


Starting Boot program.....
--- Online program Initial start --- (wait for a while)
 :
 :(Omitted)
 :

 No One Time Password!!

 Please input a one time password.
 One Time Password : q
```

Note: The default of registration mode is SIP mode, therefore, enter "q" as one-time password to switch to the Proprietary Protocol mode. After that, enter a command within 20 seconds because MG(PRI) automatically resets its mode in 20 seconds.

STEP 2: Type "usrConsole" at the indicated OS prompt and press the ENTER key.
If a prompt (->) displays on the screen, press the Enter key.

```
->
->usrConsole
```

STEP 3: MG(PRI)'s command prompt appears as follows.

```
MG Maintenance command
MG-PRI>
```

Note: If a prompt does not appear on the screen, press the Enter key to display a prompt.

STEP 4: Type "SETUP TP" to set the network data referring to page 821, also set the following network data depending on your LAN environment.

There are two ways to set the network data;
- When DHCP server is used
- When DHCP server is NOT used

- **When DHCP server is used**

As IP address of MG(PRI), Default Gateway, and the Telephony Server is automatically get by DHCP server, there is no need to assign these network data on MG(PRI) side. IP addresses listed below, however, need to be assigned on DHCP server side. **Note 1**

- IP address of Default Gateway
- IP address and port number of DRS **Note 1**

Note: Check the number of IP addresses saved in DHCP server is sufficient so as to get IP address of MG(PRI) anytime.

Class: Global
Name: Not specified, but do not enter the same option name in duplicate
Data: IP address
Array: Checked
Code: 161

Refer to "DHCP Server Setup" in System Description for more information on DHCP Server Optional Setting.

Note 1: About IP address of DRS (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

- **When DHCP server is NOT used**

  Set the following data on MG(PRI) side. **Note 2**

  - DHCP Server Setting

```
MG-PRI> SET DHCP DISABLE

DHCP setting succeeded
```

  - IP address and subnet mask of MG(PRI)

```
MG-PRI> SET IPADDRESS 10.10.10.170 255.255.255.0

IP Address setting succeeded.
```

  - IP address of Default Gateway

```
MG-PRI> SET DEFAULTROUTE 10.10.10.255

Default Gateway setting succeeded.
```

  - IP address and port number of DRS **Note 3**

```
MG-PRI> SET DRSADDRESS

DRS Unit (1: Primary/2: Secondary/3: Tertiary/4: Fourth): 1
DRS IP Address: 10.10.10.30
DRS Port Number: 5060

DRS setting succeeded.
```

  - IP address of Default Gateway

```
MG-PRI> SET INTERFACE

SPEED (AUTO/100M/10M):AUTO
Ethernet Speed setting succeeded.
```

Note 2: IP addresses assigned here are not effective when DHCP server is set to “Enabled”. Be sure to assign “SET DHCP DISABLED” before starting the IP address setting.

Note 3: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

STEP 5: Save the configuration data assigned
.

```
MG-PRI> SAVE CONFIG

** Don't power off in progress **
Do you need save? [Y/N]:Y
Erase start...
Erase OK!
Write start...
Write OK!

Configuration data has been saved.
Re-starting is required for making a setup reflect!!
```

STEP 6: Reboot the MG(PRI) by entering reboot command.
Turning OFF and ON/Pressing RESET button also reset the MG(PRI).

```
MG-PRI> REBOOT
Do you need reboot? [Y/N]:Y
```

Note: MG-ID (MAC Address of MG(PRI)) is displayed after rebooting. The MG-ID needs to be assigned in AMGIL command.

<When SIP Mode>

Assign the configuration data for MG(PRI) in SIP mode. About the configuration data for Proprietary Protocol mode, refer to page 783.

STEP 1: When the boot program is started, the initial display below is displayed on the screen.

The default of registration mode is SIP mode, therefore, the system will require a one-time password for authentication at initial startup. Enter the same password with one entered in SIP server. As long as you don't enter a one-time password, you cannot go to the next step.

```
DP OK

MG-ID: xxxxxx
Boot program version : SP3839 SH7751R CBOOT-1 PROG-A
[xx.xx.xx.xx]
Main program version : SP3884 MG PRI PROG-A [xx.xx.xx.xx]
H/W PKG information  : CA-CC00 001
DSP information      : DSP-K-AC49kernel [xx.xx.xx.xx]
DSP information      : DSP-P-AC490012ae3-S [xx.xx.xx.xx]


Starting Boot program.....
--- Online program Initial start --- (wait for a while)
 :
 :(Omitted)
 :

 No One Time Password!!

 Please input a one time password.
 One Time Password : •••••

Erase start...
Erase OK!
Write start...
Write OK!

 One time password setting succeeded.
```

STEP 2: Type "usrConsole" at the indicated OS prompt and press the ENTER key.

If a prompt (->) displays on the screen, press the Enter key.

```
->
->usrConsole
```

STEP 3: MG(PRI)'s command prompt appears as follows.

```
MG Maintenance command
MG-PRI(SIP)>
```

Note: If a prompt does not appear on the screen, press the Enter key to display a prompt.

STEP 4: Type "SETUP SP" to set the network data referring to page 818, also set the following network data depending on your LAN environment.

There are two ways to set the network data;

- When DHCP server is used
- When DHCP server is NOT used

- **When DHCP server is used**

As DHCP server automatically assigns IP addresses to MG(PRI), Default Gateway, and the Telephony Server, there is no need to assign these network data on MG(PRI) side. IP addresses listed below, however, have to be prepared in DHCP server side. **Note 4**

- IP address of Default Gateway
- IP address and port number of SIP Server **Note 5**

Note: Check the number of IP addresses saved in DHCP server is sufficient to provide IP addresses for MG(PRI)s anytime.

Note 4: DHCP option setting is as follows:

Class: Global
Name: Not specified, but do not enter the same option name in duplicate
Data: IP address
Array: Checked
Code: 162

Refer to "DHCP Server Setup" in System Description for more information on DHCP Server Optional Setting.

Note 5: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

- **When DHCP server is NOT used**

  Set the following data on MG(PRI) side. **Note 6**

  - DHCP Server Setting

```
MG-PRI(SIP)> SET DHCP DISABLE

DHCP setting succeeded
```

  - IP address and subnet mask of MG(PRI)

```
MG-PRI(SIP)> SET IPADDRESS 10.10.10.170 255.255.255.0

IP Address setting succeeded.
```

  - IP address of Default Gateway

```
MG-PRI(SIP)> SET DEFAULTROUTE 10.10.10.255

Default Gateway setting succeeded.
```

  - IP address, port number, and host name of SIP Server **Note 7**
    Host name can be omitted.

```
MG-PRI(SIP)> SET SIPSV_IPADDRESS

SIP Server (1-20):1
IP Address:10.41.1.150
Port Number:5060
Is there the Host Name ? [Y/N]:Y
Host Name:SRV1.nec.com
SIP server setting succeeded.
```

  - LAN Interface Setting

```
MG-PRI(SIP)> SET INTERFACE

SPEED (AUTO/100M/10M):AUTO
Ethernet Speed setting succeeded.
```

  - DNS Setting
    Enable/Disable DNS. Specify the IP address of DNS when enabling DNS.

```
MG-PRI(SIP)> SET DNS_SW

DNS interface(Enable/Disable) [Disable]:ENABLE
DNS IP Address [0.0.0.0]:10.40.1.150

DNS Setting succeeded.
```

- Host Name of MG(PRI)
  Specify the host name of MG(PRI) when DNS Server is enabled.

```
MG-PRI(SIP)> SET OWN_NAME mgpri.nec.com

Own name setting succeeded.
```

Note 6: IP addresses assigned here will not be effective if DHCP server is set to “Enabled”. Be sure to assign “SET DHCP DISABLED” before starting the IP address setting.

Note 7: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

STEP 5: Save the configuration data assigned

.

```
MG-PRI(SIP)> SAVE CONFIG

** Don’t power off in progress **
Do you need save? [Y/N]:Y
Erase start...
Erase OK!
Write start...
Write OK!

Configuration data has been saved.
Re-starting is required for making a setup reflect!!
```

STEP 6: Reboot the MG(PRI) by turning the power OFF→ON or pressing RESET button.

```
MG-PRI(SIP)> REBOOT
Do you need reboot? [Y/N]:Y
```

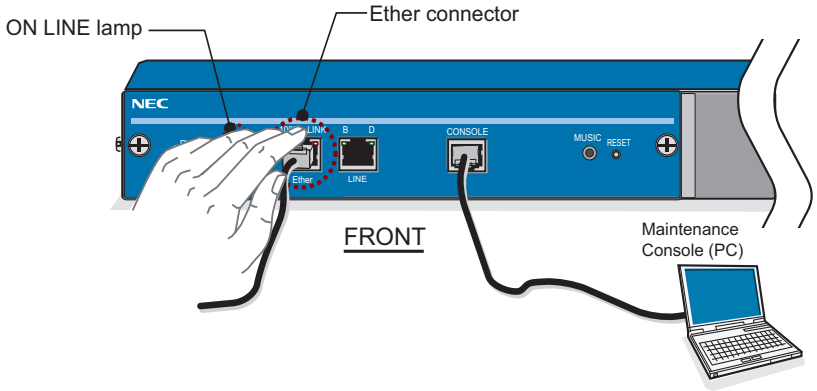
Note: MG-ID (MAC Address of MG(PRI)) is displayed after rebooting. The MG-ID needs to be assigned in AMGIL command.

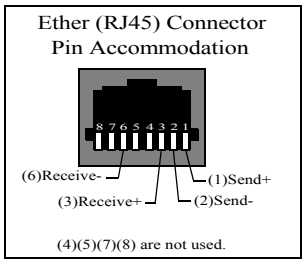
3.5 Cable Connection

STEP 1: Connect MG(PRI) to the LAN.

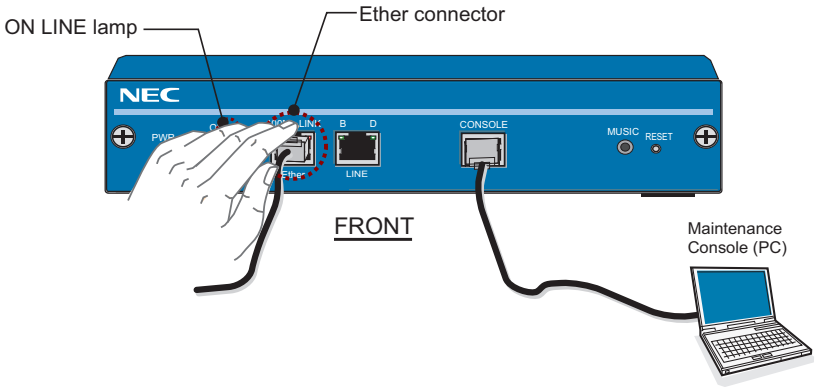
Insert LAN cable into the Ether connector on the front panel of the MG(PRI). ON LINE lamp lights green few minutes later when connection succeeded.

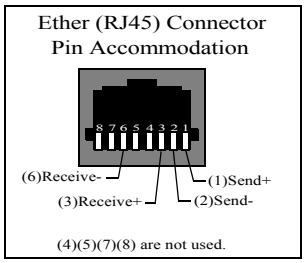
- MG(PRI) Card [SCA-30PRIA]





- MG(PRI) Card [MG-30PRIA]

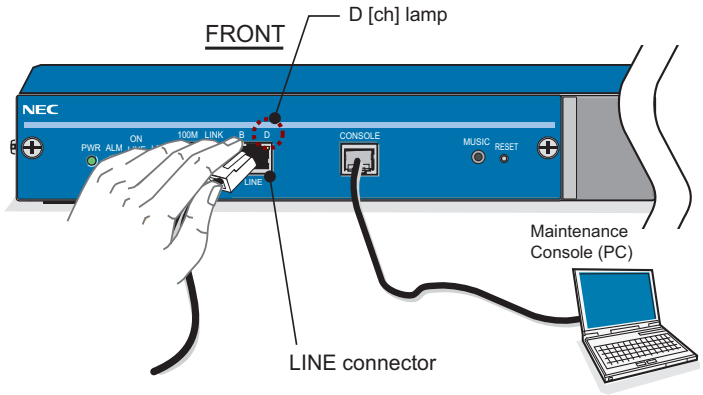


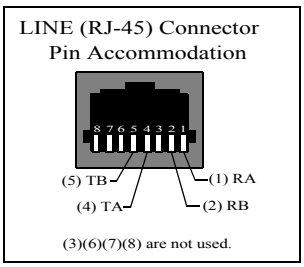


STEP 2: Connect ISDN line to MG(PRI).

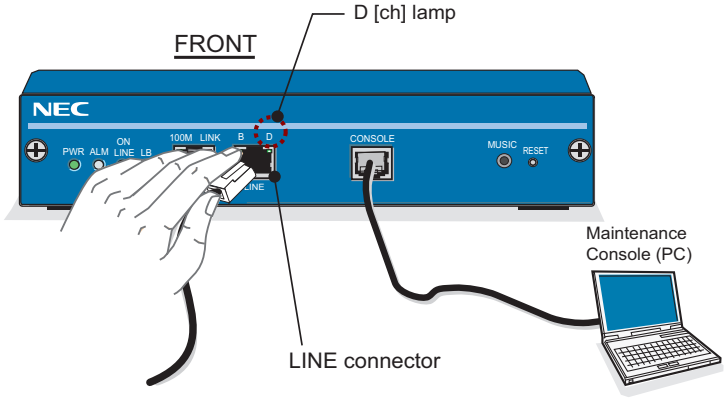
Insert LINE cable of DSU into LINE connector on the front panel of the MG(PRI). Check the D lamp of LINE flashes → steady lights in green when connection succeeded.

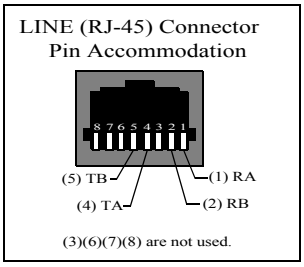
- MG(PRI) Card [SCA-30PRIA]





- MG(PRI) Box [MG-30PRIA]





3.6 Basic Test Procedures

Operation of MG(PRI) can be checked from the visual inspection of lamp display.

Lamps on the Front Panel

LAMP NAME		COLOR	MEANING OF INDICATION
PWR		Green	Power ON
		OFF	Power OFF
ALM **Note 1**		Red	Lights when power module failure is detected
		OFF	Normal operation
ON LINE		Green	Lights when registration is completed
		OFF	Initial setting is not completed
LB		Green	Not used **Note:** Temporary lights in initial setting
		Flash (60INT)	Flashes in loop-back mode
		OFF	Normal operation
LINE	B	Green	Lights when using two channels or more **Note:** Temporary lights in initial setting
		Flash (120INT)	Flashes when using only one channel
		OFF	Remains OFF when all the channels are idle
	D	Green	Layer 2 link is established in ISDN line **Note:** Temporary lights in initial setting
		Flash (60INT)	Flashes slow when Dch is in make-busy state
		Flash (120INT)	Flashes fast when Layer 2 link is not established
		OFF	Dch is not assigned
Ether	LINK	Green	Lights when establishing Layer 1 link **Note:** Lights when physically connected to IP network.
		Flash	Flashes (in 0.2-second cycle) when sending/receiving IP Packet
		OFF	Layer 1 link is not established
	100M	Green	Lights when transmission speed is 100 Mbps
		OFF	Remains OFF when transmission speed is 10 Mbps

Note 1: For ALM lamp on MG-30PRIA, it always turns OFF.

Note 2: When the lamps remain the following status for a long time, any failure might occur in initial setting. Make sure of the cable connection and the office data assignment to solve the problem.

PWR	ON LINE	LB	LINE		CAUSE OF ERROR
			B	D	
ON	OFF	ON	ON	OFF	Registration NG on IP part
ON	ON	ON	ON	OFF	Initial setting NG on ISDN part
ON	ON	OFF	OFF	Flash	Layer 2 is not established in ISDN part
ON	ON	OFF	OFF	OFF	D-channel has not been specified yet.

[1] Basic Connection Test

STEP 1: Is the PWR lamp lighting green?

[No]

- Check the AC power cable is firmly inserted.
- Check the PWR switch is ON.
- Check the AC power cable from the AC power inlet is firmly connected to power source.

[Lights green]

Go on to STEP 2.

STEP 2: Is the LINK lamp lighting green?

[No]

- MG(PRI) may not be physically connected to the LAN. Check the LAN cable between MG(PRI) and networking device. (Also check the power of Switching HUB and Routers are turned ON.)
- Check that correct cable is used (Use the Straight-through cable)
- Check that the cable is not damaged. (Test the continuity in the LAN cable.)

Replace the LAN cable or the network device if the problem is still not cleared.

[Lights green]

This lamp turns ON when MG(PRI) initially starts up and connection to LAN is established.

Go on to STEP 3.

STEP 3: Is the ON LINE lamp lighting green?

[No]

- Check the data assignment of the Telephony Server side and MG(PRI) side.

  - Telephony server: Is the data assignment on each PCPro command correct?
  - MG(PRI): Check the configuration data assigned from the maintenance console.

[Lights green]

Go on to STEP 4.

STEP 4: Is the D lamp on LINE connector lighting green?

[No]

- Check the system message of the Telephony Server.
- Check the MG(PRI) is physically connected to ISDN network.

  Also confirm the line cable between;

  - MDF and MG(PRI)
  - MDF and DSU
- Check whether the line cable is not damaged. (Test the continuity of the line cable.)
- Check the data assignment of the Telephony Server side and MG(PRI) side.

  - Telephony server: Is the data assignment on each PCPro command correct?
  - MG(PRI): Check the configuration data assigned from the maintenance console.

[Lights green]

Go on to STEP 5.

STEP 5: Speech test through MG(PRI). Call origination/termination OK?

[Call origination/termination does not operate normally]

- Check the system message of the Telephony Server.
- Check the MG(PRI) is physically connected to ISDN network.

  Also confirm the line cable between:

  - MDF and MG(PRI)
  - MDF and DSU
- Check that the cable is not damaged. (Test the continuity in the LAN cable.)

- Check the data assignment of the Telephony Server side and MG(PRI) side.

  - Telephony server: Is the data assignment on each PCPro command correct?
  - MG(PRI): Check the configuration data assigned from the maintenance console.

- Check the contract status of the ISDN line.

[B lamp of LINE does not flash/light]

- Indicates that all channels are in idle state, check the office data assignment.

[B lamp of LINE lights/flashes]

- Flashes: Only one channel is currently used.
- Lights: Two or more channels are currently used.

[Call originated/terminated normally], [Call quality is adequate]

Connection test is completed.

[2] Alarm Information Check

- Check the Alarm Lamps. If the red lamp lights, search the cause of fault and perform the appropriate operations.

Note: ALM Lamp Check is available for SCA-30PRIA only.

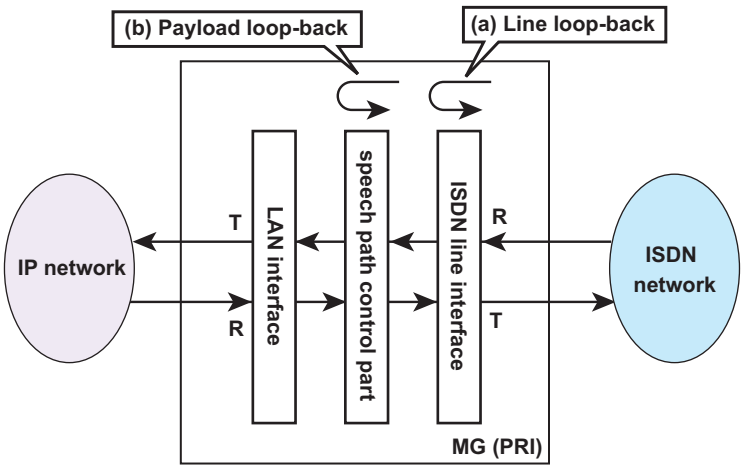
- Check the system message.
  1. Display the system message using DFTD command.
  2. See the system message and confirm whether any failure occurs on MG(PRI). Recover it if needed.

3-D	Lock-Up Failure (Permanent) **Note 3**
3-H	Digital Line Warning
3-I	Digital Line Failure
13-H	CCS Link Failure (Permanent)
13-I	CCS Link Failure (Temporary)
13-J	Restoration From CCIS Link Failure
33-R	IP PKG Warning
33-S	IP PKG Failure
33-T	IP PKG Restore

Note 3: When TCP error keeps occurring for 90 seconds or more, this message is output.

[3] Loop-Back Test

Execute the loop-back test on the maintenance console.



(a) Line Loop-Back

All the channels (32ch) are looped back to ISDN on the ISDN line interface of MG(PRI).

(b) Payload Loop-Back

All the channels (32ch) are looped back to ISDN on the speech path control part of MG(PRI).

Note: The difference between Line Loop-Back and Payload Loop-Back is;

All the processes in Line Loop-Back follow the timing of ISDN side. There are some processes following the timing of system side in Payload Loop-Back. In other words, bit error may occur when the system does not synchronize with ISDN in Payload Loop-Back. Bit error is not considered in Line Loop-Back.

4 Operation and Maintenance

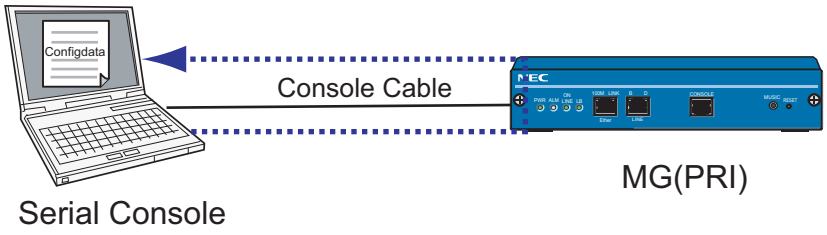
This section explains the operation and maintenance procedure of MG(PRI). Configuration data is assigned by using Maintenance Console (PC).

4.1 How to Back Up and Restore Config Data by Serial Connection (Local Download)

This config download/upload is performed one by one, connecting a PC to each MG(PRI) with a Console Cable (RS232C <-> RJ-45) and a LAN cable. Prepare the following:

- Console Cable (RS232C <-> RJ-45) cable is required.
- Serial terminal emulation program (such as HyperTerminal) is required
- LAN cable (crossover) is required for restoring config data.
- PCPro has to be installed in advance.

- Backing Up Config Data By Serial Connection



STEP 1 Power off MG(PRI) and disconnect it from the network.

STEP 2 Connect PC to MG(PRI) by using Console Cable (RS232C <-> RJ-45) cable.

STEP 3 Power on MG(PRI).

STEP 4 Activate HyperTerminal and set the following:
Bit per second:9600bps
Data bits:8bit
Parity:None
Stop bit:1bit
Flow control:None

STEP 5 Select **[Transfer]** -> **[Capture File...]**.

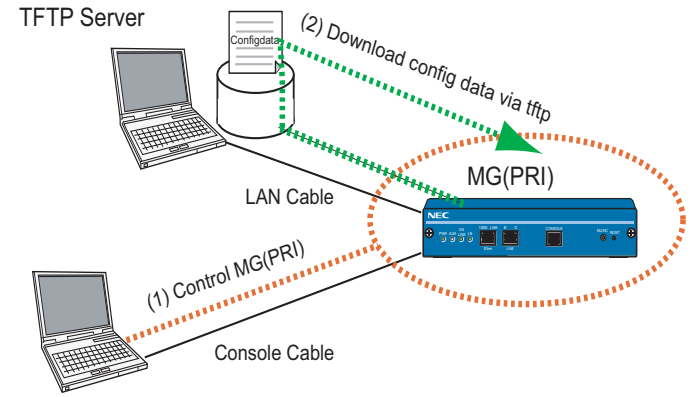
STEP 6 Send File screen is displayed. Specify a file name to be saved, and then click the Start button.

STEP 7 After a prompt (->) is displayed, enter "`useConsole`".

STEP 8 After a prompt ("`>MG-PRI`" or "`>MG-PRI`(SIP)") is displayed, enter "`show config`" to display configuration data of the MG(PRI).

STEP 9 Select **[Transfer]** -> **[Capture Text]** -> **[Stop]** to save the config file shown in screen.

- Restoring Config Data By Serial Connection And TFTP Connection



Note: TFTP server and Serial Console both can be performed in single Personal Computer.

STEP 1 Power off MG(PRI) and disconnect it from the network.

STEP 2 Connect Serial Console to MG(PRI) by using a Console Cable (RS232C <-> RJ-45) cable.

STEP 3 Connect TFTP server to MG(PRI) by using a LAN cable.

<Data Assignment on TFTP Server>

STEP 4 If the name of the backup config file is not sysdata, rename it to "sysdata".

STEP 5 Put the file in the root folder of TFTP server, and then start the TFTP server program.

STEP 6 Permit read behavior of this folder. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on Serial Console>

STEP 7 Power on MG(PRI).

STEP 8 Activate HyperTerminal and set the following:
Bit per second:9600bps
Data bits:8bit
Parity:None
Stop bit:1bit
Flow control:None

STEP 9 After a prompt (->) is displayed, enter "`usrConsole`".

STEP 10 After a prompt (">`MG-PRI`" or ">`MG-PRI`(SIP)") is displayed, enter "`get configdata <TFTP's IP Address>`" to download configuration data into MG(PRI).

STEP 11 Confirm that "`successfully completed`" is displayed in the screen, indicating the upload to TFTP server is completed normally.

STEP 12 To reflect the configuration data that is downloaded from TFTP server, save it by entering "`save config`" and reboot MG(PRI) by entering "`reboot`".

STEP 13 Exit the HyperTerminal by selecting **[File]** -> **[Exit]**.

<Confirmation of MG(PRI)>

STEP 14 Connect the MG(PRI) to the network.

STEP 15 Confirm that MG(PRI) is normally registered in system after reboot. Use the DISD/FPTS commands in PCPro. For more information, refer to the Command Manual.

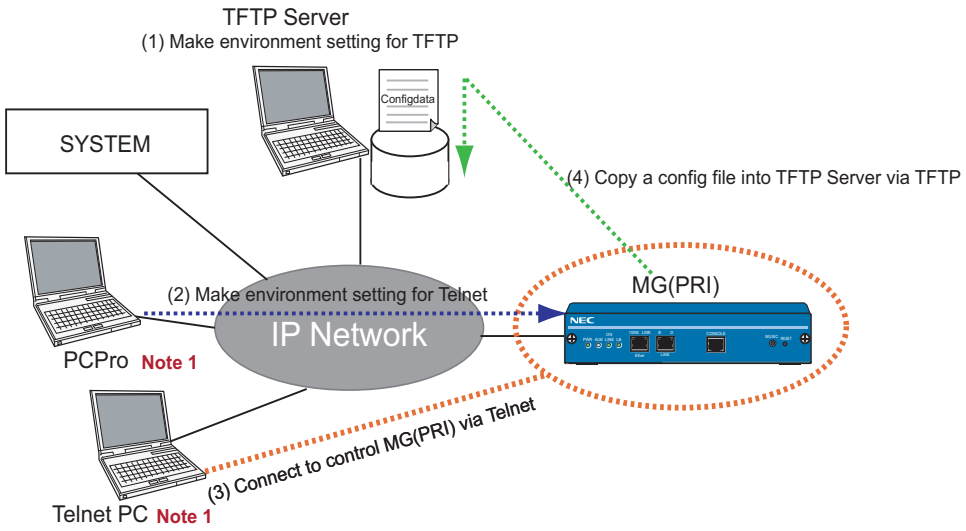
STEP 16 Check that calls via MG(PRI) can be made.

4.2 How to Back Up and Restore Config Data By TFTP Connection (Remote Download)

This config download/upload is performed via TFTP.
Prepare the following:

- PC that is capable of Telnet and TFTP features.
- All the PCs have to belong to the same segment with MG(PRI).
- TFTP server has to be installed in advance.
- PCPro has to be installed in advance.
- MG(PRI) is already registered to system and it is operating normally.

- Backing Up Config Data via TFTP



Note 1: PCPro and Telnet both can be performed by single Personal Computer.

Make sure of the connectivity in the following:

- Make sure that PCPro is able to log on to the Telephony Server.

- Check the connectivity from TFTP server to the Telephony Server by using Ping command.

- Make sure that TFTP client is able to connect to FTP server.

<Data Assignment on TFTP Server>

STEP 1 Create a folder to back up configuration data.

STEP 2 Start the TFTP server program.

STEP 3 Assign the folder as root folder, and then permit write and read behavior of this directory. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on PCPro>

STEP 4 To search for the LENS of the target MG(PRI), use the IPAN command.

STEP 5 To make environment setting for Telnet, use the ATUD command.
- Specify the LENS, which is belonging to the target MG(PRI).
- Specify a user ID and a password, which are required for logging in to MG(PRI) via Telnet.
- Input any value from 0 to 255 for USER LEVEL because MG(PRI) does not use USERLEVEL.
- For VALID TIME, input a total of time required for completing this procedures.

Note: A user ID and a password are temporary and used for download; you can specify them as you like providing the user ID is a max 20 ASCII characters and the password is 8 - 20 ASCII characters.

STEP 6 After completing the above, click the Set button.

<Data Assignment on Telnet PC>

STEP 7 Start a command prompt and enter "`telnet <MG(PRI)'s IP Address>`" to connect MG(PRI) via Telnet.

STEP 8 Log in to the target MG(PRI) by entering the userID and the password, which are set in the AUTD command.

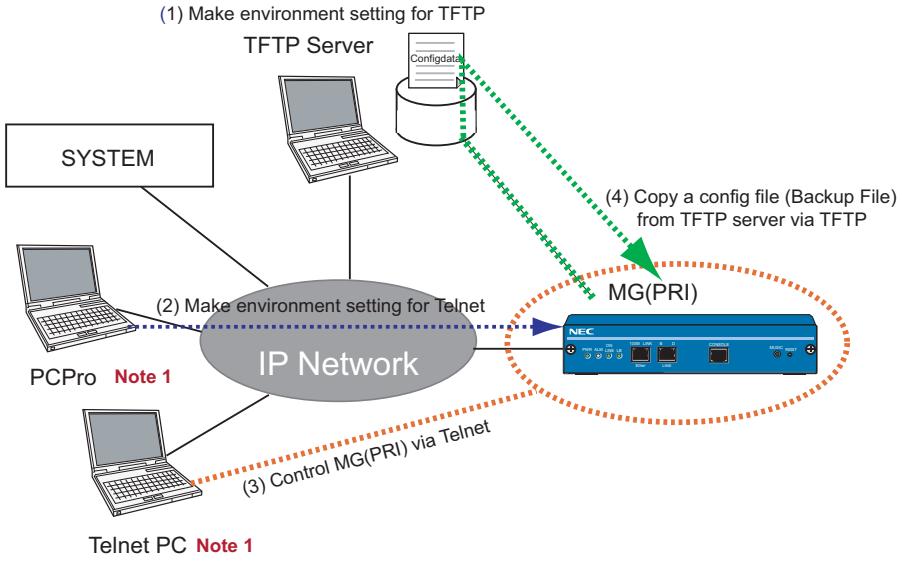
STEP 9 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 10 After a prompt ("`>MG-PRI`" or "`>MG-PRI`(SIP)") is displayed, enter "`put configdata <<TFTP's IP Address>`" to download configuration data to MG(PRI).

STEP 11 Confirm that "successfully completed" is displayed in the command prompt, indicating the upload to TFTP server is completed normally.

STEP 12 Exit the HyperTerminal by selecting **[File]** -> **[Exit]**.

- Restoring Config Data via TFTP



Note 1: PCPro and Telnet both can be performed by single Personal Computer.

<Data Assignment on TFTP Server>

STEP 1 If the name of the backup config file is not sysdata, rename it to "sysdata".

STEP 2 Put the file in the root folder of TFTP server, and then start the TFTP server program.

STEP 3 Permit read behavior of this folder. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on PCPro>

STEP 4 To search for the LENS of the target MG(PRI), use the IPAN command.

STEP 5 To make environment setting for Telnet, use the ATUD command.
- Specify the LENS, which is belonging to the target MG(PRI).
- Specify a user ID and a password, which are required for logging in to MG(PRI) via Telnet.
- Input any value from 0 to 255 for USER LEVEL because MG(PRI) does not use USERLEVEL.
- For VALID TIME, input a total of time required for completing this procedures.

Note: A user ID and a password are temporary and used for download; you can specify them as you like providing the user ID is a max 20 ASCII characters and the password is 8 - 20 ASCII characters.

STEP 6 After completing the above, click the Set button.

<Data Assignment on Telnet PC>

STEP 7 Start a command prompt and enter "`telnet <MG(PRI)'s IP Address>`" to connect MG(PRI) via Telnet.

STEP 8 Log in to the target MG(PRI) by entering userID and password, which are set in the AUTD command.

STEP 9 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 10 After a prompt ("`>MG-PRI`" or "`>MG-PRI`(SIP)") is displayed, enter "`get configdata <TFTP's IP Address>`" to download configuration data into MG(PRI).

STEP 11 Confirm that "successfully completed" is displayed in the command prompt, indicating the upload to TFTP server is completed normally.

STEP 12 To reflect the configuration data that is downloaded from TFTP server, save it by entering "`save config`" and reboot MG(PRI) by entering "`reboot`".

STEP 13 Exit the HyperTerminal by selecting **[File]** -> **[Exit]**.

<Confirmation of MG(PRI)>

STEP 14 Confirm that MG(PRI) is normally registered in system after reboot. Use the DISD commands. For more information, refer to the Operation and Maintenance Manual.

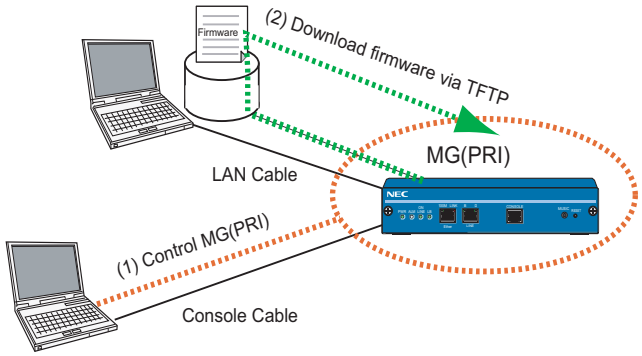
STEP 15 Check that calls via MG(PRI) can be made.

4.3 How to Upgrade Firmware by Serial Connection (Local Download)

This firmware upgrade is performed one by one, connecting a PC to each MG(PRI) with a Console Cable (RS232C <-> RJ-45) and a LAN cable. Prepare the following:

- Firmware for upgrade
- Console Cable (RS232C <-> RJ-45) and LAN cable (crossover) are required.
- Serial terminal emulation program (such as HyperTerminal) is required
- TFTP server has to be installed in advance.

TFTP Server (IP Address: 10.41.1.250)



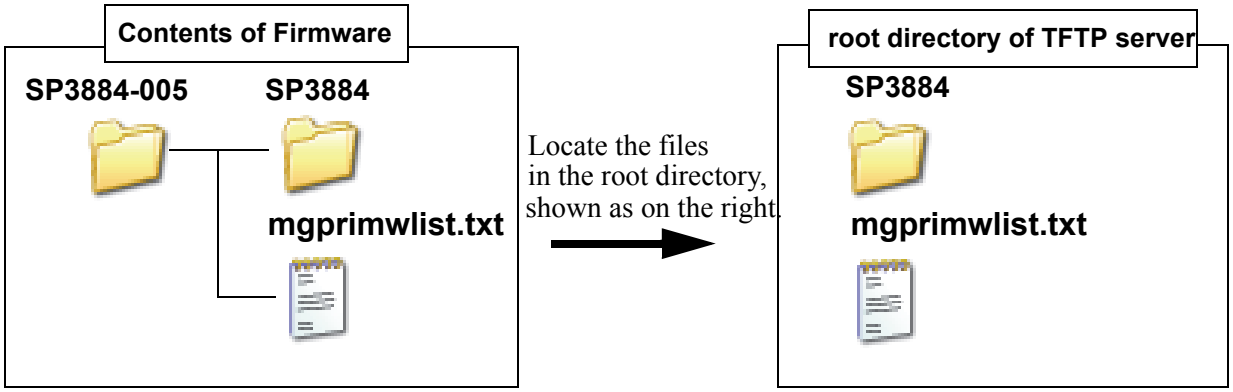
Serial Console

Note: TFTP server and Serial Console both can be performed by single Personal Computer.

STEP 1 Disconnect the MG(PRI) from the network.

STEP 2 Connect PC(s) to MG(PRI) with LAN connector and Console Cable (RS232C <-> RJ-45) both.

STEP 3 Put the firmware files (For example, SP3884) and mpgrimwlist.txt for upgrade in the root folder of TFTP server.



EXAMPLE:

SP3884-005
- **Issue Number (ISSUE5)**
- **Firmware Number**

STEP 4 Permit read behavior of this directory. For more information, refer to the appropriate manual attached to the TFTP server program.

STEP 5 Set network environment for the TFTP server.
IP Address: 10.41.1.250
Subnet mask: 255.255.255.0

STEP 6 Start the TFTP program.

STEP 7 Power on MG(PRI).

STEP 8 Activate HyperTerminal and set the following:
Bit per second:9600bps
Data bits:8bit
Parity:None
Stop bit:1bit
Flow control:None

STEP 9 After a prompt ("`>MG-PRI`" or "`>MG-PRI`(SIP)") is displayed, enter "`download`".

STEP 10 When "`Do you need download?`" message is displayed, enter "`y`".

STEP 11 The current settings of MG(PRI) are displayed, and then the screen asks you to input TFTP Server IP Address. Enter a TFTP server IP address.

STEP 12 The current settings of MG(PRI) and TFTP server are displayed. Make sure of the settings. If you need to modify the settings, select a number (1-4) to modify the item. If all the settings are correct, enter "`y`".

STEP 13 Download menu is displayed, and then select "`1`" (Download of all programs).

STEP 14 IP address information setting is displayed, and then select "`1`" (current setting).

STEP 15 Other configuration setting is displayed, and then select "`2`" (current setting).
After download process is completed, MG(PRI) will reboot.

STEP 16 Turn off and on the power of the MG(PRI).

STEP 17 After a prompt (`->`) is displayed, enter "`dispver`" to display the firmware information of MG(PRI).

STEP 18 After a prompt (`->`) is displayed again, enter "`usrConsole`".

STEP 19 Make sure that a new firmware has been installed:
The following is an example.

```
->dispver
                              Boot Number                    Boot Issue
Boot program version          SP3839 SH7751R CBOOT-1 PROG-A [03.00.00.00]

                              Main Name             Main Issue
Main program version          SP3884 MG PRI PROG-A [05.00.00.00]
|
|---TC version                TC-Program           [04.00.00.00]
|---DSP kernel version        DSP-K-AC49kernel     [01.07.06.00]
|---DSP program version       DSP-P-AC490012ae3-S   [01.07.08.02]
|---Tone version              Tone version         [04.00.00.00]
```

STEP 20 Enter "`show config`" to confirm the config data.

<Confirmation of MG(PRI)>

STEP 21 Connect the MG(PRI) to a network.

STEP 22 To confirm MG(PRI) is properly operating with the upgraded firmware, make a call to the MG(PRI). Check that you can hear RBT.

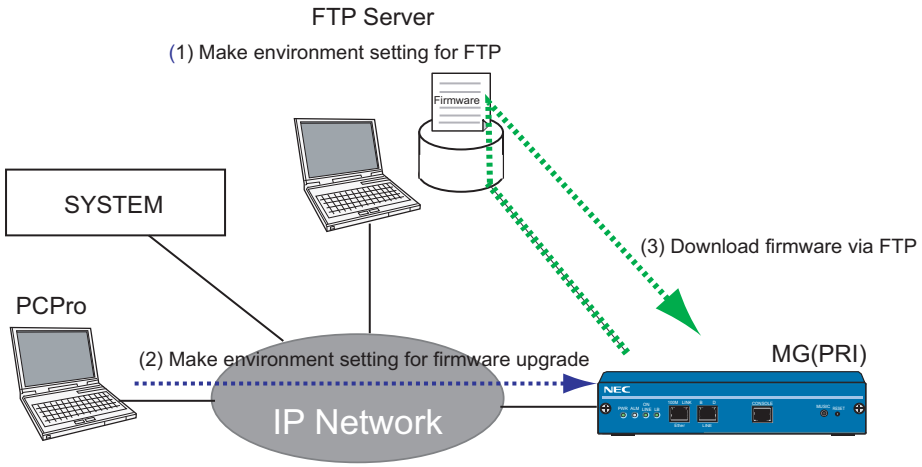
STEP 23 Receive a call via the MG(PRI), and confirm that you can talk to each other.

STEP 24 After all the tasks are completed, write down/label the firmware version in the back of the MG(PRI). For example, 2A is indicated for Version 2. 3A is indicated for Version 3.

4.4 How to Upgrade Firmware by FTP (Remote Download)

This upgrading process can be performed up to eight MG(PRI)s at once. Note that this procedure requires FTP server.
Prepare the following:

- Firmware for upgrade
- PCs have to belong to the same segment with MG(PRI).
- FTP server has to be installed in advance.
- PCPro has to be installed in advance.
- MG(PRI) is already registered to system and it is operating normally.

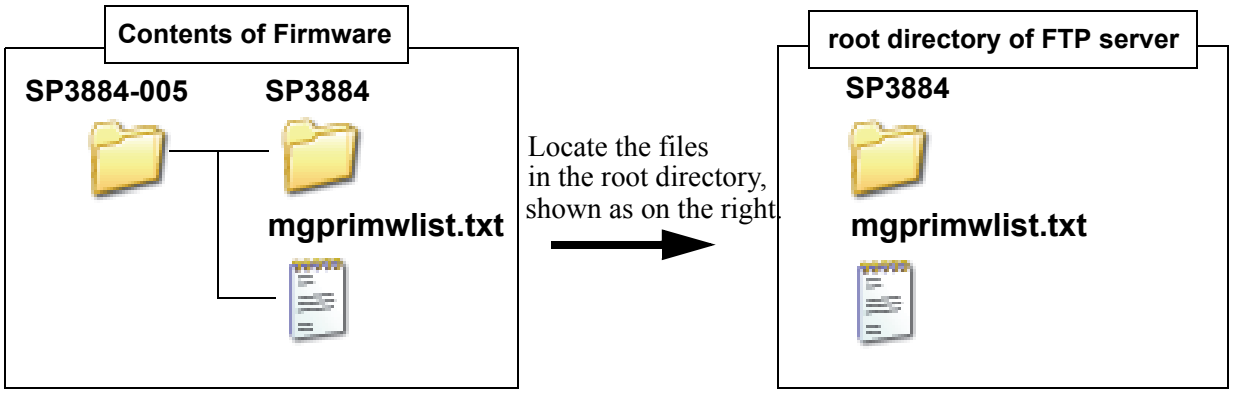


Make sure of the connectivity in the following:

- Make sure that PCPro is able to log on to the Telephony Server.
- Check the connectivity from FTP server to the Telephony Server by using Ping command.
- Make sure that FTP client is able to connect to FTP server.

<Data Assignment on FTP Server>

STEP 1 Put the firmware files (For example, SP3884) and mpgrimwlist.txt for upgrade in the root folder of FTP server.



EXAMPLE:



STEP 2 Set read permission for this directory. For more information, refer to the appropriate manual attached to the FTP server program.

<Data Assignment on PCPro>

STEP 3 Activate the ATDL command.
Select Terminal Type in Terminal Specifying Type, and then select PRI2.0 MG.
Specify the Hardware Type in HWTP and Hardware Version in HWVER.
Set the File Name.

STEP 4 Click the Add to Terminal List button.

STEP 5 After the PRI2.0 MGs are displayed in the Terminal List, select the appropriate PRI2.0 MG to be upgraded the firmware.

STEP 6 Select an item of External Server from FTP Server Type in the Setting for Download field.
Input the IP address of FTP server.
Input Login Name and Password for logging in to FTP server if required.
Select an item of Parallel in Download Method.
Select an item of Specify File Storage Directory, and specify the directory name.
Select an item of Parallel in Download Method.

STEP 7 Click the Exe button to upgrade the firmware to the target MG(PRI)s.
"Upgrade is succeeded" is displayed. Note that version information in the screen is not updated at this time. If the upgrade is failed, click the Close button, and then go back to STEP3.

STEP 8 After upgrade is completed, click the Close button. In the main screen, click the Exit button to close the ATDL command.

STEP 9 To confirm the firmware, activate the DIPI command.
The file name is indicated in the following:

05.00.00.00
└ ISSUE NUMBER

STEP 10 Select **Media Converter** in Functionality Type, and then click the Execute button.

STEP 11 Confirm that the firmwares in the appropriate ones are upgraded.

<Confirmation of MG(PRI)>

STEP 12 To confirm MG(PRI) is properly operating with the upgraded firmware, make a call to the MG(PRI). Check that you can hear RBT.

STEP 13 Receive a call via the MG(PRI), and confirm that you can talk to each other.

STEP 14 After all the tasks are completed, write down/label the firmware version in the back of the MG(PRI). For example, 2A is indicated for Version 2. 3A is indicated for Version 3.

4.5 How to Use Maintenance Command

Configuration command is used just for modifying the default data. Data is to be modified only when it is required and to the necessary part.

Note: Note the following conditions:

- "SIP server" used in this section refers to the Telephony Server. When MG(PRI) works in SIP mode, the Telephony Server acts as SIP server.
- "DRS (Device Registration Server)" used in this section refers to the Telephony Server. When MG(PRI) works in Proprietary Protocol mode, the Telephony Server acts as DRS, which is controlling function of the Telephony Server.
- When an event causing a restart of the device, such as Health Check timeout, occurs during startup of the configuration command, it takes about five minutes to start the rebooting after you exit from the configuration command or enter the last command.
- If you input "exit" after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

Starting Configuration Command

1. Connect a PC to MG(PRI) using CONSOLE cable and run terminal software (e.g. HyperTerminal) on the PC.
2. Set the parameter of the terminal software as follows:

   - Port: COM1
   - Baud Rate: 9600 bps
   - Data: 8 bits
   - Parity: None
   - Stop Bit: 1
   - Flow Control: None

3. Enter *usrConsole* after the OS prompt. Then the MG(PRI)'s prompt below appears.

   - When Proprietary Protocol Mode is used

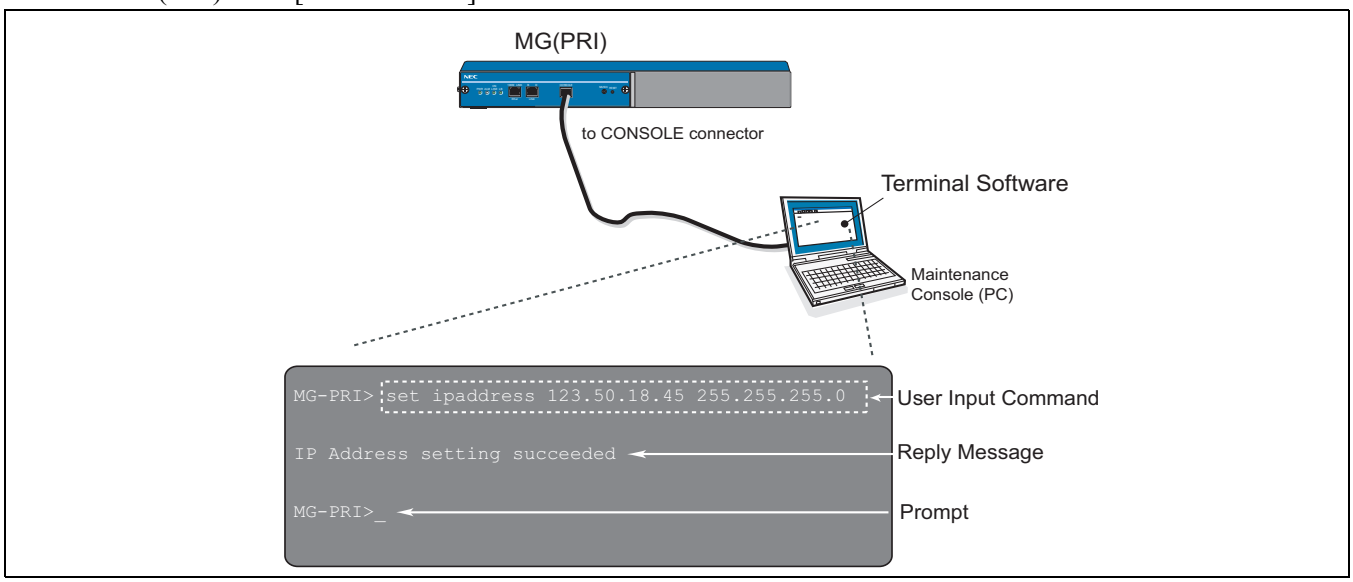
   ```
   MG-PRI>_
   ```

   - When SIP Mode is used

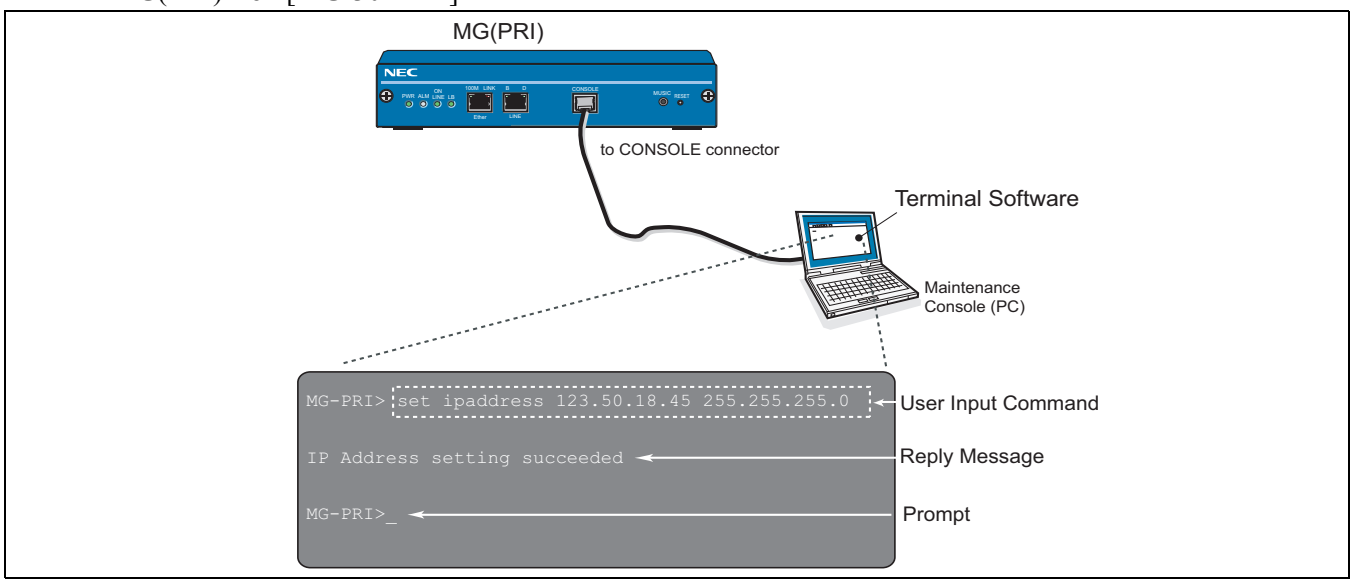
   ```
   MG-PRI(SIP)>_
   ```

Example Indication

- MG(PRI) Card [SCA-30PRIA]



- MG(PRI) Box [MG-30PRIA]



The user input command above consists of a several components. The following describes these components using one of the ***set*** commands.

```
MG-PR> set ipaddress 192.168.0.11 255.255.255.0
          1      2          3          4
1: Command
2: Sub Command
3: Parameter 1
4: Parameter 2
```

Note: The number of parameters to be specified is different depending on the command.

```
MG-PRI> SET DRSQOS
QOS (TOS/DIFFSERV:TOS):TOS
                       5
5: Set Value (or Default Value)
```

In ***SET*** command, some of the sub commands can be specified with hexadecimal numbers (called Set Value), which determine a group of the detailed values. It is also possible to omit its parameters; the interactive guidance will help you specifying its detailed values. The following shows this patterns:

When the parameters are specified:

```
MG -PRI> SET PRI_E1_1 9080

set value is 0x9080

setting succeeded.
In order to make a setup reflect and keep, re-starting is required
after saving a configuration file by SAVE command.
```

Set Value

When the parameters are Not specified:

```
MG -PRI> SET PRI_E1_1

Dch Control          ( 0/1: 1 ): 1
Dch Mode             ( 0/1: 0 ): 0
Dch Signal Logic     ( 0/1: 0 ): 0
Dch-1 Drop/Insert    ( 0/1: 1 ): 1
Dch-2 Drop/Insert    ( 0/1: 0 ): 0
Drop/Insert Mode     ( 0/1: 0 ): 0
Data Transfer Speed  ( 0-2: 0 ): 0
Drop/Insert Time Slot ( 1-31: 16 ): 16
Dch Signaling Set    ( 0/1: 0 ): 0
set value is 0x9080

setting succeeded.
In order to make a setup reflect and keep, re-starting is required
after saving a configuration file by SAVE command.
```

How to Read Maintenance Command

The commands in this section are explained with defined characters. These characters' meanings are in the following:

CHARACTERS	MEANING
Δ	Blank
P1, *P2*, *P3*	Parameters
[ ]	Parameter Option (indicates Not essential)

Configuration Command List

The maintenance console uses the commands listed on the table below.

List of Maintenance Command

COMMAND	No.	SUB COMMAND	FUNCTION	PAGE
SETUP	1	SP	Set up network environment for MG(PRI) SIP Mode.	page 818
	2	TP	Set up network environment for MG(PRI) Proprietary Protocol Mode.	page 821
SET	1	CALL_HOLD	Set MG Based Call Retention	page 824
	2	COS	Modifies the COS (Class of Service) of VLAN	page 824
	3	DEFAULTROUTE	Assigns Default Gateway	page 824
	4	DHCP	Selects whether the DHCP feature is enabled	page 824
	5	DNS_SW	Select whether the DNS feature is enabled.	page 825
	6	DRSADDRESS	Assigns the IP address and port number of DRS	page 825
	7	DRSQOS	Specifies QoS setting of DRS session	page 825
	8	DTMF_IN	Assigns the DTMF relay of in-band signaling	page 827
	9	E_T_TIME	Specifies the period to be executed echo canceller training	page 827
	10	E_T_WAITTIME	Specifies waiting time before starting echo canceller training	page 827
	11	EC_TRAINING	Sets echo canceller training	page 827
	12	FAX_ECM	Assigns whether FAX ECM is valid or invalid	page 828
	13	FAXERRORDETECT	Specifies the FAX switching time	page 828
	14	GND_OPEN_SW	Assigns the state of Grand open switch ON/OFF	page 828
	15	HC_RCV_TIMER	Specifies the time recognized as timeout in receiving Health Check	page 829
	16	INTERFACE	Assigns the connection mode for LAN interface	page 829
	17	IPADDRESS	Assigns IP address and subnet mask	page 829
	18	ONE_TIME_PASS	Specifies one-time password.	page 830
	19	OWN_NAME	Assigns own host name.	page 830
		PAD0	Specifies PAD setting	page 830
		PAD1	Specifies setting for flexible PAD 1	page 833
		PAD2	Specifies setting for flexible PAD 2	
		PAD3	Specifies setting for flexible PAD 3	
	20	PAD4	Specifies setting for flexible PAD 4	
	21	PRI_COMMON1	Specifies common setting 1 of PRI (2M)	page 836
	22	PRI_LOOPBACK	Specifies loopback settings	page 837
	23	PRI_E1_1	Specifies function setting on Dch of PRI (2M)	page 839
	24	PRI_E1_2	Specifies function settings 1 (Alarm/Signaling) on Dch of PRI (2M)	page 840
	25	RTP_STOP_DETECT	Specifies the time-out value for RTP reception	page 841
	26	SIGNAL-ING_PORT_NO	Specifies a Signaling Port Number for SIP Mode.	page 841
	27	SIGNALING_QOS	Assigns the QoS of Signaling Port Number for SIP Mode.	page 841
	28	SIPSV_IPADDRESS	Specifies the network settings of SIP Server.	page 842
	29	SMOOTH_PAD	Specifies smooth PAD mode of DSP	page 843
	30	STARTPORT	Specifies RTP starting port	page 843
	31	TCP_TIMER	Specifies the timer waiting for TCP link connection	page 843
	32	VLAN	Sets VLAN	page 844
	33	WARNING_TONE	Sets Warning Tone	page 844

Note: First assign the network data to MG(PRI) according to your network environment.

List of Maintenance Command (Continued)

COMMAND	No.	SUB COMMAND	FUNCTION	PAGE
SHOW	1	CALL_HOLD	Displays the state of MG Based Call Retention setting	page 845
	2	CONFIG	Displays the state of DHCP setting	page 845
	3	DHCP	Displays the state of DHCP setting	page 845
	4	DNS_SW	Displays the DNS setting	page 845
	5	DRSADDRESS	Displays the setting of DRS (IP address and port No.)	page 846
	6	DRSQOS	Displays the QoS setting of DRS session	page 846
	7	DTMF_IN	Displays the DTMF relay of in-band signaling	page 847
	8	E_T_TIME	Displays the period to be executed echo canceller training	page 847
	9	E_T_WAITTIME	Displays waiting time before starting echo canceller training	page 847
	10	EC_TRAINING	Displays echo canceller training setting	page 847
	11	FAX_ECM	Displays the FAX ECM setting	page 847
	12	FAXERRORDETECT	Displays the FAX switching time	page 847
	13	GND_OPEN_SW	Displays the Grand open switch setting.	page 848
	14	IMPEDANCE	Displays the impedance setting.	page 848
	15	INTERFACE	Displays the connection mode.	page 848
	16	IPADDRESS	Displays IP address, netmask, and default Gateway.	page 848
	17	ONE_TIME_PASS	Displays the one-time password.	page 848
	18	OWN_NAME	Displays the own host name.	page 848
		PAD0	Displays PAD setting.	page 849
		PAD1	Displays settings for flexible PAD 1	
		PAD2	Displays settings for flexible PAD 2	
		PAD3	Displays settings for flexible PAD 3	
	19	PAD4	Displays settings for flexible PAD 4	
	20	PRI_COMMON1	Displays common setting 1 of PRI (2M)	page 849
	21	PRI_LOOPBACK	Displays MB of loopback and Dch	page 850
	22	PRI_E1_1	Displays function settings on Dch of PRI (2M)	page 850
	23	PRI_E1_2	Displays function settings 1 (Alarm/Signaling) on Dch of PRI (2M)	page 851
	24	RTP_STOP_DETECT	Display the time-out value for RTP reception	page 851
	25	SIGNALING_PORT_NO	Displays the Signaling Port Number for SIP Mode.	page 851
	26	SIGNALING_QOS	Displays the QoS of Signaling Port Number for SIP Mode.	page 851
	27	SIPSV_IPADDRESS	Displays the network settings of SIP Server.	page 852
	28	SMOOTH_PAD	Displays the setting of Smooth PAD mode	page 853
	29	STARTPORT	Displays the number of RTP Start Port	page 853
	30	TCP_TIMER	Displays the setting of the timer for TCP link connection	page 853
	31	VERSION	Displays the release version of firmware and hardware	page 854
	32	VLAN	Displays the state of VLAN setting	page 855
	33	WARNING_TONE	Displays the setting of Warning Tone	page 855
PING		-	Checks the connectivity of network	page 855
DELETE		VLAN	Deletes the VLAN setting designating by the VLAN ID	page 856
SAVE		CONFIGDATA	Saves the configuration data	page 856
GET		CONFIGDATA	Downloads a system data file from specified TFTP server	page 856
PUT		CONFIGDATA	Uploads a system data file to specified TFTP server	page 856
REBOOT		-	Reboots the MG	page 857
EXIT		-	Exits the maintenance command	page 857
INIT		CONFIG	Initialize the config command	page 858

Input the desired command, sub command and each required parameter after the prompt ("MG-PRI(SIP)>" as an example here) is indicated. Parameters vary depending on the specified command. When each data (command name, sub command name, parameter) is specified correctly, the command executes the required data processing, and then informs of the processed result on the screen. When finishing this program, you may input "EXIT" (or "exit") after a prompt.

Note: When the maintenance command program is activated, it also provides help function for referring to available command and sub command. After a prompt is indicated, request to list up the target help by inputting "?", "command name + ?", or "command name + sub command name + ?" after the prompt, and press the Enter key.
The example below shows the screen when executing help function regarding "set" and "set ipaddress."

```
MG-PRI(SIP)>set
?
 Address          Setting IP address
 Interface        Setting Interface Information
    :
    :

MG-PRI(SIP)>set ipaddress ?
 xxx.xxx.xxx.xxx  IP Address

MG-PRI(SIP)>set ipaddress 10.41.204.180 ?
 xxx.xxx.xxx.xxx  Subnetmask

MG-PRI(SIP)>
```

4.6 SETUP Command

1. SETUP△SP

This command is used to set up network environment of MG(PRI) SIP Mode.

```
MG-PRI(SIP)>SETUP SP
---DHCP Interface set---
Current DHCP Interface:ENABLE
Change DHCP Interface? [Y (change)/N (current)/Q
(quit)]: Y


Input new DHCP Interface [E (enable)/D (disable)]:D


--- DNS Interface set ---
Current DNS Interface: DISABLE
Change DNS Interface? [Y (change)/N (current)/
Q(quit)]: Y


--- DNS IP Address set ---
Current DNS IP Address: 0.0.0.0
Change DNS IP Address ? [Y(change)/N(current)/
Q(quit)]:y
Input new DNS IP Address: 10.40.1.150


--- IP Address & Subnetmask set ---
Current IP Address: 0.0.0.0
Current Subnetmask: 255.255.255.255
Change IP Address and Subnetmask? [Y (change)/N (cur-
rent)/Q(quit)]: Y




Input new IP Address: 10.41.1.100
Input new Subnet mask: 255.255.255.0

--- Host Name set ---
Current Host Name: No Value
Change Host Name? [Y (change)/N (current)/Q(quit)]: Y
```

The current setting is displayed.

1) Select the DHCP setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

2) Enable/Disable the DHCP Server.
E: Enable a new DHCP Server (default)
D: Disable DHCP Server

The current setting is displayed.

3) Select the DNS setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

The current setting is displayed.

3) Select the DNS setting.
Y: Change the DNS IP Address.
N: Remain the DNS IP Address.
Q: Exit the command

The current setting is displayed.

6) Select the network setting of MG(PRI).
Y: Change the setting
N: Remain the current setting
Q: Exit the command

7) Specify a new IP address.

8) Specify a new subnet mask.

The current setting is displayed.

9) Select the host name setting of MG(PRI).
Y: Change the setting
N: Remain the current setting
Q: Exit the command

```
Input new Host Name: mgpri.nec.com

--- Default Gateway IP Address set ---
Current Default Gateway: 0.0.0.0
Change Default Gateway? [Y (change)/N (current)/
Q(quit)]: Y


Input new Default Gateway: 10.41.1.254



--- SIP Server IP Address & Host Name set ---
Current SIP Server/IP Address/Port Number/Host
Name:
SIP Server IP Address Port Number Host Name
1           0.0.0.0    5060
2           0.0.0.0    5060
3           0.0.0.0    5060
4           0.0.0.0    5060
5           0.0.0.0    5060
6           0.0.0.0    5060
7           0.0.0.0    5060
8           0.0.0.0    5060
9           0.0.0.0    5060
10          0.0.0.0    5060
11          0.0.0.0    5060
12          0.0.0.0    5060
13          0.0.0.0    5060
14          0.0.0.0    5060
15          0.0.0.0    5060
16          0.0.0.0    5060
17          0.0.0.0    5060
18          0.0.0.0    5060
19          0.0.0.0    5060
20          0.0.0.0    5060
Change SIP Server Information? [Y (change)/N (cur-
rent)/Q(quit)]: Y


Input new SIP Server (1-20): 1

Input new IP Address: 10.41.1.200

Input new Port Number: 5060
Is there the Host Name? [Y/N]: Y
```

10) Specify a new host name.

The current setting is displayed.

11) Select the default gateway setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

12) Specify the IP address of the default gateway. Note that default gateway should be located in the same segment with MG(PRI).

The current setting is displayed.

13) Select the SIP Server setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

14) Specify the number of SIP Server to be modified.

15) Specify the IP address of SIP Server. **Note 1**

16) Specify a new port number.

17) Select the host name setting.
Y: Use the host name
N: Do not use the host name

```
Input new Host Name: SVR1.nec.com
Continue? [Y (continue)/N (exit)]: N



--- Ethernet Speed set ---
Current LAN Speed: auto
Change LAN Speed? [Y (change)/N (current)/Q(quit)]:
Y


Input new Speed [1 (AUTO)/2 (100M)/3(10M)]: 2



Input new DUPLEX [F (full)/H (half)]: F




 ** Don't power off in progress **
 Do you save the configuration data? [Y/N] :Y



 Configuration data has been saved.
 Re-starting is required for making a setup
reflect!!
 SP mode setting succeeded.
```

18) Specify the host name of SIP Server.

19) Select whether you continue to set up the host name or not.
Y: Continue the SIP Server setting
N: Exit the SIP Server setting

The current setting is displayed.

20) Select the LAN setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

21) Select the LAN speed.
1: Auto Negotiation (Default)
2: 100Mbps
3: 10Mbps

22) Select the LAN mode.
F: Full Duplex mode
H: Half Duplex mode
* This is not displayed when Auto Negotiation is selected.

23) Select whether you save the configuration data or not.
Y: Save the configuration data
N: Do not save the configuration data

Result is displayed.

Note 1: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

Note: The following are examples that cannot be used in the MG(PRI) setting:
(Example1) Network address cannot be assigned as IP address of MG(PRI).
IP address:192.168.1.0
Subnet mask: 255.255.255.0
(Example2) Broadcast address cannot be assigned as IP address of MG(PRI).
IP address:192.168.1.255
Subnet mask: 255.255.255.0

Note: If you enter an invalid value, the system continues to respond to it until three times. If the invalid value is entered in four times, the system forcibly discards the configuration data and exits the SP Setup.

Note: If the setup is finished by quit(q) command, data assigned until that time will be discarded.

2. **SETUP△TP**

This command is used to set up network environment of MG(PRI) Proprietary Protocol Mode.

```
MG-PRI(SIP)>SETUP TP
---DHCP Interface set---
Current DHCP Interface:ENABLE
Change DHCP Interface? [Y (change)/N (current)/Q
(quit)]: Y


Input new DHCP Interface [E (enable)/D (disable)]:D



--- IP Address & Subnetmask set ---
Current IP Address: 0.0.0.0
Current Subnetmask: 255.255.255.255
Change IP Address and Subnetmask? [Y (change)/N (cur-
rent)/Q(quit)]: Y



Input new IP Address: 10.41.1.100

Input new Subnet mask: 255.255.255.0

--- Default Gateway IP Address set ---
Current Default Gateway: 0.0.0.0
Change Default Gateway? [Y (change)/N (current)/
Q(quit)]: Y


Input new Default Gateway: 10.41.1.254



--- DRS IP Address set ---
Current DRS Server/IP Address/Port Number:
Primary     DRS Address     0.0.0.0     , Port 3456
Secondary   DRS Address     0.0.0.0     , Port 3456
Tertiary    DRS Address     0.0.0.0     , Port 3456
Fourth      DRS Address     0.0.0.0     , Port 3456
Change DRS Information? [Y (change)/N (current)/
Q(quit)]: Y
```

The current setting is displayed.

1) Select the DHCP setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

2) Enable/Disable the DHCP Server.
E: Enable a new DHCP Server (default)
D: Disable DHCP Server

The current setting is displayed.

3) Select the network setting of MG(PRI).
Y: Change the setting
N: Remain the current setting
Q: Exit the command

4) Specify the IP address of MG(PRI).

5) Specify the subnet mask of MG(PRI).

The current setting is displayed.

6) Select the default gateway setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

7) Specify the IP address of the default gateway. Note that default gateway should be located in the same segment with MG(PRI).

The current setting is displayed.

8) Select the DRS setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

```
Input DRS unit (1:Primary/2:Secondary/3:Tertiary
/4:Fourth):1



Input DRS IP Address :10.41.1.200

Input DRS Port Number :3456

Continue? [Y (continue)/N (exit)]: N



--- Ethernet Speed set ---
Current LAN Speed: auto
Change LAN Speed? [Y (change)/N (current)/Q(quit)]:
Y


Input new Speed [1 (AUTO)/2 (100M)/3(10M)]: 2



Input new DUPLEX [F (full)/H (half)]: F




 ** Don't power off in progress **
 Do you save the configuration data? [Y/N] :Y



 Configuration data has been saved.
 Re-starting is required for making a setup reflect!!
 TP mode setting succeeded.
```

9) Select the applying type for DRS.
1=Primary
2=Secondary
3=Tertiary
4=Fourth

10) Specify the IP address of the DRS. **Note 2**

11) Specify the port number of the DRS.(Default:3456)

12) Select whether you continue to set up the SIP Server or not.
Y: Continue the SIP Server setting
N: Exit the SIP Server setting

The current setting is displayed.

13) Select the LAN setting.
Y: Change the setting
N: Remain the current setting
Q: Exit the command

14) Select the LAN speed.
1: Auto Negotiation (Default)
2: 100Mbps
3: 10Mbps

15) Select the LAN mode.
F: Full Duplex mode
H: Half Duplex mode
* This is not displayed when Auto Negotiation is selected.

16) Select whether you save the configuration data or not.
Y: Save the configuration data
N: Do not save the configuration data

Result is displayed.

Note 2: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

Note: The following are examples that cannot be set in the MG(PRI) setting:
(Example1) Network address cannot be assigned as IP address of MG(PRI).
IP address:192.168.1.0
Subnet mask: 255.255.255.0
(Example2) Broadcast address cannot be assigned as IP address of MG(PRI).
IP address:192.168.1.255
Subnet mask: 255.255.255.0

Note: If you enter an invalid value, the system continues to respond to it until three times. If the invalid value is entered in four times, the system forcibly discards the configuration data and exits the SP Setup.

Note: If the setup is finished by quit(q) command, data assigned until that time will be discarded.

4.7 SET Command

1. **SET∆CALL_HOLD∆***P1*

This command is used to set MG Based Call Retention. By setting "ENABLE" by this command, if a network failure occurred between the Telephony Server and MG (BRI), the call will be retained. However, re-registration to the Telephony Server will not be executed. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET CALL_HOLD DISABLE



 CALL HOLD setting succeeded.
```

P1-ENABLE / DISABLE
ENABLE=MG Based Call Retention is enabled
DISABLE=MG Based Call Retention is disabled (default)

Result is displayed.

2. **SET∆COS∆***P1*∆*P2*

This command is used to modify Class of Service (COS). Using this command is available while VLAN is working. Note that VLAN setting is required before this setting. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET COS 1 7



 COS setting succeeded.
```

P1-VLAN ID
1-4094=VLAN_ID
P2-COS value
0-7=COS

Result is displayed.

3. **SET∆DEFAULTROUTE∆***P1*

This command is used to specify IP address for Default Gateway. Note that default route be located at the same segment with MG(PRI). To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET DEFAULTROUTE 10.10.10.255

 Default Gateway setting succeeded.
```

P1-Specify Default Gateway address
e.g. 10.10.10.255

Result is displayed.

4. **SET∆DHCP∆***P1*

This command is used to enable/disable a DHCP server. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET DHCP ENABLE



 DHCP setting succeeded.
```

P1- Enter the following after the command name
ENABLE=DHCP is valid (default)
DISABLE=DHCP is invalid

Result is displayed.

5. **SETΔDNS_SW**

This command is used to enable/disable DNS server. A bracket ([ ]) shows the current setting. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)> SET DNS_SW
DNS interface (Enable/Disable)
[DISABLE] : ENABLE
DNS IP Address [0.0.0.0] :
10.41.1.150
 DNS setting succeeded.
```

P1- Enter the following after the command name
ENABLE=DNS is valid (default)
DISABLE=DNS is invalid

Result is displayed.

6. **SETΔDRSADDRESS**

This command is used to specify IP address for DRS.To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET DRSADDRESS
DRS Unit (1:Primary/2:Secondary/3:Tertiary/4:Fourth):1
DRS IP Address: 150.12.0.254
DRS Port Number: 3456




 DRS setting succeeded.
```

1) Select the applying type for DRS
1=Primary
2=Secondary
3=Tertiary
4=Fourth
2) Specify IP address **Note 1**
3) Specify port number of DRS (default: 3456)

Result is displayed.

Note 1: About IP address of DRS (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

7. **SETΔDRSQOS**Δ[*P1*]Δ[*P2*]

This command is used to specify Quality of Service (QOS) such as IP Precedence and Differentiated Service (DIFFSERV) for DRS. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET DRSQOS TOS 0xC0
```

P1-Specify a type of services
TOS: IP Precedence
DIFFSERV: Differentiated Service
CLEAR: Clear the data
P2-Specify a value
0x00-0xFF (In the case of TOS)
0-63 (In the case of DIFFSERV)

When P1 is not entered:

```
MG-PRI(SIP)>SET DRSQOS
QOS (TOS/DIFFSERV:TOS):TOS
PRECEDENCE    (0-7:6):6

DELAY         (0/1:0):0

THROUGHPUT    (0/1:0):0

RELIABILITY   (0/1:0):0

COST          (0/1:0):0

 DRS QoS setting succeeded.(0xC0)
```

1) Specify **TOS** for QOS
2) Specify precedence (Default: 6)
0-7 (low-high)
3) Select a type of delay (Default: 0)
0/1=Normal/Delay
4) Select a type of throughput (Default: 0)
0/1=Normal/High Throughput
5) Select a type of reliability (Default: 0)
0/1=Normal/High Reliability
6) Select a type of cost (Default: 0)
0/1=Normal/Cost Precedence
Result is displayed.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data in ToS field for IP Precedence is shown below:



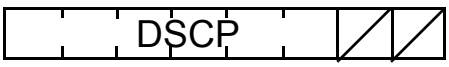
Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

```
MG-PRI(SIP)>SET DRSQOS
QOS (TOS/DIFFSERV:TOS):DIFFSERV
DSCP(0-63:0):48

 DRS QoS setting succeeded. (0xC0)
```

1) Specify **DIFFSERV** for QOS
2) Specify Diffserv Codepoint (DSCP)
0-63=DSCP
Result is displayed.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data in ToS field for Diffserv is shown below:



DSCP = Differentiated Service Code Point (6 bits)

When P1=TOS:

```
MG-PRI(SIP)>SET DRSQOS TOS 0xC0

 DRS QoS setting succeeded.(0xC0)
```

P2-Specify a value
0x00-0xFF (In the case of TOS)
Result is displayed.

When P1=DIFFSERV:

```
MG-PRI(SIP)>SET DRSQOS DIFFSERV 48

 DRS QoS setting succeeded.(0xC0)
```

P2-Specify a value
0-63 (In the case of DIFFSERV)

Result is displayed.

When P1=CLEAR:

```
MG-PRI(SIP)>SET DRSQOS CLEAR
 DRS QoS clearing succeeded.(0x00)
```

Result is displayed.

8. **SET∆DTMF_IN∆***P1*

This command is used to specify whether Inband DTMF is used or not.

```
MG-PRI(SIP)>SET DTMF_IN ON


 Inband DTMF Relay setting succeeded.
```

P1-Select either
OFF=DTMF relay of in-band signaling is not used (default)
ON=DTMF relay of in-band signaling is used

Result is displayed.

Note: DTMF relay of in-band signaling is effective only for the speech transferring of CODEC G.711. As this function cannot distinguish the CODEC type, make sure the CODEC type of MG(PRI) is adjusted for this function.

9. **SET∆E_T_TIME∆***P1*

This command is used to specify the executing time of Echo Canceller Training Feature. To make this assignment effective, it is required to execute the “SAVE” command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET E_T_TIME 16


 EC Training Feature Timer setting succeeded.
```

P1-Specify a executing time before the training feature starts (ms)
0-32=Executing Time (1 counter indicates 10ms)

Result is displayed.

10. **SET∆E_T_WAITTIME∆***P1*

This command is used to specify the waiting time before the Training Feature mode of Echo Canceller begins. Echo Canceller Feature is used to prevent initial Echo (ranging from 500 to 1ms) from occurring in the beginning of speech to the Telephony Server. To make this assignment effective, it is required to execute the “SAVE” command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET E_T_WAITTIME 0



 EC Training Start Wait Timer setting succeeded.
```

P1-Specify a waiting time before the training feature starts (ms)
0-100=Waiting Time (1 counter indicates 10ms)

Result is displayed.

11. **SET∆EC_TRAINING∆***P1*

This command is used to enable/disable the Training Feature mode of Echo Canceller. Echo Canceller Feature is used to prevent initial Echo (ranging from 500 to 1ms) from occurring in the beginning of speech to the Telephony Server. To make this assignment effective, it is required to execute the “SAVE” command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET EC_TRAINING ON




 EC Training Feature setting succeeded.
```

P1-Specify the following:
ON=Training function is valid
OFF=Training function is invalid
ONCE=Training function is valid only once (default)

Result is displayed.

12. **SET∆FAX_ECM**

This command is used to enable/disable the FAX ECM. To make this assignment effective, it is required to execute the “SAVE” command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET FAX_ECM
ECM (ON/OFF: OFF):OFF

 Fax ecm setting succeeded.
```

ON=FAX ECM is valid
OFF=FAX ECM is invalid (default)

Result is displayed.

13. **SET∆FAXERRORDETECT∆***P1*

This command is used to specify the available time to be switched to FAX mode. To make this assignment effective, it is required to execute the “SAVE” command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET FAXERRORDETECT 1




 FAX Enable Timer setting succeeded.
```

P1-Specify the available time to switch to FAX.
0=FAX switching is unavailable.
1-5=Available time to be switched to FAX (minutes)
OFF=Always-on FAX switching

Result is displayed.

14. **SET∆GND_OPEN_SW∆***P1*

This command is used to specify the grand open switch. To make this assignment effective, it is required to execute the “SAVE” command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET GND_OPEN_SW OPEN



 Grand open switch setting succeeded.
```

P1-Specify the following:
OPEN=Grand open switch is ON (default)
GND=Grand open switch is OFF

Result is displayed.

15. **SET∆HC_RCV_TIMER∆***P1*

This command is used to specify a value recognized as timeout in receiving Health Check. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET HC_RCV_TIMER 120


 Impedance setting succeeded.
```

P1-Specify a time (second) recognized as timeout in receiving Health Check.
120-300=Available time.(Default: 150)
Result is displayed.

16. **SET∆INTERFACE**

This command is used to specify the specifications of connection mode. Assign a correct setting corresponding to connecting network equipment. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET INTERFACE
SPEED(AUTO/100M/10M):100M



DUPLEX(FULL/HALF):HALF


 Ethernet Speed setting succeeded.
```

1) Select a line speed
AUTO=Auto Negotiation (default)
100M=100M
10M=10M

2) Select a type of duplex (not displayed when SPEED=AUTO)
FULL=Full duplex
HALF=Half duplex

Result is displayed.

17. **SET∆IPPADDRESS∆***P1*∆*P2*

This command is used to specify IP Address and subnet mask for MG. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET IPADDRESS 10.4.1.1
255.255.255.0
 IP Address setting succeeded.
```

P1-Specify the IP address
P2-Specify the subnet mask
Result is displayed.

Note: The designated IP address cannot be applied when DHCP is set to "Enabled." Be sure to assign the DHCP setting to "Disable" before performing this IP address assignment.

Note: The following are examples that cannot be used in the MG(PRI) setting:
(Example1) Network address cannot be assigned as IP address of MG(PRI).
IP address:192.168.1.0
Subnet mask: 255.255.255.0
(Example2) Broadcast address cannot be assigned as IP address of MG(PRI).
IP address:192.168.1.255
Subnet mask: 255.255.255.0

18. **SET∆ONE_TIME_PASS**

This command is used to specify one-time password for SIP Mode. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET ONE_TIME_PASS
One Time Password: •••••
Erase start...
Erase OK!
Write start...
Write OK!
 One time password setting succeeded.
```

P1-Specify a password.

Result is displayed.

19. **SET∆OWN_NAME**

This command is used to specify a host name for MG(PRI). To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET OWN_NAME nec
 Own name setting succeeded.
```

P1-Specify a full domain name.

Result is displayed.

20. **SET∆PAD0∆**[*P1*]

This command is used to specify PAD 0 data for PRI (2M). To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

When P1 is not entered:

```
MG-PRI(SIP)>SET PAD0
A-law/μ-law Setting     (0-4: 0):0
PAD Selection           (0/1: 0):0
PAD Control             (0-3: 0):0
```

1) Select a type of CODEC
0=MGC Control (Telephony Server System Data) (default)
1=μ-law
2=A-law
3=Convert from A-law to μ-law
4=Convert from μ-law to A-law

2) Select a type of PAD selection
0=Standard (default)
1=Flexible

3) Select a type of PAD Control
0=Receiving Control (ISDN Network→MG) (default)
1=Sending Control (MG→ISDN Network)
2=Fixed to ARTD
3=Sending/Receiving Control

```
PAD Pattern No.          (0-4: 0):0


Data PAD Pattern No.     (0-4: 0):0


 set value is 0x0000
 setting succeeded.
```

4) Select the number of PAD Pattern
0-4=Pattern Number (default value: 0)

Note: For more detailed information about the PAD patterns, see the tables below.

5) Select the number of Data PAD Pattern
0=64K(default)
1-4=Not available

Result is displayed.

When P1=0000:

```
MG-PRI(SIP)>SET PAD0 0000

 set value is 0x0000
 setting succeeded.
```

P1-Specifying a set value
0000-FFFF= Set value (default value: 0000)

Result is displayed.

The sending (snd) and receiving (rcv) values vary depending on PAD settings of ARTD (Telephony Server settings) and PAD Pattern Number. The following are divided into two sheets in the case of the A-Law/μ-Law settings, which describe the snd/rcv values:

PAD Control Settings (A-Law/μ-Law)

PAD Data	Pattern 1		Pattern 2		Pattern 3		Pattern 4		Pattern 5	
ARTD	**snd**	**rcv**	**snd**	**rcv**	**snd**	**rcv**	**snd**	**rcv**	**snd**	**rcv**
0	8	8	3	9	8	8	0	8	7	7
1	2	2	-3	3	2	2	8	16	1	1
2	4	4	3	3	4	4	8	4	3	3
3	6	6	0	6	12	12	4	12	5	5
4	8	8	3	9	8	8	0	8	7	7
5 (Data PAD)	Maintenance Console Settings									
7	0	0	0	0	0	0	0	0	0	0

PAD Control Settings (A-Law↔μ-Law)

PAD Data	Pattern 1		Pattern 2		Pattern 3		Pattern 4		Pattern 5	
ARTD	**snd**	**rcv**	**snd**	**rcv**	**snd**	**rcv**	**snd**	**rcv**	**snd**	**rcv**
0	8	8	0	8	8	8	8	8	8	8
1	0	0	0	2	0	0	0	0	0	0

PAD Control Settings (A-Law↔μ-Law)

PAD Data	Pattern 1		Pattern 2		Pattern 3		Pattern 4		Pattern 5	
ARTD	**snd**	**rcv**	**snd**	**rcv**	**snd**	**rcv**	**snd**	**rcv**	**snd**	**rcv**
2	4	4	0	4	4	4	4	4	4	4
3	6	6	0	12	6	6	6	6	6	6
4	8	8	0	8	8	8	8	8	8	8
5 (Data PAD)	Maintenance Console Settings									
7	through	through	through	through	through	through	through	through	through	through

Note: The snd or rcv value might be 0 dB, depending on the PAD control settings.

21. **SET**Δ**PAD***P1*Δ[*P2*]

This command is used to specify PAD data for PRI (2M). Before using this command, set Flexible (***1***) in PAD selection of SET PAD0. For more information about the procedures, refer to the next page. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command. The following is an example of PAD1.

When P2 is not entered:

```
MG-PRI(SIP)>SET PAD1

 Flexible PAD #1-Recv((-16dB)-(20dB):0):0
 Flexible PAD #1-Send((-16dB)-(20dB):0):0

 set value is 0x0000
 setting succeeded.
```

P1-Specifying a PAD number
1-4=PAD Number
The available PAD number varies depending on the ARTD settings (Telephony Server side).

ARTD PAD	AVAILABLE PAD NUMBER
0/4	PAD4
1	PAD1
2	PAD2
3	PAD3
5/6/7	Not available

1) Specify Flexible PAD for receiving
(ISDN Network→MG)
(-16dB)-(20dB): Flexible PAD for receiving
(default value: 0)

Note: Send or receive might be 0 depending on the PAD control setting.

2) Specify Flexible PAD for sending
(MG→ISDN Network
(-16dB)-(20dB): Flexible PAD for sending
(default value: 0)

0:	0dB	**-1:**	-1dB (GAIN)
1:	1dB (LOSS)	**-2**:	-2dB (GAIN)
2:	2dB (LOSS)	**-3**:	-3dB (GAIN)
:	:	**:**	:
18:	18dB (LOSS)	**-14**:	-14dB (GAIN)
19:	19dB (LOSS)	**-15**:	-15dB (GAIN)
20:	20dB (LOSS)	**-16**:	-16dB (GAIN)

Result is displayed.

When P2=0000:

```
MG-PRI(SIP)>SET PAD1 0000



 set value is 0x0000
 setting succeeded.
```

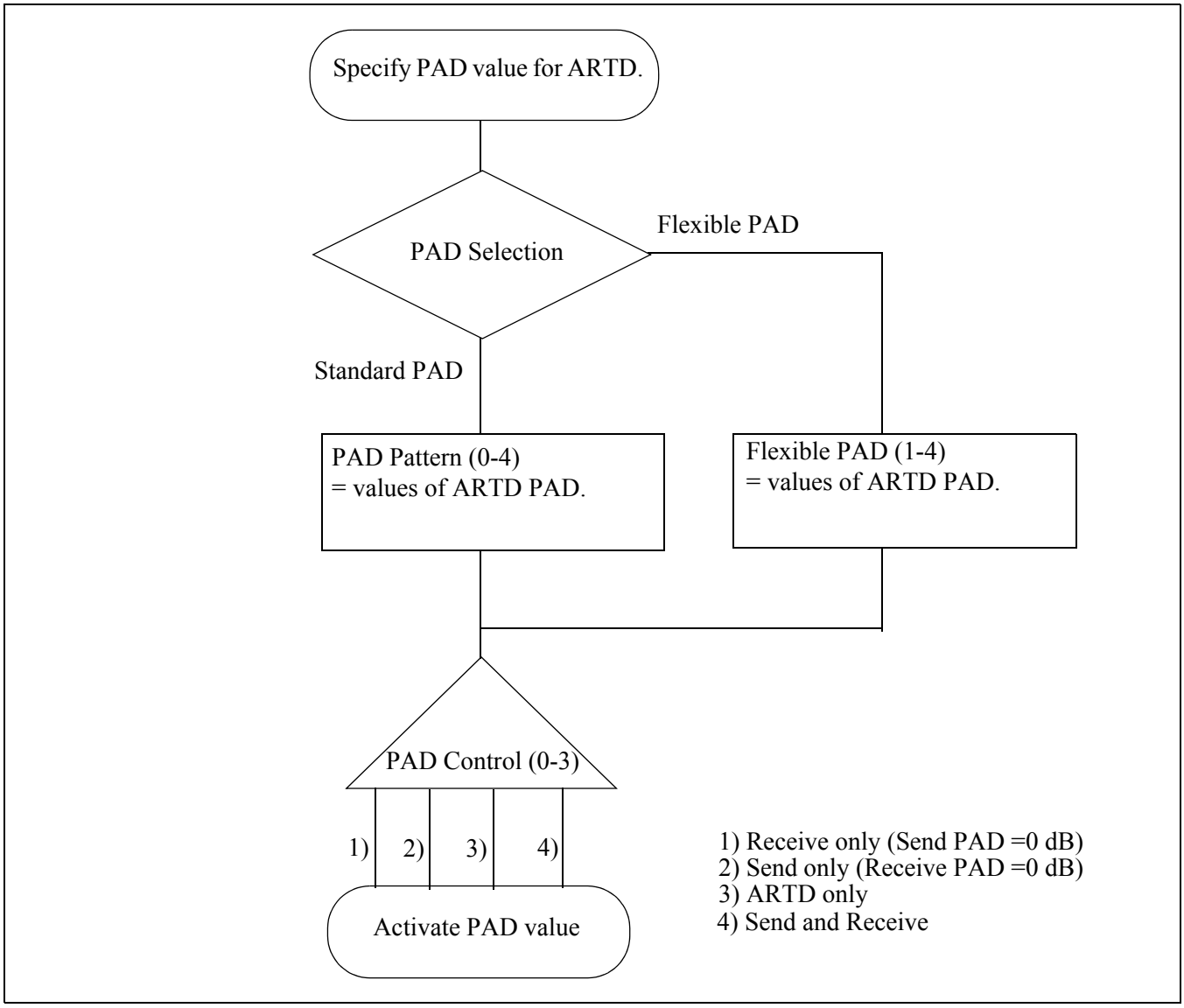
P1-Specifying a PAD number
1-4=PAD Number
P2-Specifying a set value
0000-FFFF= Set value (default value: 0000)

Result is displayed.

<EXAMPLE OF PAD DATA>

- ARTD: PAD = 4
- Flexible PAD Send = -4dB(GAIN)
- Flexible PAD Recv = 0dB

To specify the above settings, perform the following steps:
STEP1) PAD0: PAD Selection =1 (Flexible)
STEP2) PAD0: PAD Control =3 (Send/Receive Control)
STEP3) PAD4: Flexible PAD #4-Recv=0
Flexible PAD #4-Recv=24



22. **SET∆PRI_COMMON1∆**[*P1*]

This command is used to specify common data 1 for PRI (2M). When not specifying an attribute on the interactive setting, the original setting keeps being used. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

When P1 is not entered:

`MG-PRI(SIP)>SET PRI_COMMON1`	
`Remote Alarm Sending (0/1: 0):0`	1) Disable/Enable Remote Alarm Sending **0/1**=Enable(default)/Disable
`Signal All 1 (0/1: 0):0`	2) Disable/Enable Signal All 1 **0/1**=Disable(default)/Enable
`Idle Code Sending (0/1: 0):0`	3) Disable/Enable Idle Code Sending **0/1**=Disable(default)/Enable
`Dch Back-up (0/1: 0):0`	4) Disable/Enable Dch Back-up **0/1**=Disable(default)/Enable
`Layer 1 Alarm Sending (0/1: 0):0`	5) Disable/Enable Layer 1 Alarm Sending **0/1**=Enable(default)/Disable
`Haul Mode (0/1: 0):0`	6) Disable/Enable Haul Mode **0**=Short (default) **1**=Long
`EC NLP Control (0/1: 1):1`	7) Disable/Enable EC NLP Control **0/1**=Disable/Enable (default)
`EC NLP Mode (0/1: 0):0`	8) Specify EC NLP Mode **0**=Background Noise (default) **1**=Fixed Level
`EC 2100Hz Detect (0/1: 0):0`	9) Disable/Enable EC 2100Hz Detect **0/1**=Disable(default)/Enable
`Music Int/Ext (0/1: 0):0`	10) Select Music Source **0**=Internal (default) **1**=External
`Music No. (0-12: 5):5`	11) Specify Music-on-Hold **0**=For Elise **5**=Minuet (default)
`Clock Mode (0/1: 0):0`	12) Specify clock mode **0**=Secondary (default) *for User Mode **1**=Primary *for Network Mode **Note 2**
`Layer 1 Alarm Display (0/1: 1):1`	13) Disable/Enable Layer 1 Alarm LED display **0/1**=Enable/Disable (default)
`set value is 0x0215`	
`setting succeeded.`	Result is displayed.

Note 2: Network Mode is not supported for UG50.

When P1=0215:

```
MG-PRI(SIP)>SET PRI_COMMON1 0215

 set value is 0x0215
 setting succeeded.
```

P1-Specify a set value
0000-FFFF= Set value (default value: 0215)

Result is displayed.

23. **SET∆PRI_LOOPBACK∆**[*P1*]

This command is used to specify Loop-back data for PRI (2M). To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

When P1 is not entered:

```
MG-PRI(SIP)>SET PRI_LOOPBACK
Local Loop Back     (0/1: 0):0

Line Loop Back      (0/1: 0):0

Payload Loop Back   (0/1: 0):0

Dch Make Busy       (0/1: 0):0

Dch Loop Back       (0/1: 0):0

Dch Self-test       (0/1: 0):0

 set value is 0x0000
 setting succeeded.
```

1) Enable/Disable Local Loop-back
0 (fixed)

2) Enable/Disable Line Loop-back
0/1=Disable(default)/Enable

3) Enable/Disable Payload Loop-back
0/1=Disable(default)/Enable

4) Enable/Disable Dch Make-Busy
0/1=Disable(default)/Enable

5) Enable/Disable Dch Loop-back
0 (fixed)

6) Enable/Disable Dch Self-Test
0 (fixed)

Result is displayed.

When P1=0000:

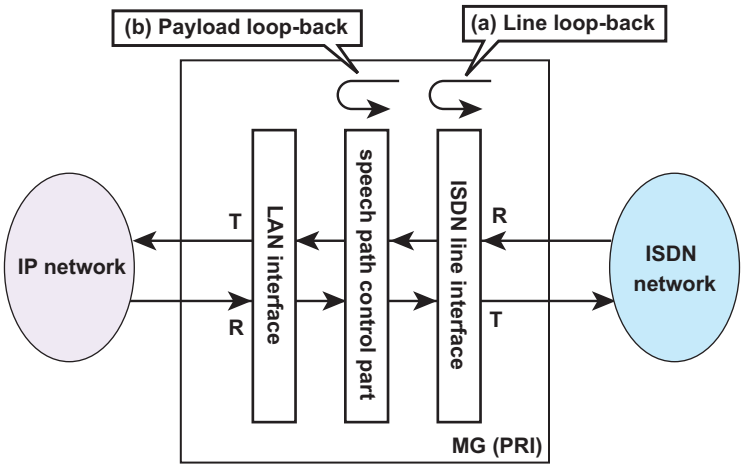
```
MG-PRI(SIP)>SET PRI_LOOPBACK 0000

 set value is 0x0000
 setting succeeded.
```

P1-Specify a set value
0000-FFFF= Set value (default value: 0000)

Result is displayed.

Note: The trace of Loop-back test varies depending on its setting. The following describes its loop-back traces by each.



(a) Line Loop-back

The line interface part of MG(PRI) sends back all the channels from ISDN network. Normally, this loop-back will work with the timing of ISDN.

(b) Payload Loop-back

The speech path control part of MG(PRI) sends back all the channels from ISDN network. Differing from Line Loop-back, a part of Payload Loop-back works with the timing of ISDN; an error may occur unless MG(PRI) and ISDN are synchronized.

24. **SET∆PRI_E1_1∆**[*P1*]

This command is used to specify PRI (2M) Dch data. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

When P1 is not entered:

```
MG-PRI(SIP)>SET
PRI_E1_1
Dch Control                (0/1: 1):1

Dch Mode                   (0/1: 0):0




Dch Signal Logic           (0/1: 0):0


Dch-1 Drop/Insert          (0/1: 1):1

Dch-2 Drop/Insert          (0/1: 0):0

Drop/Insert Mode           (0/1: 0):0


Data Transfer Speed        (0-2: 0):0



Drop/Insert Time Slot      (1-31: 16):16

Dch Signaling set          (0/1: 0):0

 set value is 0x9080
 setting succeeded.
```

1) Enable/Disable Dch Control
0/1=Disable/Enable (default)

2) Enable/Disable Dch Mode
0=User (default)
1=Network
Check connectivity for network in advance if you will use Network Mode. **Note 3**

3) Specify Dch Signal Logic
0=Positive Logic (default)
1=Negative Logic

4) Enable/Disable Dch 1
0/1=Disable/Enable (default)

5) Enable/Disable Dch 2
0 (fixed)

6) Drop/Insert Mode
0=Fixed value (default)
1=Set value

7) Specify Data Transfer Speed
0=64K (default)
1=56K
2=48K

8) Specify the number of Time Slots
1-31= Number of Time Slots (default value: 16)

9) Specify Dch Signaling Set
0 (fixed)

Result is displayed.

Note 3: Network Mode is not supported for UG50.

When P1=9080:

```
MG-PRI(SIP)>SET PRI_E1_1 9080

 set value is 0x9080
 setting succeeded.
```

P1-Specify a set value
0000-FFFF= Set value (default value: 9080)

Result is displayed.

25. **SET∆PRI_E1_2∆**[*P1*]

This command is used to specify alarm and signaling data for PRI (2M). To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

When P1 is not entered:

```
MG-PRI(SIP)>SET PRI_E1_2
Multi-frame Remote Alarm   (0/1: 0):0
Alarm Release Timing       (0/1: 0):0
Line Signal                (0/1: 0):0
CRC4                       (0/1: 1):1
DTI Mode                   (0/1: 0):0
CRC Multi-frame Format     (0/1: 0):0
Ebit Automatic Sending     (0/1: 0):0
TS16 Control               (0/1: 0):0
Dch Mode                   (0/1: 0):0
Loop Back Pattern          (0/1: 0):0
Alarm Detect/Release Type  (0/1: 0):0

 set value is 0x1000
 setting succeeded.
```

1) Enable/Disable Multi-frame Remote Alarm
0/1=Enable(default)/Disable

2) Specify Alarm Release Timing
0=Short (default)
1=Long

3) Specify Line Signal
0=HDB3 (default)
1=AMI

4) Enable/Disable CRC4
0/1=Disable/Enable (default)

5) Specify DTI Mode
0 (fixed)

6) Enable/Disable CRC Multi-frame Format
0/**1**=Disable (default)/Enable

7) Enable/Disable Ebit Automatic Sending
0 (fixed)

8) Specify Time Slot 16 Control
0=Data Through (default)
1=Signaling

9) Specify Dch Mode
0=ITU-T (default)
1=AT&T

10) Specify Loop Back Pattern
0 (fixed)

11) Specify Alarm Detect/Release Type
0=ETSI (default)
1= ITU-T

Result is displayed.

When P1=1000:

```
MG-PRI(SIP)>SET PRI_E1_2 1000

 set value is 0x1000
 setting succeeded.
```

P1-Specify a set value
0000-FFFF= Set value (default value: 1000)

Result is displayed.

26. **SET∆RTP_STOP_DETECT∆***P1*

This command is used to specify a time-out value as one of the conditions for MG Based Call Retention to determine that the call is released. The call will be determined released if RTP is not received exceeding the assigned time-out value during call retention. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET RTP_STOP_DETECT 3



 RTP Stop Detect Timer setting succeeded.
```

P1-Specify the time-out value for RTP reception.
3-32 seconds (default: 3 seconds)=Effective range

Result is displayed.

27. **SET∆SIGNALING_PORT_NO∆***P1*

This command is used to specify a port number to be used for PHI-PRI. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET SIGNALING_PORT_NO 65535



 Signaling port number setting succeeded.
```

P1-Specify a port number to be used for PHI-PRI.
1024-65535=Port Number (Default: 5060)

Result is displayed.

28. **SET∆SIGNALING_QOS∆***P1∆P2*

This command is used to specify the type of Quality of Service (QoS), which can be selected in Type of Service (TOS) or Differentiated Service (DIFFSERV) either. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET SIGNALING_QOS TOS 0xC0









 Signaling QoS setting succeeded.(0xC0)
```

P1-Specify the type of QoS.
TOS=IP Precedence type.
DIFFSERV=DIFFSERV type
CLEAR=Clear the current setting
P2-Specify a value of QoS directly.
0x00-0xFF=ToS value
0-63=DIFFSERV value

Result is displayed.

When P1 and P2 are omitted (When TOS is selected)

```
MG-PRI(SIP)>SET SIGNALING_QOS
QOS(TOS/DIFFSERV: TOS):TOS
PRECEDENCE (0-7:6): 6

DELAY      (0/1: 0): 0


THROUGHPUT (0/1: 0): 0
```

Specify the precedence in IP network.
0-7=the precedence in IP network (Default:6)

Enable/Disable Low Delay Precedence in IP network.
0=Disabled (Default)
1=Enabled

Enable/Disable Throughput Precedence in IP network.
0=Disabled (Default)
1=Enabled

```
RELIABILITY(0/1: 0): 0


COST        (0/1: 0): 0


 Signaling QoS setting succeeded.(0xC0)
```

Enable/Disable Reliable Precedence in IP network.
0=Disabled (Default)
1=Enabled

Enable/Disable Low Cost Precedence in IP network.
0=Disabled (Default)
1=Enabled

When P1 and P2 are omitted (When DIFFSERV is selected)

```
MG-PRI(SIP)>SET SIGNALING_QOS
QOS(TOS/DIFFSERV:DIFFSERV): DIFFSERV
DSCP(0-63: 48): 48

 Signaling QoS setting succeeded.(0xC0)
```

Specify a Differentiated Service Code Point value.
0-68=DSCP value (Default:48)

29. **SETΔSIPSV_IPADDRESS**

This command is used to specify the network setting of SIP Server. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET SIPSV_IPADDRESS
SIP Server (1-20): 1

IP Address: 10.41.1.150

Port Number: 5060

Is there the Host Name? [Y/N]: Y
Host Name: SVR1.nec.com


 SIP server setting succeeded.
```

Specify the number of SIP Servers to be used.
1-20: The number of SIP Servers to be used

Specify the IP address of SIP Server. (Default: 0.0.0.0)
Note 4

Specify a port number to be used in the SIP Server.
1024-65535: Port Number (Default: 5060)

Specify the host name by fully domain name. A characters can be specified up to 63 bytes (including hyphen and full stop).

Result is displayed.

Note 4: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

30. **SET∆SMOOTH_PAD∆***P1*

This command is used to specify Smooth PAD mode of DSP. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET SMOOTH_PAD 2




 Smooth PAD Mode setting succeeded.
```

P1-Specify a value of Smooth PAD mode.
OFF=Set Smooth PAD to OFF
1=+2dBm(Default)
2=-5dBm
3=-2dBm
4=0dBm
5=-4dBm

Result is displayed.

31. **SET∆STARTPORT∆***P1*

This command is used to specify the starting port of RTP. Enter an even number for the RTP. The odd number (the even number +1) is assigned for RTCP. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>SET STARTPORT 1024

 RTP Start Port Number setting succeeded.
```

P1-Specify the port number to start RTP
1024-64510= Port Number (Default: 1024)

Result is displayed.

32. **SET∆TCP_TIMER∆***P1*

This command is used to specify the timer waiting for TCP link connection.

```
MG-PRI(SIP)>SET TCP_TIMER P1




 TCP Link Connect Timer Timeout setting succeeded.
```

P1-Specify the waiting time (30 seconds interval)
60-180 =effective waiting time (Default: 60)

Result is displayed.

33. **SET∆VLAN**

This command is used to specify the settings for VLAN.To make this assignment effective, it is required to execute the “SAVE” command and to restart before exiting the maintenance command. In MG, one VLAN can be created per network.

```
MG-PRI(SIP)>SET VLAN
Please enter a parameter.
VLAN ID (1-4094):1

COS (0-7):0

 VLAN setting succeeded.
```

1) Specify VLAN ID
1-4094=VLAN ID

2) Specify COS
0-7=COS

Result is displayed.

34. **SET∆WARNING_TONE∆***P1*

```
MG-PRI(SIP)>SET WARNING_TONE P1




 Warning Tone Control setting succeeded.
```

P1-Specify a set value (Default: 0)
0= No Warning Tone
1= Not used
2= Not used
3= Send Warning Tone

Result is displayed.

4.8 SHOW Command

1. **SHOW∆CALL_HOLD**

   This command is used to display the current MG Based Call Retention settings.

```
MG-PRI(SIP)>SHOW CALL_HOLD

CALL HOLD is DISABLE
```

The current setting is displayed.

2. **SHOW∆CONFIG**

   This command is used to display the current network settings.

```
MG-PRI(SIP)>SHOW CONFIG
[SYSTEM]
DEBUG_LEVEL=0
DHCP_BKUP=OFF
DHCP_SAVE=OFF
REGISTER_MODE=SP

[IP]
OWN_ADDR=10.41.1.100
SUBNET_MASK255.255.255.0
DEFAULT_GATEWAY=10.41.1.254
:
:
```

The current setting is displayed.

3. **SHOW∆DHCP**

   This command is used to display whether DHCP is enabled at current network.

```
MG-PRI(SIP)>SHOW DHCP
 DHCP is ENABLE
```

The current setting is displayed.

4. **SHOW∆DNS_SW**

   This command is used to display whether DNS is enabled at current network.

```
MG-PRI(SIP)>SHOW DNS_SW
 DNS interface : DISABLE
 DNS IP address : 10.41.1.150
```

The current setting is displayed.

5. **SHOW∆DRSADDRESS∆**[*P1*]

This command is used to display the status of DRS.

Note: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

When P1=1 (Primary DRS) is not entered:

```
MG-PRI(SIP)>SHOW DRSADDRESS
 Primary   DRS Address 10.41.1.100, Port 3456
 Secondary DRS Address 10.41.1.101, Port 3457
 Tertiary  DRS Address 10.41.1.102, Port 3458
 Fourth    DRS Address 10.41.1.103, Port 3459
```

The current setting is displayed.

When P1=1 (Primary DRS) is entered:

```
MG-PRI(SIP)>SHOW DRSADDRESS 1



 Primary DRS Address 10.41.1.100, Port 3456
```

P1-Select the DRS to be displayed.
1=Primary DRS
2=Secondary DRS
3=Tertiary DRS
4=Fourth DRS

The current setting is displayed.

6. **SHOW∆DRSQOS**

This command is used to display the QOS setting for DRS session. The following is an example in the case of TOS setting.

```
MG-PRI(SIP)>SHOW DRSQOS
 DRS QoS is 0xC0.(QOS = TOS)
 PRECEDENCE =6
 DELAY      =0
 THROUGHPUT =0
 RELIABILITY=0
 COST       =0
```

The current setting is displayed.
- QOS
- PRECEDENCE (**0-7** (low-high))
- Delay (**0/1**=Normal/Delay)
- THROUGHPUT (**0/1**=Normal/High Throughput)
- RELIABILITY (**0/1**=Normal/High Reliability)
- COST (**0/1**=Normal/Cost Precedence)
- DSCP (0-63)

7. **SHOW∆DTMF_IN**

   This command is used to display the current setting of DTMF relay of in-band signaling.

```
MG-PRI(SIP)>SHOW DTMF_IN
 Inband DTMF Relay is OFF.
```
The current setting is displayed.

8. **SHOW∆E_T_TIME**

   This command is used to display an executing time of EC Training feature.

```
MG-PRI(SIP)>SHOW E_T_TIME
 EC Training Feature Time is 32.
```
The current setting is displayed.

9. **SHOW∆E_T_WAITTIME**

   This command is used to display the waiting time (ms) before starting EC training feature. 1 counter indicates 10ms.

```
MG-PRI(SIP)>SHOW E_T_WAITTIME
 EC Training Start Wait Time is 10.
```
The current setting is displayed.

10. **SHOW∆EC_TRAINING**

    This command is used to display the training feature of Echo Canceller (EC). Echo Canceller Feature is used to prevent initial Echo (ranging from 500 to 1ms) from occurring in the beginning of speech to the Telephony Server

```
MG-PRI(SIP)>SHOW EC_TRAINING
 EC Training Feature is ON.
```
The current setting is displayed.

11. **SHOW∆FAX_ECM**

    This command is used to display the setting of FAX ECM.

```
MG-PRI(SIP)>SHOW FAX_ECM
 Fax ecm is OFF.
```
The current setting is displayed.

12. **SHOW∆FAXERRORDETECT**

    This command is used to display an available time to be switched to FAX.

```
MG-PRI(SIP)>SHOW FAXERRORDETECT
 FAX Enable Timer is 1 minute.
```
The current setting is displayed.

13. **SHOW∆HC_RCV_TIMER**

    This command is used to display the time for timeout in receiving Health Check.

```
MG-PRI(SIP)>SHOW HC_RCV_TIMER
```

```
 Health-Check Receive Timer Timeout is 150 seconds.
```
The current setting is displayed.

14. **SHOW∆GND_OPEN_SW**

This command is used to display the setting of grand open switch.

```
MG-PRI(SIP)>SHOW GND_OPEN_SW
 Grand Open Switch is GND.
```
The current setting is displayed.

15. **SHOW∆IMPEDANCE**

This command is used to display the setting of impedance.

```
MG-PRI(SIP)>SHOW IMPEDANCE
 Impedance is 120 OHM.
```
The current setting is displayed.

16. **SHOW∆INTERFACE**

This command is used to display the connection mode of LAN interface.

```
MG-PRI(SIP)>SHOW INTERFACE
 Setting: Auto-negotiation
 Status : Speed is 100Mbps, DUPLEX:HALF
```
The current setting is displayed.

17. **SHOW∆IPADDRESS**

This command is used to display the IP address of LAN interface.

```
MG-PRI(SIP)>SHOW IPADDRESS
 IP Address       222.1.12.3
 Subnetmask       255.255.255.0
 Default Gateway  222.1.12.254
```
The current setting is displayed.

18. **SHOW∆ONE_TIME_PASS**

This command is used to display the one-time password.

```
MG-PRI(SIP)>SHOW ONE_TIME_PASS
 One time password is 123456.
```
The current setting is displayed.

19. **SHOW∆OWN_NAME**

This command is used to display the host name of MG(PRI).

```
MG-PRI(SIP)>SHOW OWN_NAME
 Own Name : mgpri.nec.com
```
The current setting is displayed.

20. **SHOW∆PAD***P1*

This command is used to display the specified PAD register for voice quality tuning. The following is an example in the case of displaying PAD0.

```
MG-PRI(SIP)>SHOW PAD0

 value is 0x0000
 A-law/u-law Setting   :0
 PAD Selection         :0
 PAD Control           :0
 PAD Pattern No.       :0
 Data PAD Pattern No.  :0
```

P1-Specify the register number to be displayed.
0-4=PAD Register Number

The current setting is displayed.

- CODEC
  0=MGC Control (Telephony Server System Data)
  1=μ-law
  2=A-law
  3=Convert from A-law to μ-law
  4=Convert from μ-law to A-law
- PAD selection (0/1=Standard/Flexible)
- PAD Control
  0=Receiving Control (ISDN Network→MG)
  1=Sending Control (MG→ISDN Network)
  2=Fixed to ARTD
  3=Sending/Receiving Control
- PAD Pattern number (0-4)
- Data PAD Pattern Number
  0=64K
  1 - 4=Not available
- Flexible PAD #***N***-Recv ((-16)-(20))
- Flexible PAD #***N***-Send ((-16)-(20))

21. **SHOW∆PRI_COMMON1**

This command is used to display the common settings 1 for trunk.

```
MG-PRI(SIP)>SHOW PRI_COMMON1
 value is 0x0215
 Remote Alarm Sending    :0
 Signal All 1            :0
 Idle Code Sending       :0
 Dch Back-up             :0
 Layer 1 Alarm Sending   :0
 Haul Mode               :0
 EC NLP Control          :1
 EC NLP Mode             :0
 EC 2100Hz Detect        :0
 Music Int/Ext           :0
 Music No.               :5
 Clock Mode              :0
 Layer 1 Alarm Display   :1
```

The current setting is displayed.

- Remote Alarm Sending (0/1=Enable/Disable)
- Signal All 1(0/1=Disable/Enable)
- Idle Code Sending (0/1=Disable/Enable)
- Dch Back-up (0/1=Disable/Enable)
- Layer 1 Alarm Sending (0/1=Enable/Disable)
- Haul Mode (0/1=Short/Long)
- EC NLP Control (0/1=Disable/Enable)
- EC NLP Mode
  (0/1=Background Noise/Fixed Level)
- EC 2100Hz Detect
  (0/1=Disable/Enable)
- Select Music Source (0/1=Internal/External)
- Music No. (0=Fur Elise/1=Maiden's prayer/5=Minuet)
- Clock mode (0/1=Secondary/Primary)
- Layer 1 Alarm LED display (0/1=Enable/Disable)

22. **SHOW∆PRI_LOOPBACK**

This command is used to display the loop-back settings for TC.

```
MG-PRI(SIP)>SHOW PRI_LOOPBACK
 value is 0x0000
 Local Loop Back    :0
 Line Loop Back     :0
 Payload Loop Back  :0
 Dch Make Busy      :0
 Dch Loop Back      :0
 Dch Self-test      :0
```

The current setting is displayed.

- Local Loop-back (0/1=Disable/Enable)
- Line Loop-back (0/1=Disable/Enable)
- Payload Loop-back (0/1=Disable/Enable)
- Dch Make-Busy (0/1=Disable/Enable)
- Dch Loop-back0 (0: Fixed)
- Dch Self-Test (0: Fixed)

23. **SHOW∆PRI_E1_1**

This command is used to display E1 Dch settings for trunk.

```
MG-PRI(SIP)>SHOW PRI_E1_1
 value is 0x9080
 Dch Control           :1
 Dch Mode              :0
 Dch Signal Logic      :0
 Dch-1 Drop/Insert     :1
 Dch-2 Drop/Insert     :0
 Drop/Insert Mode      :0
 Data Transfer Speed   :0
 Drop/Insert Time Slot :16
 Dch Signaling Set     :0
```

The current setting is displayed.

- Dch Control (0/1=Disable/Enable)
- Dch Mode (0/1=User/Network)
- Dch Signal Logic (0/1=Positive Logic/Negative Logic)
- Dch 1 (0/1=Disable/Enable)
- Dch 2 (0: Fixed)
- Mode (0/1=Fixed value/Set value)
- Data Transfer Speed (0=64K/1=56K/2=48K)
- Time Slot Number (1-31)
- Dch Signaling Set (0: Fixed)

24. **SHOW∆PRI_E1_2**

This command is used to display E1 settings for trunk.

```
MG-PRI(SIP)>SHOW PRI_E1_2
 value is 0x1000
 Multi-frame Remote Alarm   :0
 Alarm Release Timing       :0
 Line Signal                :0
 CRC4                       :1
 DTI Mode                   :0
 CRC Multi-frame Format     :0
 Ebit Automatic Sending     :0
 TS16 Control               :0
 Dch Mode                   :0
 Loop Back Pattern          :0
 Alarm Detect/Release Type  :0
```

The current setting is displayed.

- Multi-frame Remote Alarm (0/1=Enable/Disable)
- Alarm Release Timing (0/1=Short/Long)
- Line Signal (0/1=HDB3/AMI)
- CRC4 (0/1=Disable/Enable)
- DTI Mode (0: Fixed)
- CRC Multi-frame Format (0/1=Disable/Enable)
- Ebit Automatic Sending (0: Fixed)
- TS16 Control (0/1=Data Through/Signaling
- Dch Mode (0/1=ITU-T/AT&T)
- Loop Back Pattern (0: Fixed)
- Alarm Detect/Release Type (0/1=ETSI/ITU-T)

25. **SHOW∆RTP_STOP_DETECT**

This command is used to display the time-out value for RTP reception.

```
MG-PRI(SIP)>RTP_STOP_DETECT
 RTP Stop Detect Timer is 3sec.
```

The current setting is displayed.

26. **SHOW∆SIGNALING_PORT_NO**

This command is used to display the port number of signaling.

```
MG-PRI(SIP)>SIGNALING_PORT_NO
 Signaling port number is 5060.
```

The current setting is displayed.

27. **SHOW∆SIGNALING_QOS**

This command is used to display the QoS of signaling.

```
MG-PRI(SIP)>SIGNALING_QOS
 Signaling QOS is 0xC0. (QOS = TOS)

 PRECEDENCE  =6
 DELAY       =0
 THROUGHPUT  =0
 RELIABILITY =0
 COST        =0
```

The current setting is displayed.

28. **SHOW∆SIPSV_IPADDRESS**

This command is used to display the network settings of SIP Server.

```
MG-PRI(SIP)>SHOW SIPSV_IPADDRESS
 SIP Server   IP Address    Port Number   Host Name
 1            0.0.0.0       0
 2            0.0.0.0       0
 3            0.0.0.0       0
 4            0.0.0.0       0
 5            0.0.0.0       0
 6            0.0.0.0       0
 7            0.0.0.0       0
 8            0.0.0.0       0
 9            0.0.0.0       0
 10           0.0.0.0       0
 11           0.0.0.0       0
 12           0.0.0.0       0
 13           0.0.0.0       0
 14           0.0.0.0       0
 15           0.0.0.0       0
 16           0.0.0.0       0
 17           0.0.0.0       0
 18           0.0.0.0       0
 19           0.0.0.0       0
 20           0.0.0.0       0
```

The current setting is displayed.

Note: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

29. **SHOW∆SMOOTH_PAD**

This command is used to display Smooth PAD mode of DSP.

```
MG-PRI(SIP)>SHOW SMOOTH_PAD
 Smooth PAD Mode is 2.
```

The current setting is displayed.

30. **SHOW∆STARTPORT**

This command is used to display the start port of RTP.

```
MG-PRI(SIP)>SHOW STARTPORT
 RTP Start Port Number is 1024.
```

The current setting is displayed.

31. **SHOW∆STATUS**

This command is used to display the status of MG(PRI).

```
MG-PRI(SIP)>SHOW STATUS
Register Mode        : SP
MAC Address          : 00:00:4c:a4:00:01
Link State           : Up
Speed                : 100Mbps
Duplex               : Full
VLAN Mode            : Enable
DHCP Mode            : Disable
IP Address           : 10.10.10.98
Subnet Mask          : 255.255.255.0
Default Gateway      : 10.10.10.254
DNS Mode             : Enable
DNS Server Address   : 10.10.10.150
Encryption           :
  +--SIP Encrypt     : --
  +--RTP Encrypt     : Enable
Current Sipsv        : 0.0.0.0
Address              : Offline
Registration Status
  +--Registration is Started now
```

The current setting is displayed.

32. **SHOW∆TCP_TIMER**

This command is used to display the setting of the timer for TCP Link Connection

```
MG-PRI(SIP)>SHOW TCP_TIMER
 TCP Link Connect Timer Timeout is 60 seconds.
```

The current setting is displayed.

33. **SHOW∆VERSION**

This command is used to display information about hardware, boot program, and firmware.

```
MG-PRI(SIP)>SHOW VERSION
MG Maintenance command Version
      Version Information
 Hardware      :CA-CC01 1A
 Boot program  :SP3839  SH7751R CBOOT-1 PROG-A [03.00.00.00]
 Firmware(NC)  :SP3884  MG PRI PROG-A [05.00.00.00]
 Firmware(TC)  :        TC-Program    [04.00.00.00]
 AC490    kernel Ver   :01.07
          Revision     :06
          Patch        :
          PatchNumber  :
          Reserved     :
          Month        :05
          Day          :09
          year         :2005
          Name         :AC49kernel
 AC490    MainProgram  :01.07
          Revision     :08
          Patch        :pp
          PatchNumber  :02
          Reserved     :
          Month        :06
          Day          :02
          year         :2005
          Name         :AC490012ae3-S
 AC490    Driver Ver   :107
          SubVersion   :06
          Date         :01.05.2005
          Comment      :
```

The current setting is displayed.

34. **SHOW∆VLAN∆**[*P1*]

This command is used to display the VLAN.

When P1 is not entered:

```
MG-PRI(SIP)>SHOW VLAN
 DEVICE  ID   COS   IPADDRESS      SUBNETMASK
 VLAN1   1    0     10.123.123.123  255.255.255.0
```

The current setting is displayed.

When P1=1:

```
MG-PRI(SIP)>SHOW VLAN 1

 DEVICE  ID   COS   IPADDRESS      SUBNETMASK
 VLAN1   1    0     10.123.123.123  255.255.255.0
```

P1- Specify VLAN ID.
If omitted, all the VLAN are displayed.

35. **SHOW∆WARNING_TONE**

This command is used to display the warning tone setting.

```
MG-PRI(SIP)>SHOW WARNING_TONE
 Warning Tone Control of IP Network is 3 (IP&ISDN side).
```

4.9 PING Command

1. **PING∆***P1*

This command is used to check the connectivity of network.

```
MG-PRI(SIP)>PING 10.41.1.100
PING 10.41.1.100: icmp_seq=0. time=0. ms
PING 10.41.1.100: icmp_seq=1. time=0. ms
PING 10.41.1.100: icmp_seq=2. time=0. ms
PING 10.41.1.100: icmp_seq=3. time=0. ms
----10.41.1.100 PING Statistics----
4 packets transmitted, 4 packets received, 0% packet loss
round-trip (ms)   min/avg/max = 0/0/0
```

P1-Specify IP address
Result is displayed.

4.10 DELETE Command

1. **DELETE∆VLAN∆*P1***

This command is used to delete VLAN. To make this assignment effective, it is required to execute the "SAVE" command and to restart before exiting the maintenance command.

```
MG-PRI(SIP)>DELETE VLAN 1
 VLAN deleting succeeded.
```

P1-Specify VLAN ID

Result is displayed.

4.11 SAVE Command

1. **SAVE∆CONFIGDATA**

This command is used to save the configuration data.

```
MG-PRI(SIP)>SAVE CONFIGDATA
 ** Don't power off in progress **
 Do you need save? [Y/N]: Y
Erase start...
Erase OK!
Write start...
Write OK!
 Configuration data has been saved.
 Re-starting is required for making a setup reflect!!
```

Y: The data is saved
N: The data is not saved

Result is displayed.

4.12 GET Command

1. **GET∆CONFIGDATA∆*P1***

This command is used to download configuration data from TFTP server.

```
MG-PRI(SIP)>GET CONFIGDATA P1

 The download of configuration data was successful.
```

P1-Specify the IP address of TFTP server after the command name.

Result is displayed.

4.13 PUT Command

1. **PUT∆CONFIGDATA∆*P1***

This command is used to upload a configuration data to specified TFTP server:

```
MG-PRI(SIP)>PUT CONFIGDATA P1

 The upload of configuration data was successful.
```

P1-Specify the IP address of TFTP server after the command name.

Result is displayed.

4.14 REBOOT Command

1. **REBOOT**

This command is used to reboot the MG.

```
MG-PRI(SIP)>REBOOT
 Do you need reboot? [Y/N]: Y
```

Y=Reboot
N=Not reboot

4.15 EXIT Command

1. **EXIT**

This command is used to exit the program.

Normal operation:

```
MG-PRI(SIP)>EXIT
->
```

Returns to OS prompt.

When configuration data is changed, the following is displayed according to the changed data:

```
MG-PRI(SIP)>EXIT
Configuration data was changed.
** Don't power off in progress **
y: Save and Exit.
n: Exit without saving.
c: Cancel
[y/n/c]: y

 Configuration data has been saved!!
```

y=Save the file and exit the program
n=Exit the command without saving
c=Cancel the command

Enter "y" to save the changed data and exit the configuration command.

Result is displayed.

4.16 INITIAL Command

1. INIT∆CONFIG

This command is used to initialize the config data in MG(PRI).

```
MG-PRI(SIP)>INIT CONFIG
 ***Warning!***
 This command is for initializing config data.
 If this command is executed, your configuration is deleted!!
 really OK ? [Y/N]:Y

 It is recommended to back up your configuration !!
 really OK?[Y/N]:Y
Erase start...
Erase OK!
Write start...
Write OK!

 Initializing of configuration data is successful.
 you need to setup MGPRI's config data!!
```

4.17 Error Messages

When an error occurs in using the maintenance command, error message is indicated to show the cause for helping the reassignment of required data.

List of Error Messages

MESSAGE	CAUSE
File not found on the TFTP server.	System data cannot be found and downloaded in the TFTP Server.
Command not found.	An entered command is not supported.
Invalid parameter.	Invalid parameters are entered with a command.
IP address form is incorrect.	An entered IP address is incorrect in the input format.
VLAN ID is no more registered.	Registered VLAN IDs exceeded a maximum.
Sub command is missing.	Sub command is necessary when the command is entered.
Invalid parameter value.	The parameter is out of range.
Invalid sub command.	The sub command is incorrect.
No response from CPU (TC).	There is no response from other CPUs.
Command is abnormally terminated.	The command failed to complete.
Parameter(s) are missing.	Parameter(s) are necessary when the command is entered.
Entered VLAN ID is already registered.	Specified VLAN ID is duplicated.
Entered VLAN ID is not registered.	Specified VLAN ID is invalid.

MG-T1(SIP) [SCA-24DTIA/SCA-24DTIA-B]

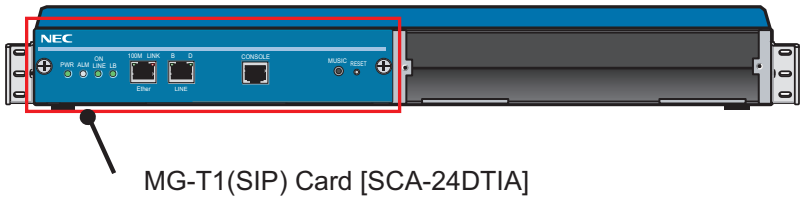
1 General

1.1 What is MG-T1(SIP)?

MG-T1(SIP) is a media gateway between T1 carrier (1.5Mbps of digital transmission service with 24 separate channels) and IP network to provide an efficient network through interaction with the Telephony Server. Voice packets are sent/received in peer-to-peer connection between PSTN side and IP network.

Control signal between the Telephony Server and MG-T1(SIP) is handled by SP-PHI (built-in PH function) using Session Initiation Protocol (SIP), and control signal and voice packets are encrypted to ensure security feature.

MG-T1(SIP) has one type: MG-T1(SIP) Card [SCA-24DTIA/SCA-24DTIA-B] for card type. That one is in the following:



MG-T1(SIP) Card [SCA-24DTIA]

Note: MG-T1(SIP) Card is a slot-in type of trunk card mounted in 1U-MPC (Multi Purpose Chassis). A 1U-MPC can accommodate a maximum of two cards. There is no restriction on the combination of mounting card types; any other MG/MC card can be mounted in the same 1U-MPC with MG-T1(SIP).

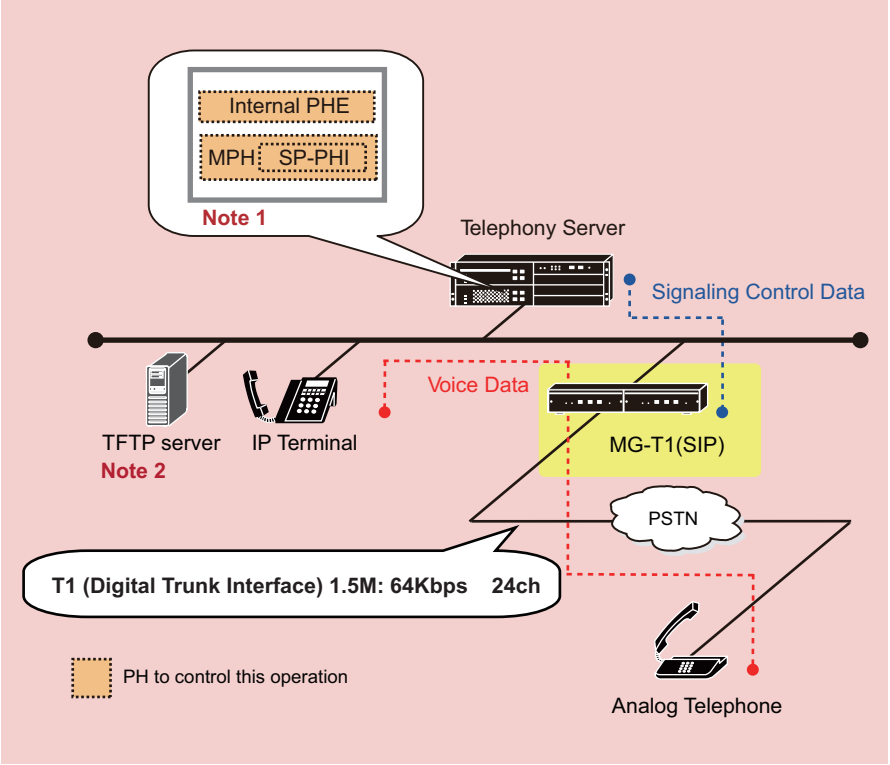
Note: MG-T1(SIP) is available for North America.

1.2 Function Overview

One of the main purposes of MG-T1(SIP) in the system is to establish peer-to-peer connection between IP network and PSTN line, emulating the digital circuit on T1 interface to the connected line's signaling.

Note: Refer to Section 1.5 Service Conditions for the signaling format supported by MG-T1(SIP).

The general structure of MG-T1(SIP) is shown in the diagram below.



Note 1: SP-PHI, which is accommodated in MPH (Multi Protocol Handler) of the Telephony Server, handles the control signal from/to MG-T1(SIP). MPH is the interface for the control signal. Call control between SP-PHI and MG-T1(SIP) is executed via TCP/IP port of the system.

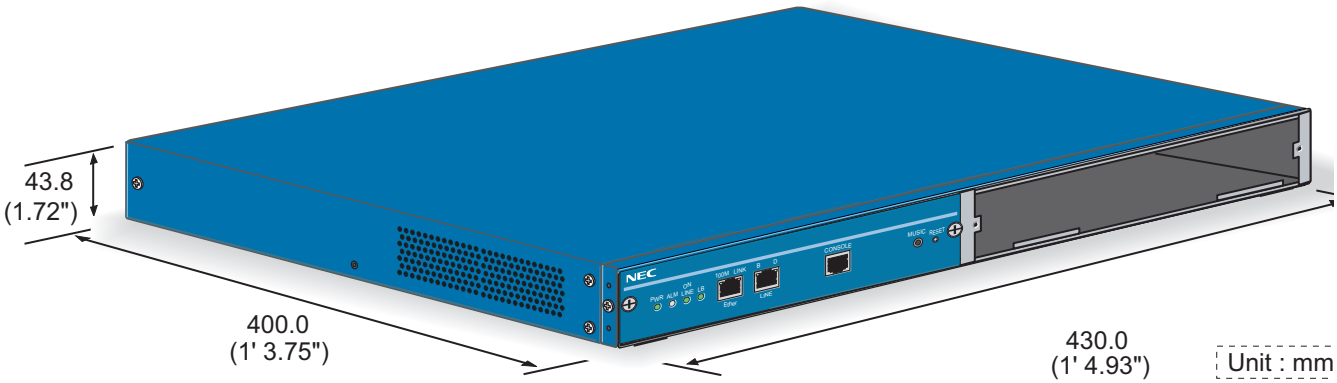
Note 2: TFTP server is required for file downloading. For details, refer to Section 4 Operation and Maintenance.

1.3 Specifications

1. Dimension

- MG-T1(SIP) Card [SCA-24DTIA/SCA-24DTIA-B]

  MG-T1(SIP) is mounted in 1U-MPC (19-inch rack mount, 1U-box).



2. Specifications

MG-T1(SIP) Specifications

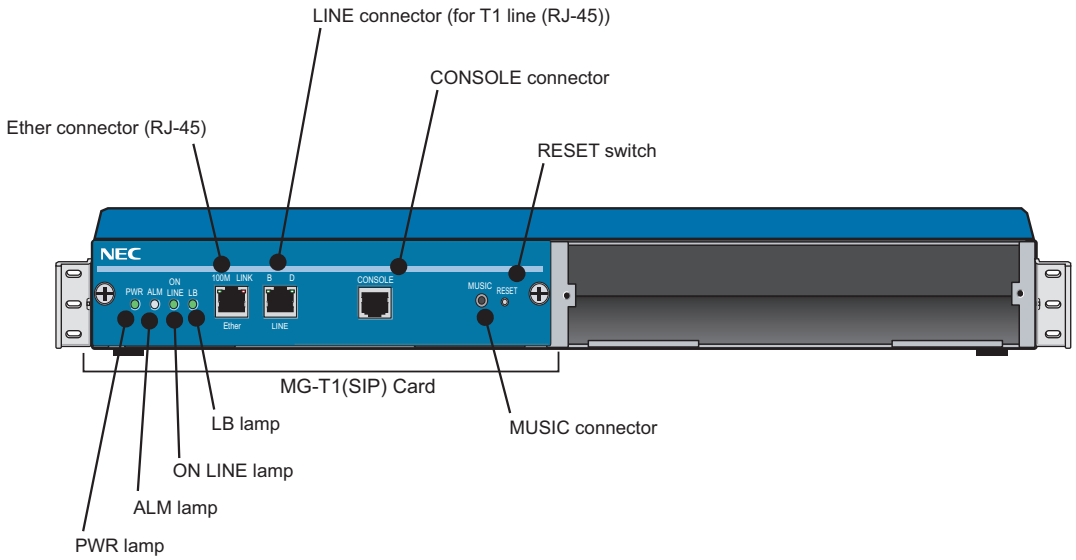
FUNCTION	SPECIFICATION	NOTE
CODEC	G.711	64k [bps]: PCM μ-law/A-law RTP Payload cycle: 20~40 msec (in 10 msec steps)
	G.729a	8k [bps]: CS-ACELP (Reduce complexity) RTP Payload cycle: 10~40 msec (in 10 msec steps)
	G.723.1	5.3k [bps]: MP-MLQ/ACELP RTP Payload cycle: 30 or 60 msec
		6.3k [bps]: MP-MLQ/ACELP RTP Payload cycle: 30 or 60 msec
FAX	Data transmission as voice data	G.711/G.726 (ADPCM)
	FAX Relay (T.30)	FRF.11
PAD	PAD setting	Speech: -16dB ~ 20dB (one dB step) FAX: 0dB ~ 20dB (one dB step)
	Smooth PAD	
RTP Jitter and Buffer	Static	10~300 msec (in 10 msec steps)
	Dynamic	10~300 msec
Quality of Service (QoS)	ToS, IP Precedence	Supported
	DiffServ	Supported
VLAN	IEEE 802.1Q (Tagging VLAN), VLAN bit, Priority bit	
Echo Canceller	G.168	Tail Length is 64 msec
T1 interface *See MG-T1(SIP) Specifications for T1 Interface.	FXO Ground Start	Second Dial Tone/Immediate Start origination Ring Down termination
	DID (E&M)	Second Dial Tone/Wink Start termination
DTMF	Supported	
IP Address Assignment	DHCP is supported	
Holding Tone	Internal hold-tone	Selectable by configuration command (1: Minuet, 2: For Elise)
	External hold-tone	Input audio source from MUSIC connector

MG-T1(SIP) Specifications for T1 Interface

FUNCTION	SPECIFICATION	NOTE
Pulsing signal	PB	60/120msec interval
Multi-frame	12/24 multiframe	
Line signal	B8ZS/AMI or ZCS	
Channel associated signaling	Bit Steal	
Signaling A logic	Positive/Negative	Available for sending/receiving respectively.
Signaling pattern	AAAA/ABAB/ABCD	Available for sending/receiving respectively.
Loopback	Local/Line/Payload	
Alarm detecting/releasing	Normal/AT&T	
Layer 1 alarm notification to CPU	ON/OFF	
Alarm releasing timer	Long/Short	
Simultaneous seizure	Controlled/Not controlled	
Counter node activation when detecting simultaneous seizure	ON/OFF	
Remote alarm sending	ON/OFF	
Remote alarm signaling	In channel Bit 2/Data Link Channel	
No tone sending on detecting alarm	ON/OFF	
Idle code sending	ON/OFF	
4K data link	MOS/BOM	Operation mode is selectable from the patterns; PPR or 7EH (Flag) to be sent out, and whether to receive MOS message.
A-law/μ-law conversion	Supported	
Switch hook flash sending	Supported	
S-bit inversion	Bit steal	
Voice compression	Supported	
SIP encryption	Supported	See [V-27] VoIP Encryption in Data Programming Manual
Make-busy control	Outgoing MB and Incoming/Outgoing MB are supported	Incoming MB is activated on the counter office.

3. Layout of Connectors, Lamps, and Switches

- Front View: MG-T1(SIP) Card [SCA-24DTIA/SCA-24DTIA-B]



Connectors on Front Panel

CONNECTOR	FUNCTION	NOTE
Ether	LAN Interface	RJ-45 100Mbps/10Mbps, auto-negotiation (Half/Full Duplex)
LINE	T1 line connection	RJ-45 -T1 (1.5M): 24ch
CONSOLE	Interface for Maintenance Console	RJ-45 serial connection (CONSOLE cable RJ-45 ⇔ RS-232C is used)
MUSIC	External hold-tone connection	ϕ3.5 mini-jack (monaural type)

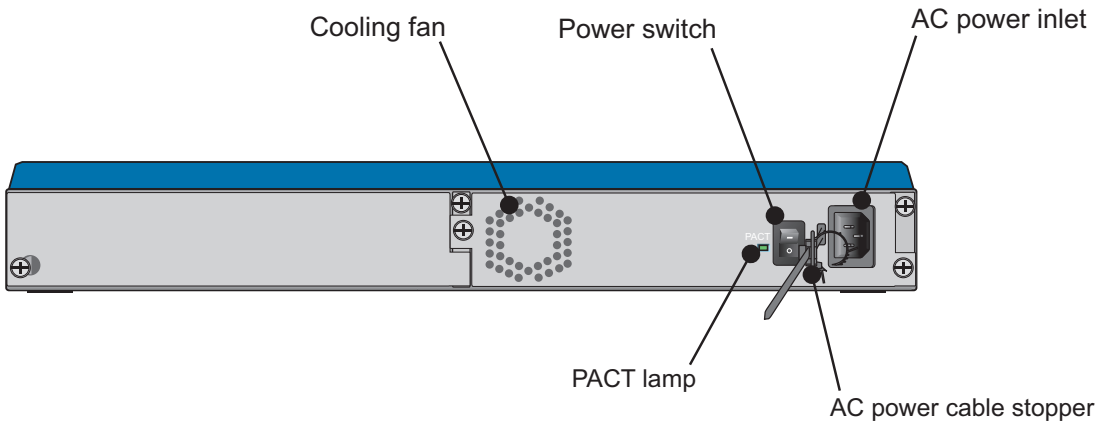
Lamps on the Front Panel

LAMP NAME		COLOR	MEANING OF INDICATION
PWR		Green	Power ON
		OFF	Power OFF **Note:** Turns ON → OFF on detecting FAN alarm
ALM		Red	Lights when power module failure is detected
		OFF	Normal operation
ON LINE		Green	Lights when registration is completed
		Flash	Flashes during initial setting
		OFF	Initial setting is not completed **Note:** Turns Flash → OFF when registration launches
LB		Green	Not used **Note:** Temporary lights in initial setting
		Flash (60INT)	Flashes slowly in loopback mode
		Flash (240INT)	Flashes fast when receiving loopback mode request from opposite party
		OFF	Normal operation
Ether	100M	Green	Lights when transmission speed is 100 Mbps
		OFF	Remains OFF when transmission speed is 10 Mbps
	LINK	Green	Lights when establishing Layer 1 link on IP side **Note:** Physically connected to IP network
		Flash	Flashes (in 0.2-second cycle) during sending/receiving IP packets
		OFF	Layer 1 link is not established on IP side
LINE	B	Green	Lights when using two or more channels **Note:** Temporary lights in initial setting
		Flash (120INT)	Flashes fast when using only one channel
		Flash (60INT)	Flashes slowly when all channels are in make-busy
		OFF	Remains OFF when all the channels are idle
	D	Green	Lights on detecting Layer 1alarm from T1 line
		Flash (240INT)	Flashes when monitoring Layer 1 alarm recovery on T1 line
		OFF	Normal operation

Note: When MG-T1(SIP) keeps the lamp indications below continuously, some error has occurred in initial setting. Check the system data and cable connection to clear the problem.

PWR	*ON LINE*	*LB*	*LINE*		*ERROR*
			B	*D*	
ON	*Flash*	*ON*	*ON*	*OFF*	*Initial setting error on IP side.*
ON	*OFF*	*ON*	*ON*	*OFF*	*Registration error on IP side*
ON	*OFF*	*ON*	*ON*	*OFF*	*Initial setting error on T1 trunk side.*

- Rear View: MG-T1(SIP) Card [SCA-24DTIA/SCA-24DTIA-B]



Note: This figure is an example when 1U-MPC is in single power configuration. Prepare one more power unit (optional) for dual power configuration. (See the Appliance Model Installation Manual for the power unit mounting procedure.)

Connectors, Lamps, and Switches on Rear Panel

NAME	FUNCTION	
AC power inlet	Connected to AC-DC adapter with an attached three-polar grounded AC power cable (Cable Length: 3 m [9.8 ft.])	AC 100V (50/60 Hz) ± 10% AC 120V (50/60 Hz) ± 10% AC 230V (50/60 Hz) ± 10% AC 240V (50/60 Hz) ± 10%
Power switch	Power ON/OFF switching	
PACT lamp	Indicates the state in power unit	Lights green: Normal operation OFF: Power failure

Note: For the safety measures against static electricity, lightning struck, and other electrical surges, be sure to take proper connection to grounding (less than 10 Ω). As MG-T1(SIP) has PSTN interface, if the line cable is struck by lightning directly, the lightning might cause damage on MG-T1(SIP) and AC power cable without Ground connection.

4. Port Numbers

The following provides the port number to be used in the system including MG-T1(SIP). If a firewall is used in your network, do not block the following ports.

	Function	TP side			SP side	
		LAN Port (default)	Port Number (default)	Command to Change Setting	Port Number (default)	Command to Change Setting
TP ⇔ SP Note 1	Registration	LAN1	3456	ADTM (Port Number only)	22000	Cannot be changed
	iLP-PM	LAN1	60130	ADTM (Port Number only)	64105	ALIDL
SP Internal Control Port Note 2	iLP-PM	-	-	-	64010	ALIDL
					22001	ASPC
MG-T1(SIP) ⇔ SP	SIP	-	-	-	5060	Cannot be changed
H.245 Negotiation	Ready	-	-	-	22002	ASPC
	H.245	-	-	-	22003 ~ 26000	ASPC

Note 1: The packet between TP and SP ("TP ⇔ SP" in the table) does not flow over the network because both of which are part of the Telephony Server.

Note 2: The packet related to SP internal control port does not flow over the network.

1.4 Requirements

1. Hardware Requirements

   - 1U-MPC (Multi Purposes Chassis) for mounting on 19-inch rack **Required for MG-T1(SIP) Card only.*
   - PC running Terminal Software (for using Maintenance Console)
   - Cables

     LAN cable:Use any of the following cables for connecting to LAN.
     10BASE-T:Unshielded Twisted-pair (UTP) Straight-through Cable Category 3 or higher,
     (a maximum of 100 m)
     100BASE-TX:Unshielded Twisted-pair (UTP) Straight-through Cable Category 5 or higher,
     (a maximum of 100 m)

     Line Cable:For the connection to T1 carrier, use a ϕ0.5 Twisted-pair Cable for DSU with an RJ-45 Modular Jack.

     CONSOLE Cable:RJ-45 ⇔ RS-232C serial cable (for using maintenance console)

     Audio Cable:Microphone output (for using external hold-tone source)
     ϕ3.5 mini-jack (monaural type) **optional*

2. Firmware Program

   - Installed Firmware: SP-3926 MG DTI PROG-A Issue 1A or later version

3. Environmental Requirements

   - Operational Temperature Range: 0°C to 40°C (32°F to 104°F)
   - Operational Humidity Range: 20% to 90% (not condensing)
   - Main Source Power: 100 VAC / 120 VAC / 230 VAC / 240 VAC (50/60 Hz) ±10%

1.5 Service Conditions

1. MG-T1(SIP) [SCA-24DTIA/SCA-24DTIA-B] is available for North America.
2. Assign the following system data to use MG-T1(SIP):
   - ASYDL, SYS 1, INDEX880, bit3=1 (Internal PHE is valid)
   - ASYDL, SYS 1, INDEX885, bit7=1 (SP Implementation is valid)
3. MG-T1(SIP) requests registration to SP-PHI.
4. Allocate the mounting location of Internal PHE and MPH/SP-PHI respectively by ALIDL command.
5. One MG-T1(SIP) occupies four groups (1HW) of virtual speech channel. One HW can only be used as virtual speech channels of MG-T1(SIP) even when only one channel is assigned.
   The virtual speech channel of MG-T1(SIP) cannot coexist in the same HW with the virtual speech channel of other type of MG devices.
6. Virtual speech channels of MG-T1(SIP) cannot be allocated to 24 or later part of Groups in the system.
7. When changing trunk data by ATRK command during MG-T1(SIP) is in operation, the channels on the corresponding trunk must be once deleted and reassigned by AMGIL command. So communication is disconnected on the corresponding channels while data changing.
8. The table below shows the supported signaling format on T1 interface:

SIGNALING TYPE	SIGNALING FORMAT	FUNCTION	
FXO	Ground Start	Call Origination	Second Dial Tone
			Immediate Start
		Call Termination	Ring Down
DID	E&M	Call Termination	Second Dial Tone
			Wink Start

   Note that the following types of connection are NOT supported.
   - FXO Loop Start
   - DID Immediate Start/Delay Start
   - TIE
   - CAMA
9. MG-T1(SIP) does not comply with ANI, E911, and MFC.
10. Supported pulsing signal is PB only.
11. Assign the route number (RT) of MG-T1(SIP) separating from the route number assigned for PA-PRTC (1.5M DTI) circuit card.
12. Virtual sender and virtual register are used for the incoming/outgoing calls via MG-T1(SIP). A maximum of 64 sender and 64 register trunks can be used per LP at the same time.
13. [S-127D] Serial Call - D is not supported for the incoming calls via MG-T1(SIP).

14. MG-T1(SIP) usually applies PAD/EC Control IP Support setting data. However, when the system data assigns the PAD/EC Control IP Support to out of service, MG-T1(SIP) adopts the setting by AMGVL or AIVCL command. When there is no command assignment, the default value on MG-T1(SIP) works.

PAD/EC SETTING TO BE APPLIED	APPLYINIG ORDER	REMARKS	
ASYDL SYS1 INDEX 825 bit0, 1, 4, and 5	1	PAD/EC Control IP Support	
AMGVL	2		
AIVCL	3		
Default value on MG-T1(SIP)	4	Speech	Sending PAD: 0dB Receiving PAD: 8dB EC: ON
		Fax	Sending PAD: 4dB Receiving PAD: 12dB EC: ON

PAD value via MG-T1(SIP) ranges:

SPEECH PAD VALUE	FAX PAD VALUE
-16dB ~ 20dB	0dB ~ 20dB

15. When FAX communication is used via MG-T1(SIP), assign the following data by ARTI/ARTIN command.
    - CDN71: FXD (IP FAX data)
    - CDN72: FXJS (Jitter Buffer size of IP FAX)
    - CDN73: FXPT (Payload type for IP FAX)
    - CDN74: FXPS (Payload size for IP FAX)
16. Use AMGVL command to assign CODEC. When no data is assigned, default setting G.711 40 milliseconds is applied.
17. See [V-27] VoIP Encryption in Data Programming Manual for the detailed explanation of encryption feature on MG-T1(SIP).
18. MG-T1(SIP) does not support FCCS features available by PA-PRTC (1.5M DTI) circuit card.
19. MG-T1(SIP) is compatible with FCCS Cluster feature. See [L-55] Location Diversity in Data Programming Manual - Business.
20. MG-T1(SIP) is in charge of the timing processing for outgoing guard timer. Guard timer is assigned by ARTD/ARTDN command CDN34: GUARD parameter.
21. Use PCPro to assign the office data of MG-T1(SIP) to the Telephony Server.
22. SR-MGC in remote offices can manage MG-T1(SIP).
23. MG-T1(SIP) does not support Hotel, OAI, and ACD features.

24. On detecting any failure from T1 interface, the Telephony Server outputs the system messages below:

SYSTEM MESSAGE		ERROR	
3-H	Digital Line Warning	01 H	Frame alignment loss or PCM disconnection occurs three times a day
		02 H	Bit error or CRC error rate is over 10^{-6}
		03 H	Slip error occurs twice a day
		04 H	Multi-frame alignment loss occurs three times a day
3-I	Digital Line Failure	01 H	Frame alignment loss or PCM disconnection occurs 100 times a day
		03 H	Slip error occurs 50 times a day
		04 H	Multi-frame alignment loss occurs 110 times a day
		06 H	Frame alignment loss or PCM disconnection keeps for two or three seconds
		07 H	Bit error or CRC error rate is over 10^{-4}
		09 H	Warning signal from opposite party is received for one second continuously
		0B H	Multi-frame alignment loss keeps for two or three seconds

Call origination/termination via MG-T1(SIP) cannot be executed when detecting any failure or during loopback setting on T1 line.

25. Conditions on fault monitoring:

- Periodic diagnosis is executed between SP-PHI and MG-T1(SIP). When any fault is detected in periodic diagnosis, System Message [33-S] IP PKG Failure: Health Check Error is output on the LENS of SP-PHI.
- When communication error is detected in sending control packets between Internal PHE and SP-PHI, System Message [33-R] IP PKG Warning: Sending Timeout is output to the LENS of Internal PHE. The System Message is output when control packet sending timeout occurs continuously 8 times or more.

26. Use the following maintenance commands to display the operating state related to MG-T1(SIP):

    - IPAN: to display the connection status between the Telephony Server and MG-T1(SIP).
      <IP terminal tab>
      Select “MG-T1[SIP]” under the category of SIP Media Gateway. Connection status is displayed for each virtual speech channel.
      <PH tab>
      Specify the LENS of SP-PHI. The number of registration/login to SP-PHI is displayed counting on a virtual speech channel basis.

    - DIPI: to display IP equipment information. Select “MG-T1[SIP]” under the category of SIP Media Gateway.

    - DPHL: to display the number of registration/login to SP-PHI counting on a virtual speech channel basis.

    - DIMG: to display the information of MG. Select the radio button “Media Gateway Information” and specify the PH LENS. Information is displayed for each virtual speech channel.

    - DPTR: to display the line capacity and the number of license. MG-T1(SIP) is counted on the MG-PRI’s license group.

2 Installation

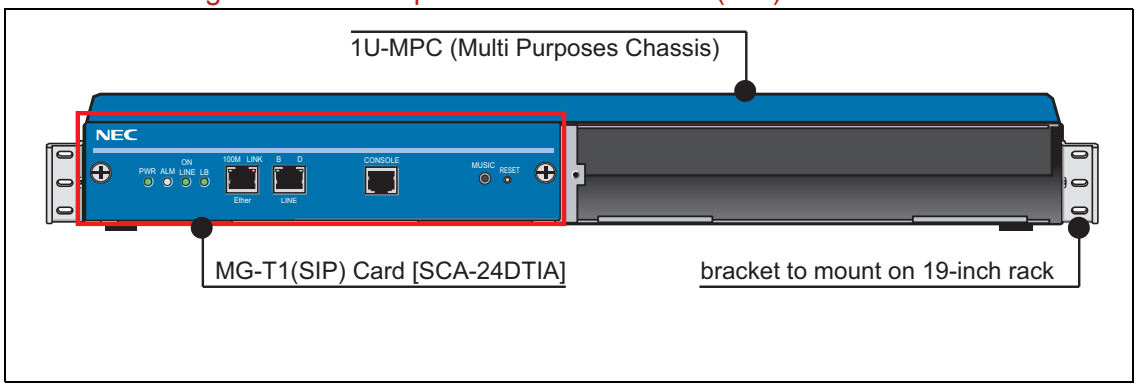
This section shows how to install the hardware required for using MG-T1(SIP). Be sure to take measures to anti-static electricity.



2.1 How to Set MG-T1(SIP)

- MG-T1(SIP) Card [SCA-24DTIA/SCA-24DTIA-B]

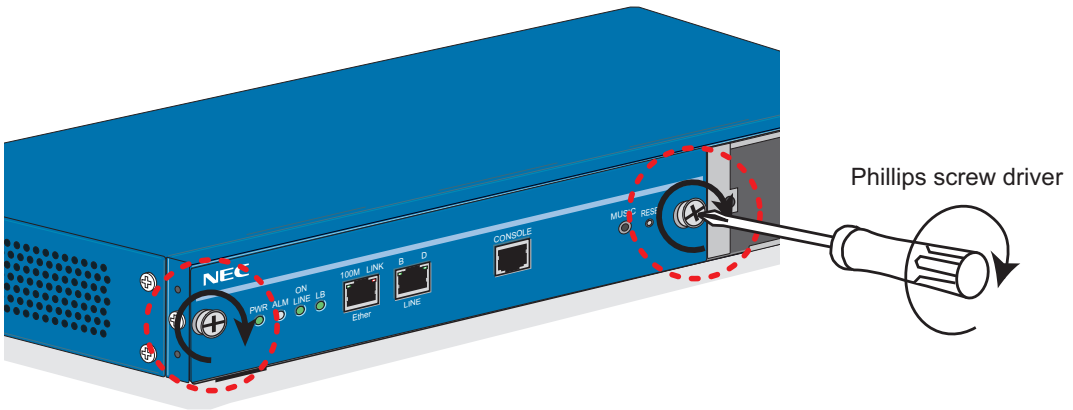
Note: This figure is an example to mount an MG-T1(SIP) Card in the left slot on 1U-MPC.



STEP 1: Insert MG-T1(SIP) to 1U-MPC.



STEP 2: Secure the MG-T1(SIP) to 1U-MPC fixing two screws on right and left sides.



2.2 Cable Connection

This section shows the cable connection to the MG-T1(SIP). MG-T1(SIP) provides the following interfaces:

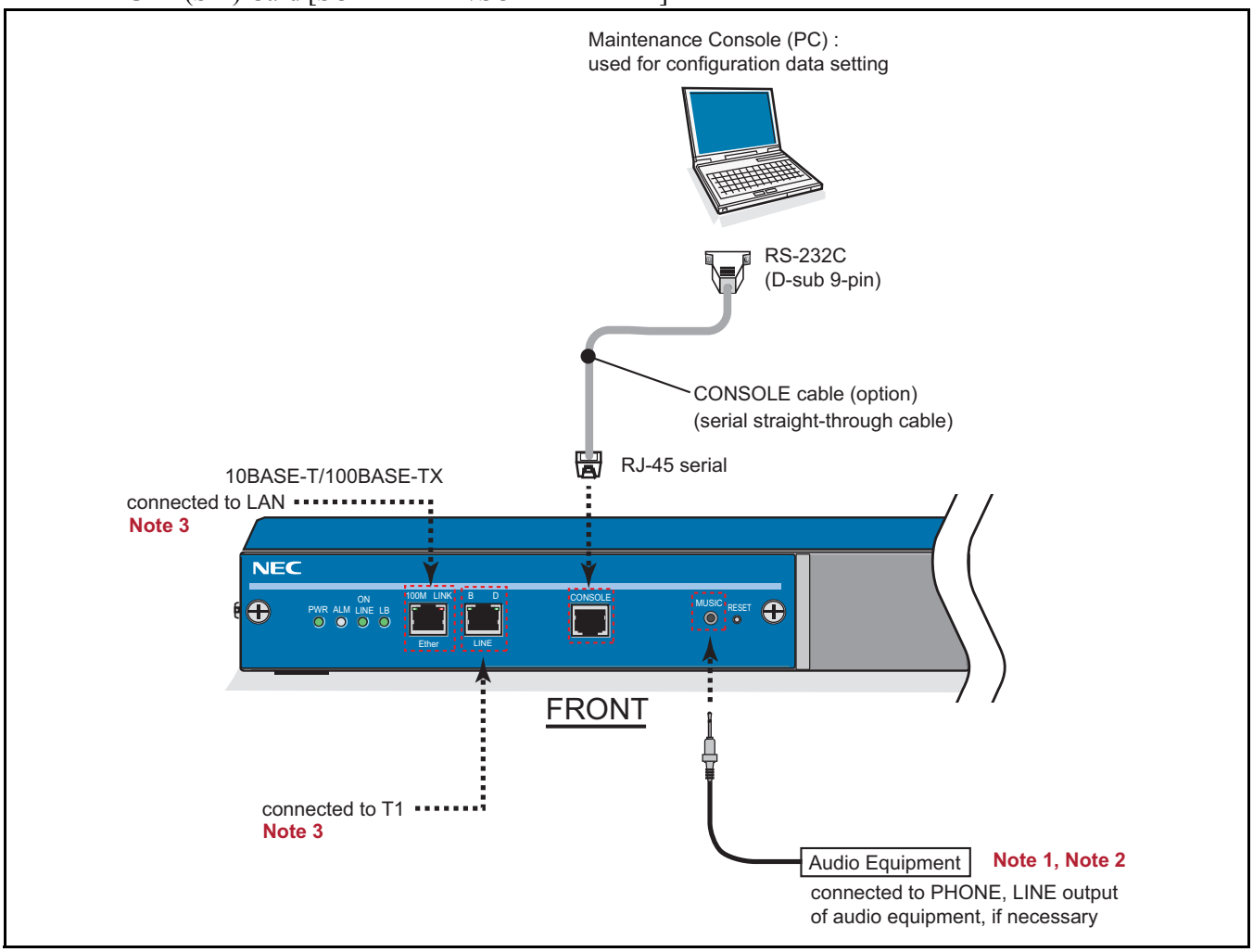
- Power Supply
- Ground connection
- Serial Port Connection to Maintenance Console
- Connection to Audio Equipment for external music-on-hold
- Connection to LAN
- Connection to T1 carrier

Connect the required cables according to the system configuration. General description of cable connection for MG-T1(SIP) is explained in the diagram below.

The following figures show the connection to MG-T1(SIP) Card.

MG-T1(SIP) Cable Connection Diagram (Front)

- MG-T1(SIP) Card [SCA-24DTIA/SCA-24DTIA-B]



Note 1: Cable of external hold tone source needs to be conformed with all-purpose ϕ3.5 mono-aural ear phone jack. Adjustment of output level for external hold tone source need to be started from low and to higher to avoid over-current. The tuning of volume level sent is to be done by monitoring from the telephone terminal connected over the PSTN and tuning the output level of external hold tone source. Input impedance from the external hold tone source needs to be within the ranges of 8Ω - 50kΩ. Make sure not to exceed this range.

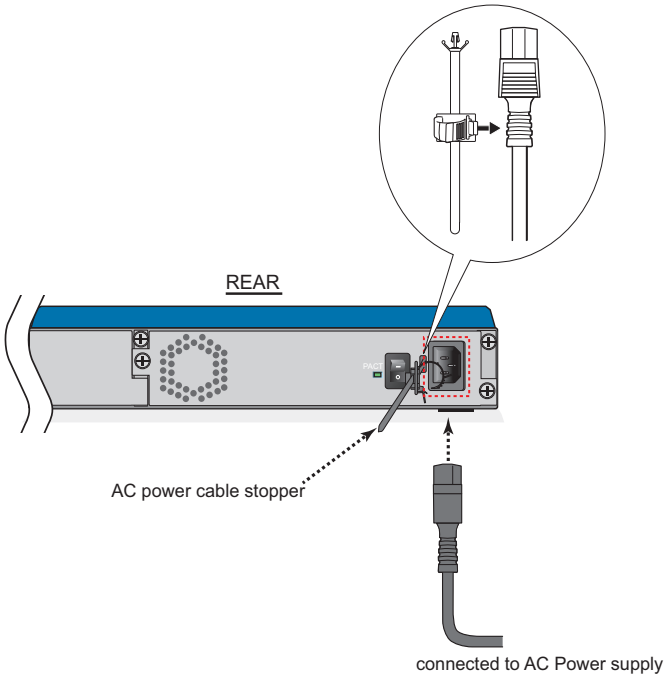
Note 2: If audio equipment has a ground terminal, be sure to take proper connection to grounding of audio equipment.

Note 3: Do not connect LAN and T1 line here. These cables are connected in Section 3 Startup MG-T1(SIP) and Basic Tests.

STEP 1: AC power cable connection

Connect the AC power cable to AC Power Inlet on the rear panel of 1U-MPC. Fix the AC power cable with the stopper.

- MG-T1(SIP) Card [SCA-24DTIA/SCA-24DTIA-B]

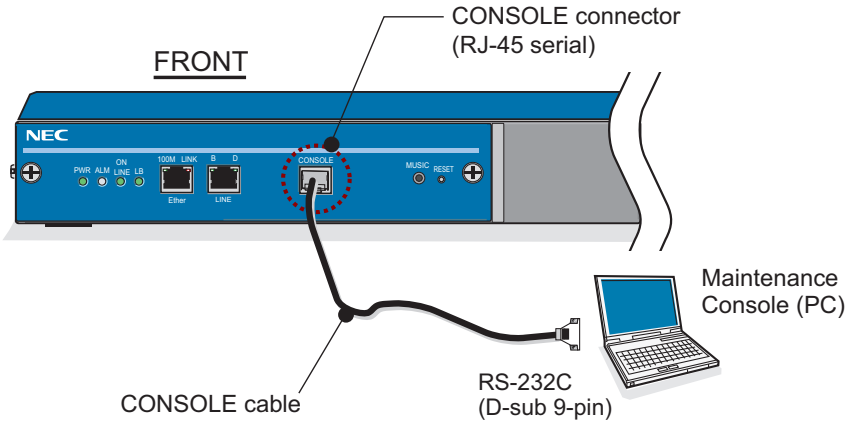


Connect the other end of the power cable to appropriate AC supply.

STEP 2: Connect ground cable to prevent the device from lightning, electric shock, and external noises.

Note: For the safety measures against static electricity, lightning struck, and other electrical surges, be sure to take proper connection to grounding (less than 10 Ω). As MG-T1(SIP) has PSTN interface, if the line cable is struck by lightning directly, the lightning might cause damage to MG-T1(SIP) and AC power cable without Ground connection.

STEP 3: Connect a maintenance terminal (PC) to CONSOLE connector using CONSOLE cable. The following shows the case of connection to CONSOLE connector of MG-T1(SIP) Card [SCA-24DTIA/SCA-24DTIA-B].



Note: T1 line and LAN cables are connected in Section 3 Startup MG-T1(SIP) and Basic Tests. Do not connect these cables here.

3 Startup MG-T1(SIP) and Basic Tests

This section explains procedures for startup and basic tests. Follow the procedure below.

STEP 1: Data Assignment by PCPro

1. Internal PHE Data Assignment
2. SP-PHI Data Assignment
3. MG-T1(SIP) Data Assignmet
4. Security Data Assignment

STEP 2: VT-100 Compliant Terminal Software Setting on Maintenance Console

1. Connection between PC (maintenance console) and CONSOLE Connector
2. Terminal Software Activation
3. Setting of Terminal Software

STEP 3: Power ON

STEP 4: Configuration Command Assignment

1. One Time Password Assignment
2. Selection whether to use DHCP/DNS server
3. Network Data Assignment

STEP 5: Cable Connection

1. Connection between MG-T1(SIP) and LAN
2. Connection between MG-T1(SIP) and T1 line

STEP 6: Basic Test Procedures

1. Basic Connection Test
2. Alarm Information Check
3. Loop-Back Test

END

3.1 Data Assignment by PCPro

This section explains the data assignment procedures to the Telephony Server by PCPro.

<Before Taking Procedures>

- Unstable network environment such as using NAT and dial-up connection is not preferred.
- If an access list is applied to the network, looking into all the communication flows, classify the priorities to make the network effective. The throughput will become low if the settings is inappropriate. The following is an example:

PRIORIY	PACKET KIND
1 (High)	Network Control Packet, ICMP, etc.
2	Console Control
3	VPN Authentication, H323, etc.
4	RTP
5	FTP, HTTP, etc.
6 (Low)	Other packets

- Check the availability if MG is connected to the following equipment by tandem connection.

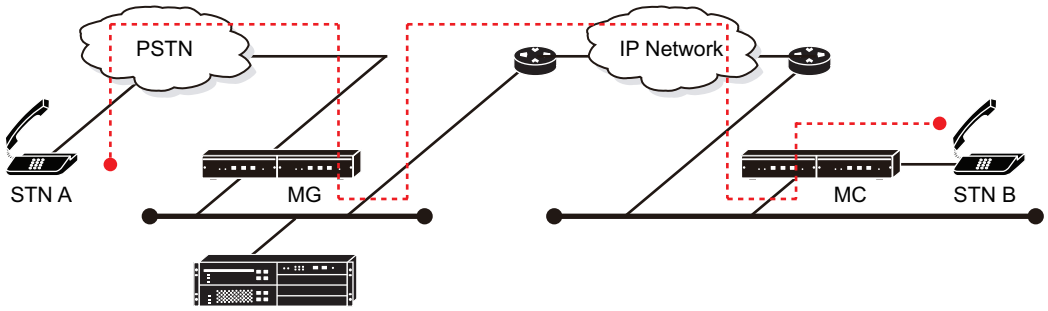
Tandem Connection Availability

- : Not guaranteed √ : Available

CONNECTING EQUIPMENT		AVAIL-ABILITY	DESCRIPTION
MC **Note 1**		–	Not recommended because -Voice quality may be degraded due to multiple conversion. -Delay may be increased due to excessive jitter buffer insertion.
COT **Note 2**		–	Voice speech and FAX relay are available. However, DTMF relay is not guaranteed. (Input level can be lower than minimum DTMF detection level -27.0 dBm because of line loss at public network side.)
TLT **Note 2**		√	Design your private network so that DTMF input level at MG-T1(SIP) may be larger than -27.0 dBm. If not DTMF relay is not guaranteed.
PRI/BRI		√	
TDM64K	EC enabled	√	
	EC disabled	–	
TDM32K	EC enabled	√	
	EC disabled	–	
TDM Less Than 32K		–	Not recommended because voice quality may be degraded due to data conversion.

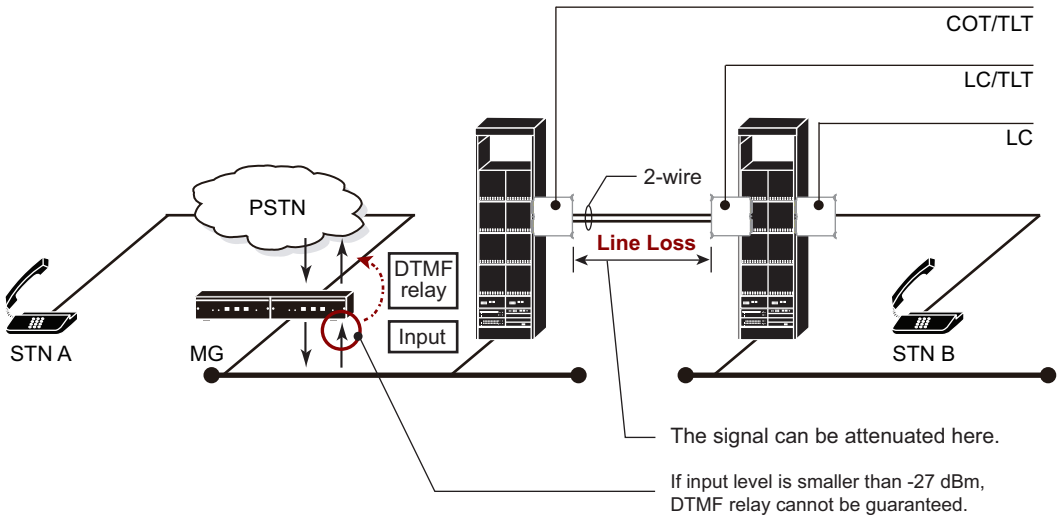
Note 1: Tandem here stands for a connection that is established over multiple networks such as shown in the following figure.

Connection between STN A and STN B cannot be guaranteed.



Note 2: For a tandem connection involving Central Office Trunk (COT) and Loop Dialing Trunk (LDT), input level can be lower than minimum DTMF detection level (-27.0 dBm) at MG-T1(SIP) because of Line Loss between two switches.

If input level at MG-T1(SIP) is lower than minimum DTMF detection level, DTMF relay cannot be guaranteed.



<Data Assignment>

[1] Internal PHE Data Assignment

MG-T1(SIP) is registered to SP-PHI. In this case, MPH is used to control SP-PHI. For the use of MPH, it is required to make Internal PHE function valid. So Internal PHE data assignment is necessary.

[2] SP-PHI Data Assignment

MG-T1(SIP) is registered to SP-PHI. So SP-PHI data assignment is necessary.

[3] MG-T1(SIP) Data Assignment

STEP 1: ARTD (Assignment of Route Class Data)

Assign the Route Class data of Virtual Speech Channel.

Note: Any template is not prepared exclusively for MG-T1(SIP). As well as the route class data setting for PA-PRTC (1.5M DTI) card or CH-PRTA (1.5M DTI) card, assign each parameter depending on the specification and services of the connecting T1 carrier using existing template.

RT = Route Number of virtual speech channel
CDN2 (ONSG): 2=PB (60msec interval) or 8=PB (120msec interval)
CDN4 (INSG): 2=PB (60msec interval) or 8=PB (120msec interval)
CDN60 (TC/EC): 1=EC (Echo Canceller Control for Virtual Speech Channel)

For the signal type FXO:
CDN1 (OSGS): 2=Second Dial Tone or 4=Immediate Send
CDN3 (ISGS): 1=Ring Down
CDN15 (LSG): 1=Ground start

For the signal type DID:
CDN3 (ISGS): 2=Second Dial Tone or 7=Sender (Wink Start)
CDN15 (LSG): 5=E&M or 8=DID

STEP 2: ARTI (Assignment of Trunk Application Data)

Assign the application data for Trunk in Virtual Speech Channel.

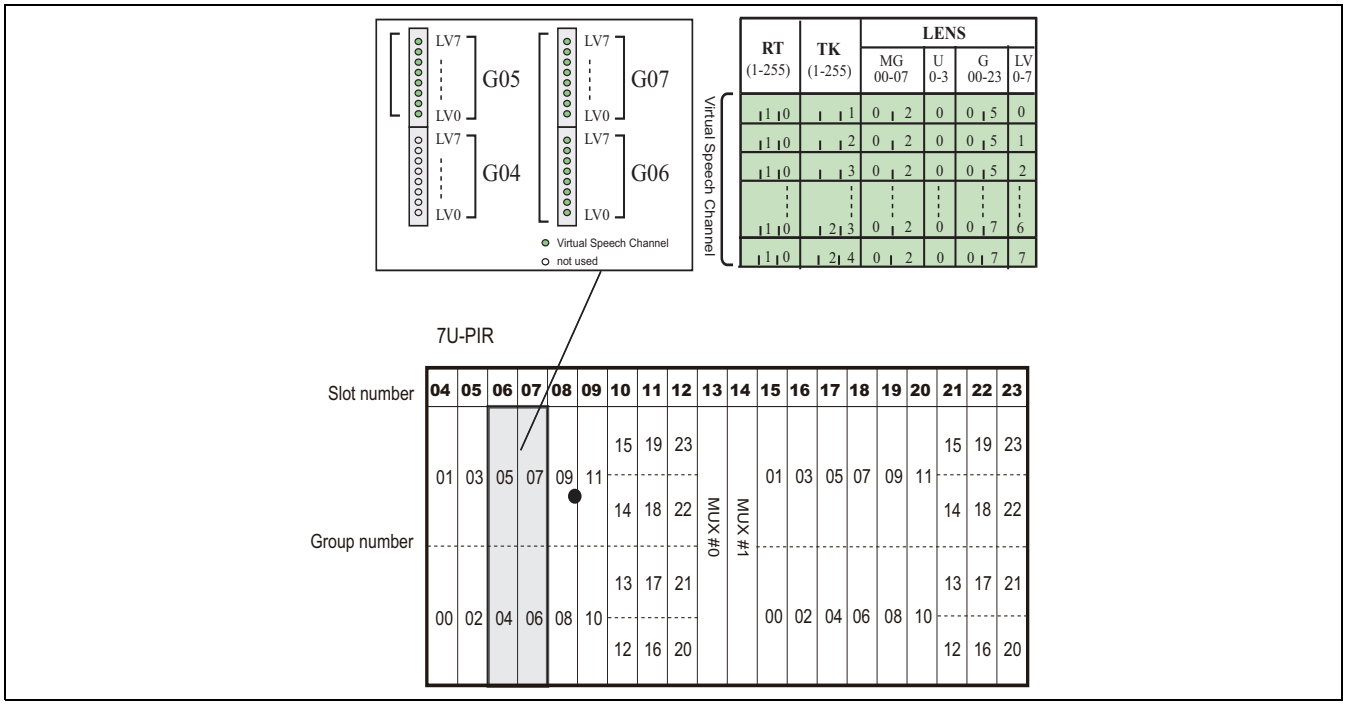
RT = Route Number of virtual speech channel
CDN68 (VIR): 2=MG connection

To use FAX, specify the FAX relay settings:

CDN71 (FXD)
CDN72 (FXJS)
CDN73 (FXPT)
CDN74 (FXPS): This parameter appears when 1 (G.711) or 2 (G.726) is selected in FXPT.

STEP 3: ATRK (Assignment of Trunk Data)

Assign the Trunk Data to Virtual Speech Channel. The data assignment below is an example.



Note: One MG-T1(SIP) occupies 1HW (4-Group). For example, if one channel is registered for virtual speech channel, the whole channels of the HW is occupied exclusively for the MG-T1(SIP).

Note: Do not assign other device's data on the same HW.

Note: Do not assign the trunk data to even-numbered MG, U=0, and G=00. It is not available for MG-T1(SIP).

Note: Groups 24 and later are not available.

Note: Be sure to assign route data by ARTD/ARTI in advance before assigning trunk data by ATRK.

STEP 4: MBTK (Make Busy of Trunk)

Cancel the make-busy of Virtual Speech Channels.

RT: Route Number of virtual speech channel
TK: Trunk Number of virtual speech channel
MB: 0=Make-busy cancel

STEP 5: AMGIL (Assignment of Media Gateway Information for LDM)

Note: Make sure to assign in the order ATRK -> AMGIL.

Assign MG-T1(SIP).
MG-ID: MAC Address of MG-T1(SIP) (6 byte of HEX data)
** MAC address is labeled on the left front of MG-T1(SIP) (below PWR lamp).*
FUNCTION:Setting (to assign MG information)
KIND: MG-T1[SIP]
LINE: 0 (fixed)
CH: 0-1
LENS: Accommodating Location of virtual speech channels.
Click the LENS Set button to open sub window. Enter the first Group of HW to LENS box, then click TK Check button. Available LENS are listed. Place check marks to the channels to be registered as virtual speech channels.
**Make sure to assign LENS by ATRK beforehand.*
Setting Type of Signaling Packet Service:
QoS settings of Virtual Speech Channels
Music On Hold Exists:
Select one among: External hold tone (default)/Internal hold tone 1/ Internal hold tone 2.
External Music On Hold Input Gain Adjustment: 0-15 (default=0)
Country Code: North America
Law of A/D Conversion:
μ-law is automatically displayed when North America is selected on country code.

STEP 6: AMGVL (Assignment of Media Gateway Voice Control Data for LDM)

Note: When this command is not assigned, data setting on AIVCL command turns effective.

Assign the voice control data to connect to MG-T1(SIP).
A RT (Storing MG): Route number of virtual speech channel used for MG-T1(SIP).
TYPE: Select “Route Specified” or “Location ID Specified”.
B RT (MG Storing): Displayed when TYPE=Route Specified is selected.
Used when connecting MG and MG in Tandem. Assign the route number of virtual speech channel for the destination MG.
B LOC-ID: Displayed when TYPE=Location ID Specified is selected.
Assign the location ID where the destination IP station belongs.
Setting of Jitter Buffer:JB_MIN [0-30 (×10 milliseconds)], JB_MAX [0-30 (×10 milliseconds)]
Setting Type of Voice Packet Service: IP PRECEDENCE [0-7]/DIFFSERV [00-63]
Setting of Payload: TYPE, SIZE **Note 3**

Note 3: For available payload type/payload size, refer to "Payload Setting for Each IP Equipment" in the System Description.

[4] Security Data Assignment

STEP 1: ASECL (Assignment of Security Data for LDM)

Assign one-time password and its available period.
One-Time Password: Enter one-time password. [4-10 digits]
Available Period: Specify the available period of one-time password.

Note: To perform authentication feature, assign the same one-time password on MG-T1(SIP) by configuration command. At initial startup, MG-T1(SIP) will ask you to input the one-time password for authentication.

RESTART MG-T1(SIP) BY TURNING OFF AND ON THE POWER AFTER ASSIGNING DATA.

[*] Data Deletion

Deletion must be operated in the reverse order of assignment. Make sure to delete in the order AMGIL → ATRK. Confirm there is no data left in AMGIL before deleting ATRK.

3.2 VT-100 Compliant Terminal Software Setting on Maintenance Console



Note: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data.

STEP 1: Connect a PC (maintenance console) to CONSOLE connector.

STEP 2: Run the VT-100 compliant terminal software (e.g. HyperTerminal) on the Maintenance Console.

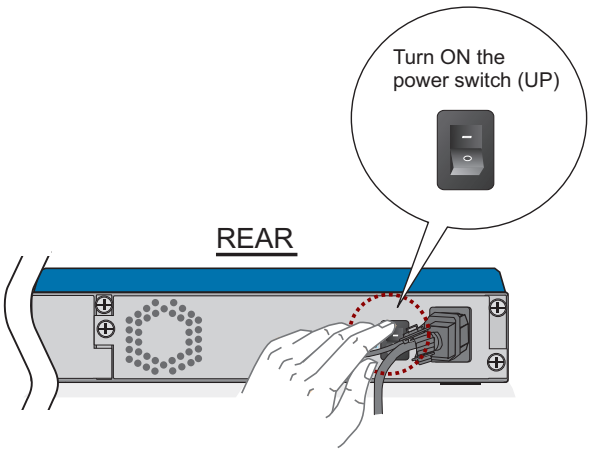
STEP 3: Set the parameter of the terminal software as follows:

- Port: *COM1 (depending on PC setting)*
- Baud Rate: *9600 bps*
- Data: *8 bits*
- Parity: *None*
- Stop Bit: *1*
- Flow Control: *None*

3.3 Power ON

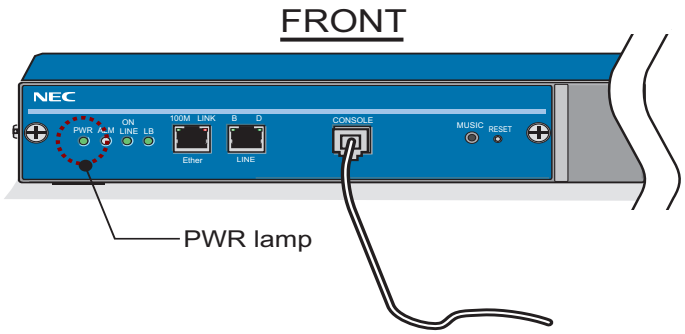


STEP 1: Turn ON the power switch (UP) on the rear side of MG-T1(SIP).



Note: When the 1U-MPC has already turned on, press “RESET” button on the front panel of MG-T1(SIP) to restart the card and start its boot program.

STEP 2: Make sure the LED indicates normal status.
- PWR LED lights green.
- (Boot program automatically starts.)



3.4 Configuration Command Assignment

Assign the network data to MG-T1(SIP) by configuration command operation on the maintenance console.

Note: "SIP server" used in this section refers to the Telephony Server. The Telephony Server acts as SIP server for MG-T1(SIP) using SIP.

Note: The setting data here is an example. Assign the network data adjusting to your network configuration.

STEP 1: When the boot program is started, the initial display below is displayed on the screen.

The system will require a one-time password for authentication at initial startup. Enter the same password with the one entered in SIP server by ASECL command. As long as you don't enter a one-time password, you cannot move on to the next step.

```
DP OK

MG-ID: xxxxxx
Boot program version : SPxxxx SH7751R CBOOT-1 PROG-A
[xx.xx.xx.xx]
Main program version : SPxxxx MG DTI PROG-A [xx.xx.xx.xx]
H/W PKG information  : CA-CC00 001
DSP information      : DSP-K-AC49kernel [xx.xx.xx.xx]
DSP information      : DSP-P-AC490012ae3-S [xx.xx.xx.xx]


Starting Boot program.....
--- Online program Initial start --- (wait for a while)
 :
 :(Omitted)
 :

 No One Time Password!!

 Please input a one time password.
 One Time Password : •••••

Erase start...
Erase OK!
Write start...
Write OK!

 One time password setting succeeded.
```

STEP 2: Type "usrConsole" following the OS prompt and press ENTER key.

```
->
->usrConsole
```

STEP 3: MG-T1(SIP)'s command prompt "MG-T1(SIP)>"appears as follows.

```
MG Maintenance command
MG-T1(SIP)>
```

Note: If the prompt MG-T1(SIP)> does not appear on the screen, press the Enter key to display.

STEP 4: Type "SETUP SP" to set the network data depending on your LAN environment.

```
MG-T1(SIP)>
MG-T1(SIP)>SETUP SP
```

Note: The setting data here is an example. Assign the network data according to your network configuration.

STEP 5: Assign whether to use DHCP server and DNS server. The required setting in *SETUP SP* command differs depending on the DHCP server and DNS server enable/disable setting.

1. DHCP server enable/disable setting:

```
--- DHCP Interface set ---
Current DHCP Interface: ENABLE
Change DHCP Interface? [Y(change)/N(current)/Q(quit)]: y
Input new DHCP Interface [E(enable)/D(disable)]: d
```

2. DNS server enable/disable setting:

```
--- DNS Interface set ---
Current DNS Interface: DISABLE
Change DNS Interface? [Y(change)/N(current)/Q(quit)]: y
Input new DNS Interface [E(enable)/D(disable)]: e
Input new DNS IP Address: 10.41.1.150
```

STEP 6: Assign other network data according to the setting of DHCP server and DNS server. (See *SETUP SP* command in Section 4.5 How to Use Maintenance Command for the detail assignment procedure.)

- When DHCP server is used
- When DHCP server is NOT used and DNS server is used
- When DHCP server is NOT used and DNS server is NOT used

- **When DHCP server is used**

  As DHCP server automatically assigns IP addresses to MG-T1(SIP), Default Gateway, and the Telephony Server, there is no need to assign these network data on MG-T1(SIP) side. Set the following data on MG-T1(SIP) side.

  - Communication speed of LAN interface

  IP addresses listed below, however, have to be prepared in DHCP server side. **Note 1**

  - IP address of Default Gateway
  - IP address of SIP server **Note 2**

  Note: Check the number of IP addresses saved in DHCP server is sufficient so as to get IP address of MG-T1(SIP) anytime.

  Note 1: DHCP option setting is as follows:
  Class:Global
  Name:Not specified, but do not enter the same option name in duplicate (e.g. SP1)
  Data:IP address
  Array:Checked
  Code:162

  Note 2: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

- **When DHCP server is NOT used and DNS server is used**

  Set the following data on MG-T1(SIP) side.

  - IP address of DNS server
  - IP address and subnet mask of MG-T1(SIP)
  - Host name of MG-T1(SIP)
  - IP address of Default Gateway
  - Host name of SIP server
  - Communication speed of LAN interface

  Set the following data on DNS server side.

  - IP address of SIP server **Note 3**

  Note: When DHCP is set to “ENABLE”, IP addresses assigned here cannot take effect. Be sure to assign “SET DHCP DISABLE” before starting the IP address setting.

  Note 3: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

- **When DHCP server is NOT used and DNS server is NOT used**

  Set the following data on MG-T1(SIP) side.

  - IP address and subnet mask of MG-T1(SIP)
  - Host name of MG-T1(SIP) **Note 5**
  - IP address of Default Gateway
  - IP address and port number of SIP server **Note 4**
  - Host name of SIP server **Note 5**
  - Communication speed of LAN interface

  Note: When DHCP is set to “ENABLE”, IP addresses assigned here cannot take effect. Be sure to assign “SET DHCP DISABLE” before starting the IP address setting.

  Note 4: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

  Note 5: The process can be skipped.

STEP 7: Assign T1 interface data by *SETUP T1* command (See *SETUP T1* command in Section 4.5 How to Use Maintenance Command for the detail assignment procedure.).

```
MG-T1(SIP)>SETUP T1
```

STEP 8: Save the configuration data assigned.

.

```
MG-T1(SIP)> SAVE CONFIG

** Don't power off in progress **
Do you need save? [Y/N]: y
Erase start...
Erase OK!
Write start...
Write OK!

Configuration data has been saved.
Re-starting is required for making a setup reflect!!
```

STEP 9: Reboot the MG-T1(SIP) by entering *REBOOT* command.
Turning OFF and ON/Pressing RESET button also reset the MG-T1(SIP)

```
MG-T1(SIP)>REBOOT
Do you need reboot? [Y/N]: y
```

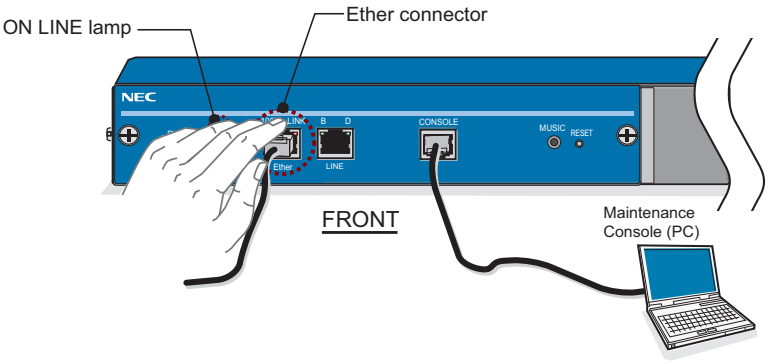
Note: MG-ID (MAC Address of MG-T1(SIP)) is displayed after rebooting. The MG-ID needs to be assigned in AMGIL command.

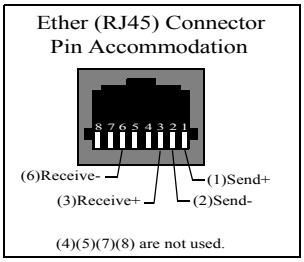
3.5 Cable Connection

STEP 1: Connect MG-T1(SIP) to the LAN.

Insert LAN cable into the Ether connector on the front panel of the MG-T1(SIP). ON LINE lamp lights green in a few minutes when connection succeeded.

- MG-T1(SIP) Card [SCA-24DTIA/SCA-24DTIA-B]

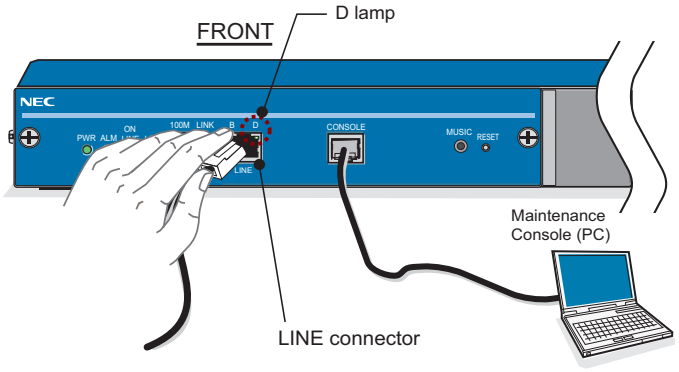


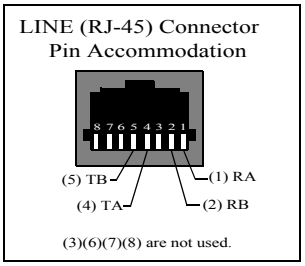


STEP 2: Connect T1 line to MG-T1(SIP).

Insert LINE cable of DSU into LINE connector on the front panel of the MG-T1(SIP). Check the D lamp on the upper right of LINE connector flashes → steady lights in green when connection succeeded.

- MG-T1(SIP) Card [SCA-24DTIA/SCA-24DTIA-B]





3.6 Basic Test Procedures

Operation of MG-T1(SIP) can be checked from the visual inspection of lamp display.

Lamps on the Front Panel

LAMP NAME		COLOR	MEANING OF INDICATION
PWR		Green	Power ON
		OFF	Power OFF **Note:** Turns ON → OFF on detecting FAN alarm
ALM		Red	Lights when power module failure is detected
		OFF	Normal operation
ON LINE		Green	Lights when registration is completed
		Flash	Flashes during initial setting
		OFF	Initial setting is not completed **Note:** Turns Flash → OFF when registration launches
LB		Green	Not used **Note:** Temporary lights in initial setting
		Flash (60INT)	Flashes slowly in loopback mode
		Flash (240INT)	Flashes fast when receiving loopback mode request from opposite party
		OFF	Normal operation
Ether	100M	Green	Lights when transmission speed is 100 Mbps
		OFF	Remains OFF when transmission speed is 10 Mbps
	LINK	Green	Lights when establishing Layer 1 link on IP side **Note:** Physically connected to IP network
		Flash	Flashes (in 0.2-second cycle) during sending/receiving IP packets
		OFF	Layer 1 link is not established on IP side
LINE	B	Green	Lights when using two or more channels **Note:** Temporary lights in initial setting
		Flash (120INT)	Flashes fast when using only one channel
		Flash (60INT)	Flashes slowly when all channels are in make-busy
		OFF	Remains OFF when all the channels are idle
	D	Green	Lights on detecting Layer 1alarm from T1 line
		Flash (240INT)	Flashes when monitoring Layer 1 alarm recovery on T1 line
		OFF	Normal operation

Note: When MG-T1(SIP) keeps the lamp indications below continuously, some error has occurred in initial setting. Check the system data and cable connection to clear the problem.

PWR	ON LINE	LB	LINE		ERROR
			B	D	
ON	*Flash*	*ON*	*ON*	*OFF*	*Initial setting error on IP side.*
ON	*OFF*	*ON*	*ON*	*OFF*	*Registration error on IP side.*
ON	*OFF*	*ON*	*ON*	*OFF*	*Initial setting error on T1 trunk side.*

[1] Basic Connection Test

STEP 1: Is the PWR lamp lighting green?

[No]

- Check the AC power cable is firmly inserted.
- Check the PWR switch is ON.
- Check the AC power cable from the AC power inlet is firmly connected to power source.

[Lights green]

Go on to STEP 2.

STEP 2: Is the LINK lamp on Ether connector lighting green?

[No]

- MG-T1(SIP) may not be physically connected to LAN. Check the LAN cable between MG-T1(SIP) and networking device. (Also check the power of Switching HUB and Routers are turned ON.)
- Check that correct cable is used. (Use the Straight-through cable.)
- Check that the cable is not damaged. (Test the continuity of the LAN cable.)

Replace the LAN cable or the network device if the problem is still not cleared.

[Lights green]

This lamp turns ON when MG-T1(SIP) initially starts up and connection to LAN is established.

Go on to STEP 3.

STEP 3: Is the ON LINE lamp lighting green?

[No]

- Check the data assignment of the Telephony Server side and MG-T1(SIP) side.

  - Telephony Server: Is the data assignment on each PCPro command correct?
  - MG-T1(SIP): Check the configuration data assigned from the maintenance console.

[Lights green]

Go on to STEP 4.

STEP 4: Is the D lamp on upper right of LINE connector lighting green?

[No]

- Check the system message of the Telephony Server.
- Check the MG-T1(SIP) is physically connected to T1 line.

  Also confirm the line cable between;

  - MDF and MG-T1(SIP)
  - MDF and DSU
- Check whether the line cable is not damaged. (Test the continuity of the line cable.)
- Check the data assignment of the Telephony Server side and MG-T1(SIP) side.

  - Telephony Server: Is the data assignment on each PCPro command correct?
  - MG-T1(SIP): Check the configuration data assigned from the maintenance console.

[Lights green]

Go on to STEP 5.

STEP 5: Speech test through MG-T1(SIP). Call origination/termination OK?

[Call origination/termination does not operate normally]

- Check the system message of the Telephony Server.
- Check the MG-T1(SIP) is physically connected to T1 line.

  Also confirm the line cable between:

  - MDF and MG-T1(SIP)
  - MDF and DSU
- Check that the cable is not damaged. (Test the continuity of the LAN cable.)

- Check the data assignment of the Telephony Server side and MG-T1(SIP) side.

  - Telephony Server: Is the data assignment on each PCPro command correct?
  - MG-T1(SIP): Check the configuration data assigned from the maintenance console.

- Check the contract status of the T1 line.

[B lamp on LINE connector does not flash/light]

- Indicates that all channels are in idle state, check the office data assignment.

[B lamp on LINE connector lights/flashes]

- Flashes: Only one channel is currently used.
- Lights: Two or more channels are currently used.

[Call originated/terminated normally], [Call quality is adequate]

Connection test is completed.

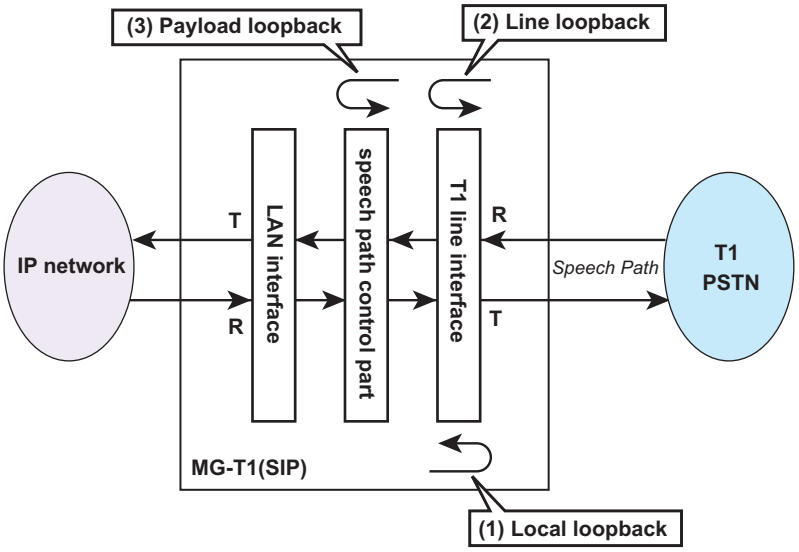
[2] Alarm Information Check

- Check the Alarm Lamps. If the red lamp lights, search the cause of fault and perform the appropriate operations.
- Check the system message.
  1. Display the system message using DFTD command.
  2. See the system message and confirm whether any failure occurs on MG(PRI). Recover it if needed.

3-H	Digital Line Warning
3-I	Digital Line Failure
33-R	IP PKG Warning
33-S	IP PKG Failure

[3] Loop-Back Test

Execute the loopback test on the maintenance console. Loopback point (local, line, payload) can be specified by the *SET LOOPBACK* command.



(1) Local Loopback

T1 line interface part of MG-T1(SIP) sends back all the channels to LAN side. The counter office detects circuit failure (AIS).

(2) Line Loopback

All the channels (24ch) are looped back to T1 line on the T1 interface of MG-T1(SIP).

(3) Payload Loopback

All the channels (24ch) are looped back to T1 side on the speech path control part of MG-T1(SIP).

Note: The difference between Line Loopback and Payload Loopback is;

All the processes in Line Loopback follow the timing of T1 side. There are some processes following the timing of system side in Payload Loopback. In other words, bit error may occur when the system does not synchronize with T1 in Payload Loopback. Bit error is not considered in Line Loopback.

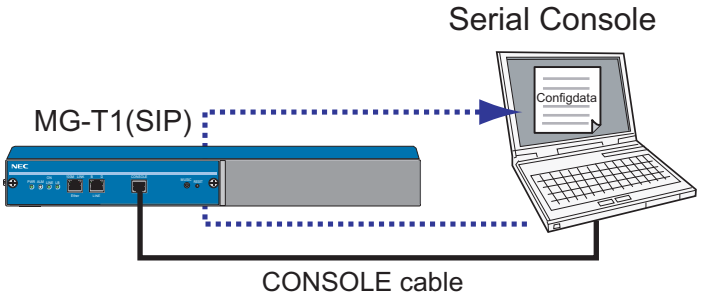
4 Operation and Maintenance

4.1 How to Back Up and Restore Configuration Data by Serial Connection (Local Download)

This configuration data download/upload is performed one by one, connecting a PC to each MG-T1(SIP) with a CONSOLE cable (RS-232C ⇔ RJ-45) and a LAN cable. Prepare the following:

- CONSOLE cable (RS-232C ⇔ RJ-45) is required.
- Serial terminal emulation program (such as HyperTerminal) is required
- LAN cable (crossover) is required for restoring configuration data.
- PCPro has to be installed in advance.

• Backing Up Configuration Data By Serial Connection



STEP 1 Power off MG-T1(SIP) and disconnect it from the network.

STEP 2 Connect PC to MG-T1(SIP) by using CONSOLE cable (RS-232C ⇔ RJ-45).

STEP 3 Power on MG-T1(SIP).

STEP 4 Activate HyperTerminal and set the following:
Bit per second: *9600bps*
Data bits: *8bit*
Parity: *None*
Stop bit: *1bit*
Flow control: *None*

STEP 5 Select **[Transfer]** -> **[Capture File...]**.

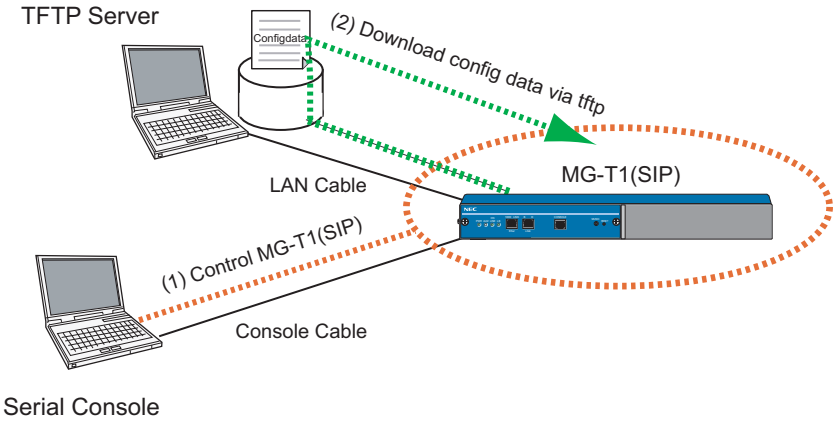
STEP 6 Send File screen is displayed. Specify a file name to be saved, and then click the Start button.

STEP 7 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 8 After a prompt (`MG-T1(SIP)>`) is displayed, enter "`show configdata`" to display configuration data of the MG-T1(SIP).

STEP 9 Select **[Transfer]** → **[Capture Text]** → **[Stop]** to save the configuration data file shown in screen.

- Restoring Config Data By Serial Connection And TFTP Connection



Note: TFTP server and Serial Console both can be performed in single Personal Computer.

STEP 1 Power off MG-T1(SIP) and disconnect it from the network.

STEP 2 Connect Serial Console to MG-T1(SIP) by using a CONSOLE cable (RS-232C ⇔ RJ-45).

STEP 3 Connect TFTP server to MG-T1(SIP) by using a LAN cable.

<Data Assignment on TFTP Server>

STEP 4 If the name of the backup config file is not sysdata, rename it to "sysdata".

STEP 5 Put the file in the root folder of TFTP server, and then start the TFTP server program.

STEP 6 Permit read behavior of this folder. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on Serial Console>

STEP 7 Power on MG-T1(SIP).

STEP 8 Activate HyperTerminal and set the following:
Bit per second: *9600bps*
Data bits: *8bit*
Parity: *None*
Stop bit: *1bit*
Flow control: *None*

STEP 9 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 10 After a prompt (`MG-T1(SIP)>`) is displayed, enter "`get configdata <TFTP's IP Address>`" to download configuration data into MG-T1(SIP).

STEP 11 Confirm that "`successfully completed`" is displayed in the screen, indicating the upload to TFTP server is completed normally.

STEP 12 To reflect the configuration data that is downloaded from TFTP server, save it by entering "`save configdata`" and reboot MG-T1(SIP) by entering "`reboot`".

STEP 13 Exit the HyperTerminal by selecting **[File]** → **[Exit]**.

<Confirmation of MG-T1(SIP)>

STEP 14 Connect the MG-T1(SIP) to the network.

STEP 15 Confirm that MG-T1(SIP) is normally registered in system after reboot. Use the DISD command in PCPro. For more information, refer to Operation and Maintenance.

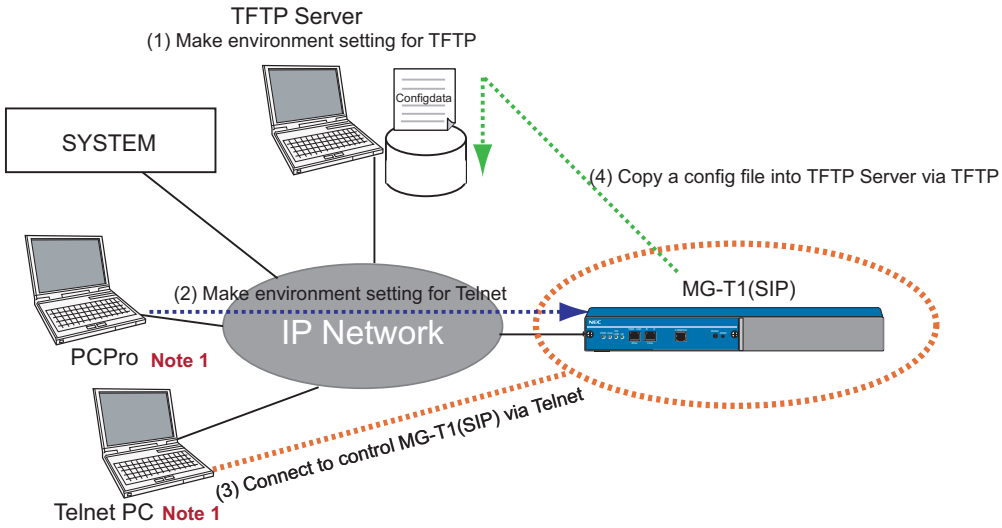
STEP 16 Check that calls via MG-T1(SIP) can be made.

4.2 How to Backup and Restore Configuration Data by TFTP Connection (Remote Download)

This config download/upload is performed via TFTP.
Prepare the following:

- PC that is capable of Telnet and TFTP features.
- All the PCs have to belong to the same segment with MG-T1(SIP).
- TFTP server has to be installed in advance.
- PCPro has to be installed in advance.
- MG-T1(SIP) is already registered to system and it is operating normally.

• Backing Up Configuration Data via TFTP



Note 1: PCPro and Telnet both can be performed by single Personal Computer.

Make sure the connectivity in the following:

- Make sure that PCPro is able to log on to the Telephony Server.

- Check the connectivity from TFTP server to the Telephony Server by using Ping command.

- Make sure that TFTP client is able to connect to FTP server.

<Data Assignment on TFTP Server>

STEP 1 Create a folder to back up configuration data.

STEP 2 Start the TFTP server program.

STEP 3 Assign the folder as root folder, and then permit write and read behavior of this directory. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on PCPro>

STEP 4 To search for the LENS of the target MG-T1(SIP), use the IPAN command.

STEP 5 To make environment setting for Telnet, use the ATUD command.
- Specify the LENS, which is belonging to the target MG-T1(SIP).
- Specify a user ID and a password, which are required for logging in to MG-T1(SIP) via Telnet.
- Input any value from 0 to 255 for USER LEVEL because MG-T1(SIP) does not use USER-LEVEL.
- For VALID TIME, input a total of time required for completing this procedures.

Note: A user ID and a password are temporary and used for download; you can specify them as you like providing the user ID is a max 20 ASCII characters and the password is 8 - 20 ASCII characters.

STEP 6 After completing the above, click the Set button.

<Data Assignment on Telnet PC>

STEP 7 Start a command prompt and enter "`telnet <MG-T1(SIP)'s IP Address>`" to connect MG-T1(SIP) via Telnet.

STEP 8 Log in to the target MG-T1(SIP) by entering the userID and the password, which are set in the ATUD command.

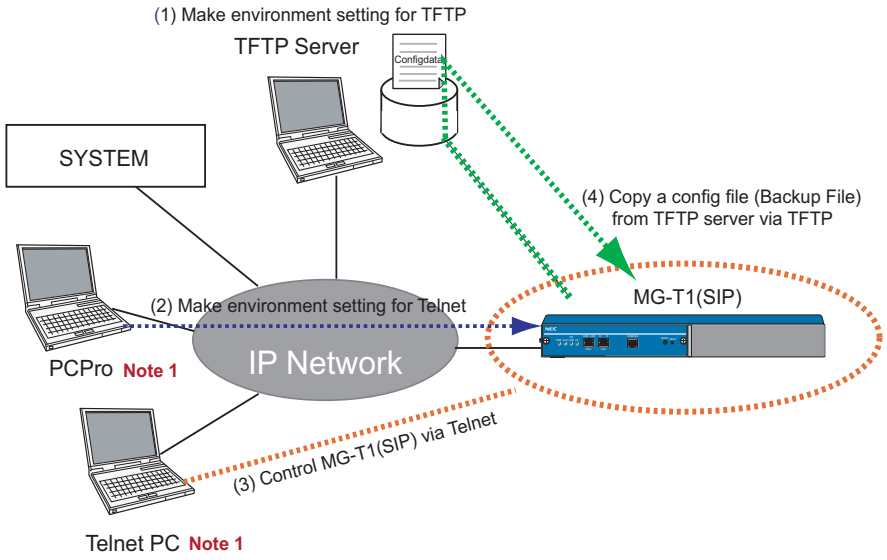
STEP 9 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 10 After a prompt (`MG-T1(SIP)>`) is displayed, enter "`put configdata <TFTP's IP Address>`" to download configuration data to MG-T1(SIP).

STEP 11 Confirm that "successfully completed" is displayed in the command prompt, indicating the upload to TFTP server is completed normally.

STEP 12 Exit the HyperTerminal by selecting **[File]** → **[Exit]**.

- Restoring Configuration Data via TFTP



Note 1: PCPro and Telnet both can be performed by single Personal Computer.

<Data Assignment on TFTP Server>

STEP 1 If the name of the backup config file is not sysdata, rename it to “sysdata”.

STEP 2 Put the file in the root folder of TFTP server, and then start the TFTP server program.

STEP 3 Permit read behavior of this folder. For more information, refer to the appropriate manual attached to the TFTP server program.

<Data Assignment on PCPro>

STEP 4 To search for the LENS of the target MG-T1(SIP), use the IPAN command.

STEP 5 To make environment setting for Telnet, use the ATUD command.
- Specify the LENS, which is belonging to the target MG-T1(SIP).
- Specify a user ID and a password, which are required for logging in to MG-T1(SIP) via Telnet.
- Input any value from 0 to 255 for USER LEVEL because MG-T1(SIP) does not use USER-LEVEL.
- For VALID TIME, input a total of time required for completing this procedures.

Note: A user ID and a password are temporary and used for download; you can specify them as you like providing the user ID is a max 20 ASCII characters and the password is 8 - 20 ASCII characters.

STEP 6 After completing the above, click the Set button.

<Data Assignment on Telnet PC>

STEP 7 Start a command prompt and enter "`telnet <MG-T1(SIP)'s IP Address>`" to connect MG-T1(SIP) via Telnet.

STEP 8 Log in to the target MG-T1(SIP) by entering userID and password, which are set in the ATUD command.

STEP 9 After a prompt (`->`) is displayed, enter "`usrConsole`".

STEP 10 After a prompt (`MG-T1(SIP)>`) is displayed, enter "`get configdata <TFTP's IP Address>`" to download configuration data into MG-T1(SIP).

STEP 11 Confirm that "successfully completed" is displayed in the command prompt, indicating the upload to TFTP server is completed normally.

STEP 12 To reflect the configuration data that is downloaded from TFTP server, save it by entering "`save configdata`" and reboot MG-T1(SIP) by entering "`reboot`".

STEP 13 Exit the HyperTerminal by selecting **[File]** → **[Exit]**.

<Confirmation of MG-T1(SIP)>

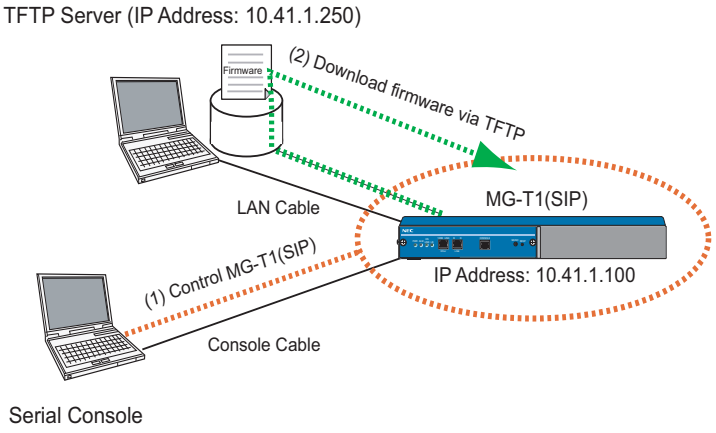
STEP 14 Confirm that MG-T1(SIP) is normally registered in system after reboot. Use the DISD command. For more information, refer to Operation and Maintenance Manual.

STEP 15 Check that calls via MG-T1(SIP) can be made.

4.3 How to Upgrade Firmware by Serial Connection (Local Download)

This firmware upgrade is performed one by one, connecting a PC to each MG-T1(SIP) with a CONSOLE cable (RS-232C ⇔ RJ-45) and a LAN cable. Prepare the following:

- Firmware for upgrade
- CONSOLE cable (RS-232C ⇔ RJ-45) and LAN cable (crossover) are required.
- Serial terminal emulation program (such as HyperTerminal) is required
- TFTP server has to be installed in advance.

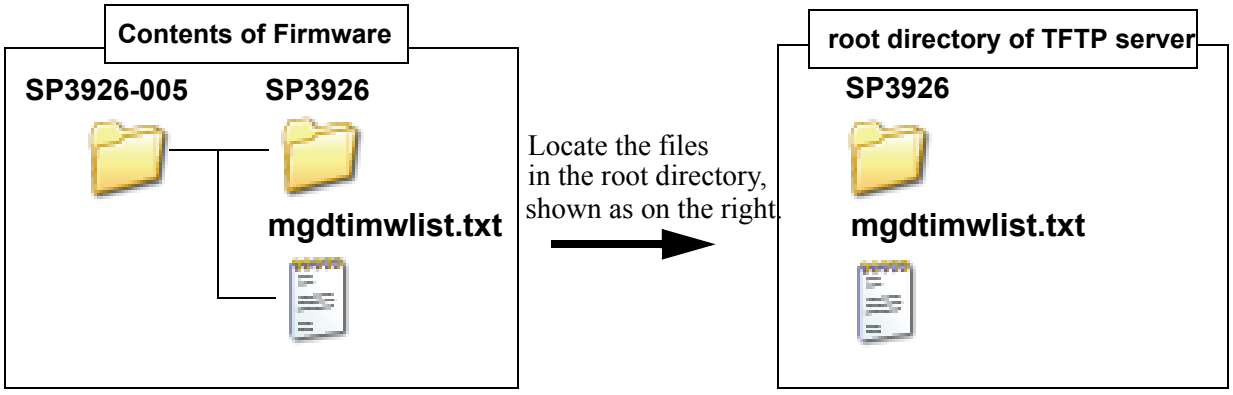


Note: TFTP server and Serial Console both can be performed by single Personal Computer.

STEP 1 Disconnect the MG-T1(SIP) from the network.

STEP 2 Connect PC(s) to MG-T1(SIP) with LAN cable (crossover) and CONSOLE cable (RS-232C ⇔ RJ-45) both.

STEP 3 Put the firmware files (for example, SP3926) and mgdtimwlist.txt for upgrade in the root folder of TFTP server.



EXAMPLE:

SP3926-005
Issue Number (ISSUE 5)
Firmware Number

STEP 4 Permit read behavior of this directory. For more information, refer to the appropriate manual attached to the TFTP server program.

STEP 5 Change the network setting (IP address and subnet mask) of the PC (used as TFTP server) temporarily to connect to the MG-T1(SIP).
IP address: *10.41.1.250*
Subnet mask: *255.255.255.0*

STEP 6 Start the TFTP program.

STEP 7 Power on MG-T1(SIP).

STEP 8 On Serial Console, activate HyperTerminal and set the following:
Bit per second: *9600bps*
Data bits: *8bit*
Parity: *None*
Stop bit: *1bit*
Flow control: *None*

STEP 9 After a prompt (`MG-T1(SIP)>`) is displayed, enter "`download`".

STEP 10 When "`Do you need download?`" message is displayed, enter "`y`".

STEP 11 The current settings of MG-T1(SIP) are displayed, and then the screen asks you to input TFTP Server IP Address. Enter the TFTP server IP address.

STEP 12 The current settings of MG-T1(SIP) and TFTP server are displayed, make sure the settings. If you need to modify the settings, select a number (1-4) to modify the item. If all the settings are correct, enter "`y`".

STEP 13 Download menu is displayed, and then select "`1`" (Download of all programs).

STEP 14 IP address information setting is displayed, and then select "`1`" (current setting).

STEP 15 Other configuration setting is displayed, and then select "`2`" (current setting).
After download process is completed, MG-T1(SIP) will reboot.

STEP 16 Turn off and on the power of the MG-T1(SIP).

STEP 17 After a prompt (`->`) is displayed again, enter "`usrConsole`".

STEP 18 After a prompt (`MG-T1(SIP)>`) is displayed, enter "`show version`" to display the firmware information of MG-T1(SIP).

STEP 19 Make sure that a new firmware has been installed by checking the following:

```
->dispver
                          Boot Number                    Boot Issue
Boot program version      SP3926 SH7751R CBOOT-1 PROG-A [01.00.00.00]

                          Main Name             Main Issue
Main program version      SP3926 MG DTI PROG-A [01.00.00.00]
|
|---TC version            TC-Program           [04.00.00.00]
|---DSP kernel version    DSP-K-AC49kernel     [01.07.06.00]
|---DSP program version   DSP-P-AC490012ae3-S  [01.07.08.02]
|---Tone version          Tone version         [04.00.00.00]
```

STEP 20 Enter "`show configdata`" to confirm the config data.

STEP 21 Change the IP address and subnet mask of TFTP server PC to the original setting.

<Confirmation of MG-T1(SIP)>

STEP 22 Connect the MG-T1(SIP) to the network.

STEP 23 To confirm MG-T1(SIP) is properly operating with the upgraded firmware, make a call to the MG-T1(SIP). Check that you can hear RBT.

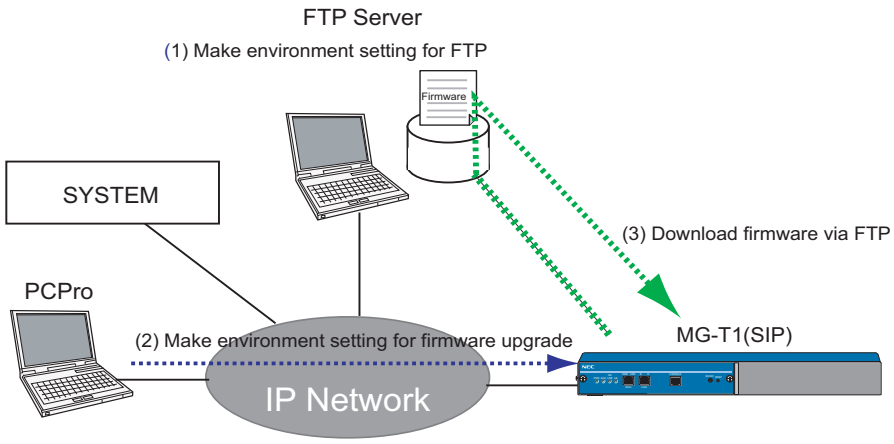
STEP 24 Receive a call via the MG-T1(SIP), and confirm that you can talk to each other.

STEP 25 After all the tasks are completed, write down/label the firmware version in the back of the MG-T1(SIP). For example, 2A is indicated for Version 2. 3A is indicated for Version 3.

4.4 How to Upgrading Firmware by FTP (Remote Download)

This upgrading process can be performed up to eight MG-T1(SIP)s at once.
Prepare the following:

- Firmware for upgrade
- PCs (PCPro and FTP server) have to communicate with the Telephony Server and MG-T1(SIP).
- FTP server has to be installed in advance.
- PCPro has to be installed in advance.
- MG-T1(SIP) is already registered to system and it is operating normally.



Make sure the connectivity in the following:

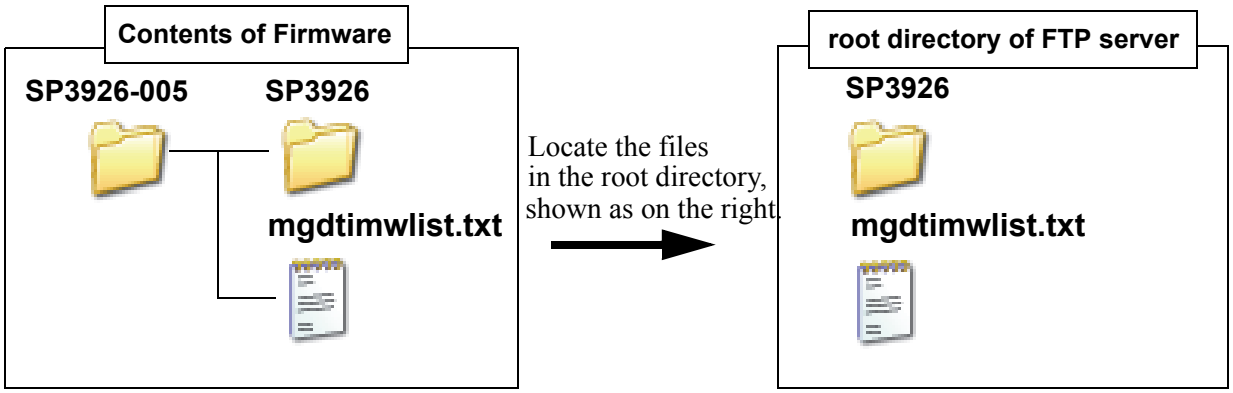
- Make sure that PCPro is able to log on to the Telephony Server.

- Check the connectivity from FTP server to the Telephony Server by using Ping command.

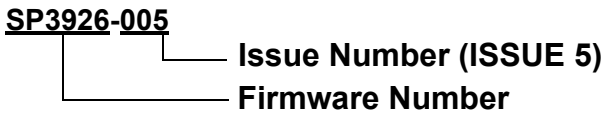
- Make sure that FTP client is able to connect to FTP server.

<Data Assignment on FTP Server>

STEP 1 Put the firmware files (For example, SP3926) and mgdtimwlist.txt for upgrade in the root folder of FTP server.



EXAMPLE:



STEP 2 Set read permission for this directory. For more information, refer to the appropriate manual attached to the FTP server program.

<Data Assignment on PCPro>

STEP 3 Activate the ATDL command.
Select Terminal Type in Terminal Specifying Type, and then select MG-T1 [SIP].
Specify the Hardware Type in HWTP and Hardware Version in HWVER.
Set the File Name.

STEP 4 Click the Add to Terminal List button.

STEP 5 After the MG-T1 (SIP)s are displayed in the Terminal List, select the appropriate MG-T1 (SIP) to be upgraded the firmware.

STEP 6 Select an item of External Server from FTP Server Type in the Setting for Download field.
Input the IP address of FTP server.
Input Login Name and Password for logging in to FTP server if required.
Select an item of Parallel in Download Method.
Select an item of Specify File Storage Directory, and specify the directory name.
Select an item of Parallel in Download Method.

STEP 7 Click the EXECUTE button to upgrade the firmware to the target MG-T1(SIP)s.
"Upgrade is succeeded" is displayed. Note that version information in the screen is not updated at this time. If the upgrade is failed, click the Close button, and then go back to STEP 3.

STEP 8 After upgrade is completed, click the Close button. In the main screen, click the Exit button to close the ATDL command.

STEP 9 To confirm the firmware, activate the DIPI command.
The file name is indicated in the following:

05.00.00.00
└ ISSUE NUMBER

STEP 10 Select **Media Converter** in Functionality Type, and then click the Execute button.

STEP 11 Confirm that the firmwares in the appropriate ones are upgraded.

<Confirmation of MG-T1(SIP)>

STEP 12 To confirm MG-T1(SIP) is properly operating with the upgraded firmware, make a call to the MG-T1(SIP). Check that you can hear RBT.

STEP 13 Receive a call via the MG-T1(SIP), and confirm that you can talk to each other.

STEP 14 After all the tasks are completed, write down/label the firmware version in the back of the MG-T1(SIP). For example, 2A is indicated for Version 2. 3A is indicated for Version 3.

4.5 How to Use Maintenance Command

Configuration command is used just for modifying the default data. Data is to be modified only when it is required and to the necessary part.

Note: Note the following conditions:

- "SIP server" used in this section refers to the Telephony Server. The Telephony Server acts as SIP server for MG-T1(SIP) using SIP.
- If you input "exit" after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

[Starting Configuration Command]

STEP 1: Connect a PC to MG-T1(SIP) using CONSOLE cable and run terminal software (e.g. HyperTerminal) on the PC.

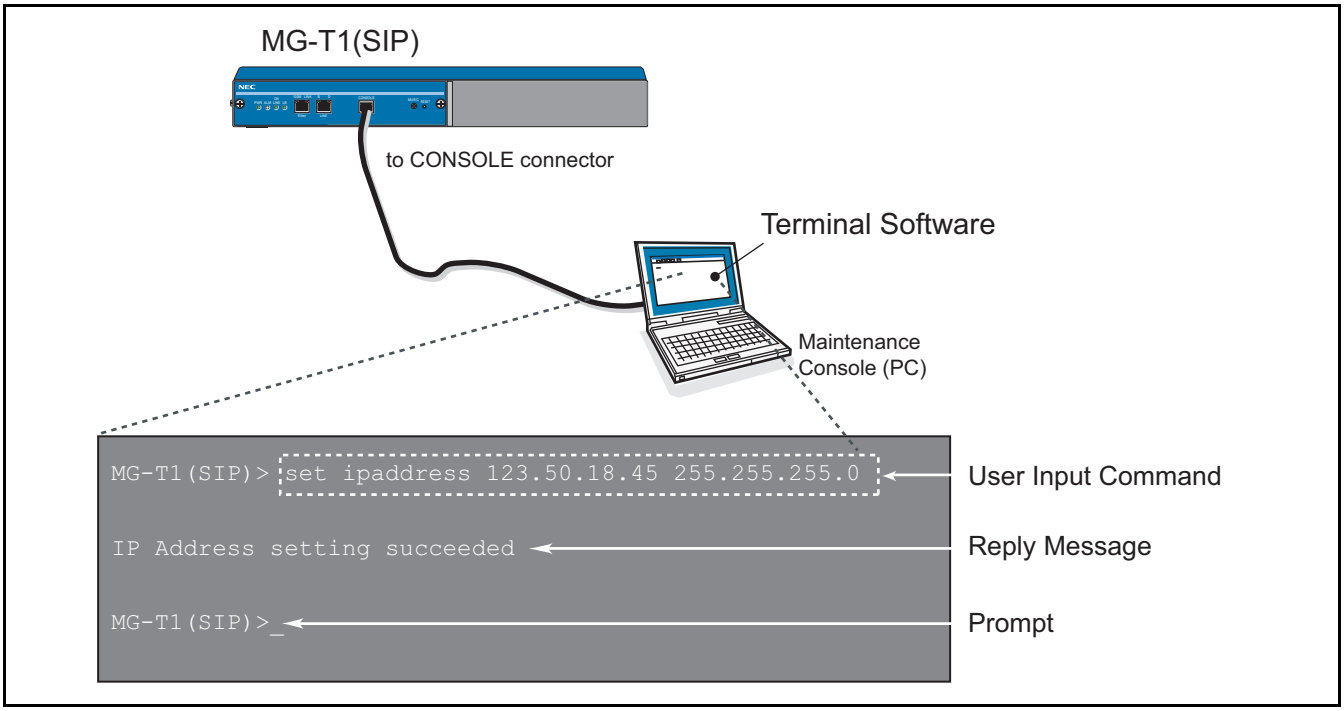
Set the parameter of the terminal software as follows:

- *Port: COM1*
- *Baud Rate: 9600 bps*
- *Data: 8 bits*
- *Parity: None*
- *Stop Bit: 1*
- *Flow Control: None*

STEP 2: Enter *usrConsole* after the OS prompt (->).

STEP 3: MG-T1(SIP)'s prompt appears.

```
MG-T1(SIP)>_
```



The user input command is consist of a several components. The following describes these components using one of the ***set*** commands.

MG-T1(SIP)> set ipaddress 192.168.0.11 255.255.255.0
1 2 3 4

1: Command
2: Sub Command
3: Parameter 1
4: Parameter 2

Note: The number of parameters to be specified is different depending on the command.

In ***SET*** command, some of the sub commands can be specified with hexadecimal numbers (called Set Value), which determine a group of the detailed values. It is also possible to omit its parameters; the interactive guidance will help you specifying its detailed values. The following shows this patterns:

When the parameters are specified:

```
MG-T1(SIP)> SET SIGNALING_QOS TOS 0xC0

Signaling QoS setting succeeded. (0xC0)
In order to make a setup reflect and keep, re-starting is required
after saving a configuration file by SAVE command.
```

Set Value

When the parameters are NOT specified:

```
MG-T1(SIP)> SET SIGNALING_QOS

QOS (TOS / DIFFSERV: TOS):          TOS
PRECEDENCE (0-7: 6): 6
DELAY (0/1: 0): 0
THROUGHPUT (0/1: 0): 0
COST (0/1: 0): 0

Signaling QoS setting succeeded.
In order to make a setup reflect and keep, re-starting is required
after saving a configuration file by SAVE command.
```

[How to Read Maintenance Command]

The commands in this section are explained with defined characters. These characters' meanings are in the following:

CHARACTERS	MEANING
Δ	Blank
P1, *P2*, *P3*	Parameters
[ ]	Parameter Option (indicates Not essential)

[Configuration Command List]

The maintenance console uses the commands listed on the table below.

List of Maintenance Command

COMMAND	No.	SUB COMMAND	FUNCTION	PAGE
SETUP	1	SP	Assigns IP network data for MG-T1(SIP).	page 918
	2	T1	Assigns T1 interface related data for MG-T1(SIP).	page 921
SET	1	DEFAULTROUTE	Assigns Default Gateway IP address.	page 923
	2	DHCP	Selects whether DHCP feature is enabled.	page 923
	3	DNS_SW	Selects whether DNS feature is enabled.	page 924
	4	DTMF_IN	Assigns in-band DTMF relay.	page 924
	5	E_T_WAITTIME	Assigns waiting time before starting echo canceller training.	page 924
	6	EC_TRAINING	Assigns echo canceller training.	page 925
	7	FAXERRORDETECT	Assigns the FAX switching time.	page 925
	8	HC_RCV_TIMER	Assigns the time recognized as timeout in receiving Health Check.	page 925
	9	INTERFACE	Assigns the communication speed and mode for LAN interface.	page 925
	10	IPADDRESS	Assigns IP address and subnet mask of MG-T1(SIP).	page 926
	11	ONE_TIME_PASS	Assigns one time password for security.	page 927
	12	OWN_NAME	Assigns host name of MG-T1(SIP).	page 927
	13	LOOPBACK	Assigns loopback settings.	page 927
	14	SIGNAL-ING_PORT_NO	Assigns a Signaling Port Number for SP-PHI.	page 928
	15	SIGNALING_QOS	Assigns the QoS for SIP signaling session.	page 929
	16	SIPSV_IPADDRESS	Assigns IP address, port number and host name of SIP server.	page 931
	17	SMOOTH_PAD	Assigns smooth PAD mode of DSP.	page 932
	18	STARTPORT	Assigns RTP starting port.	page 932
	19	VLAN	Assigns VLAN.	page 932
	20	WARNING_TONE	Assigns Warning Tone.	page 933

Note: First assign the network data to MG-T1(SIP) by SETUP SP command according to your network environment.

List of Maintenance Command (Continued)

COMMAND	No.	SUB COMMAND	FUNCTION	PAGE
SHOW	1	CONFIGDATA	Displays the configuration setting.	page 933
	2	DHCP	Displays the DHCP setting.	page 933
	3	DNS_SW	Displays the DNS setting.	page 933
	4	DTMF_IN	Displays the in-band DTMF relay setting.	page 933
	5	E_T_WAITTIME	Displays the waiting time before starting echo canceller training.	page 934
	6	EC_TRAINING	Displays the echo canceller training setting.	page 934
	7	FAXERRORDETECT	Displays the FAX switching time.	page 934
	8	HC_RCV_TIMER	Displays the time recognized as timeout in receiving Health Check.	page 934
	9	INTERFACE	Displays the communication speed and mode for LAN interface.	page 934
	10	IPADDRESS	Displays IP address, netmask, and default Gateway of MG-T1(SIP).	page 934
	11	ONE_TIME_PASS	Displays the one time password.	page 935
	12	OWN_NAME	Displays the host name of MG-T1(SIP).	page 935
	13	LOOPBACK	Displays the loopback settings.	page 935
	14	SIGNALING_PORT_-NO	Displays the Signaling Port Number for SP-PHI.	page 935
	15	SIGNAL-ING_PORT_QOS	Displays the QoS setting for SIP signaling session.	page 935
	16	SIPSV_IPADDRESS	Displays the network settings of SIP server.	page 936
	17	SMOOTH_PAD	Displays the setting of Smooth PAD mode of DSP.	page 935
	18	STARTPORT	Displays the number of RTP starting port.	page 936
	19	STATUS	Displays the current operating status of MG-T1(SIP).	page 937
	20	T1	Displays the settings on T1 interface related data.	page 938
	21	VERSION	Displays the release version of firmware and hardware.	page 939
	22	VLAN	Displays the state of VLAN setting.	page 939
	23	WARNING_TONE	Displays the setting of Warning Tone.	page 934
PING		-	Checks the connectivity of network.	page 940
DELETE		VLAN	Deletes the VLAN setting designating by the VLAN ID.	page 940
SAVE		CONFIGDATA	Saves the configuration data.	page 941
GET		CONFIGDATA	Downloads a system data file from specified TFTP server.	page 941
PUT		CONFIGDATA	Uploads a system data file to specified TFTP server.	page 941
REBOOT		-	Reboots the MG-T1(SIP).	page 942
EXIT		-	Exits the maintenance command.	page 942
INIT		CONFIGDATA	Initializes the configuration command.	page 942

Input the desired command, sub command and each required parameter after the prompt (“MG-T1(SIP)>” as an example here) is indicated. Parameters vary depending on the specified command. When each data (command name, sub command name, parameter) is specified correctly, the command executes the required data processing, and then informs the processed result on the screen. When finishing this program, you may input “EXIT” (or “exit”) after a prompt.

[Help]

During the maintenance command program is activated, it also provides help function for referring to available command and sub command. After a prompt is indicated, request to list up the target help by inputting "?", "command name + ?", or "command name + sub command name + ?" after the prompt, and press the Enter key. The example below shows the screen when executing help function regarding "set" and "set ipaddress."

```
MG-T1(SIP)>set ?
 DEFAULTROUTE     Setting Default Gateway
 DHCP             Setting DHCP
 DNS_SW           Setting DNS
    :
    :
MG-T1(SIP)>set ipaddress ?
 xxx.xxx.xxx.xxx  IP Address

MG-T1(SIP)>set ipaddress 10.41.204.180 ?
 xxx.xxx.xxx.xxx  Subnetmask

MG-T1(SIP)>
```

[History]

In the command line of maintenance command, cursor key UP and DOWN operation shows history function. You can edit the input parameters using Back Space key and change the parameter.

SETUP COMMAND

Assign IP network data and T1 interface data following the setting command shown in dialog form. Be sure to save the entered data at the end of each SETUP command.

Note: When any abnormal data is entered, the dialog asks to enter proper data until three times. In the third time you enter illegal data, the SETUP command quits discarding all the entered data.

Note: When you quit the SETUP command entry halfway through the setting, all the entered data is to be discarded.

1. **SETUP∆SP**

   This command is used to set up a series of IP network data such as IP address, subnet mask, and DHCP for MG-T1(SIP).

- To startup *SETUP SP* command:

```
MG-T1(SIP)>

MG-T1(SIP)> SETUP SP
```

Enter “SETUP SP” following the prompt.

- Setting DHCP server enable/disable:

```
--- DHCP Interface set ---
Current DHCP Interface: ENABLE
Change DHCP Interface? [Y(change)/N(current)/Q(quit)]: y




Input new DHCP Interface [E(enable)/D(disable)]: d
```

The current setting is displayed.

Asked whether to change the displayed setting.
Y: Change the setting
N: Remain the current setting
Q: Exit this setting

Specify whether to use DHCP server.
E: Use DHCP server (default)
D: Not use DHCP server

- Setting DNS server enable/disable:

```
--- DNS Interface set ---
Current DNS Interface: DISABLE
Change DNS Interface? [Y(change)/N(current)/Q(quit)]: y




Input new DNS Interface [E(enable)/D(disable)]: e
```

The current setting is displayed.

Asked whether to change the displayed setting.
Y: Change the setting
N: Remain the current setting
Q: Exit this setting

Specify whether to use DNS server.
E: Use DNS server (default)
D: Not use DNS server

Note: Go on to DNS IP address setting when “E” is selected.

```
Input new DNS IP Address: 10.40.1.150
```

Enter the IP address of DNS server.
e.g. 10.40.1.150

Note: Required when DHCP server is D=disable and DNS server is E=enable)

- Setting IP address and subnet mask of MG-T1(SIP):

```
--- IP Address & Subnetmask set ---
Current IP Address: 0.0.0.0
Current Subnetmask: 0.0.0.0
Change IP Address and Subnetmask? [Y (change)/N (cur-
rent)/Q(quit)]: y


Input new IP Address: 10.41.1.100

Input new Subnet mask: 255.255.255.0
```

The current setting is displayed.

Asked whether to change the displayed setting.
Y: Change the setting
N: Remain the current setting
Q: Exit this setting

Enter new IP address of MG-T1(SIP).
e.g. 10.41.1.100

Enter new subnet mask.
e.g. 255.255.255.0

Note: This setting is required when DHCP server is “D (disable)”.

Note: Do not assign network address and broadcast address for MG-T1(SIP). See the examples below:
(Example 1) Network address cannot be assigned as IP address of MG-T1(SIP).
IP address: 192.168.1.0
Subnet mask: 255.255.255.0
(Example 2) Network address cannot be assigned as IP address of MG-T1(SIP).
IP address: 172.16.0.0
Subnet mask: 255.255.0.0
(Example 3) Broadcast address cannot be assigned as IP address of MG-T1(SIP).
IP address: 192.168.1.255
Subnet mask: 255.255.255.0
(Example 4) Broadcast address cannot be assigned as IP address of MG-T1(SIP).
IP address: 172.16.255.255
Subnet mask: 255.255.0.0

- Setting host name of MG-T1(SIP):

```
--- Host Name set ---
Current Host Name: No Value
Change Host Name? [Y (change)/N (current)/Q(quit)]: y
```

The current setting is displayed.

Asked whether to change the displayed setting.
Y: Change the setting
N: Remain the current setting
Q: Exit this setting

```
Input new Host Name: mgt1.nec.com
```

Enter new host name of MG-T1(SIP) in full-domain format.
e.g. mgt1.nec.com

Note: Up to 63 bytes of alphanumeric characters, . (period), and - (hyphen) is available.

- Setting Default Gateway IP address:

```
--- Default Gateway IP Address set ---
Current Default Gateway: 0.0.0.0
Change Default Gateway? [Y (change)/N (current)/
Q(quit)]: y



Input new Default Gateway: 10.41.1.254
```

The current setting is displayed.

Asked whether to change the displayed setting.
Y: Change the setting
N: Remain the current setting
Q: Exit this setting

Enter the IP address of the default gateway.
e.g. 10.41.1.254

Note: Note that default gateway should be located in the same segment with MG-T1(SIP).

- Setting IP address, port number, and host name of SIP server:

```
--- SIP Server IP Address & Host Name set ---
Current SIP Server/IP Address/Port Number/Host Name:
SIP Server    IP Address    Port Number   Host Name
1             0.0.0.0       5060
2             0.0.0.0       5060
:             :             :
:             :             :
19            0.0.0.0       5060
20            0.0.0.0       5060
Change SIP Server Information? [Y (change)/N (cur-
rent)/Q(quit)]: y



Input new SIP Server (1-20): 1
Input new IP Address: 10.41.1.200

Input new Port Number: 5060

Is there the Host Name? [Y/N]: y
```

The current setting of the Telephony Server information (IP address, port number, and host name) is displayed.

Asked whether to change the displayed setting.
Y: Change the setting
N: Remain the current setting
Q: Exit this setting

Enter the number of SIP server [1-20].

Enter the IP address of SIP server. **Note 2**
e.g. 10.41.1.200

Enter the port number of SIP server.
Default: 5060

Asked whether to use host name.
Y: Use host name
N: Do not use host name

```
Input new Host Name: SVR1.nec.com




Continue? [Y (continue)/N (exit)]: n
```

Enter the host name of SIP server in full-domain format.
e.g. SVR1.nec.com

Note: Up to 63 bytes of alphanumeric characters, . (period), and - (hyphen) is available.

Asked whether to continue the setting of other SIP servers.
Y: Continue to register other Telephony Servers
N: Exit this setting and move on to the next step

Note 1: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

- Setting communication speed of LAN interface:

```
--- Ethernet Speed set ---
Current LAN Speed: auto
Change LAN Speed? [Y (change)/N (current)/Q(quit)]:
y


Input new Speed [1 (AUTO)/2 (100M)/3(10M)]: 2




Input new DUPLEX [F (full)/H (half)]: f
```

The current setting is displayed.

Asked whether to change the displayed setting.
Y: Change the setting
N: Remain the current setting
Q: Exit this setting

Select the communication speed of LAN interface.
1: Auto negotiation (default)
2: 100Mbps fixed mode
3: 10Mbps fixed mode

Select duplex mode of LAN interface.
F: Full Duplex mode
H: Half Duplex mode

Note: Not displayed when auto negotiation is selected.

- Save the assigned configuration data at the last of *SETUP SP* command to complete network setting:

```
** Don't power off in progress **
Do you save the configuration data? [Y/N]: y


Configuration data has been saved.
Re-starting is required for making a setup reflect!!
SP mode setting succeeded.
```

Asked whether to save the assigned data.
Y: Save
N: Discard

Result is displayed.

2. **SETUPΔT1**

This command is used to set up T1 interface data for MG-T1(SIP).

- To start up *SETUP T1* command:

```
MG-T1(SIP)>

MG-T1(SIP)> SETUP T1
```

Enter "SETUP T1" following the prompt.

- Setting multiframe format and equalizer (transmission distance) data for T1 interface:

```
---Mandatory Setting---
1.Multiframe (0:24MF/1:12MF)[0]: 1
2.Equalizer
  (0:0-40m/1:40-80m/2:80-120m/3:120-162m/4:162m-)[4]: 0
```

- Setting optional data for T1 interface:

```
---Optional Setting---
1. All Ch Make Busy          :0*  2. G.704 Mode                :0
3. Remote Alarm Sending      :0*  4. Remote Alarm Signaling    :0
5. Alarm Operation Mode      :0*  6. Alarm Release Time        :0
7. Alarm Detect/Release Type :0*  8. Line Signal               :0
9. 4K Data Link              :0*  10.BOM/MOS Operation         :0
11.Haul Mode                 :0*  12.4K Data Link Mode         :0
13.Simultaneous Seizure      :0*  14.SSD Remote Start          :0
15.Layer 1 Alarm Report      :0*  16.Call Collision Processing :0
17.ACK Detect Guard Time     :0*  18.ACK Detect Time           :0
19.Answer Detect Time        :0*  20.Send Signaling Pattern    :0
21.Recv Signaling Pattern    :0*  22.Send Signaling A Logic    :0
23.Recv Signaling A logic    :0*  24.EC NLP Control            :0
25.EC NLP Mode               :0*  26.EC/2100Hz Detect          :0
27.Clock Signal Mode         :0*  28.Idle Code Sending         :0

 Change Optional setting? [Y(change)/N(current)]: y

 Input Optional setting number (1-28): 1

 1. All Ch Make Busy (0:Cancel/1:Set)[0]: 1
```

Setting parameters and current setting are listed.

Note: All the parameters are set to "0" in default setting.

Enter "Y" to change the optional setting.

Select the setting number (1-28) to be assigned.

When "1" is entered in the former step, for example, "1. All Ch Make Busy" setting line is displayed. Enter the data depending on the selected setting parameter.

- To stop *SETUP T1* command and save the changed data:

```
---Optional Setting---
```

```
1. All Ch Make Busy          :1*  2. G.704 Mode                :0
3. Remote Alarm Sending      :0*  4. Remote Alarm Signaling    :0
5. Alarm Operation Mode      :0*  6. Alarm Release Time        :0
7. Alarm Detect/Release Type :0*  8. Line Signal               :0
9. 4K Data Link              :0*  10.BOM/MOS Operation         :0
11.Haul Mode                 :0*  12.4K Data Link Mode         :0
13.Simultaneous Seizure      :0*  14.SSD Remote Start          :0
15.Layer 1 Alarm Report      :0*  16.Call Collision Processing :0
17.ACK Detect Guard Time     :0*  18.ACK Detect Time           :0
19.Answer Detect Time        :0*  20.Send Signaling Pattern    :0
21.Recv Signaling Pattern    :0*  22.Send Signaling A Logic    :0
23.Recv Signaling A logic    :0*  24.EC NLP Control            :0
25.EC NLP Mode               :0*  26.EC/2100Hz Detect          :0
27.Clock Signal Mode         :0*  28.Idle Code Sending         :0
```

Setting parameters and their current setting are listed.

```
 Change Optional setting? [Y(change)/N(current)]: n
```

Enter "N" to stop optional setting and save the changed data.

```
 ** Don't power off in progress **
 Do you save the configuration data? [Y/N]: y
 Erase start...
 Erase OK!
 Write start...
 Write OK!
 Configuration data has been saved.
 T1 data setting succeeded.

MG-T1(SIP)>
```

Result is displayed and the display changes to the MG-T1(SIP) prompt

Note: Restart if the setting of "1. All Ch Make Busy" in optional setting is changed.

SET COMMAND

1. **SET∆DEFAULTROUTE∆*P1***

This command is used to specify IP address for Default Gateway. Note that default route be located at the same segment with MG-T1(SIP).

```
MG-T1(SIP)>SET DEFAULTROUTE 10.41.1.254

Default Gateway setting succeeded.
```

P1: Enter Default Gateway address
e.g. 10.41.1.254

Result is displayed.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

2. **SET∆DHCP∆*P1***

This command is used to enable/disable DHCP server.

```
MG-T1(SIP)>SET DHCP ENABLE


DHCP setting succeeded.
```

P1: Enter ENABLE or DISABLE
ENABLE=DHCP is valid (default)
DISABLE=DHCP is invalid

Result is displayed.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

3. **SET∆DNS_SW**

This command is used to enable/disable DNS server.

```
MG-T1(SIP)>SET DNS_SW
DNS Interface (Enable/Disable)[DISABLE]: ENABLE


DNS IP Address [0.0.0.0]: 10.41.1.150

DNS setting succeeded.
```

Enter the following after the command
ENABLE=DNS is valid (default)
DISABLE=DNS is invalid

Enter the IP address of DNS server
e.g. 10.41.1.150

Result is displayed.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: When DISABLE is selected, the setting line of DNS IP Address is not displayed.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

4. **SET∆DTMF_IN∆*P1***

This command is used to enable/disable in-band DTMF relay.

```
MG-T1(SIP)>SET DTMF_IN ON


In band DTMF Relay setting succeeded.
```

P1: Specify the following:
ON=In-band DTMF is valid
OFF=In-band DTMF is invalid (default)

Result is displayed.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

5. **SET∆E_T_WAITTIME∆*P1***

This command is used to specify the waiting time before the Training Feature mode of Echo Canceller begins. Echo Canceller Feature is used to prevent initial Echo (ranging from 500 to 1ms) occurred in the beginning of speech to the Telephony Server.

```
MG-T1(SIP)>SET E_T_WAITTIME 0



EC Training Start Wait Timer setting succeeded.
```

P1: Specify a waiting time before the training feature starts (ms)
0-100=Waiting time (1 counter indicates 10ms)

Result is displayed.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

6. **SET∆EC_TRAINING∆***P1*

This command is used to enable/disable the Training Feature mode of Echo Canceller. Echo Canceller Feature is used to prevent initial Echo (ranging from 500 to 1ms) occurred in the beginning of speech to the Telephony Server.

```
MG-T1(SIP)>SET EC_TRAINING ON


EC Training Feature setting succeeded.
```

P1: Specify the following:
ON=Training function is valid
OFF=Training function is invalid
ONCE=Training function is valid only once (default)

Result is displayed.

7. **SET∆FAXERRORDETECT∆***P1*

This command is used to specify the available time to be switched to FAX mode.

```
MG-T1(SIP)>SET FAXERRORDETECT 1


FAX Enable Timer setting succeeded.
```

P1: Specify the available time to switch to FAX.
0=FAX switching is unavailable.
1-5=Available time to be switched to FAX (minutes)
OFF=Always-on FAX switching

Result is displayed.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

8. **SET∆HC_RCV_TIMER∆***P1*

This command is used to specify a value recognized as timeout in receiving Health Check.

```
MG-T1(SIP)>SET HC_RCV_TIMER 120


Impedance setting succeeded.
```

P1: Specify a time (second) recognized as timeout in receiving Health Check.
120-300=Available time.(Default: 150)

Result is displayed.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

9. **SET∆INTERFACE**

This command is used to specify the communication speed of LAN interface. Be sure to assign this data adjusting to the network devices (router, switch, or HUB, etc.). This data can be set also in *SETUP SP* command.

```
MG-T1(SIP)>SET INTERFACE
SPEED(AUTO/100M/10M):100M
```

1) Select the communication speed of LAN interface
AUTO=Auto negotiation (default)
100M=100Mbps fixed mode
10M=10Mbps fixed mode

```
DUPLEX(FULL/HALF):HALF




Ethernet Speed setting succeeded.
```

2) Select duplex mode

Note: Not displayed when SPEED=AUTO

FULL=Full duplex
HALF=Half duplex

Result is displayed.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

10. **SET∆IPPADDRESS**∆*P1*∆*P2*

This command is used to set IP address and subnet mask of MG-T1(SIP). Be sure to assign this data when static addressing is used in the network. This data can be set also in *SETUP SP* command.

```
MG-T1(SIP)>SET IPADDRESS 10.41.1.100 255.255.255.0




IP Address setting succeeded.
```

P1: Enter the IP address of MG-T1(SIP)
e.g. 10.41.1.100
P2: Enter the subnet mask
e.g. 255.255.255.0

Result is displayed.

Note: The designated IP address cannot be applied when DHCP is set to “Enabled.” Be sure to assign the DHCP setting to “Disable” before performing this IP address assignment.

Note: Do not assign network address and broadcast address for MG-T1(SIP). See the examples below:
(Example 1) Network address cannot be assigned as IP address of MG-T1(SIP).
IP address: 192.168.1.0
Subnet mask: 255.255.255.0
(Example 2) Network address cannot be assigned as IP address of MG-T1(SIP).
IP address: 172.16.0.0
Subnet mask: 255.255.0.0
(Example 3) Broadcast address cannot be assigned as IP address of MG-T1(SIP).
IP address: 192.168.1.255
Subnet mask: 255.255.255.0
(Example 4) Broadcast address cannot be assigned as IP address of MG-T1(SIP).
IP address: 172.16.255.255
Subnet mask: 255.255.0.0

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

11. **SET∆ONE_TIME_PASS**

This command is used to assign one-time password for security.

```
MG-T1(SIP)>SET ONE_TIME_PASS
One Time Password: •••••


Erase start...
Erase OK!
Write start...
Write OK!
One time password setting succeeded.
```

Enter the password in numeric [4~10 digits (0-9, *, # is available)]
e.g. 12345#

Result is displayed.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

12. **SET∆OWN_NAME∆***P1*

This command is used to specify a host name of MG-T1(SIP).

```
MG-T1(SIP)>SET OWN_NAME mgt1.nec.com



Own name setting succeeded.
```

P1: Enter the host name of MG-T1(SIP) in full-domain format. [Max 63 bytes of alphanumeric characters, . (period), and - (hyphen)]
e.g. mgt1.nec.com

Result is displayed.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

13. **SET∆LOOPBACK∆***P1*

This command is used to specify loopback data for T1.

```
MG-T1(SIP)>SET LOOPBACK
Loopback (0:OFF/1:LOCAL/2:LINE/3:PAYLOAD)[0]: 1

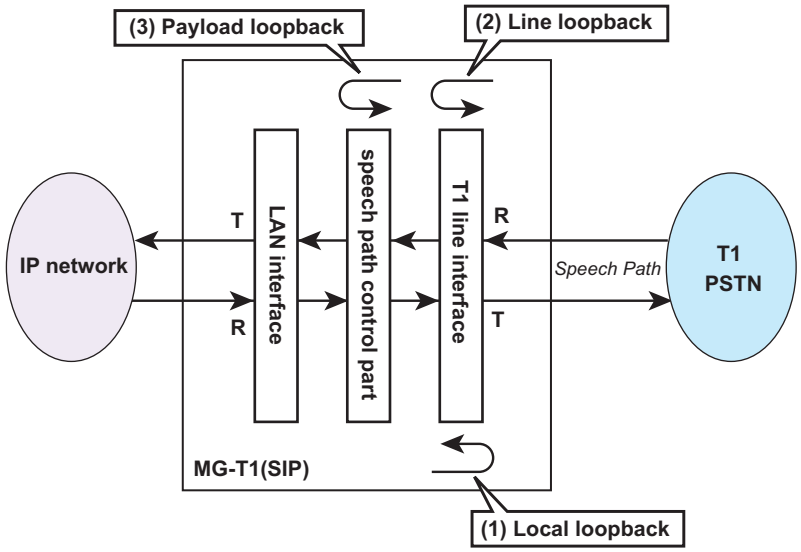



Loopback setting succeeded.
```

Enter 0~3
0=OFF
1=Local Loopback is ON
2=Line Loopback is ON
3=Payload Loopback is ON

Result is displayed.

Note: The trace of Loopback test varies depending on its setting. The following describes its loopback traces.



(1) Local Loopback

T1 line interface part of MG-T1(SIP) sends back all the channels to LAN side. The counter office detects circuit failure (AIS).

(2) Line Loopback

The line interface part of MG-T1(SIP) sends back all the channels from T1 side. Normally, this loopback will work with the timing of PSTN.

(3) Payload Loopback

The speech path control part of MG-T1(SIP) sends back all the channels from T1. Differing from Line Loopback, a part of Payload Loopback works with the timing of PSTN; error may occur unless MG-T1(SIP) and PSTN are synchronized.

14. **SET∆SIGNALING_PORT_NO∆***P1*

This command is used to specify the port number of SIP signaling session to be used for SP-PHI.

```
MG-T1(SIP)>SET SIGNALING_PORT_NO 5060

Signaling port number setting succeeded.
```

P1: Specify a port number to be used for SP-PHI.
1024-65535=Port Number (default=5060)

Result is displayed.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

15. **SET∆SIGNALING_QOS∆***P1∆P2*

This command is used to specify the Quality of Service (QoS) data for SIP signaling session. QoS can be selected in Type of Service (TOS) or Differentiated Service (DIFFSERV) either.

- To directly enter the setting value:

```
MG-T1(SIP)>SET SIGNALING_QOS TOS 0xC0



Signaling QoS setting succeeded.(0xC0)
```

P1: Select the type of QoS.
TOS=to set IP Precedence data value
DIFFSERV=to set DIFFSERV data value
CLEAR=Clear the current QoS setting
P2: Enter the value of QoS directly.
0x00-0xFF=ToS value
0-63=DIFFSERV value
Result is displayed.

- When P1=TOS is entered:

```
MG-T1(SIP)>SET SIGNALING_QOS TOS 0xC0


Signaling QoS setting succeeded.(0xC0)
```

P1: Enter TOS to set IP Precedence data value
P2: Enter the setting value [0x02~0xFF]
Result is shown.

- When P1=DIFFSERV is entered:

```
MG-T1(SIP)>SET SIGNALING_QOS DIFFSERV 48


Signaling QoS setting succeeded.(0xC0)
```

P1: Enter DIFFSERV to set Diffserv data value
P2: Enter the DSCP setting value [0~63]
Result is shown.

- When P1=CLEAR is entered to delete the current QoS setting:

```
MG-T1(SIP) SET SIGNALING_QOS CLEAR
Signaling QoS clearing succeeded.(0x00)
```

P1: Enter CLEAR to clear QoS setting
Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note: The value in ( ) shows the current setting.

To set in dialog format (press Enter key after the sub command to skip entering P1 and P2):

- When TOS is selected in QoS setting, assign the data in IP Precedence type:

```
MG-T1(SIP)>SET SIGNALING_QOS
QOS(TOS/DIFFSERV: TOS): TOS
PRECEDENCE (0-7:6): 6
```

Specify the precedence in IP network.
0-7=the precedence in IP network (Default:6)

```
DELAY (0/1: 0): 0

THROUGHPUT (0/1: 0): 0

RELIABILITY(0/1: 0): 0

COST (0/1: 0): 0

Signaling QoS setting succeeded.(0xC0)
```

Enable/Disable Low Delay Precedence in IP network.
0=Disabled (Default)
1=Enabled

Enable/Disable Throughput Precedence in IP network.
0=Disabled (Default)
1=Enabled

Enable/Disable Reliable Precedence in IP network.
0=Disabled (Default)
1=Enabled

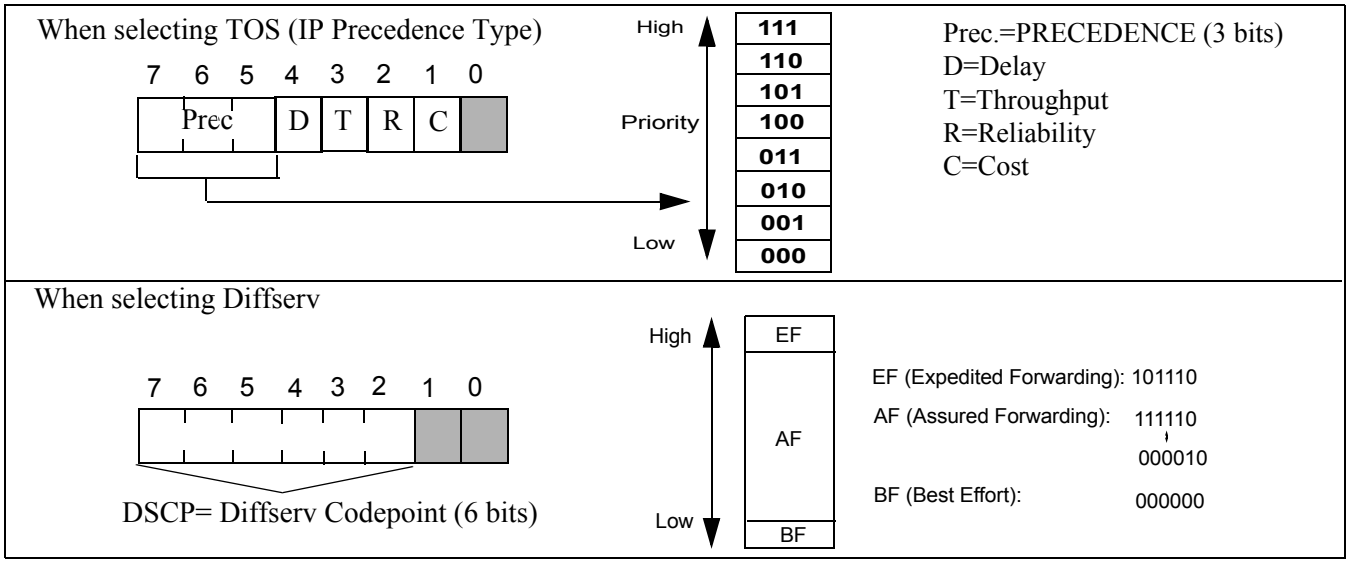
Enable/Disable Low Cost Precedence in IP network.
0=Disabled (Default)
1=Enabled

- When DIFFSERV is selected in QoS setting, enter the setting value in DSCP type:

```
MG-T1(SIP)>SET SIGNALING_QOS
QOS(TOS/DIFFSERV:DIFFSERV): DIFFSERV
DSCP(0-63: 48): 48

Signaling QoS setting succeeded.(0xC0)
```

Specify a Differentiated Service Code Point (DSCP) value.
0-63=DSCP value (Default:48)



Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

16. **SETΔSIPSV_IPADDRESS**

This command is used to assign IP address, port number, and host name of SIP server.

```
MG-T1(SIP)>SET SIPSV_IPADDRESS
SIP Server (1-20): 1


IP Address: 10.41.1.150

Port Number: 5060

Is there the Host Name? [Y/N]: y
Host Name: SVR1.nec.com




 SIP server setting succeeded.
```

Enter the SIP server's number. Up to 20 SIP servers can be used in one network.
1-20: The number of the Telephony Server to be used

Enter the IP address of SIP server. **Note 2**
e.g. 10.41.1.150 (default=0.0.0.0)

Enter the port number to be used for SIP server.
1024-65535: Port Number (Default: 5060)

Select whether to use host name [Y/N]

Enter the host name in the full-domain format, within 63-byte of alphanumerics, ". (period)", and "- (hyphen)".
e.g. SVR1.nec.com

Note: This line is displayed when "Y" is selected above.)

Result is displayed.

Note 2: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

17. **SET∆SMOOTH_PAD∆*P1***

This command is used to specify Smooth PAD mode of DSP.

```
MG-T1(SIP)>SET SMOOTH_PAD 2




Smooth PAD Mode setting succeeded.
```

P1: Enter a value of Smooth PAD mode.
OFF=Set Smooth PAD to OFF
1=+2dBm (default)
2=-5dBm
3=-2dBm
4=0dBm
5=-4dBm

Result is displayed.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

18. **SET∆STARTPORT∆*P1***

This command is used to specify the starting port of RTP. Enter an even number for the RTP. The odd number (the even number +1) is assigned for RTCP.

```
MG-T1(SIP)>SET STARTPORT 1024

RTP Start Port Number setting succeeded.
```

P1: Enter the port number to start RTP.
1024-64510= Port Number (default: 1024)

Result is displayed.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

19. **SET∆VLAN**

This command is used to specify the settings for VLAN. In MG-T1(SIP), one VLAN can be created per network. When VLAN is enabled, physical LAN becomes invalid.

```
MG-T1(SIP)>SET VLAN
Please enter a parameter
VLAN ID (1-4094):1

COS (0-7):0

VLAN setting succeeded.
```

1) Specify VLAN ID
1-4094=VLAN ID

2) Specify COS
0-7=COS

Result is displayed.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

20. **SET∆WARNING_TONE∆***P1*

```
MG-T1(SIP)>SET WARNING_TONE 0




Warning Tone Control setting succeeded.
```

P1: Specify a set value
0= No Warning Tone (default)
1= Not Used
2= Not Used
3= Send Warning Tone

Result is displayed.

SHOW COMMAND

1. **SHOW∆CONFIGDATA**

This command is used to display the current network settings.

```
MG-T1(SIP)>SHOW CONFIGDATA
[IP]
OWN_ADDR=10.41.1.100
SUBNET_MASK255.255.255.0
DEFAULT_GATEWAY=10.41.1.254
:
:
```

The current setting is displayed.

2. **SHOW∆DHCP**

This command is used to display whether DHCP is enabled at current network.

```
MG-T1(SIP)>SHOW DHCP
 DHCP is ENABLE
```

The current setting is displayed.

3. **SHOW∆DNS_SW**

This command is used to display whether DNS is enabled at current network.

```
MG-T1(SIP)>SHOW DNS_SW
 DNS interface : DISABLE
 DNS IP address : 10.41.1.150
```

The current setting is displayed.

4. **SHOW∆DTMF_IN**

This command is used to display the setting of in-band DTMF relay.

```
MG-T1(SIP)>SHOW DTMF_IN
 In band DTMF Relay is OFF.
```

The current setting is displayed.

5. **SHOW∆E_T_WAITTIME**

This command is used to display the waiting time (ms) before starting EC training feature. 1 counter indicates 10ms.

```
MG-T1(SIP)>SHOW E_T_WAITTIME
 EC Training Start Wait Time is 10.
```

The current setting is displayed.

6. **SHOW∆EC_TRAINING**

This command is used to display the training feature of Echo Canceller (EC). Echo Canceller Feature is used to prevent initial Echo (ranging from 500 to 1ms) occurred in the beginning of speech to SIP server.

```
MG-T1(SIP)>SHOW EC_TRAINING
 EC Training Feature is ON.
```

The current setting is displayed.

7. **SHOW∆FAXERRORDETECT**

This command is used to display an available time to be switched to FAX.

```
MG-T1(SIP)>SHOW FAXERRORDETECT
 FAX Enable Timer is 1 minute.
```

The current setting is displayed.

8. **SHOW∆HC_RCV_TIMER**

This command is used to display the time for timeout in receiving Health Check.

```
MG-T1(SIP)>SHOW HC_RCV_TIMER
 Health-Check Receive Timer Timeout is 150 seconds.
```

The current setting is displayed.

9. **SHOW∆INTERFACE**

This command is used to display the connection mode of LAN interface.

```
MG-T1(SIP)>SHOW INTERFACE
 Setting: Auto-negotiation
 Status: Speed is 100Mbps, DUPLEX:HALF
```

The current setting is displayed.

10. **SHOW∆IPADDRESS**

This command is used to display the IP address of LAN interface.

```
MG-T1(SIP)>SHOW IPADDRESS
 IP Address       10.41.1.100
 Subnetmask       255.255.255.0
 Default Gateway  10.41.1.254
```

The current setting is displayed.

11. **SHOW∆ONE_TIME_PASS**

This command is used to display the one-time password.

```
MG-T1(SIP)>SHOW ONE_TIME_PASS
 One time password is 123456.
```

The current setting is displayed.

12. **SHOW∆OWN_NAME**

This command is used to display the host name of MG-T1(SIP).

```
MG-T1(SIP)>SHOW OWN_NAME
 Own Name : mgt1.nec.com
```

The current setting is displayed.

13. **SHOW∆LOOPBACK**

This command is used to display the loopback settings for TC.

```
MG-T1(SIP)>SHOW LOOPBACK
 Loopback Setting is 1 (Local Loopback).
```

The current setting is displayed.

- When Loopback=0: OFF
- When Loopback=1: Local Loopback
- When Loopback=2: Line Loopback
- When Loopback=3: Payload Loopback

14. **SHOW∆SIGNALING_PORT_NO**

This command is used to display the port number of signaling.

```
MG-T1(SIP)>SIGNALING_PORT_NO
 Signaling port number is 5060.
```

The current setting is displayed.

15. **SHOW∆SIGNALING_QOS**

This command is used to display the QoS of signaling.

```
MG-T1(SIP)>SIGNALING_QOS
 Signaling QOS is 0xC0. (QOS = TOS)

 PRECEDENCE =6
 DELAY =0
 THROUGHPUT =0
 RELIABILITY =0
 COST =0
```

The current setting is displayed.

16. **SHOW∆SIPSV_IPADDRESS**

This command is used to display the network settings of SIP Server.

```
MG-T1(SIP)>SHOW SIPSV_IPADDRESS
 SIP Server    IP Address     Port Number    Host Name
 1             0.0.0.0        0
 2             0.0.0.0        0
 3             0.0.0.0        0
 4             0.0.0.0        0
 5             0.0.0.0        0
 6             0.0.0.0        0
 7             0.0.0.0        0
 8             0.0.0.0        0
 9             0.0.0.0        0
 10            0.0.0.0        0
 11            0.0.0.0        0
 12            0.0.0.0        0
 13            0.0.0.0        0
 14            0.0.0.0        0
 15            0.0.0.0        0
 16            0.0.0.0        0
 17            0.0.0.0        0
 18            0.0.0.0        0
 19            0.0.0.0        0
 20            0.0.0.0        0
```

The current setting is displayed.

Note: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

17. **SHOW∆SMOOTH_PAD**

This command is used to display Smooth PAD mode of DSP.

```
MG-T1(SIP)>SHOW SMOOTH_PAD
 Smooth PAD Mode is 2.
```

The current setting is displayed.

18. **SHOW∆STARTPORT**

This command is used to display the start port of RTP.

```
MG-T1(SIP)>SHOW STARTPORT
 RTP Start Port Number is 1024.
```

The current setting is displayed.

19. **SHOW∆STATUS**

This command is used to display the status of MG-T1(SIP).

```
MG-T1(SIP)>SHOW STATUS
Register Mode                : SP
MAC Address                  : 00:00:4c:a4:00:01
Link State                   : Up
Speed                        : 100Mbps
Duplex                       : Full
VLAN Mode                    : Enable
DHCP Mode                    : Disable
IP Address                   : 10.41.1.1
Subnet Mask                  : 255.255.255.0
Default Gateway              : 10.41.1.254
DNS Mode                     : Enable
DNS Server Address           : 10.41.1.150
Encryption                   :
  +--SIP Encrypt             : --
  +--RTP Encrypt             : Enable
Current Sipsv Address        : 10.41.1.100
Registration Status          : Offline
LINE B[0]
 00[0] 01[0] 02[0] 03[0] 04[0] 05[0] 06[0] 07[0]
 08[0] 09[0] 10[0] 11[0] 12[0] 13[0] 14[0] 15[0]
 16[0] 17[0] 18[0] 19[0] 20[0] 21[0] 22[0] 23[0]
LINE ALM[4]
 PMC[0] FRM[0] MFRM[0] CRC[0] RMT[4] AIS[0]
*[0/1/2/3/4]=[OFF/ON/60INT/120INT/240INT]
```

The current setting is displayed.

20. **SHOW∆T1**

This command is used to display the setting related to T1 interface.

```
MG-T1(SIP)>SHOW T1
---Mandatory Setting---
1. Multiframe (0:24MF/1:12MF)                              :0
2. Equalizer
   (0:0-40m/1:40-80m/2:80-120m/3:120-162m/4:162m-)          :0
---Optional Setting---
1. All Ch Make Busy (0:Cancel/1:Set)                       :1
2. G.704 Mode (0:ITU-T/1:TTC)                              :0
3. Remote Alarm Sending (0:Unrestricted/1:Restricted)      :0
4. Remote Alarm Signaling (0:FS Bit/1:In Channel)          :0
5. Alarm Operation Mode (0:Send/1:Not Send)                :0
6. Alarm Release Time (0:Long/1:Short)                     :0
7. Alarm Detect/Release Type (0:Normal/1:AT&T)             :0
8. Line Signal (0:B8ZS/1:AMI or ZCS)                       :0
9. 4K Data Link (0:MOS/1:BOM)                              :0
10.BOM/MOS Operation
   (0:PPR Send, MOS Msg Receive/
    1:PPR Send, MOS Msg Not Receive/
    2:7EH Send, MOS Msg Receive/
    3:7EH Send, MOS Msg Not Receive)                       :0

Type <CR> to continue, A<CR> to show all, Q<CR> to stop
11.Haul Mode (0:Short/1:Long)                              :0
12.4K Data Link Mode (0:User Side/1:Network Side)          :0
13.Simultaneous Seizure (0:Control/1:Not Control)          :0
14.SSD Remote Start (0:Active/1:Not Active)                :0
15.Layer 1 Alarm Report (0:Enable/1:Disable)               :0
16.Call Collision Processing (0:Not Used/1:Used)           :0
17.ACK Detect Guard Time (0:48ms/1:64ms/2:80ms/3:96ms)     :0
18.ACK Detect Time (0:56ms/1:100ms/2:400ms/3:700ms)        :0
19.Answer Detect Time (0:200ms/1:100ms/2:400ms/3:700ms)    :0
20.Send Signaling Pattern
   (0:ABCD/1:AAAA/2:ABAB/3:Bit Steal Inhibited)            :0
21.Recv Signaling Pattern
   (0:ABCD/1:AAAA/2:ABAB/3:Bit Steal Inhibited)            :0
22.Send Signaling A Logic (0:Positive/1:Negative)          :0
23.Recv Signaling A logic (0:Positive/1:Negative)          :0
24.EC NLP Control (0:Enable/1:Disable)                     :0
25.EC NLP Mode (0:Background Noise/1:Fixed Level)          :0
26.EC/2100Hz Detect (0:Disable/1:Enable)                   :0
27.Clock Signal Mode (0:Slave/1:Master)                    :0
28.Idle Code Sending (0:Not Send/1:Send)                   :0
```

The current setting is displayed.

Note: Display for BOM/MOS operation differs depending on the setting for G.704 Mode and 4K Data Link.

Note: Press Enter key to display the rest half of the list.

21. **SHOW∆VERSION**

This command is used to display information about hardware, boot program, and firmware.

```
MG-T1(SIP)>SHOW VERSION
MG Maintenance command Version
      Version Information
 Hardware       :CA-CC00 2A
 Boot program   :SP3839  SH7751R CBOOT-1 PROG-A [03.00.00.00]
 Firmware(NC)   :SP3926  MG DTI PROG-A [01.00.00.00]
 Firmware(TC)   :        TC-Program    [01.00.00.00]
 AC490  kernel Ver   :01.07
        Revision     :06
        Patch        :
        PatchNumber  :
        Reserved     :
        Month        :05
        Day          :09
        year         :2005
        Name         :AC49kernel
 AC490  MainProgram  :01.07
        Revision     :08
        Patch        :pp
        PatchNumber  :02
        Reserved     :
        Month        :06
        Day          :02
        year         :2005
        Name         :AC490012ae3-S
 AC490  Driver Ver   :107
        SubVersion   :06
        Date         :01.05.2005
        Comment      :
```

The current setting is displayed.

22. **SHOW∆VLAN∆**[*P1*]

This command is used to display the VLAN.

- When P1 is not entered:

```
MG-T1(SIP)>SHOW VLAN
 DEVICE  ID   COS   IPADDRESS       SUBNETMASK
 VLAN1   1    0     10.123.123.123  255.255.255.0
```

The current setting is displayed.

- When P1=1:

```
MG-T1(SIP)>SHOW VLAN

 DEVICE  ID   COS   IPADDRESS       SUBNETMASK
 VLAN1   1    0     10.123.123.123  255.255.255.0
```

P1: Specify VLAN ID.
If omitted, all the VLAN are displayed.

23. **SHOW∆WARNING_TONE**

This command is used to display the warning tone setting.

```
MG-T1(SIP)>SHOW WARNING_TONE
 Warning Tone Control of IP Network is 3 (IP&DTI side).
```

PING COMMAND

1. **PING∆*P1***

This command is used to check the connectivity of network.

```
MG-T1(SIP)>PING 10.41.1.100
PING 10.41.1.100: icmp_seq=0. time=0. ms
PING 10.41.1.100: icmp_seq=1. time=0. ms
PING 10.41.1.100: icmp_seq=2. time=0. ms
PING 10.41.1.100: icmp_seq=3. time=0. ms
----10.41.1.100 PING Statistics----
4 packets transmitted, 4 packets received, 0% packet loss
round-trip (ms)   min/avg/max = 0/0/0
```

P1: Specify IP address
Result is displayed.

DELETE COMMAND

1. **DELETE∆VLAN∆*P1***

This command is used to delete VLAN.

```
MG-T1(SIP)>DELETE VLAN 1
 VLAN deleting succeeded.
```

P1: Specify VLAN ID
Result is displayed.

Note: To make this assignment effective, execute the SAVE command and restart before exiting the maintenance command.

SAVE COMMAND

1. **SAVE∆CONFIGDATA**

This command is used to save the configuration data.

```
MG-T1(SIP)>SAVE CONFIGDATA
 ** Don't power off in progress **
 Do you need save? [Y/N]: Y

Erase start...
Erase OK!
Write start...
Write OK!
 Configuration data has been saved.
 Re-starting is required for making a setup reflect!!
```

Y: The data is saved
N: The data is not saved

Result is displayed.

GET COMMAND

1. **GET∆CONFIGDATA∆***P1*

This command is used to download configuration data from TFTP server.

```
MG-T1(SIP)>GET CONFIGDATA 10.41.1.20

 The download of configuration data was successful.
```

P1: Enter the IP address of TFTP server after the command name.

Result is displayed.

PUT COMMAND

1. **PUT∆CONFIGDATA∆***P1*

This command is used to upload a configuration data to specified TFTP server:

```
MG-T1(SIP)>PUT CONFIGDATA 10.41.1.20

 The upload of configuration data was successful.
```

P1: Enter the IP address of TFTP server after the command name.

Result is displayed.

REBOOT COMMAND

1. **REBOOT**

This command is used to reboot the MG-T1(SIP).

```
MG-T1(SIP)>REBOOT
 Do you need reboot? [Y/N]: Y
```

Y=Reboot
N=Not reboot

EXIT COMMAND

1. **EXIT**

This command is used to exit the program.

- Normal operation:

```
MG-T1(SIP)>EXIT
->
```

Returns to OS prompt.

- When configuration data is changed, the following is displayed according to the changed data:

```
MG-T1(SIP)>EXIT
Configuration data was changed.
** Don't power off in progress **
y: Save and Exit.
n: Exit without saving.
c: Cancel
[y/n/c]: y

 Configuration data has been saved.
```

y=Save the file and exit the program
n=Exit the command without saving
c=Cancel the command

Enter "y" to save the changed data and exit the configuration command.

Result is displayed.

INITIAL COMMAND

1. INIT∆CONFIGDATA

This command is used to initialize the configuration data in MG-T1(SIP).

```
MG-T1(SIP)>INIT CONFIG
***Warning!!***
This command initializes the configuration data.
This deletes the current setting.
Recommend to back up the setting.
Command execute or not? [Y/N]: y
```

y=Initialize
n=Not initialize

```
Initialize authentication key or not? [Y/N]: y


Command complete.
You need to setup configuration data.
```

y=Clear authentication key Initialize
n=Not clear authentication key

4.6 Error Messages

When an error occurs in using the maintenance command, error message is indicated to show the cause for helping the reassignment of required data.

List of Error Messages

MESSAGE	CAUSE
File not found on the TFTP server.	System data cannot be found and downloaded in the TFTP Server.
Command not found.	An entered command is not supported.
Invalid parameter.	Invalid parameters are entered with a command.
IP address form is incorrect.	An entered IP address is incorrect in the input format.
VLAN ID is no more registered.	Registered VLAN IDs exceeded a maximum.
Sub command is missing.	Sub command is necessary when the command is entered.
Invalid parameter value.	The parameter is out of range.
Invalid sub command.	The sub command is incorrect.
No response from CPU (TC).	There is no response from other CPUs.
Command is abnormally terminated.	The command failed to complete.
Parameter(s) are missing.	Parameter(s) are necessary when the command is entered.
Entered VLAN ID is already registered.	Specified VLAN ID is duplicated.
Entered VLAN ID is not registered.	Specified VLAN ID is invalid.

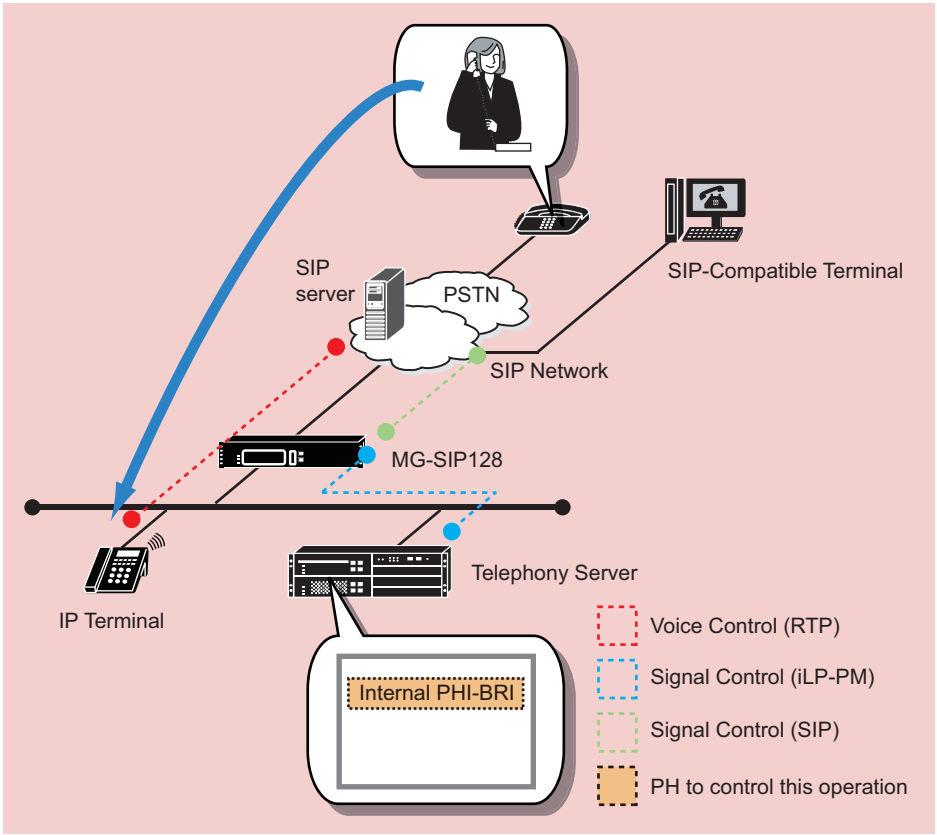
MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

The following explains MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]: function overview, configuration, and installation procedure.

1 General

MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] is a SIP-compatible Media Gateway to realize communication with service networks. MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] provides VoIP devices supporting SIP (Session Initiation Protocol, based on RFC) with peer-to-peer VoIP services. MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] also connects an IP station located on LAN with a SIP terminal (based on RFC3261) located on the WAN-side (SIP network) and maintain voice quality.

For details on service conditions and office data assignment, see MEDIA GATEWAY SIP [M-111] in UNIVERGE SV9500 Data Programming Manual - Business.



The following table shows the number of available channels of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

	10ms	20ms	30ms	40ms	60ms
G.711	-	128ch	128ch	128ch	-
G.729a	-	128ch	128ch	128ch	-

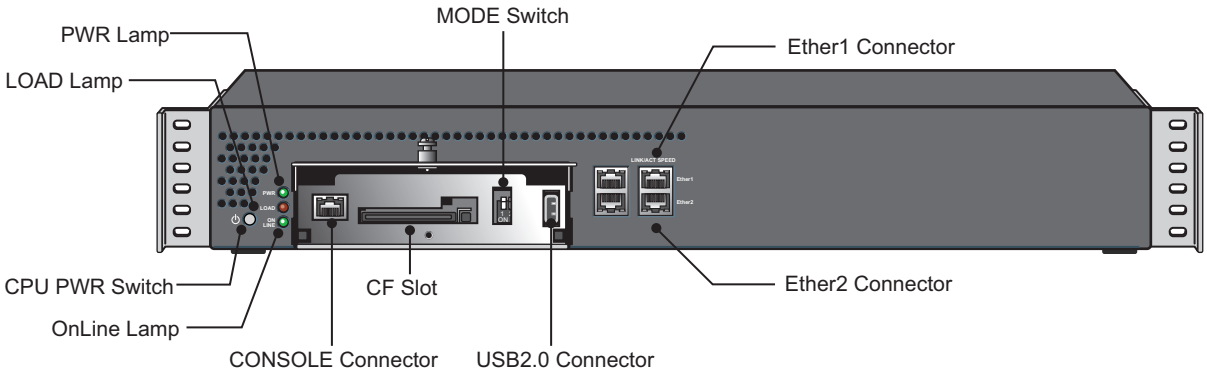
	10ms	20ms	30ms	40ms	60ms
G.723.1	-	-	-	-	-

1.1 Specifications

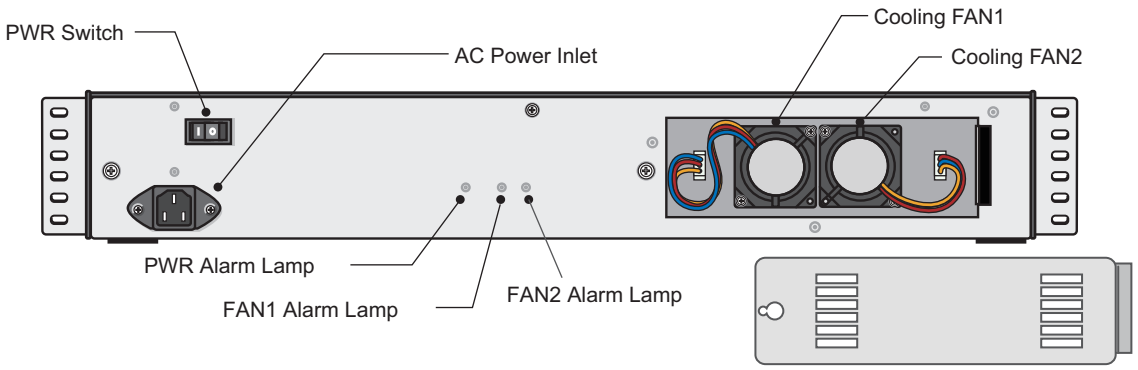
(1) Part Names

The following are the appearances of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

Front



Rear



Note: After installing a MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG], fix the AC power cable with the attached AC power cable stopper.

(2) Details

[1] Hardware specifications

Item	Specifications		Remarks
Connection terminal (on front panel)	CONSOLE connector (RJ-45) x 1		For maintenance
	LAN connectors	1000BASE-T 100BASE-TX 10BASE-T x 2	
		100BASE-TX 10BASE-T x 2	Not used.
	CF slot x 1		
	USB2.0 x 1		Not used.
Dimensions	65 (H) x 430 (W) x 297 (D) mm (corresponds to 1.5U when mounting on a 19-inch rack with depth of A4 paper.)		
Weight	3.8 kg		
Input Power Source	100 VAC (50/60 Hz) ± 10% 120 VAC (50/60 Hz) ± 10% 230 VAC (50/60 Hz) ± 10% 240 VAC (50/60 Hz) ± 10%		
Maximum Power Consumption	75 W (for maximum CPU load)		
QoS	IEEE802.1p (ToS field is supported, Diffserv)		
How to set	Flatly on desktop (basic type)		
Environmental requirement	Operational Temperature Range	0°C to 40°C (32°F to 104°F)	
	Operational Humidity Range	20% to 90% (not condensing)	
Cooling system	Forcible air-cooling by FAN		

[2] Functions

(a) Front

Part	Description		Remarks
PWR lamp	ON (green)	Powered ON.	
	OFF	Powered OFF.	
LOAD lamp	Flash (red)	Accessing to a CF card.	
	OFF	Not accessing to a CF card.	

Part	Description		Remarks
ONLINE lamp	ON (green)	Registration is finished.	
	Flash (green)	Abnormal state	No configuration, no Music/Tone file
	OFF	Registration is not finished.	
LAN connectors	Ether1	Port for LAN cable connection at LAN side	
	Ether2	Port for LAN cable connection at WAN side	For IPv4 connection, this port is used for connection to a LAN cable only when the Ethernet Port Redundancy function is enabled. For IPv6 connection, both ports (Ether1 and Ether2) are used for connection to a LAN cable.
SPEED lamp (Ether1/2)	ON (yellow)	1 Gbps connection	
	ON (green)	100 Mbps connection	
	OFF	10 Mbps	
LINK lamp (Ether1/2)	ON (green)	Layer1 link is established.	
	Flash (green)	Transmitting/receiving packets.	
	OFF	Layer1 link is not established.	
CPU PWR switch	Push to power ON the powered OFF device (**Note 1**); push to execute auto-shutdown the powered ON device (**Note 2**).		
MODE switch	Not used.		Fixed to OFF.
CONSOLE connector	Connected with a maintenance terminal (PC). **Note 3**		CONSOLE CABLE (RJ45 <-> RS-232C serial connection (not included in package)) is used.

Note 1: It works only when CPU PWR switch on the rear panel is ON.

Note 2: To confirm that shutdown is complete, check the PWR lamp. When auto-shutdown does not work, press and hold CPU PWR switch for four seconds to turn off forcibly.

Note 3: When CONSOLE CABLE is used, connect the CONSOLE CABLE with the maintenance terminal (PC) prior to connecting the cable with the CONSOLE connector of MG-SIP128.

(b) Rear

Part	Description		Remarks
AC power inlet	Connected with an attached three-polar grounded AC power cable (Cable Length: 3 m [9.8 ft.])		Fix the cable with the stopper to prevent it from falling out.
PWR switch	Power switch **Note 4**		
PWR alarm lamp	ON (red)	Failure on power module.	
	OFF	Power module works normally.	
FAN1 alarm lamp	ON (red)	FAN1 fails.	
	OFF	FAN1 works properly.	
FAN2 alarm lamp	ON (red)	FAN2 fails.	
	OFF	FAN2 works properly.	
Cooling FAN1	-	A FAN for cooling the device.	Replaceable during operation. **Note 5**
Cooling FAN2	-	A FAN for cooling the device.	Replaceable during operation. **Note 5**

Note 4: Auto-shutdown with CPU PWR switch on the front panel before turning OFF PWR switch.

Note 5: Do not replace cooling FAN1 and cooling FAN2 at the same time when MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] is working.

2 Installation



This section describes installing and cabling procedures for an MG-SIP128 [MG-128SIP-MGG-B/MG-128SIPMGG]. Take anti-static measures to work on it.

(1) Installing Procedure

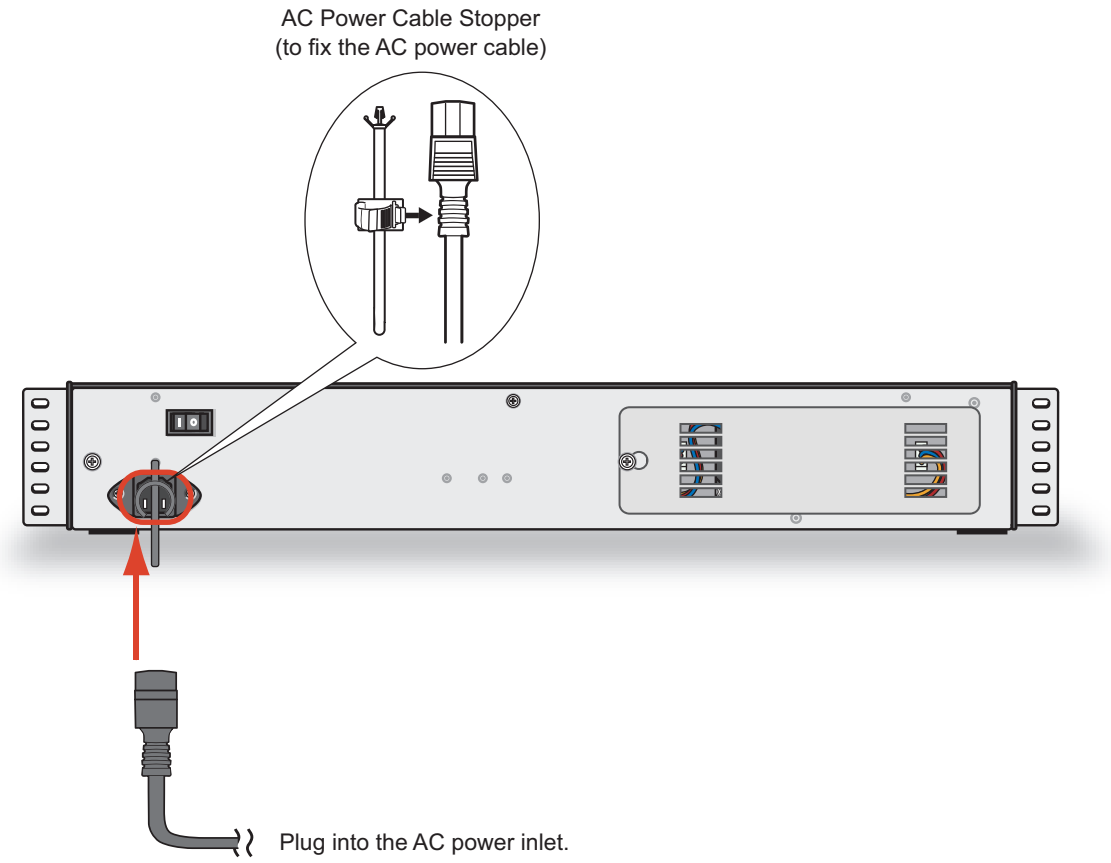
You can mount an MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] on a 19-inch rack. The procedure is the same as mounting an SV9500 server on a 19-inch rack; refer to the UNIVERGE SV9500 Appliance Model Installation Manual.

(2) Cabling Procedure

The following describes the cabling procedure. Follow the following to connect cables.

STEP 1: Plug an attached AC power cable into the AC power inlet on the rear panel of an MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]; fix the AC power cable with the stopper.

Rear Panel

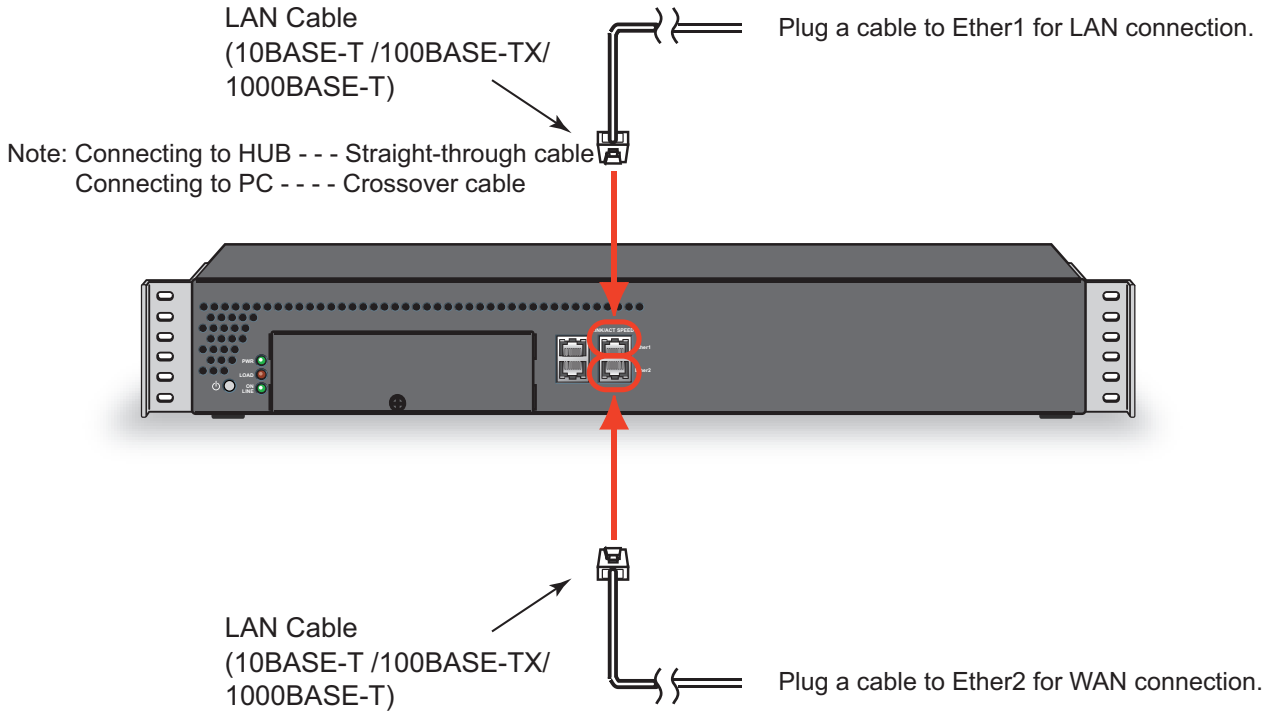


Note: To remove the AC cable, push the hook of the stopper outward, and take off the fixing belt. Push the tab of the stopper, and slide the stopper away from the power inlet.

STEP 2: Connect the other end of the AC power cable with an appropriate AC source.

STEP 3: Plug LAN cables into the Ether1 and Ether2 connectors (RJ-45). **Note 1**

Front Panel



Note 1: If you want to establish IP addresses of LAN and a SIP network in the same segment, connect a LAN cable only to a connector for LAN.

Cable connection is completed. Move on to the next section: Startup and Installation Test.

3 Startup and Installation Test

The following explains procedures for startup and installation test of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

START
↓
STEP 1 Assigning office data on the Telephony Server
↓
STEP 2 Connecting maintenance terminal (PC) and MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]
↓
STEP 3 Turning on MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]
↓
STEP 4 Setting configuration data on MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]
↓
STEP 5 Connecting MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] to LAN and WAN
↓
STEP 6 Checking states of LINK and SPEED lamps on Ether1 and Ether2
↓
END

3.1 Assigning Office Data, Connecting with Console and Turning On MG-SIP128

STEP 1: Assigning office data on the Telephony Server
Refer to MEDIA GATEWAY SIP [M-111] in Data Programming Manual - Business.

STEP 2: Connecting maintenance terminal (PC) and MG-SIP128 [MG-128SIPMGG-B/MG-128SIP-MGG]

- How to set up MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

  Set up an MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] by connecting a maintenance terminal (PC) to CONSOLE connector and using configuration commands. Connect CONSOLE connector on the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] and a serial port (RS232C) on the maintenance terminal (PC) with CONSOLE CABLE (serial cable for RJ-45 and RS-232C, which is not included in the package).

  Note: When CONSOLE CABLE is used, connect the CONSOLE CABLE with the maintenance terminal (PC) prior to connecting the cable with the CONSOLE connector of MG(SIP).

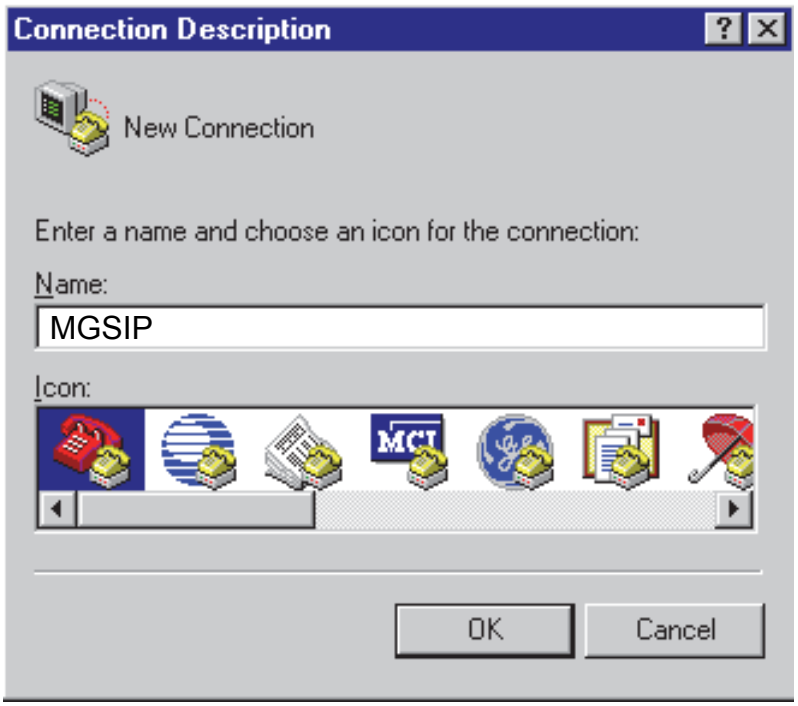
- Activating and connecting maintenance terminal (PC)

  Activate Windows on the maintenance terminal (PC), click Start, point to Programs, point to Accessories, point to Communications, and click HyperTerminal. If your computer does not have HyperTerminal, use another VT-100 compliant software with the same functions.**Note 1**

  "Connection Description" window is opened. Enter a name (whatever you like; here "MGSIP" as an example) in "Name" field. Enter "OK."

Note 1: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. This section explains the procedure for setting data by using HyperTerminal as an example. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data referring to the description for HyperTerminal.

Note: You can use any icon and name.

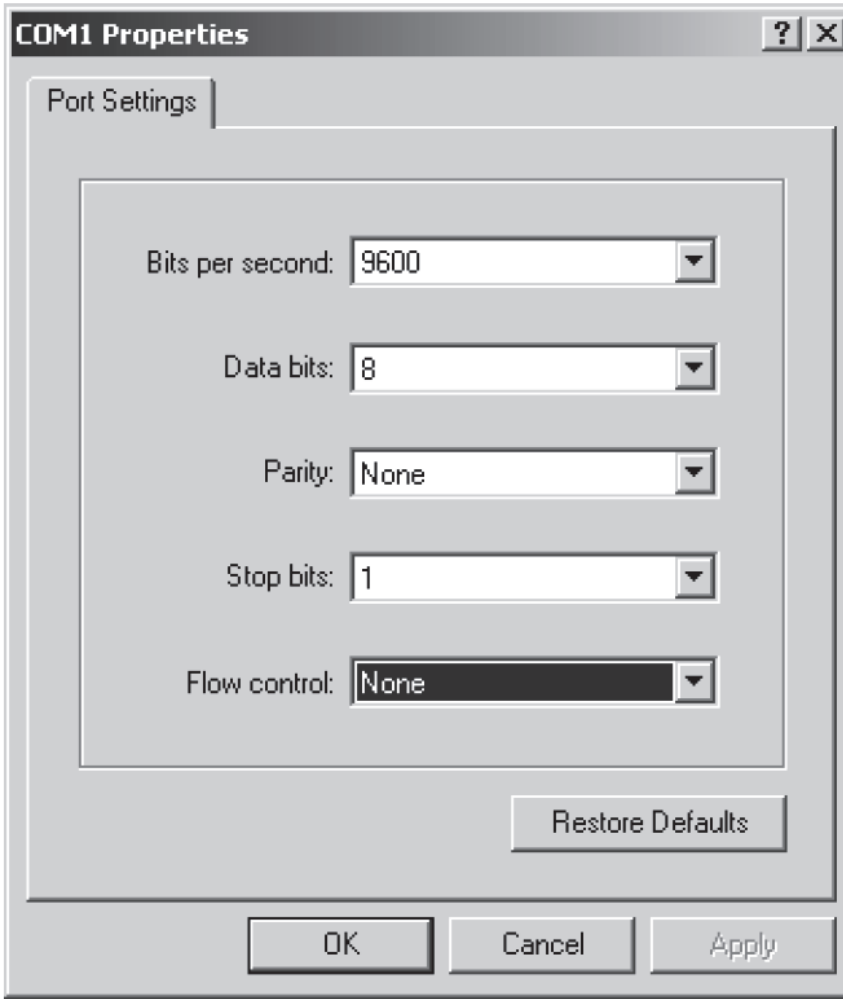


"Connect To" window is opened. Choose a COM port which is connected to MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] in "Connect using" box. Enter "OK." **Note 2**

Note 2: It depends on the PC.



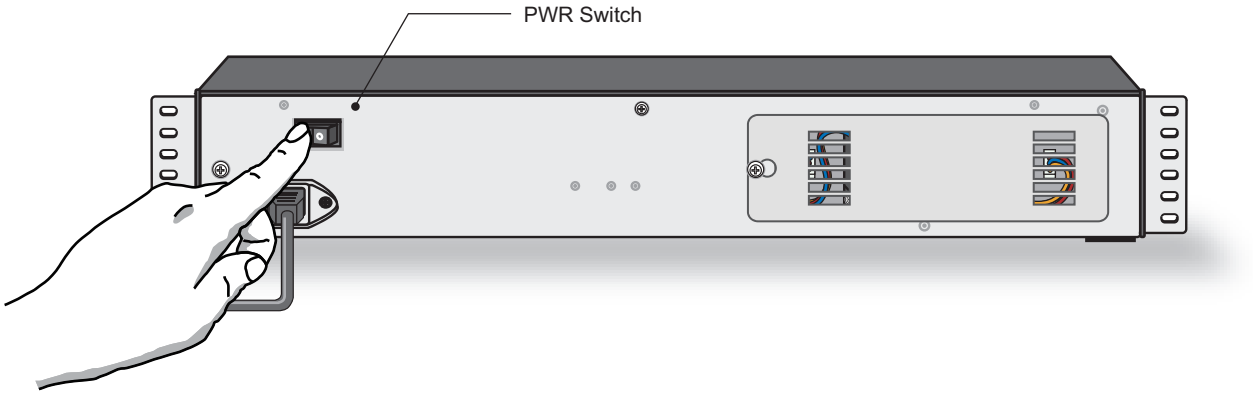
"Port Settings" tab opens. Set the values as the following figure shows.



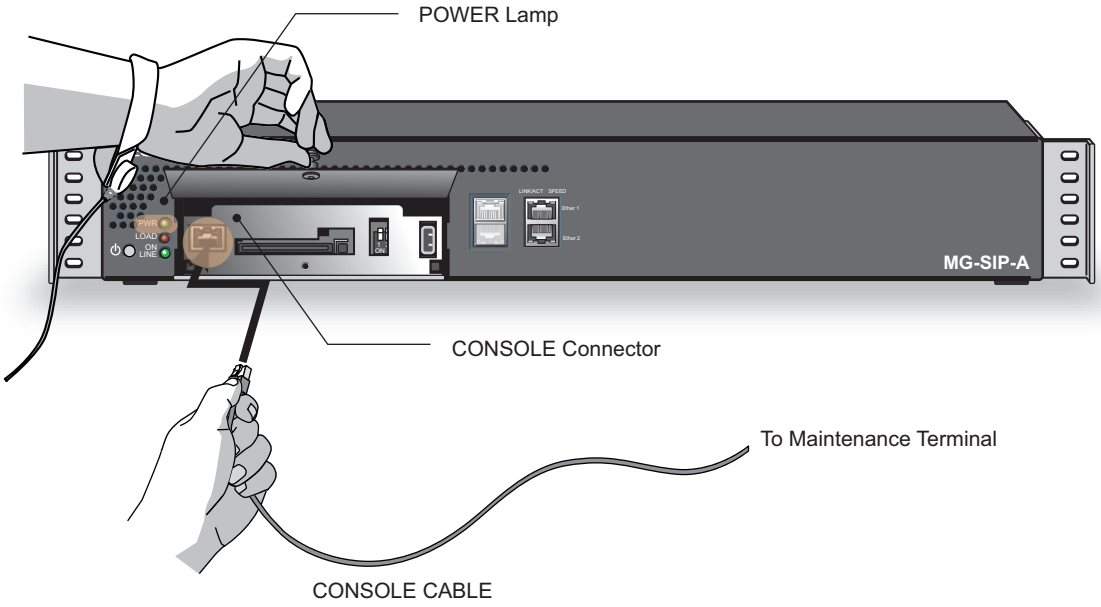
STEP 3: Turning on MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

Make sure of cable connection between the maintenance terminal (PC) and the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] via CONSOLE CABLE before turning on PWR switch. Make sure that PWR lamp on the front panel of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] turns green.

Rear Panel



Front Panel



After MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] is activated, the maintenance terminal (PC) displays "`mgsip login:`" on the screen.

```
mgsip login:
```

Note: If an MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] is connected with a maintenance terminal (PC) after activated, "`mgsip login:`" does not appear. Press Enter key to display "`mgsip login:`."

Now the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] is activated.

STEP 4: Setting configuration data on MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

(1) On the activated MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] with "`mgsip login:`" displayed, type "config" as the login name, and press Enter key.

```
mgsip login:
```

(2) Prompt "MG(SIP)>" appears: you are in data setting mode.

```
mgsip login:config
MG(SIP)>
```

(3) Use configuration commands to set data: Follow the steps described in the next section.

3.2 Setting of Basic Assignment

The following explains procedures for setting of basic assignment of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

Assign each configuration data of MG-SIP to default setting.

```
MG(SIP)> set default
 Are you sure? Y/N=y


 Config data default set.
```

Be sure to select “y”.

Assign the configuration data. For details of each parameter, refer to “MG-SIP config_template Data”

```
MG(SIP)> set config_template

Imput template pattern. (0-255):2

Are you sure? Y/N=y

Selected template is set.
```

Enter the template pattern number 2. **Note 1**

Be sure to select “y”.

Completing the setting of Basic Assignment.

Note: To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

Note 1: When other than 0-6 is entered for the template pattern number, “Not used” is displayed.

3.3 Setting of IP Address

The following explains procedures for setting the number of ports that MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] uses, and IP addresses and subnet masks for each port of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

Note: Set the routing information if required.

Each port of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] is used as follows:

- Ether1 LAN: Telephony Server side
- Ether2 WAN: SIP network side

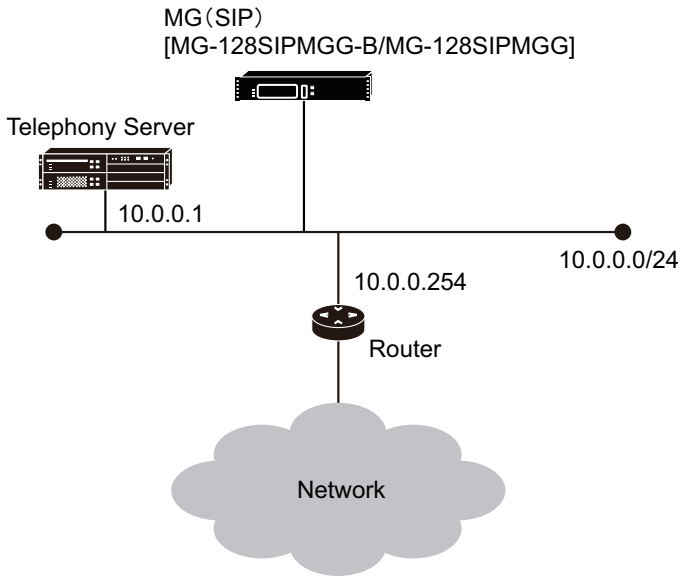
<One-port only>

When the IP addresses of both LAN and WAN are assigned in the same segment, use Ether1 port only. Select "Y" for "Do you use one-port only?" and assign Ether1's IP address only. In this case, Ether2 cannot be used.

Note: Please notice the following:

- If Ether2 data is already assigned, the message "Ether [2] Port data is erased. Are you sure? Y/N" is displayed. To erase the Ether2 data, select "Y".
- If you select one port in the number of port setting, be careful not to use the same RTP port number when setting the non-default SIP network RTP base port number (by "set sip_rtp_port_no" command) or IPX network RTP base port number (by "set ipx_rtp_port_no" command).

Configuration when using one port is as follows:



<Ethernet Port Redundancy function > **Note 1**

Ether1 and Ether2 can be used together as one virtual Ether (Bond [0]) if one-port only is selected and the Ethernet Port Redundancy function is enabled. With this function, if there is a link down (**Note 2**) for Ether1 (or Ether2), Ether2 (or Ether1) is used (**Note 3**).

Note 1: This function is available from the firmware version SP-4058 MGSIP PROG-J issue 3.

Note 2: Only if the link down state continues for more than 100 milliseconds.

Note 3: Please notice the following:

- When there is a changeover of the port in use, MG (SIP) is not restarted. However, ongoing voice communication will be interrupted by a silent gap of less than one second.
- Even if there is a link up for Ether1 while Ether2 is an active port, Ether2 continues being an active port. In this case, only when there is a link down for Ether2, Ether1 takes the place of it.
- Connect a cable both to Ether1 and Ether2 when Ethernet Redundancy function is enabled.

[Display example]

When Ether1 and Ether2 are used:

```
MG(SIP)> set ipaddress
Do you use one-port only? Y/N= n
Ether[1]
  Input IP Address.(default=0.0.0.0)
            : 172.16.0.1
  Input Subnet mask.(default=0.0.0.0)
            : 255.255.255.0
Ether[2]
  Input IP Address.(default=0.0.0.0)
            : 172.16.1.2
  Input Subnet mask.(default=0.0.0.0)
            : 255.255.255.0
```

Note 4

Enter “n” when two ports are used.

Ether [1]: LAN

Assign the IP address (Default: 0.0.0.0) for Ether [1].

Assign the subnet mask (Default: 0.0.0.0) for Ether [1].

Ether [2]: SIP network

Assign the IP address (Default: 0.0.0.0) for Ether [2].

Assign the subnet mask (Default: 0.0.0.0) for Ether [2].

When only Ether1 is used and Ethernet Redundancy function is enabled.

```
MG(SIP)> set ipaddress
Do you use one-port only? Y/N=y
Ether[1]
  Input IP Address. (default=0.0.0.0)
            : 172. 16. 0. 1
```

Note 4

Assign Ether1 data.

Assign the IP address (Default: 0.0.0.0) for Ether [1].

```
  Input Subnet mask. (default=0.0.0.0)
             : 255. 255. 255. 0

Ether[2] port data is erased.
Are you sure? Y/N = y

Select the setting of Ethernet Port Redundancy
function.
  0 = disable (default)
  1 = enable
Input : 1
```

Assign the subnet mask (Default: 0.0.0.0) for Ether [1].

Note 5

Enable Ethernet Port Redundancy. **Note 1**
0: disable (default)
1: enable

Note 4: Please note the following

- Pressing the Enter key can skip the item.
- To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

Note 5: When one-port only is selected, do not assign Ether[2] data.

3.4 Setting of the Telephony Server Information

Assign the IP address and port number of the Telephony Server. Set the Primary DRS only, and skip for Secondary and later DRS by pressing Enter key.

[Display example]

```
MG(SIP) > set drsaddress
[Primary DRS Setting]
Input IP address.(default=0.0.0.0)
          :172.16.253.1
Input Port Number.(1024-65535(default=3456)
          :3456
[Secondary DRS Setting]
Input IP address.(default=0.0.0.0)
          :0.0.0.0
Input Port Number.(1024-65535(default=3456)
          :3456

[Tertiary DRS Setting]
Input IP address. (default=0.0.0.0)
          :0.0.0.0
Input Port Number. (1024-65535(default=3456)
          :3456

[Quaternary DRS Setting]
Input IP address. (default=0.0.0.0)
          :0.0.0.0
Input Port Number. (1024-65535(default=3456)
          :3456
```

Configures Primary DRS.

Assign the IP address of the Telephony Server (Default: 0.0.0.0).

Assign the UDP port number of the Telephony Server (Default: 3456).

Do not assign.

Do not assign.

Do not assign.

Note: To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

3.5 Setting of SIP Server Data

Set the IP address or FQDN, and port number, type, and SIP domain of a SIP proxy server. (FQDN=Fully Qualified Domain Name)

Set SIP proxy server data by using “set sip_server” command. This data can be assigned by using IP address or Fully Qualified Domain Name (FQDN).

The following figure shows an example of display.

When IP address (=0) is selected:

```
MG(SIP) > set sip_server
Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:0
Input SIP server IP Address.(default=0.0.0.0)
                          :192.168.100.100
Input SIP server Port Number.
(1024-65535(default=5060)):5060
Select SIP server Router type.

 0=Strict(default)
 1=Loose
Input:0
Select the setting of rport(RFC3581)
function.
 0=disable (default)
 1=enable
Input: 1
Input Domain Name.(default=0,
MAX128(strings))
```

Select IP address (Default=0).

Assign the IP address of the proxy server (Default: 0.0.0.0).

Assign the port number of the proxy server (Default: 5060)

Select a Strict router or Loose router for the proxy server (Default: 0).

0: Strict router
1: Loose router

Select “0”.

Enable/disable the rport (RFC3581) function.
(Default: 0)

Input a string that specifies the service provider in maximum of 128 characters.

When FQDN (=1) is selected:

```
MG(SIP) > set sip_server
Select SIP server type.
 0=IPAddress(default)
 1=FQDN
```

```
Input:1

Input Fully Qualified Domain Name.(default=0,
MAX63(strings))

                    :

Input SIP server Port Number.
(1024-65535 (default=5060)):5060

Select SIP server Router type.

 0=Strict(default)
 1=Loose

Input:0

Input Domain Name.(default=0,
MAX128(strings))
```

Select FQDN (=1).

Assign the FQDN of the proxy server in maximum of 63 characters (Default: 0).

Assign the port number of the proxy server (Default: 5060)

Select a Strict router or Loose router for the proxy server (Default: 0).

0: Strict router
1: Loose router

Select "0".

Input a string that specifies the service provider in maximum of 128 characters.

Note:

- Pressing the Enter key can skip the item. Make sure to input data for "SIP server type" and "IPAddress/FQDN"; these cannot be skipped.
- To make this assignment effective, it is required to execute the "REBOOT" command to save the configuration and restart the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].
- If you have set a character string to specify the service provider, the character string is used as the SIP domain name.
- Be sure not to enter a blank character to the end of the FQDN (with the Copy and Paste features of your personal computer), and be careful not to mistype a character. ("0"(zero) or "O" (alphabetical O), for example.)

3.6 Setting of Pilot Number for MG-SIP128

Assign a pilot number of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG], which is used to register to the SIP server.

[Display example]

```
MG(SIP)> set keynumber

Input Keynumber.(default=0, MAX32(strings))
               :0
```

Assign the pilot number used by MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] to register. (Default: 0).

Note:

- Pressing the Enter key can skip the item.
- To make this assignment effective, it is required to execute the "REBOOT" command to save the configuration and restart the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

3.7 Rebooting of MG-SIP128

Reboot the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] by using “reboot” command. The assigned configuration data can also be saved onto the Flash memory by using this command.

```
MG(SIP)> reboot
 Do you want to save Config data? Y/N=y




 Do you want to reboot MG(SIP)? Y/N=y




Config data File write start.
Config data File write end.
 MG(SIP)reboot start...
```

Select if you want to save the configuration data.
y: save the configuration data.**Note 1**
n: do not save the configuration data.
If other than the above is selected, the following message is displayed.
“Reboot” command was interrupted.

Select if you want to reboot MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].
y: reboot MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].
n: do not reboot MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].
If other than the above is selected, the following message is displayed.
“Reboot” command was interrupted.

Note 1: Before selecting “Y” to save the running configuration data to the Flash memory, be sure to execute the following commands:

- set ipaddress (Assign the IP addresses for LAN network side and SIP network side)
- set drsaddress (Assign the IP address of the Telephony Server)
- set sip_server (Assign the IP address of the SIP proxy server)
- set keynumber (Assign a pilot number.)

If any of these items have not been assigned when saving the running configuration data, the following message will be displayed to the unassigned item. When these messages are displayed, you can select if you want to set the default configuration data or not. If you select “Y” here, the default values are applied to the configuration data.

```
The following setting commands are not
perfect.
“set ipaddress” command.(IPX side)

“set ipaddress” command.(SIP side)
```

The following is displayed:

if IP address for the system side has not been assigned

if IP address for SIP network side has not been assigned

```
"set drsaddress" command.
"set sip_server" command.

"set keynumber" command.
So, Config data is made a default setup.
Is it all right? Y/N=y
```

if IP address of DRS has not been assigned

if IP address of SIP proxy server has not been assigned

if a pilot number has not been assigned

Select if you want to apply the default values to the configuration data.
y: apply the default values
n: do not apply the default values
If other than the above is selected, the following message is displayed.
"Reboot" command was interrupted.

After the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] is rebooted, the following message appears on the Maintenance Console.

```
mgsip login:
```

STEP 1: Connecting MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] to LAN and WAN

- Connect MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] to LAN and WAN.

  Connect a cable to "LAN" connector (LAN side: Ether1 WAN side: Ether2) that is located on the front panel of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

Note: Before connecting MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] to the network you actually use, make sure of the following by using commands such as "ping".
- Is the IP address set to MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] already used in the network to be connected?
- Is the newly set IP address correct?

When you have finished, the following message appears on the Maintenance Console.

```
****************************************
*         MG(SIP) ONLINE START         *
****************************************
```

Note: Both LAN1 and LAN2 must be connected to make MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] online. (For a one-port configuration, only LAN1 connection makes MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] online.)

STEP 2: Checking the lamp status of LINK and SPEED at Ether1 and Ether2 of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

If the connection is established, the following LINK lamps of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] will light green in a few minutes.

Note: For a one-port configuration, LINK lamp at Ether 2 connector does not light.

- Ether1 connector on LAN side: LINK lamp
- Ether2 connector on WAN side: LINK lamp

[SPEED lamp is lighting in orange]

- The MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects to a network with transmitting speed of 1 Gbps.

[SPEED lamp is lighting in green]

- The MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects to a network with transmitting speed of 100 Mbps.

  If you expected transmitting speed of 1 Gbps, check a connected network device and a cable between them.

[SPEED lamp is not lighting]

- The MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects to a network with transmitting speed of 10 Mbps.

  If you expected transmitting speed of 1 Gbps or 100 Mbps, check a connected network device and a cable between them.

STEP 3: Checking the lighting of ONLINE lamp.

If the settings are correct, ONLINE lamp of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] lights in green.

3.8 Operation Check

Make sure the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] is in normal operation by the following procedure.

STEP 1: When the configuration settings are completed, reboot the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] by using “reboot” command.

STEP 2: Make sure the following message appears on the Maintenance Console after rebooting.

```
****************************************
*         MG(SIP) ONLINE START         *
****************************************
```

STEP 3: Make sure the registration status of the Telephony Server network and SIP network by using “show status” command in the configuration mode. If “Registration is OK.” message appears, MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] is in operating state.

```
MG(SIP) > show status
```

```
 0:Port status
 1:IPX status
 2:SIP status
 3.CH status
 9:Exit
Please choose reference number:1
MG(SIP) > IPX Registration Information


Registration is OK.(DRS IP address
172.16.253.1)
```

Port status (Default)

Telephony Server network registration status

SIP network registration status

Information on channels in use

Exit

Select a desired status you want to check.

The registration information of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] is displayed.

Note: For the detailed information, refer to “status” of “show” commands of “Configuration Commands” in “Operations and Maintenance”.

Note: When using PCPro, make sure of the registration status of MG-SIP128 [MG-128SIP-MGG-B/MG-128SIPMGG] by using “DIMG” command.

* If “MG (SIP) OFFLINE START” is displayed on Maintenance Console, make sure of the following.

- Is the LAN cable securely inserted to Ether 2 (SIP network side)?
- Is the LINK lamp on the SIP network side lighting?
- Are the settings for the SIP server correct?

If no message appears within 3 minutes, it is estimated that no communication has been established between the Telephony Server and the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]. Check the LAN cable connecting LAN-Telephony Server and the IP address of DRS.

4 Operation and Maintenance

This section explains MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]: operation and maintenance.

4.1 FAN Replacement



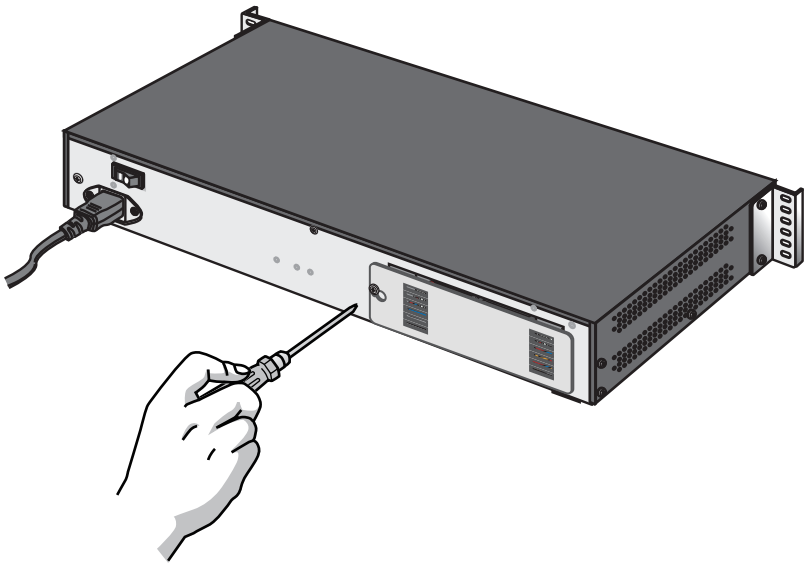
This section describes the procedure to replace FANs inside an MG-SIP128 [MG-128SIP-MGG-B/MG-128SIPMGG].

Note: A failure of a cooling FAN raises the temperature inside of an MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG], which greatly influences the system. Please replace a cooling FAN every five years to avoid it, even though the cooling FAN still works normally.

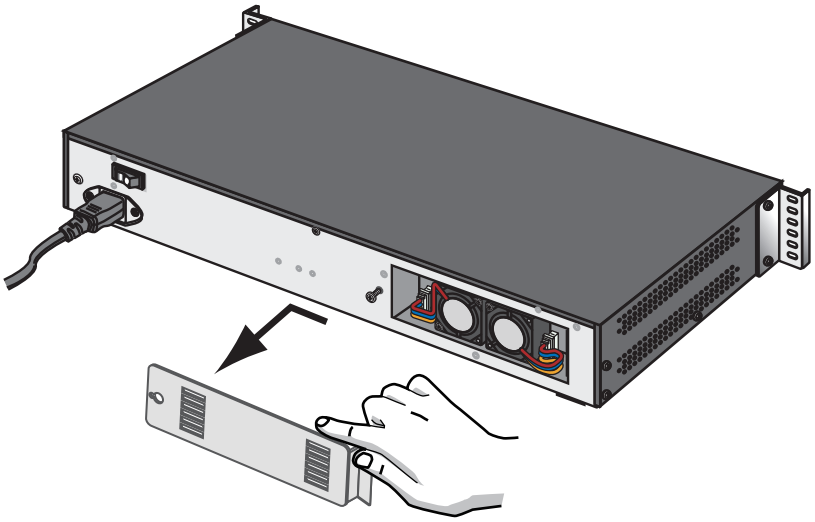
[Replacement Procedure]

Note: You can replace cooling FANs while the MG-SIP128 [MG-128SIPMGG-B/MG-128SIP-MGG] remains on.

STEP 1: Use a Phillips driver to loosen a screw at the left side of the FAN cover on the rear panel of an MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

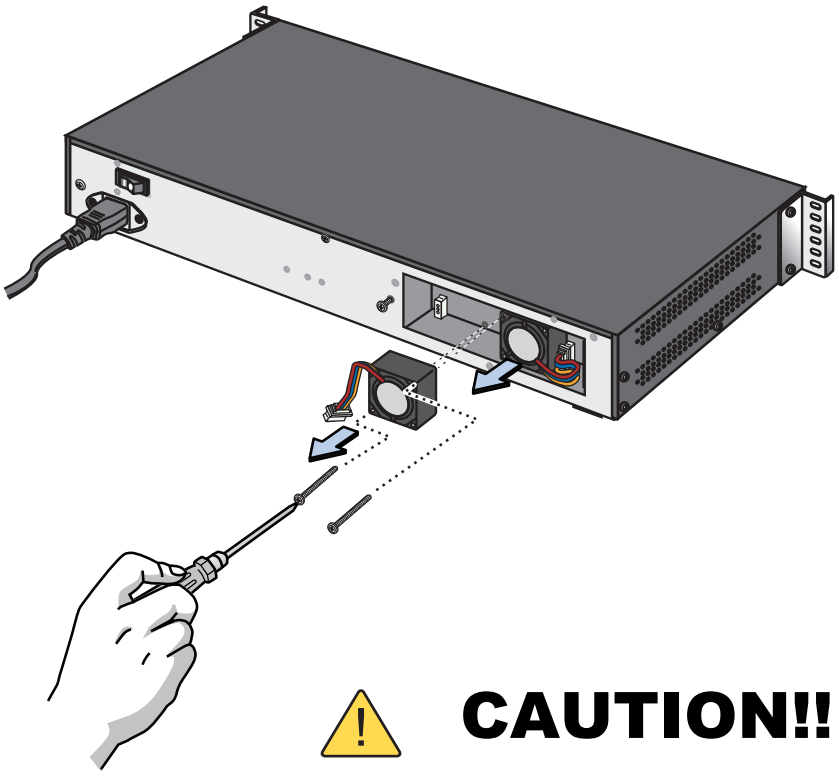


STEP 2: Slide the FAN cover to the left to remove.



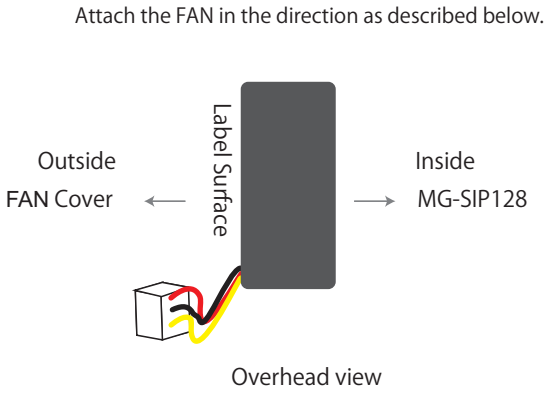
STEP 3: Remove the FAN connector; the screw; the FAN.

Note: If you are replacing FANs while the MG-SIP128 [MG-128SIPMGG-B/MG-128SIP-MGG] remains on, removing both FANs may generate heat inside, resulting in system failure. Be sure to replace one by one, but not at the same time.



STEP 4: Attach new FANs: perform the opposite procedure of removing.

Note: When attaching, pay attention to the direction of a FAN. The label on a FAN must face toward the outside of an MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]. (See the following figure.)



[Test After Attaching]

Check if the replaced FANs work properly.

- If either of FANs does not work properly, check the cabling.

5 Configuration Commands

5.1 How to Use the Configuration Command

Configuration commands are used to change the default settings. Change the settings only where it is necessary.

Start a communication software such as HyperTerminal (**Note 1**) of Maintenance Console (PC), and turn on MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]. The boot program starts and the configuration command login screen appears.

```
mgsip login:
```

In the above screen, enter “config” after the prompt to login, and press the Enter key. It moves to the configuration mode.

```
mgsip login: config
MG(SIP)>
```

Note 1: Below are the communication conditions.

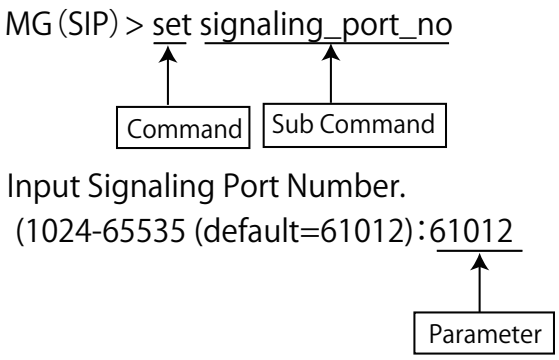
Speed	: 9600bps
Data Length	: 8 Bits
Parity Bit	: None
Stop Bit	: 1
Flow Control	: None

Note: Note the following conditions:

- If you input “exit” after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

Commands

A command interface prompt is displayed on a screen waiting for a user input. When a user inputs a character string, the system analyzes the input data, and displays a reply message. Inputting commands and sub commands are necessary, but whether inputting a parameter is necessary or not depends on commands. (Some commands do not have any parameters.) The following figure shows an example of inputting a command, a sub command, and a parameter.



Commands other than "ping" cannot be set within a single line; use interactive mode to input values. The following figure shows an example of data setting using the interactive mode.

[Example of Interactive Mode where Parameter Input is Omitted]

```
MG(SIP)> set drs_qos
Input type:(1=IP Precedence/2=DiffServ/
3=ToS):1
Input following parameters.
Precedence (default=5, 0-7):5

Delay (default=0, 0/1):0



Throughput (default=0, 0/1):0



Reliability (default=0, 0/1):0


Cost (default=0, 0/1):0


```

When "IP PRECEDENCE (=1)" is selected:

Specify the precedence in an IP network (Default: 5). 0-7 (Low - High)

Specify the low delay priority in an IP network.
0: Not specified (Default)
1: Specified

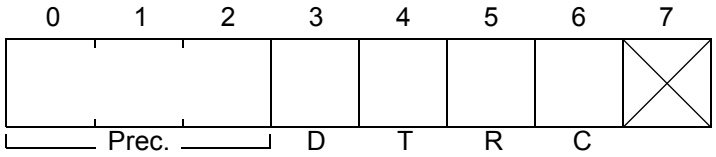
Specify the throughput priority in an IP network.
0: Not specified (Default)
1: Specified

Specify the reliability in an IP network.
0: Not specified (Default)
1: Specified

Specify the low cost priority in an IP network.
0: Not specified (Default)
1: Specified

* The example of the screen below the above example is omitted here.

Note: IP Precedence - ToS field is allocated as shown below.



Prec.=Precedence (3bits)
D=Delay (1bit)
T=Throughput (1bit)
R=Reliability (1bit)
C=Cost (1bit)

5.2 List of Maintenance Console Commands

Note: DRS (Device Registration Server) used in this section refers to a control function of the Telephony Server. Set the IP address of the Telephony Server (TP).

R: Required
C: Not required, but configurable

set: Commands to Set Configuration Data

* If you go out of the configuration mode by using "logout" command without saving the setting information using "reboot" command, the changed settings are discarded. To save the settings, execute "reboot" command, and exit the configuration mode.
* When you input a command, the current setting is displayed. If you change the setting, the changed data is displayed. For "ipx_route" and "sip_route" commands, the changed settings and "Are you sure?" message are displayed.
* Pressing the Enter key can skip each item.

	SUB COMMAND	MUST?	FUNCTION
1	183rbt	C	Assigns whether to enable/disable local RBT when 183 message without SDP is received.
2	184toprivacy	C	Assigns whether to display/block the Caller ID to SIP network when dialing 184/186.
3	another_keynumber	C	Assigns additional three pilot numbers other than the one registered by "set keynumber" command.
4	auth	C	Assigns Digest authentication information.
5	auth_header	C	Assigns whether to enable/disable the cache function of authentication header.
6	call_hold	C	Assigns whether to enable/disable MG Based Call Retention.
7	call_id_relay	C	Assign Call-ID notification function.
8	cause_table	C	Assigns the error translation table.
9	cc_convert	C	Assigns calling party's country code display conversion feature.
10	cdn_pattern	C	Assigns called number pattern.
11	check_number	C	Assigns limit to the number of digits for calling/called party number.
12	codec_change	C	Assigns Codec Change function and G.711 Fax renegotiation.
13	config_template	C	Assigns the batch settings of Multipoint feature.
14	country_code	C	Assigns a country code.
15	cpn_pattern	C	Assigns how to obtain cpn (calling party number)
16	default	C	Specifies default settings of the configuration.
17	dnsaddress	C	Assigns the DNS IP address.
18	dns_option	C	Assigns the Optional Data for DNS server.
19	domain	C	Specifies the DNS domain name.
20	drsaddress	R	Assigns the IP address and the port number of DRS server.

	SUB COMMAND	MUST?	FUNCTION
21	drs_qos	C	Specifies the DRS ToS.
22	dtmf_mode	C	Assigns a type of DTMF relay mode on the SIP network.
23	h245_base_port_no	C	Assigns the base port number for H.245 TCP server.
24	hc_alarm	C	Specifies the alarm transmission destination.
25	hc_timer	C	Assigns the Health Check timer value.
26	interface	C	Assigns the operation speed and operation mode of an interface.
27	ipaddress	R	Assigns the IP address and the subnet mask to the port.
28	ip_version	C	Assigns the SIP side IP version.
29	ipx_route	C	Assigns the route information in the Telephony Server network.
30	ipx_rtp_port_no	C	Assigns the RTP base port number for the Telephony Server network.
31	keynumber	R	Assigns the pilot number of MG-SIP128 [MG-128SIPMGG-B/MG-128SIP-MGG].
32	multi_regist	C	Assigns the registration function per number.
33	multisession	C	Assigns Multi-path Switch. **Note 1**
34	musictype	C	Assigns the type of music to be sent from MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].
35	name_display	C	Enable/disable Name Display service.
36	no_media_code	C	Assigns the SIP Error Response code.
37	out_of_area_code	C	Assigns the out-of-area error response.
38	ppi_to_pai	C	Assigns the PAID transmission function.
39	prack	C	Assigns Provisional Response Acknowledgment (PRACK) information (RFC3262).
40	pre_negotia-tion_port_no	C	Assigns the UDP port receiving packets for voice control path.
41	privacy_pattern	C	Assigns the privacy pattern.
42	registration_port_no	C	Assigns the UDP port number that receives DRS packets.
43	reg_interval	C	Assigns the waiting time to retry after registration failure.
44	response_table	C	Assigns response table selection.
45	rtp_pathon	C	Assigns Path-on function by 183 Progress after receiving 180 Ringing.
46	rtp_qos	C	Specifies the RTP (on SIP network) ToS value.
47	sdp_style	C	Assigns the SDP receive setting for multiple “m” lines.
48	self_sip_domain	C	Assigns SIP domain name for MG-SIP128 [MG-128SIPMGG-B/MG-128SIP-MGG].
49	session_timer	C	Assigns session timer function.
50	signaling_port_no	C	Assigns the UDP port number that receives control signal packets.
51	sip_accfilter	C	Assigns SIP Access Filter and SIP Access Filter mask.
52	sip_port_no	C	Specifies the port number that receives SIP messages.

	SUB COMMAND	MUST?	FUNCTION
53	sip_qos	C	Specifies the TOS value for SIP signaling.
54	sip_register	C	Assigns the information of the SIP registrar.
55	sip_route	C	Assigns the route information of SIP network.
56	sip_rtp_port_no	C	Specifies the RTP base port number of SIP network.
57	sip_server	R	Assigns SIP server information.
58	sip_tel_service	C	Assigns the setting of additional services.
59	sip_transport	C	Specifies a SIP transport protocol.
60	slipresp	C	Assigns error response codes used when bypassing a SIP server.
61	softdsp **Note 2**	C **Note 3**	Provides access to the A-law/μ-law conversion feature (**Note 4**) and PAD value.
62	update	C	Assigns the setting of update method.

Note 1: Required to set Silent Monitor (Multi-Path Monitor) Connection in the ACD system.

Note 2: Available for the following firmware versions:
- SP-4051 MGSIP PROG-G Issue 2 or later
- SP-4058 MGSIP PROG-J

Note 3: This command cannot be used in combination with the **`codec_change`** command.

Note 4: The A-law/μ-law conversion feature cannot be used in combination with "3PCC function" of the **`sip_tel_service`** command.

show: Commands to Display the Contents of Configuration Data

	SUB COMMAND	MUST?	FUNCTION
1	arp	-	Displays the ARP table.
2	config	-	Displays the configuration data.
3	interface	-	Displays the link and setting state of Ether connection
4	version	-	Displays the firmware version installed in MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].
5	route	-	Displays the Route table.
6	status	-	Displays status of the port and the registration.

download Command: Command to Download

	SUB COMMAND	MUST?	FUNCTION
1	-	-	Downloads data from the specified IP address.

exit or logout: Command to Exit the Configuration Mode

	SUB COMMAND	MUST?	FUNCTION
1	-	-	Exits the configuration mode.

reboot: Command to Reboot MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

	SUB COMMAND	MUST?	FUNCTION
1	-	-	Restarts MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] and saves the settings.

ping: Command to Use the “ping” for IPv4 address

	SUB COMMAND	MUST?	FUNCTION
1	parameter (enter the ping destination IPv4 address)	-	“ping” command for IPv4 address

ping6: Command to Use the “ping” for IPv6 address

	SUB COMMAND	MUST?	FUNCTION
1	parameter (enter the ping destination IPv6 address)	-	“ping” command for IPv6 address

traceroute: Command to Use the “traceroute”

	SUB COMMAND	MUST?	FUNCTION
1	-	-	“traceroute” command

help or ?: Command to Use the Command Help

	SUB COMMAND	MUST?	FUNCTION
1	-	-	“help” command

5.2.1 set Command

(1) 183rbt

Setting of local RBT connection select function when receiving 183 message (w/o SDP)

This command is used to enable/disable the connection of local RBT when 183 message without SDP is received.

[Setting Example]

```
MG(SIP) > set 183rbt

Select mode of RBT Addition when MG(SIP)
receives 183 without SDP.
 0=enable(default)
 1=disable
Input:0
```

Enter 0 or 1 (Default=0).
0: Enable
1: Disable

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.
- Normally this command is not required to be changed.

(2) 184toprivacy

Setting of switching Caller ID display/blocking to SIP network function when dialing 184/186

Note: This command is available for Japan only.

This command is used to set the function to delete 184/186 by MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] when dialing 184/186. When this setting is enabled, if a user adds 184/186 at the beginning of the dialing numbers, MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] deletes the 184 (non-Caller ID) or 186 (Caller ID) from the dialed numbers, and transmits the message to SIP network.

[Setting Example]

```
MG(SIP) > set 184toprivacy

Select privacy function of 184.
 0=disable(default)
 1=Pattern 1
 2=Pattern 2
Input:0
```

0: Switching is disabled (default)
1: Switching is enabled. (Pattern 1)
2: Switching is enabled. (Pattern 2)

When Pattern 1 is set: Performs forced non-Caller ID for 184, forced Caller ID for 186. (The first three digits of the dialed numbers (184/186) are to be deleted.)

When Pattern 2 is set: Performs forced non-Caller ID for 184, forced Caller ID for 186. (The first three digits of the dialed numbers (184/186) are not to be deleted.)

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.

(3) another_keynumber

Setting of additional pilot numbers

Assigns additional three pilot numbers to the SIP server other than the one registered by "set keynumber" command.

[Setting Example]

```
MG(SIP) > set another_keynumber
Input Another Keynumber 1.(default=0,
MAX32(strings))
                          :1000
Input Another Keynumber 2.(default=0,
MAX32(strings))
                          :2000
Input Another Keynumber 3.(default=0,
MAX32(strings))
                          :05011112222
```

Numbers to be newly added (default: 0)

Note: The conditions of this command are as follows.

- Unique number to be assigned for each of Another keynumber 1/2/3. Assign value=0 (default) for parameter when nothing is to be assigned.
- When you add a pilot number with this command, do not select "Pattern 2" for "set cc_convert".
- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.
- Normally this command is not required to be changed.

(4) auth

Setting of Digest authentication information

Assigns User ID/password for HTTP-Digest authentication.

[Setting Example]

```
MG(SIP) > set auth
Input User ID.(default=0, MAX32(strings))
            :0
Input Password.(default=0, MAX32(strings))
            :0
```

User ID (Max. 32bytes, Default: 0)

Password (Max. 32bytes, Default: 0)

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.

(5) auth_header

Setting to enable/disable cache function of authentication header

The command is used to assign whether to add cache information to authentication header of request message in updating ACK and REGISTER for re-INVITE/200 OK.

[Setting Example]

```
MG(SIP) > set auth_header

Select Authorization Header Cache function.
 0=enable(default)
 1=disable
Input:0
```

0: Cached authentication information is added (default)
1: Cached authentication information is not added.

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.

(6) call_hold

Setting MG Based Call Retention

The command is used to specify whether to enable MG Based Call Retention.

[Setting Example]

```
MG(SIP) > set call_hold

Select the setting of Call Hold function.
 0=disable(default)
 1=enable
Input:1

Input RTP detect timer value.(sec)
(3-32 (default=3)):3

Input SIP Error Response code to reject new
session.
(400-606 (default=488)):488
```

0: MG Based Call Retention is disabled. (Default)
1: MG Based Call Retention is enabled.

RTP detect timer (seconds)
Range: 3-32 seconds (Default: 3 seconds)

Set the error response code to reject a session by a new call while the MG based call retention is in progress.
(400 to 606, Default: 488) **Note 1**

Note 1: When an Initial-INVITE is received from the SIP network side while a call is retained, an error response 488 (Not Acceptable Here) is sent in the default setting.

(7) call_id_relay

Setting to enable/disable Call-ID Header information of SIP notification function

The command is used to specify whether to send Call-ID Header information of SIP to SV9500.

[Setting Example]

```
MG(SIP) > set call_id_relay

Select function of Call-ID relay mode.
 0=disable(default)
 1=enable
Input:0
```

0: Call-ID is not sent (default).
1: Call-ID is sent to SV9500.

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.

(8) cause_table

Setting of error translation table select function

The command is used to select the translation table of error cause to be sent to LAN received from SIP network as error response.

[Setting Example]

```
MG(SIP) > set cause_table


 Select Cause table(SIP Error Response to
 Error Cause).

  0=normal(default)
  1=alternate routing
  2=customized pattern1
  3=Route Advance

 Input:3
```

Select the error translation table.
0 = Normal table (Default)
1 = Alternate routing table
2 = This setting is prohibited.
3 = Route Advance

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.
- Normally this command is not required to be changed if there are 255 SIP Trunks or less.

(9) cc_convert

Setting of calling party's country code display conversion feature.

The command is used to enable/disable the calling party's country code display conversion feature. This feature has two patterns (Pattern 1/Pattern 2) as described below:

- Pattern 1

When you select Pattern 1, conversion will take place as in the following table.(The example uses Japanese Country Code.)

Direction of Call termination/ origination	Intended Number	Conversion Feature
Call termination via SIP	Calling party	Convert to “0” if first numbers are “81” or “+81”
Call termination via SIP	Calling party	Add “0” to first number if number is 8 or more digits
Call origination via MG-SIP128	Calling party	Convert to “0” if first number is “81”

- Pattern 2

Do not select "Pattern 2" for MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

[Setting Example]

```
MG(SIP) > set cc_convert

Select Country Code Convert function.
 0=disable(default)
 1=Pattern 1
 2=Pattern 2
Input: 0
```

0: Disable (default)
1: Pattern 1
2: Pattern 2 (not used)

Display for the firmware version earlier than SP-4058 MGSIP PROG-J Issue 2 is as follows:

```
MG(SIP) > set cc_convert

Select Country Code Convert function.
 0=disable(default)
 1=enable
Input: 0
```

0: Disable (default)
1: Enable

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.

(10) cdn_pattern

Setting of a way of obtaining information for cdn (called number)

The command is used to assign the way of obtaining information for called number from SIP network.

- When this command is enabled, called number is obtained according to the priority order shown in the table below:

Selected Parameter		Order of priority				
		1	2	3	4	5
0	To	P-N-Dest-Discern	To (userinfo)	Request-URI (userinfo)	-	-
1	Request-URI (isub)	P-N-Dest-Discern	Request-URI (isub)	Request-URI (userinfo)	To (userinfo)	-
2	Request-URI	P-N-Dest-Discern	Request-URI (userinfo)	To (userinfo)	-	-
3	P-Called-Party-ID	P-Called-Party-ID (userinfo)	To (userinfo)	Request-URI (userinfo)	P-N-Dest-Discern	-
4	P-Called-Party-ID (isub)	P-Called-Party-ID (isub)	P-Called-Party-ID (userinfo)	To (userinfo)	Request-URI (userinfo)	P-N-Dest-Discern

[Setting Example]

```
MG(SIP) > set cdn_pattern

Select Called Party Number to which you give
priority.
  0=To[userinfo](default)
  1=Request-URI[isub]
  2=Request-URI[userinfo]
  3=P-Called-Party-ID[userinfo]
  4=P-Called-Party-ID[isub]
Input:0
```

0: userinfo part of the To header is given priority (Default)
1: isub of Request-URI is given priority
2: userinfo part of Request-URI is given priority
3: userinfo part of P-Called-Party-ID is given priority
4: isub of P-Called-Party-ID is given priority

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.

(11) check_number

Setting a limit to the letters and numerals that can be used for calling/called party number

This command is used to assign a function that permits only numerals for calling/called party number sent via the Telephony Server network.

[Setting Example]

```
MG(SIP) > set check_number

Select the setting of function to delete
[#] in telephone-number.
 0=disable(default)
 1=enable
Input:0
```

0: Disable (default)
1: Limit to numerals only

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.

(12) codec_change

Setting of Codec Change function and G.711 Fax renegotiation

This command is used to enable Codec Change function and G.711 Fax renegotiation.
Codec Change function enables a call to be retained when a forwarding call is placed to a destination located in the SIP network and the payload type is different between an intermediate station and the destination.
G.711 Fax renegotiation enables a called party to receive a facsimile with Fax Pass Through when communication is changed over to a FAX communication while a call is in progress with G.729a.

[Setting Example]

```
MG(SIP) > set codec_change

Select the setting of Codec Change
function.
 0=disable (default)
 1=enable
Input: 1

Select the setting of G711 Fax
renegotiation.
 0=disable (default)
 1=enable
Input: 1
```

Enable/disable the Codec Change function.
0 = Disable (default)
1 = Enable

Enable/disable the G711 Fax renegotiation.
0 = Disable (default)
1 = Enable

Note: The conditions of this command are as follows.

- In the Telephony Server side, a system data setting (ASYDL, SYS1, Index 1144, Bit 6=1 (Codec Change function is in service) is required to enable this function.

- In the Telephony Server side, payload type and payload size need to be assigned by AIVCL/AIVCN, AMGVL/AMGVN, and ARTI/ARTIN commands.
- Also specify G.711 (fixed) as FXPT (Payload Type for IP FAX) and specify the payload size equal to that of voice data as FXPS (Payload Size for IP FAX). Then assign the FXPT and FXPS data to AIVCL/AIVCN and AMGVL/AMGVN commands.
- Payload size cannot be converted in MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]. When an RTP packet whose payload size is 20 ms is received from the Telephony Server network, the packet is transferred to the SIP network without converting the payload size. Same behavior applies to the RTP packet received from the SIP network.
- To use the following methods, enable commands shown below.
  - [ReINVITE] method: enable “set sip_tel_service” command
  - [UPDATE] method: enable “set sip_tel_service” and “set update” commands

(13) config_template

Batch Setting of MG-SIP [MG-128SIPMGG-B/MG-128SIPMGG]

This command is used to assign the batch setting of MG-SIP [MG-128SIPMGG-B/MG-128SIPMGG]. For details of each parameter, refer to “MG-SIP config_template Data”.

[Setting Example]

```
MG(SIP) > set config_template
Input template pattern. (0-255)  : 2
```

Enter the template pattern number.

(14) country_code

Setting of a country code

This command is used to set a country code on MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

[Setting Example]

```
MG(SIP) > set country_code
```

```
Input Country Code.
  (0-255 (default=0)):0(AUTO)
```

Set a country code.

0 = AUTO (Follow the Telephony Server setting)
1 = JP (Japan)
2 = US (North America)
3 = AU (Australia)
4 = OTHER (Other countries)
5 = HK (Hong Kong)
6 = MY (Malaysia)
7 = SG (Singapore)
8 = GB (England)
9 = MX (Mexico)
10 = TW (Taiwan)
11 = NZ (New Zealand)
12 = KR (Korea)
13 = BR (Brazil)
14 = CN (China)
15 = TH (Thailand)
16 = TH [EGAT] (Thailand (EGAT))
17 = LK (Sri Lanka)
200 = DE (Germany)
201 = IT (Italy)
202 = NL (Netherlands)
204 = DK (Denmark)
205 = SE (Sweden)

211 = ES (Spain)
212 = AT (Austria)
213 = BE (Belgium)
214 = GB [EMEA] (England [for EMEA])
215 = GR (Greece)
216 = SZ (Switzerland)
217 = ZA (South Africa)
Other values = xx (Not used)

Note: Inband Tone of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] can be changed by using the following System Data (ASYDL, SYS1, Index 811). To change the Inband Tone of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG], set the configuration command “set country_code” to “0”.

(15) cpn_pattern

Setting of a way of obtaining information for cpn (calling party number)

This command is used to assign how to obtain cpn (calling party number), and to change the priority of obtaining calling party number when a call terminates via SIP network.

When this command is enabled, calling party number is obtained according to the priority order shown in the table below:

- The following shows the method of obtaining cpn when this feature is available.

Selected Parameter		Order of priority		
		1	2	3
0	Displayname	Displayname	Userinfo	-
1	Userinfo	Userinfo	Displayname	-
2	Anonymous	Userinfo (Anonymous)	Userinfo	Displayname
3	P-Asserted-ID	P-Asserted-ID	Displayname	Userinfo

[Setting Example]

```
MG(SIP) > set cpn_pattern

Select Calling Party Number to which you
give priority.
 0=DisplayName(default)
 1=Userinfo
 2=Anonymous
 3=P-Asserted-ID
Input:0
```

0: Display name is given priority (Default)
1: Userinfo is given priority
2: When Anonymous is detected in Userinfo, cpn is handled as blocked, disregarding the second priority and later.
3: P-Asserted-ID is given priority.

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.
- Select 2 when the caller ID blocking is judged by the userinfo in From header on the SIP network side specification.
  e.g.) From: “01234567” <sip:anonymous@anonymous.invalid>
- Do not select 2 when the caller ID blocking is assigned by Displayname only on the SIP network side.
  e.g.) From: “Anonymous” <sip:01234567@xxx.com> In this case, the cpn is informed when 2 is selected.
- Numbers from 0 to 9, *, or # can only be obtained as a calling party number. When any other characters are contained in the calling party number, the order of priority will shift to the next precedence.
  However, if any characters other than the ones indicated above are detected in Displayname, the next and later priority will be disregarded and the cpn will be handled as blocked.
  e.g.) From: “0123ABC” <sip:01234567@xxx.com> In this case, the cpn will be handled as blocked when 0 is selected.

(16) default

Setting the default values to the configuration data

The command is used to set back to the default setting of MG-SIP128 [MG-128SIPMGG-B/MG-128SIP-MGG] configuration. Make sure to execute this command when updating firmware to a different firmware name (SP-XXXX).

[Setting Example]

```
MG(SIP) > set default

 Are you sure? Y/N=y



 Config data default set.

MG(SIP)>
```

Note: When other than “y” is selected, the following message is displayed.

Default setting command was interrupted.

Note: Normally this command is not required to be used.

(17) dnsaddress

Setting of the IP address of DNS server

This command is used to specify the DNS IP address to resolve an address by DNS server.

[Setting Example]

[IPv6]

```
MG(SIP) > set dnsaddress

Input DNS IP Address.(default=::)
                :2001:db8::820
```

Specify DNS IP address. (Default: ::)

[IPv4]

```
MG(SIP) > set dnsaddress

Input DNS IP Address.(default=0.0.0.0)
                :0.0.0.0
```

Specify DNS IP address. (Default: 0.0.0.0)

Note: You do not have to change this command if you do not use DNS server.

(18) dns_option

Setting of the Optional Data for DNS server

This command is used to enable multiple SIP servers to be supported by a DNS server. When IP addresses of multiple SIP servers are obtained by A record lookup or NAPTR lookup (RFC3263), an alternative route can be used for transmission. REGISTER bypass is also enabled.

Note: Be careful when you set "A record resolve (single IP Address)" and it is also used the "SIP Access Filter" feature of the sip_accfilter command. If the IP address of the SIP message does not belong to the range defined by the mask of the "SIP Access Filter", the message will be discarded.
Example: The IP address of the alternative route is 10.10.2.1 and the IP server address is 10.10.3.1. If the SIP access filter mask is set to 255.255.255.0, the message will be discarded. Set the mask to 255.255.0.0 to allow the message to be received.

[Setting Example]

```
MG(SIP) > set dns_option

Select DNS type
 0=A Record resolve(single IP
Address)(default)
 1=A Record resolve(multi IP Address)
 2=Locating SIP servers function(RFC3263)
 3=A Record resolve (multi IP Address for
REGISTER bypass)
Input: 0
```

Select DNS type.
0: An alternative route is not used. (Default)
1: An alternative route is used by A record lookup.
2: An alternative route is used by NAPTR record lookup.
3: An alternative route is used by A record lookup. (REGISTER bypass is available.)
Note 2

When Locating SIP servers function (RFC3263) (=2) is selected

```
MG(SIP) > set dns_option

Select DNS type
 0=A Record resolve(single IP
Address)(default)
 1=A Record resolve(multi IP Address)
 2=Locating SIP servers function(RFC3263)
 3=A Record resolve (multi IP Address for
REGISTER bypass)
Input: 2

Select the setting of DNS cache
 0=enable(default)
 1=disable
Input: 1
```

Select DNS type.
0: An alternative route is not used. (Default)
1: An alternative route is used by A record lookup.
2: An alternative route is used by NAPTR record lookup.
3: An alternative route is used by A record lookup. (REGISTER bypass is available.)
Note 2

Select the setting of DNS cache. (Default: 0/enable)

Note: The conditions of this command are as follows.

- The cache retention time length is 60 seconds.
- Available transport protocols are TCP and UDP.
- During NAPTR lookup, SIP processing stops.
- This function takes priority over transport protocol (TCP/UDP selection) configured with "set sip_transport" command.
- Up to four servers can be routed in an alternate routing function by A/SRV record.
- You do not have to change this command if you do not use DNS server.

Note 2: When you select “3=A Record resolve (multi IP Address for REGISTER bypass)”, an alternative route for REGISTER is available. Apart from the initial sending, up to three attempts to access different SIP servers are allowed for each DNS query. This feature is available for SP-4058 MGSIP PROG-J Issue 2 or later.

Display for the firmware version earlier than SP-4058 MGSIP PROG-J Issue 2 is as follows:

```
MG(SIP) > set dns_option

Select DNS type
 0=A Record resolve(single IP
Address)(default)
 1=A Record resolve(multi IP Address)
 2=Locating SIP servers function(RFC3263)
Input: 0
```

Select DNS type. (Default: 0/A Record resolve (single IP Address))

When Locating SIP servers function (RFC3263) (=2) is selected

```
MG(SIP) > set dns_option

Select DNS type
 0=A Record resolve(single IP
Address)(default)
 1=A Record resolve(multi IP Address)
 2=Locating SIP servers function(RFC3263)
Input: 2

Select the setting of DNS cache
 0=enable(default)
 1=disable
Input: 1
```

Select DNS type. (Default: 0/A Record resolve (single IP Address))

Select the setting of DNS cache. (Default: 0/enable)

(19) domain

Setting of DNS domain name

This command is used to specify the domain name of MG-SIP128 [MG-128SIPMGG-B/MG-128SIP-MGG].

[Setting Example]

```
MG(SIP) > set domain

Input Domain Name.(default=0,
MAX128(strings))
                :nec.com
```

Specify the domain name. (Default: 0/Maximum: 128 bytes)

Note: The conditions of this command are as follows.

- Normally this command is not required to be changed.
- To set SIP domain, change the domain name from the “domain name” parameter of “set sip_server” command or “set self_sip_domain” command.

(20) drsaddress

Setting of IP address and port number of DRS server

This command is used to assign IP address and port number of DRS server.

[Setting Example]

```
MG(SIP) > set drsaddress

[Primary DRS Setting]

 Input IP Address.(default=0.0.0.0)
           :172.16.253.1

 Input Port Number.(1024-65535
(default=3456))
           :3456

[Secondary DRS Setting]

 Input IP Address.(default=0.0.0.0)
           :172.16.253.2

 Input Port Number.(1024-65535
(default=3456))
           :3456

[Tertiary DRS Setting]

 Input IP Address.(default=0.0.0.0)
           :172.16.253.3
```

Setting Primary DRS;

IP address of DRS server (Default: 0.0.0.0)

UDP Port number of DRS server (Default: 3456)

Setting Secondary DRS;

IP address of DRS server (Default: 0.0.0.0)

UDP Port number of DRS server (Default: 3456)

Setting Tertiary DRS;

IP address of DRS server (Default: 0.0.0.0)

```
 Input Port Number.(1024-65535
(default=3456))
           :3456
[Quaternary DRS Setting]
 Input IP Address.(default=0.0.0.0)
           :172.16.253.4
 Input Port Number.(1024-65535
(default=3456))
           :3456
```

UDP Port number of DRS server (Default: 3456)

Setting Quaternary DRS;

IP address of DRS server (Default: 0.0.0.0)

UDP Port number of DRS server (Default: 3456)

(21) drs_qos

Setting of ToS value of DRS server

This command is used to specify the ToS value of IP packets to be sent to DRS server.

[Setting Example]

```
MG(SIP) > set drs_qos
Input type: (1=IP Precedence/2=DiffServ/
3=ToS):1
Input following parameters.
Precedence(default=5, 0-7):5

Delay(default=0, 0/1):0



Throughput(default=0, 0/1):0



Reliability(default=0, 0/1):0


Cost(default=0, 0/1):0
```

When IP Precedence (=1) is selected:

Specify the precedence in an IP network (Default: 5). 0-7 (Low - High)

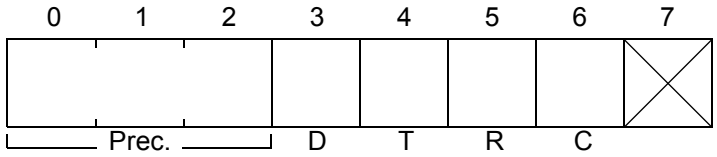
Specify the low delay priority in an IP network.
0: Not specified (Default)
1: Specified

Specify the throughput priority in an IP network.
0: Not specified (Default)
1: Specified

Specify the reliability in an IP network.
0: Not specified (Default)
1: Specified

Specify the low cost priority in an IP network.
0: Not specified (Default)
1: Specified

Note: IP Precedence - ToS field is allocated as shown below.



Prec.=PRECEDENCE(3bits)
D=Delay(1bit)
T=Throughput(1bit)
R=Reliability(1bit)
C=Cost(1bit)

```
MG(SIP) > set drs_qos

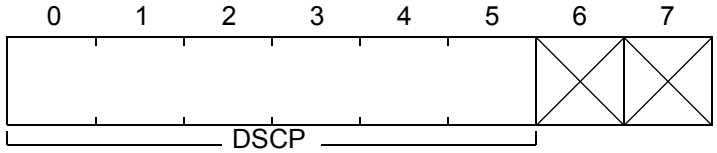
Input type: (1=IP Precedence/2=DiffServ/
3=ToS): 2

Input DSCP value.
(0-63 default=40):40
```

When DiffServ (=2) is selected:

Specify the service code point of DiffServ (default: 40).

Note: DiffServ - ToS field is allocated as shown below.



DSCP=Differentiated Service Code Point(6bits)

```
MG(SIP) > set drs_qos

Input type: (1=IP Precedence/2=DiffServ/
3=ToS): 3

Input ToS value with HEX format.
(00-FE(default=A0)):a0
```

When ToS (=3) is selected:

Specify the ToS field (default: a0).

Note: The conditions of this command are as follows.

- Pressing the Enter key can skip the item, with an exception of “Input type”. Be sure to input a value to “Input type.”
- Normally this command is not required to be changed.
- If you set “1” to the least significant bit, an error message “Please input an even number value.” is displayed.

(22) dtmf_mode

Setting of DTMF relay system (SIP network)

This command is used to specify the DTMF relay system in SIP network. MG-SIP128 [MG-128SIP-MGG-B/MG-128SIPMGG] supports Out-Band (RFC2833) and In-Band (G.711 data transmission as voice data). Negotiation, Out-Band, or In-Band can be assigned.

Note: DTMF relay method on the Telephony Server network side is automatically set according to the one on the MG-SIP network side, as follows:

DTMF relay system on the SIP network side	DTMF relay system on the Telephony Server network side	Remarks
RFC2833 (out-band)	Proprietary (out-band)	Conversions between "RTP (DTMF: RFC2833) packets on SIP network" and "UDP (DTMF: Proprietary) packets on Telephony Server network"
G.711 PassThrough (in-band)	G.711 PassThrough (in-band)	Conversions between "RTP packets on SIP network" and "RTP packets on Telephony Server network"

[Setting Example]

- When Negotiation is selected:

```
MG(SIP) > set dtmf_mode

Select DTMF Mode.
 0=Negotiation(default)
 1=Out-Band
 2=In-Band
Input:0

Input DTMF Duration value.(ms)
(50-240(default=120)):120

Input DTMF Pause value.(ms)
(30-240(default=100)):100

Input Payload type(RFC2833).
(96-127(default=101)):101
```

0: Negotiation (Default)
1: Out-Band (fixed)
2: In-Band (fixed)

Specify DTMF Duration.
(50 to 240ms/Default: 120ms)

Specify DTMF Pause.
(30 to 240ms/Default: 100ms)

Specify Payload type.
(96 to 127/Default: 101)

- When Out-Band is selected:

```
MG(SIP) > set dtmf_mode
```

```
Select DTMF Mode.
 0=Negotiation(default)
 1=Out-Band
 2=In-Band
Input:1

Input DTMF Duration value.(ms)
(50-240(default=120)):120

Input DTMF Pause value.(ms)
(30-240(default=100)):100

Input Payload type(RFC2833).
(96-127(default=101)):101
```

0: Negotiation (Default)
1: Out-Band (fixed)
2: In-Band (fixed)

Specify DTMF Duration.
(50 to 240ms/Default: 120ms)

Specify DTMF Pause.
(30 to 240ms/Default: 100ms)

Specify Payload type.
(96 to 127/Default: 101)

- When In-Band is selected:

```
MG(SIP) > set dtmf_mode

Select DTMF Mode.
 0=Negotiation(default)
 1=Out-Band
 2=In-Band
Input:2

Input DTMF Duration value.(ms)
(50-240(default=120)):120

Input DTMF Pause value.(ms)
(30-240(default=100)):100
```

0: Negotiation (Default)
1: Out-Band (fixed)
2: In-Band (fixed)

Specify DTMF Duration.
(50 to 240ms/Default: 120ms)

Specify DTMF Pause.
(30 to 240ms/Default: 100ms)

Note: The conditions of this command are as follows:

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.
- At DTMF Mode Negotiation/Out-Band, the payload type 103 cannot be used.
- Note that the sum of DTMF Duration and DTMF Pause values must be specified more than 120ms. If not, the following error message is displayed.

```
Input parameter error,
 reason [DTMF Duration + DTMF Pause<Min120ms]
```

(23) h245_base_port_no

Setting of the base port number for H.245 TCP server

This command is used to specify the port number for H.245 TCP server.

[Setting Example]

```
MG(SIP) > set h245_base_port_no

Input H245 base Port Number.
(1024-64511(default=40000)):40000
```

Assign the port number for H.245 TCP server.
(Default: 40000)
(receiving side of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG])

Note: Normally this command is not required to be changed.

(24) hc_alarm

Setting of the alarm transmission destination

This command is used to set the alarm function which is activated to send a warning tone when a Health Check timeout occurs.

[Setting Example]

```
MG(SIP) > set hc_alarm

Select H/C Alarm type.
 0=IPX and SIP side enable(default)
 1=IPX side enable
 2=SIP side enable
 3=disable
Input:0
```

0: Warning tone is sent to the Telephony Server and SIP sides (Default).
1: Warning tone is sent to the Telephony Server side only.
2: Warning tone is sent to SIP side only.
3: disable

Note: Normally this command is not required to be changed.

(25) hc_timer

Setting of Health Check timer value

This command is used to specify the Health Check time-out value.

[Setting Example]

```
MG(SIP) > set hc_timer

Input H/C timer value.(sec)
(130-65535(default=240)):240
```

Assign the Health Check timer value (Default: 240 seconds).

Note: Normally this command is not required to be changed.

(26) interface

Setting of the operation speed and operation mode of an interface

This command is used to assign the Ether speed and the duplex type to each port on MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

[Setting Example]

```
MG(SIP) > set interface

Select Ether[1] speed.
 0=AUTO(default)
 1=10M
 2=100M
 3=1000M
Input:0

Select Ether[2] speed.
 0=AUTO(default)
 1=10M
 2=100M
 3=1000M
Input:1

Select Ether[2] duplex.
 1=Half
 2=Full
Input:2
```

Assign an Ether speed type to Ether 1.(Example: when AUTO is set.)
0=Automatic Negotiation (Default)
1=10 Mbps (fixed)
2=100 Mbps (fixed)
3=1000 Mbps (fixed) **Note 4**
Select "0". **Note 3**

Assign an Ether speed type to Ether 2.(Example: when 100M/Full is set.)
0=Automatic Negotiation (Default)
1=10 Mbps (fixed)
2=100 Mbps (fixed)
3=1000 Mbps (fixed) **Note 4**
Select "1".

Assign a duplex type to Ether 1 and Ether 2.
1=Half Duplex
2=Full Duplex
Select "2".

Note 3: When "Automatic Negotiation" is selected, "AUTO" is automatically applied to the interface. Therefore, this command line will not appear for interface that is specified as "Automatic Negotiation".

Note 4: When 100 Mbps (fixed) is selected, "Full Duplex" is automatically applied to the interface. Therefore, this command line will not appear for interface that is specified as "100 Mbps (fixed)".

Note: Normally this command is not required to be changed.

(27) ipaddress

Setting of IP address and subnet mask

The following explains procedures for setting the number of ports that MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] uses, and IP addresses and subnet masks for each port of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

Each port of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] is used as follows:

- Ether1 LAN: Telephony Server side
- Ether2 WAN: SIP network side

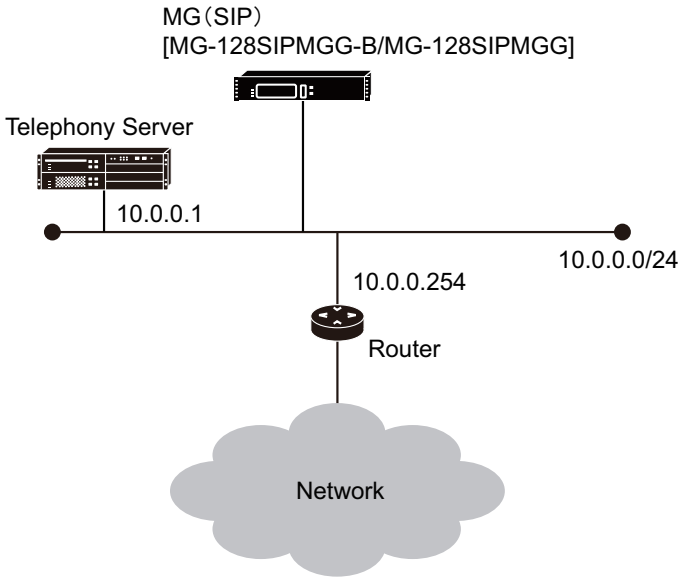
<One-port only>

When "IPv4" is enabled with the "set ip_version" command and the IP addresses of both LAN and WAN are assigned in the same segment, use Ether1 port only. Select "Y" for "Do you use one-port only?" and assign Ether1's IP address only. In this case, Ether2 cannot be used.

Note: Please notice the following:

- If IPv6 was enabled with the "set ip_version command", both Ether1 and Ether2 must be used to allow the sending and receiving of IPv6 packets to the WAN (Ether2) side.
- If Ether2 data is already assigned, the message "Ether [2] Port data is erased. Are you sure? Y/N" is displayed. To erase the Ether2 data, select "Y".
- If you select one port in the number of port setting, be careful not to use the same RTP port number when setting the non-default SIP network RTP base port number (by "set sip_rtp_port_no" command) or IPX network RTP base port number (by "set ipx_rtp_port_no" command).

Configuration when using one port is as follows:



<Ethernet Port Redundancy function > **Note 5**

Ether1 and Ether2 can be used together as one virtual Ether (Bond [0]) if one-port only is selected and the Ethernet Port Redundancy function is enabled. With this function, if there is a link down (**Note 6**) for Ether1 (or Ether2), Ether2 (or Ether1) is used (**Note 7**).

Note 5: This function is available from the firmware version SP-4058 MGSIP PROG-J issue 3.

Note 6: Only if the link down state continues for more than 100 milliseconds.

Note 7: Please notice the following:

- When there is a changeover of the port in use, MG-SIP128 is not restarted. However, ongoing voice communication will be interrupted by a silent gap of less than one second.
- Even if there is a link up for Ether1 while Ether2 is an active port, Ether2 continues to be an active port. In this case, only when there is a link down for Ether2, Ether1 takes the place of it.
- Connect a cable both to Ether1 and Ether2 when Ethernet Redundancy function is enabled.

[Display example]

[IPv6]

```
MG(SIP) > set ipaddress
Do you use one-port only? Y/N=n

Ether[1]
 Input IP Address.(default=0.0.0.0)
          :10.1.0.1
 Input Subnet mask.(default=0.0.0.0)
          :255.255.255.0









<< Result >>
Using all port
Ether[1]
 IP Address : 192.168.100.33
 Subnet mask: 255.255.0.0
Ether[2]
 IP Address : 2001:db8::800(Get by RA)
 Subnet mask: 64(Get by RA)
```

Select “n” to use IPv6 function.
One-port only is not supported by IPv6 function.

Setting Ether1 port:

IP address (Default: 0.0.0.0)

Subnet mask (Default: 0.0.0.0)

Setting Ether2 port:
Inputting Ether[2] setting data is unnecessary.
When IPv6 function is active (“IPv6” is selected by “set ip_version” command), MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] can generate the IP address and the Subnet mask for Ether2 by receiving the RA message from the router.

Displays the result.
“(Get by RA)” appears subsequent to the IP address and the Subnet mask generated by the Router Advertisement.

[IPv4] (Eher1 and Ether2 are used)

```
MG(SIP) > set ipaddress
Do you use one-port only? Y/N=n
Ether[1]
```

Setting Ether1 port:

```
 Input IP Address.(default=0.0.0.0)
           :10.1.0.1
 Input Subnet mask.(default=0.0.0.0)
           :255.255.255.0
Ether[2]
 Input IP Address.(default=0.0.0.0)
           :192.168.1.1
 Input Subnet mask.(default=0.0.0.0)
           :255.255.255.0
```

IP address (Default: 0.0.0.0)

Subnet mask (Default: 0.0.0.0)

Setting Ether2 port:

IP address (Default: 0.0.0.0)

Subnet mask (Default: 0.0.0.0)

[IPv4] (Only Ether1 is used and Ethernet Redundancy function is enabled)

```
MG(SIP)> set ipaddress
Do you use one-port only? Y/N=y
Ether[1]
 Input IP Address. (default=0.0.0.0)
           : 172. 16. 0. 1
 Input Subnet mask. (default=0.0.0.0)
           : 255. 255. 255. 0
Ether[2] port data is erased.
Are you sure? Y/N = y
Select the setting of Ethernet Port
Redundancy function.
 0 = disable (default)
 1 = enable
Input : 1
```

Assign Ether1 data.

Assign the IP address (Default: 0.0.0.0) for Ether [1].

Assign the subnet mask (Default: 0.0.0.0) for Ether [1].

Note 8

Enable Ethernet Port Redundancy. **Note 5**
0: disable (default)
1: enable

Note 8: When one-port only is selected, do not assign Ether[2] data.

(28) ip_version

Setting of SIP side IP Version

This command is used to specify the IP version for the SIP side network.

[Setting Example]

```
MG(SIP) > set ip_version
```

```
Select the setting of SIP side IP
Version.
 0=IPv4 (default)
 1=IPv6
Input: 1
```

Assign the IP version for the SIP side network.
0: IPv4 (Default)
1: IPv6

Note: The conditions of this command are as follows.

- After changing the IP version with this command, you also need to change the IP addresses configured with the following commands before executing the "reboot" command.
  - "DNS IP address" configured with "set dnsaddress"
  - "SIP server IP address" configured with "set sip_server"
  - "SIP register IP address" configured with "set sip_register"

  When you change IPv4 to IPv6, IP address for Ether2 port configured with "set ipaddress" is generated by MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] after receiving the RA message.
- When you change the IP version with this command, see also the information in set Command.

(29) ipx_route

Setting of the route information in the Telephony Server network

This command is used to specify route information in the Telephony Server side network. The registered number of the route information is up to 10.

The following figure shows an example of display.

When Route type = 0 is selected:

```
MG(SIP) > set ipx_route
Select Route type(0:Exit/1:None/2:Static):0



MG(SIP)>
```

0: Exit
1: None (Default)
2: Static
Select "0".

Exit the command without executing anything.

When Route type = 1 is selected:

```
MG(SIP) > set ipx_route
Select Route type(0:Exit/1:None/2:Static):1



<< Result >>
Route type: None
```

0: Exit
1: None (Default)
2: Static
Select "1".

```
Are you sure? Y/N=y



MG(SIP) >
```

Note: Pressing any key other than "y" causes the following message.

Route setting command was interrupted.

When Route type = 2 is selected:

- [To Assign Destination Network Address and Gateway Address]

  Usually, gateway data should be set as 'Static' at LAN (Telephony Server network) side.

```
MG(SIP) > set ipx_route
Select Route type(0:Exit/1:None/2:Static):2



Select command(0:Exit/1:Set/2:Delete):1



Select Gateway type(0:Exit/1:Gateway/
2:Default Gateway):1



Input Destination network
Address:172.16.0.0
Input Subnet mask bit(0-32):16









Input IP Address of Gateway:192.168.0.254

<< Result >>
Route type: Static
```

0: Exit
1: None (Default)
2: Static
Select "2".

0: Exit (Exit the command without executing anything.)
1: Set route information.
2: Delete route information.
Select "1".

0: Exit (Exit the command without executing anything.)
1: Specify the gateway.
2: Specify the default gateway.
Select "1".

Specify the network address. **Note 9**
(Default: 0.0.0.0)

Specify the subnet mask. **Note 9**
(Default: 0)

Note: If an invalid value is set here, the following error message is displayed. Input the valid value.

Input destination network address invalid.

Specify the gateway address.
(Default: 0.0.0.0)

```
Gateway Address|Destination network/Prefix
---------------+-------------------------
---
192.168.0.254  |172.16.0.0         /32
Are you sure? Y/N=y



MG(SIP)>
```

Note: Pressing any key other than "y" displays the following message.

Route setting command was interrupted.

Note 9: Do not set routing in the segment where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] belongs.

- [To Assign Routing Information (Gateway Address only)]

  To set a default gateway, it should be assigned to either LAN side port or SIP network side port. Usually, assign a default gateway to SIP network side port. Two or more Default Gateways cannot be registered.

```
MG(SIP) > set ipx_route
Select Route type(0:Exit/1:None/2:Static):2



Select command(0:Exit/1:Set/2:Delete):1




Select Gateway type(0:Exit/1:Gateway/
2:Default Gateway):2



Input IP Address of Default
Gateway:192.168.0.254
<< Result >>
Route type:Static
Gateway Address|Destination network/Prefix
---------------+-------------------------
---
192.168.0.254  |0.0.0.0            /32
```

0: Exit
1: None (Default)
2: Static
Select "2.

0: Exit (Exit the command without executing anything.)
1: Set routing information.
2: Delete routing information.
Select "1".

0: Exit (Exit the command without executing anything.)
1: Specify the gateway.
2: Specify the default gateway.
Select "2".

Specify the default gateway.
(Default: 0.0.0.0)

```
Are you sure? Y/N=y



MG(SIP)>
```

Note: Pressing any key other than "y" displays the following message.

Route setting command was interrupted.

- [To Delete the assigned Routing Information]

```
MG(SIP) > set ipx_route
Select Route type(0:Exit/1:None/2:Static):2



Select command(0:Exit/1:Set/2:Delete):2









No|Gateway Address|Destination network/
Prefix
--+---------------+-----------------------
----
1 |192.168.0.254 |172.16.0.0        /16
2 |192.168.0.254 |10.0.0.0          /8
Select delete No?: 1


No|Gateway Address|Destination network/
Prefix
--+---------------+-----------------------
----
1 |192.168.0.254 |10.0.0.0          /8
Are you sure? Y/N=y



```

0: Exit
1: None (Default)
2: Static
Select "2.

0: Exit (Exit the command without executing anything.)
1: Set routing information.
2: Delete routing information.
Select "2".

Note: When there is no information to delete here, the following message is displayed.

There is no static route table to delete.

Select the number (No) of the route information you want to delete.
Select "1.

Note: Pressing any key other than "y" displays the following message.

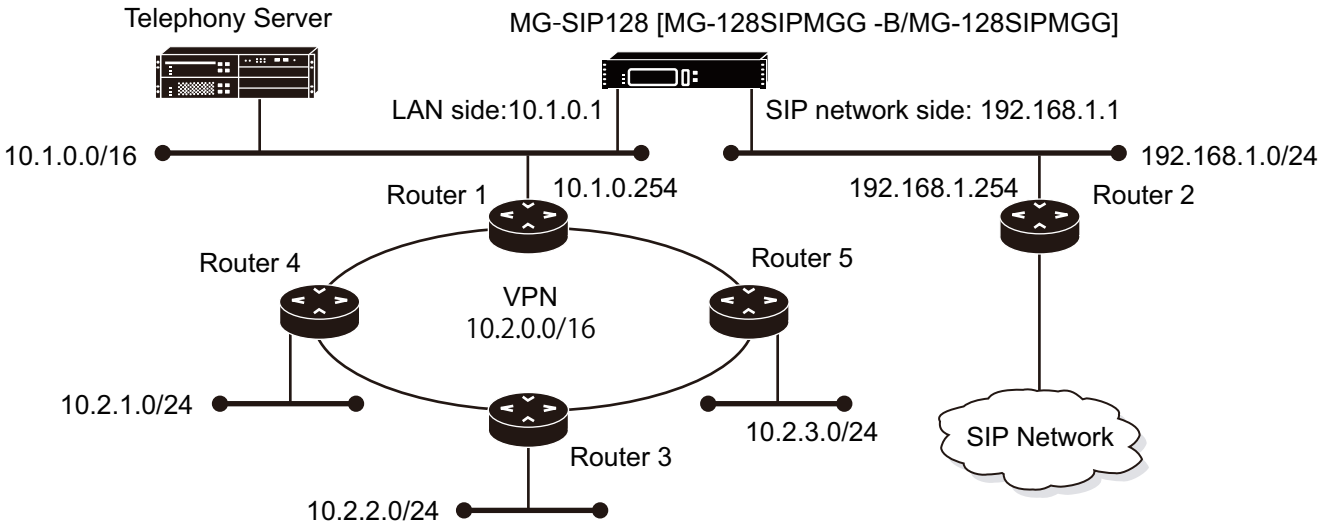
Route setting command was interrupted.

```
MG(SIP)>
```

Note: The conditions of this command are as follows.
- To set a default gateway, it should be assigned to either one of the LAN side port or SIP network side port.
- Routing assignment is unnecessary for network segment assigned to Ether (0).

The following shows a typical network configuration and the sample data setting.

[Typical Network Configuration]



Note: The conditions of network configuration is as follows.
- Summarize the network addresses if possible.
- If you set an invalid gateway address and reboot the system, a message of “Please set correct gateway address!!” stays displayed after rebooting the system.

[Example of setting]

- Router 3/4/5 that are placed downstream of Router 1 on LAN (Telephony Server) side can be summarized to “10.2.0.0/16”. Set the summarized network address statically.
- Downstream of Router 2 on SIP network side cannot be specified; perform the default gateway settings.

[Sample Data Setting for the above network configuration]

```
MG(SIP) > set ipx_route

Select Route type(0: Exit/1: None/2: Static): 2

Select command(0: Exit/1: Set/2: Delete): 1

Select Gateway type(0: Exit/1: Gateway/2: Default
Gateway):1

Input Destination network Address:10.2.0.0
```

```
Input Subnet mask bit(0-32): 16
Input IP Address of Gateway:10.1.0.254
<< Result >>
Route type: Static
|Gateway Address|Destination network/Prefix
-----------------------------------------------
|10.1.0.254    |10.2.0.0          /16
Are you sure? Y/N=y
MG(SIP) > set ipx_route
Select Route type(0: Exit/1: None/2: Static): 2
Select command(0: Exit/1: Set/2: Delete): 1
Select Gateway type(0: Exit/1: Gateway/2: Default
Gateway):2
Input IP Address of Default Gateway:192.168.1.254
<< Result >>
Route type: Static
|Gateway Address|Destination network/Prefix
---------------+---------------------------------
|192.168.1.254 |0.0.0.0           /0
```

(30) ipx_rtp_port_no

Setting of the RTP base port number for LAN (Telephony Server network)

This command is used to assign the base port number that is used for RTP at LAN side. (Even numbers only.)

[Setting Example]

```
MG(SIP) > set ipx_rtp_port_no
Input IPX side RTP Port Number.
(1024-64000(default=51000)):51000
```

Assign the base port number that is used for RTP at LAN side (Default: 51000).
(Receiving side of MG-SIP128 [MG-128SIP-MGG-B/MG-128SIPMGG])

Note: The conditions of this command are as follows.

- Normally this command is not required to be changed.
- RTP ports occupy 512 (128×4) ports (counting from the RTP base port number).

- If you select one port in the number of port setting (by “set ipaddress” command), be careful not to use the same RTP port number (set by “set sip_rtp_port_no” or “set ipx_rtp_port_no” command) when setting the non-default IPX network RTP base port number.

(31) keynumber

Setting of the pilot number for MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

The command is used to assign a pilot number of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] for registration.

[Setting Example]

```
MG(SIP) > set keynumber

Input Keynumber.(default=0, MAX32(strings))
          :0
```

Assign the pilot number when register is performed (Default: 0).

Note: Be sure not to enter a blank character to the end of the pilot number (with the Copy and Paste features of your personal computer), and be careful not to mistype a character (“0”(zero) or “O” (alphabetical O), for example.)

(32) multi_regist

Setting of the registration function per number

This command is used to enable/disable the setting of registration to SIP server per number.

[When this function is enabled]

Registers to SIP server per SIP-URI (or Telephone number).

```
MG(SIP) > set multi_regist

Select Multi-registration mode.
 0=disable(default)
 1=enable
Input:1

Input the interval of REGISTER message
transmitting. (sec)(1-10(default=1)):1

Input Standby timer value.(sec)(10-
3600(default=30)):30

Select Contact Header type.
 0=Privacy(default)
 1=SIP-URI
Input:0
```

0: disable
1: enable
Select “1”.

Assign the time interval to send register (Default: 1sec).

Assign the time value to re-register after fault recovery (Default 30sec).

0: Random value
1: SIP-URI **Note 10**

[When this function is disabled]

Only the pilot number that is set in the configuration of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] by "set keynumber" command registers to SIP server.

```
MG(SIP) > set multi_regist

Select Multi-registration mode.
 0=disable(default)
 1=enable
Input:0
```

0: disable
1: enable
Select "0".

Note 10:

When "Privacy" is selected: Assign a random value to the User ID field of SIP message "Contact header".
When "SIP-URI" is selected: Assign the SIP-URI to the User ID field of SIP message "Contact header". Assign the telephone number if SIP-URI has not been assigned.

Note: The conditions of this command are as follows.

- Use configuration command "set sip_register" to assign the SIP server for register destination.
- The assignment of "set sip_register" is necessary when registration is to be done per number.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.

(33) multisession

Setting of Silent Monitor (Multi-Path Monitor) Connection

This command is used to set Silent Monitor (Multi-Path Monitor) Connection using MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] in the ACD system.

[Setting Example]

```
MG(SIP) > set multisession

<< Current Setting >>
    Multi-Session setting:disable

Select Multi-Session setting.
  0 = disable (default)
  1 = enable
Input:1

<< Result >>
  Multi-Session setting:enable
```

Displays the current setting.

0: Disabled (default)
1: Enabled

Displays the result.

(34) musictype

Setting of the type of music to be sent from MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

This command is used to select music type that is sent from MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

[Setting Example]

```
MG(SIP) > set musictype

Select Music Type.
 0=Type1(default)
 1=Type2
 2=Type3
 3=Type4
Input:0
```

0: Type1: Minuet
1: Type2: For Elise
2: Type3: WAVE file
3: Type4: No sound

(35) name_display

Setting of Name Display service

This command is used to enable/disable Name Display service using MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

[Setting Example]

```
MG(SIP) > set name_display

Select function of Name Display.
  0 = disable (default)
  1 = enable
Input:1
```

0: Disabled (default)
1: Enabled

(36) no_media_code

Setting of the SIP Error Response code

This command is used to set a SIP error response code. When 415 is set as a response code, 415 Unsupported Media Type is sent instead of response code 488 if an unsupported codec is received.

[Setting Example]

```
MG(SIP) > set no_media_code

Input the SIP Error Response code when
the unsupported codec.
(400-606 (default=488)): 415
```

Type any number between 400 and 606 (415 is typed in this manual as an example).

Note: The conditions of this command are as follows.

- Accept, Accept-Encoding and Accept-Language headers are not added to 415 Unsupported Media Type.

- 415 Unsupported Media Type response supports only when the request message is the INVITE or UPDATE message.

(37) out_of_area_code

Setting of the out-of-area error response

This command is used to set the out-of-area (IPX network) error response.

[Setting Example]

```
MG(SIP) > set out_of_area_code

Input the SIP Error Response code when the out
of area.
(400-606(default=408)):408
```

Set the error response code.
(Default: 408)

Note: Normally this command is not required to be changed.

(38) prack

Setting of PRACK (Provisional Response Acknowledgment) function (RFC3262)

This command is used to enable/disable Provisional Response Acknowledgement (PRA) function (RFC3262). When this is set enabled, the 18x cyclical-send of provisional response function can be specified.

[Setting Example]

```
MG(SIP) > set prack

Select function to add 100rel to Supported
Header.
 0=enable(default)
 1=disable
Input:0

Select function to stop cyclical-send of
Provisional Response.
 0=disable(default)
 1=enable
Input:0
```

0: enable (Default)
1: disable

0: enable 18x cyclical-send
1: disable 18x cyclical-send

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.

(39) ppi_to_pai

Setting of PAID transmission function

This command is used to enable/disable P-Asserted-Identity header (PAID) to be transmitted instead of P-Preferred-Identity header (PPID).

[Setting Example]

```
MG(SIP) > set ppi_to_pai

Select the setting that P-Asserted-
Identity is transmitted instead of P-
Preferred-Identity.
  0 = disable (default)
  1 = enable
Input:1
```

0: disable (Default)
1: enable

Note: SIP messages can be sent by converting P-Preferred-ID header (PPID) to P-Asserted-ID header (PAID) only when P-Preferred-ID header (PPID) is used for either of the following settings:
- Enable “privacy_pattern” command and specify “2: RFC3323/3325(P-Preferred-ID/Privacy)”.
- Enable “name_display” command.

(40) pre_negotiation_port_no

Setting of the UDP port receiving packets for voice control path

This command is used to specify the UDP port number that receives packets regarding the voice control path.

[Setting Example]

```
MG(SIP) > set pre_negotiation_port_no

Input Pre-negotiation Port Number.
(1024-65535(default=61014)):61014
```

Assign the UDP port receiving packets for voice control path (Default: 61014)

Note: Normally this command is not required to be changed.

(41) privacy_pattern

Setting of the privacy pattern

This command is used to specify a type of Calling Line Identification Non-Presentation when calling to SIP network.

[Setting Example]

```
MG(SIP) > set privacy_pattern
```

```
Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

When “0” is selected:

```
MG(SIP) > set privacy_pattern
Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
Input: 0
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

When “1” is selected:

```
MG(SIP) > set privacy_pattern
Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
Input:1
Input a Dummy string.(MAX32(strings))
                    :anonymous
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

Enter a dummy string (specified by provider) in maximum of 32 characters.

When “2” is selected:.

```
MG(SIP) > set privacy_pattern
Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
Input:2
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

```
Select RFC3325 pattern.
 0=Pattern 1:privacy_only(default)
 1=Pattern 2:TEL-URI
 2=Pattern 3:unused
 3=Pattern 4:SIP-URI
 4=Pattern 5:P-Associated-URI
 5=pattern 6:SIP-URI(no privacy)
Input:0
```

Select an RFC3325 pattern **Note 11**
0: privacy_only (Default)
1: TEL-URI
2: unused
3: SIP-URI
4: P-Associated-URI
5: SIP-URI (no privacy) **Note 12**

Note 11: Use of P-Preferred-ID headers of INVITE message differs for each pattern.

When Pattern 1 is set: P-Preferred-ID header is not attached.
When Pattern 2 is set: P-Preferred-ID header is attached. (tel is used)
When Pattern 3 is set: Not used.
When Pattern 4 is set: P-Preferred-ID header is attached.
When Pattern 5 is set: P-Preferred-ID header is attached. (P-Associated-URI is used)
When Pattern 6 is set: P-Preferred-ID header is attached.

Note 12: For enabling this parameter, note the following conditions:

- This parameter is available for the following firmware version:
  - SP-4051 MGSIP PROG-G Issue 2 or later
  - SP-4058 MGSIP PROG-J
- This parameter cannot be assigned when “set multi_regist” or “set 184toprivacy” is enabled.

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.

(42) registration_port_no

Setting of the UDP port number that receives DRS packets

This command is used to specify the UDP port number that receives the registration packets.

[Setting Example]

```
MG(SIP) > set registration_port_no

Input Registration Port Number.
(1024-65535(default=3456)):3456
```

Assign the UDP port number that receives the DRS packets. (Default: 3456).

Note: Normally this command is not required to be changed.

(43) reg_interval

Setting of the waiting time to retry after registration failure

This command is used to assign the retry waiting time when failed to register, due to the error-response or no answer from the server when Register packet was sent to SIP server from MG-SIP128 [MG-128SIP-MGG-B/MG-128SIPMGG].

[Setting Example]

```
MG(SIP) > set reg_interval

Input REGISTER interval timer value.(min)
(1-255(default=5)):5
```

Re-register waiting time (min):
(Default: 5min)

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.
- When registration per number function is effective, assign by setting MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] using the largest number within the same MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] group referring to table below.

Amount of Numbers	Time (minute)
1 to 300	5
301 to 600	10
601 to 900	15
901 to 1000	20

(44) response_table

Setting of response table selection

This command is used to set the response table.

[Setting Example]

```
MG(SIP) > set response_table

Select Response table(Error Cause to
SIP Error Response).
 0=normal(default)
 1=revised
Input:0
```

0: normal table selection (Default)
1: Select not to send a server error from MG-SIP128 [MG-128SIPMGG-B/MG-128SIP-MGG] to SIP network.

Note: Normally this command is not required to be changed.

(45) rtp_pathon

Setting of Path-on function by 183 Progress after receiving 180 Ringing

This command is used to assign Path-on function by 183Progress after receiving 180Ringing.

[Setting Example]

```
MG(SIP) > set rtp_pathon

Select Path-on 183 after 180.
 0=disable(default)
 1=enable
Input:0
```

0: disable (Default)
1: enable

Note: The conditions of this command are as follows.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.
- Normally this command is not required to be changed.

(46) rtp_qos

This command is used to specify the ToS value of Real-Time Protocol (RTP) packets on SIP network side.

[Setting Example]

```
MG(SIP) > set rtp_qos
```

* See “drs_qos” command for a display example and the contents of the configuration.

Note: Normally this command is not required to be changed.

(47) sdp_style

This command is used to receive SDP with multiple “m” lines.

- When normal style is specified:

```
MG(SIP) > set sdp_style

Select SDP style setting.
 0=normal(default)
 1=RFC4566
Input:0
```

0: normal (default)
1: conforms to RFC4566

- When RFC4566 style is specified:

```
MG(SIP) > set sdp_style

Select SDP style setting.
 0=normal(default)
 1=RFC4566
Input:1
```

0: normal (default)
1: conforms to RFC4566

```
Select the setting of G729 annexb=no.
 0=disable (default)
 1=enable
Input:1
```

Specify the setting of G729 annexb=no.
0: G729 annexb=no is disabled.
1: G729 annexb=no is enabled.

Note: The conditions of this command are as follows.
- This command can be skipped by pressing Enter key.
- To make this command effective, save the Config data in “reboot” command before finishing configuration command, and reboot MG(SIP).

(48) self_sip_domain

Setting of SIP domain name for MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

This command is used to set the SIP domain name for MG-SIP128 [MG-128SIPMGG-B/MG-128SIP-MGG].

[Setting Example]

- When this command is enabled:

```
MG(SIP) > set self_sip_domain
Select Self SIP Domain mode.
 0=disable(default)
 1=enable
Input:1
Input a Self SIP Domain
string.(MAX128(strings))
                      :
```

0: without domain name (Default)
1: with domain name

Input the SIP domain name in maximum of 128 characters.

- disable

```
MG(SIP) > set self_sip_domain
Select Self SIP Domain mode.
 0=disable(default)
 1=enable
Input:0
```

0: without domain name (Default)
1: with domain name

Note: The conditions of this command are as follows.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.
- This command is required only when SIP domain must be separated between the SIP server and MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].
- If this command is not set, the SIP domain set by “set sip_server” command is used for the SIP domain of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

(49) session_timer

Setting of session timer

This command is used to specify the Session Timer.

[Setting Example]

```
MG(SIP) > set session_timer

Select the setting of Session-timer.
 0=enable(default)
 1=disable
```

0: Session Timer is enabled (Default)
1: Session Timer is disabled

When Session-Timer is Enable (=0) is selected:

```
MG(SIP) > set session_timer

Select the setting of Session-timer.
 0=enable(default)
 1=disable
Input:0

Input Session-expires timer value.(sec)
(0-86400(default=180)):180

Select Refresher type.
 0=UAC(default)
 1=UAS
Input:0

Select "refresher=uac" ini-INVITE.
 0=disable(default)
 1=enable
Input:0

Select Forced mode.
 0=disable(default)
 1=enable
Input:0
```

Set the session timer.
(Default: 180sec)

Determine a point to make refresher.
UAC: User Agent Client
UAS: User Agent Server

refresher=uac addition to INVITE message:
0: refresher=uac is not added
1: refresher=uac is added

0: Session timer will not be activated when Supported/Require header does not exist (default).
1: Session timer will be activated by using Session-Expires when Supported/Require header does not exit.

When Session-Timer is Disable (=1) is selected:

```
MG(SIP) > set session_timer
```

```
Select the setting of Session-timer.
 0=enable(default)
 1=disable
Input:1
```

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.

(50) signaling_port_no

Setting of the UDP port number that receives control signal packets

This command is used to specify the UDP port number that receives the control signal packets.

[Setting Example]

```
MG(SIP) > set signaling_port_no

Input Signaling Port Number.
(1024-65535(default=61012)):61012
```

Assign the UDP port number that receives the control signal packets (Default: 61012).

Note: Normally this command is not required to be changed.

(51) sip_accfilter

Setting of SIP Access Filter

This command is used to enable the SIP Access Filter which discards SIP packets received from an unauthorized destination.

Also, this command is used to enable the Burst Access Filter which temporarily limits the maximum number of incoming calls that can be received by a Telephony Server when a rush of calls from a SIP network occurs instantaneously.

[Setting Example]

When IP address (=0) is selected by “set sip_server” command:

[IPv6]

```
MG(SIP) > set sip_accfilter

Select the setting of SIP Access
Filter.
 0=disable (default)
 1=enable
Input: 1
```

Enable/disable SIP Access Filter.
0: SIP Access Filter is disabled (default).
1: SIP Access Filter is enabled.

```
Input SIP Access Filter mask.
(default=128)
(SIP server IP Address : 2001:db8::860)
                                  : 128
```

When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

Note: The IP address of Register Server is authorized although it is not displayed.

```
Select the setting of Burst Access
Filter.
0 = disable (default)
1 = enable

Input : 1
```

Enable/disable Burst Access Filter. **Note 13**
0: Burst Access Filter is disabled (default).
1: Burst Access Filter is enabled.

```
Input Burst Access limit timer value.
(sec)
(1-60(default=1)) : 30
```

Assign the period of monitoring incoming calls (sec.).
(1-60, default is 1.)

```
Input Burst Access limit number value.
(1-1000(default=10)) : 500
```

Assign the limit number of incoming calls (INVITE number) to be received during a monitoring period (sec.). **Note 14**
(1-1000, default is 10.)

```
Input Burst Access reject response
code.
(400-699(default=488)) : 600
```

Assign the error response code that is sent back to a SIP network when the INVITE number exceeds the limit during a monitoring period (sec.).
(400-699, default is 488.)

```
MG(SIP)
```

[IPv4]

```
MG(SIP) > set sip_accfilter

Select the setting of SIP Access
Filter.
 0=disable (default)
 1=enable
Input: 1

Input SIP Access Filter mask. (default
=255.255.255.255)
(SIP server IP Address:
192.168.100.100)
                    : 255.255.255.255


Select the setting of Burst Access
Filter.
0 = disable (default)
1 = enable

Input : 1
Input Burst Access limit timer value.
(sec)
(1-60(default=1)) : 30

Input Burst Access limit number value.
(1-1000(default=10)) : 500


Input Burst Access reject response
code.
(400-699(default=488)) : 600




MG(SIP)
```

Enable/disable SIP Access Filter.
0: SIP Access Filter is disabled (default).
1: SIP Access Filter is enabled.

When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

Note: The IP address of Register Server is authorized although it is not displayed.

Enable/disable Burst Access Filter. **Note 13**
0: Burst Access Filter is disabled (default).
1: Burst Access Filter is enabled.

Assign the period of monitoring incoming calls (sec.).
(1-60, default is 1.)

Assign the limit number of incoming calls (INVITE number) to be received during a monitoring period (sec.). **Note 14**
(1-1000, default is 10.)

Assign the error response code that is sent back to a SIP network when the INVITE number exceeds the limit during a monitoring period (sec.).
(400-699, default is 488.)

When FQDN (=1) is selected by “set sip_server” command:

```
MG(SIP) > set sip_accfilter

Select the setting of SIP Access
Filter.
 0=disable (default)
 1=enable

Input: 1

Input SIP Access Filter mask. (default
=255.255.255.255)
(SIP server FQDN: sipserver.nec.com)
                    : 255.255.255.255



Select the setting of Burst Access
Filter.
0 = disable (default)
1 = enable

Input : 1
Input Burst Access limit timer value.
(sec)
(1-60(default=1)) : 30

Input Burst Access limit number value.
(1-1000(default=10)) : 500


Input Burst Access reject response
code.
(400-699(default=488)) : 600




MG(SIP)
```

Enable/disable SIP Access Filter.
0: SIP Access Filter is disabled (default).
1: SIP Access Filter is enabled.

When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

Note: The IP address of Register Server is authorized although it is not displayed.

Enable/disable Burst Access Filter. **Note 13**
0: Burst Access Filter is disabled (default).
1: Burst Access Filter is enabled.

Assign the period of monitoring incoming calls (sec.).
(1-60, default is 1.)

Assign the limit number of incoming calls (INVITE number) to be received during a monitoring period (sec.). **Note 14**
(1-1000, default is 10.)

Assign the error response code that is sent back to a SIP network when the INVITE number exceeds the limit during a monitoring period (sec.).
(400-699, default is 488.)

Note 13: This feature is available for the following firmware version:
- SP-4051 MGSIP PROG-G Issue 2 or later
- SP-4058 MGSIP PROG-J

When receiving incoming calls that exceed the assigned limit number while this feature is enabled, an error response code is sent back to a SIP network and further incoming calls are rejected until the next period of monitoring incoming calls.

Note 14: Only Initial-INVITE is counted as an incoming call. In addition, INVITE from an unauthorized destination is also counted as an incoming call when SIP Access Filter feature is disabled. The followings are not counted as an incoming call:
- Outgoing call
- Abandoned or received call
- Re-INVITE
- INVITE from unauthorized destination (when SIP Access Filter feature is enabled)
- INVITE without the following header
  - Via
  - From
  - To
  - CSeq
  - CallID

(52) sip_port_no

Setting of the port number that receives SIP messages

This command is used to specify a UDP port number that receives SIP messages.

[Setting Example]

```
MG(SIP) > set sip_port_no

Input SIP Port Number.
(1024-65535(default=5060)):5060
```

Assign the port number that receives SIP messages (Default: 5060).

Note: Normally this command is not required to be changed.

(53) sip_qos

Setting of the ToS value for SIP signaling

This command is used to specify the ToS value of IP packets for SIP signaling.

[Setting Example]

```
MG(SIP) > set sip_qos
```

* See “set drs_qos” command for a display example and the contents of the configuration.

Note: Normally this command is not required to be changed.

(54) sip_register

Setting of the information of SIP registrar

This command is used to assign an IP address or a Fully Qualified Domain Name (FQDN), and port number and expiration time of the SIP registrar.

The following figure shows an example of display.

When IP address (=0) is selected:

[IPv6]

```
MG(SIP) > set sip_register

Select SIP register type.
 0=IPAddress(default)
 1=FQDN
Input:0

Input SIP register IP Address.
(default=::)
                    : 2001:db8::880

Input SIP register Port Number.
(1024-65535(default=5060)):5060

Input SIP register Expires timer value.
(sec)
(1-65535(default=3600)):3600
```

When IP address (=0) is selected.

Assign the IP address of the SIP registrar (Default: ::).

Assign the port number of the SIP registrar (Default: 5060)

Assign the SIP registrar alive time in seconds (Default: 3600)

[IPv4]

```
MG(SIP) > set sip_register

Select SIP register type.
 0=IPAddress(default)
 1=FQDN
Input:0

Input SIP register IP Address.
(default=0.0.0.0)
                   :192.168.100.100

Input SIP register Port Number.
(1024-65535(default=5060)):5060

Input SIP register Expires timer value.
(sec)
(1-65535(default=3600)):3600
```

When IP address (=0) is selected.

Assign the IP address of the SIP registrar (Default: 0.0.0.0).

Assign the port number of the SIP registrar (Default: 5060)

Assign the SIP registrar alive time in seconds (Default: 3600)

When FQDN (=1) is selected:

```
MG(SIP) > set sip_register

Select SIP register type.
 0=IPAddress(default)
 1=FQDN
Input:1

Input Fully Qualified Domain Name.
(default=0, MAX63(strings))
                              :nec.com

Input SIP register Port Number.
(1024-65535(default=5060)):5060

Input SIP register Expires timer value.
(sec)
(1-65535(default=3600)):3600
```

When FQDN (=1) is selected.

Assign the FQDN of the SIP registrar (Default:0, max 63 characters).

Assign the port number of the registrar (Default: 5060)

Assign the SIP registrar alive time in seconds (Default: 3600)

Note: The conditions of this command are as follows.

- Pressing the Enter key can skip the item, with exceptions of “SIP register type” and “IP address/FQDN”.
- Normally this command is not required to be changed.
- Be sure not to enter a blank character to the end of the FQDN (with the Copy and Paste features of your personal computer), and be careful not to mistype a character. (“0”(zero) or “O” (alphabetical O), for example.)

(55) sip_route

Setting of the route information of SIP network

This command is used to specify route information in the SIP side network.
Use “set sip_route” command.
For details, see “ipx_route”(Setting of the route information in the Telephony Server network).

Note: When IPv6 (=1) is selected by “set ip_version” command, the IP address of the router is assigned to the default gateway automatically. If you attempt to execute this command, the following message appears:
“Sip route data can not be set when IPv6 is enable.”

(56) sip_rtp_port_no

Setting of the RTP base port number of SIP network

This command is used to assign the RTP base port number from SIP network. (Even numbers only.)

[Setting Example]

```
MG(SIP) > set sip_rtp_port_no
```

```
Input SIP side RTP Port Number.
(1024-64000(default=50000)):50000
```

Assign the RTP base port number for SIP side
(Default: 50000)
(Receiving side of MG-SIP128 [MG-128SIP-MGG-B/MG-128SIPMGG])

Note: The conditions of this command are as follows.

- Normally this command is not required to be changed.
- RTP ports occupy 256 (128×2) ports (counting from the RTP base port number).
- If you select one port in the number of port setting, be careful not to use the same RTP port number (set by "set sip_rtp_port_no" or "set ipx_rtp_port_no" command) when setting the non-default SIP network RTP base port number.

(57) sip_server

Setting of the information of SIP server

This command is used to assign an IP address or a Fully Qualified Domain Name (FQDN), and port number, type, and SIP domain of the SIP server.

The following figure shows an example of display.

When IP address (=0) is selected:

[IPv6]

```
MG(SIP) > set sip_server

Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:0

Input SIP server IP Address. Input SIP server
IP Address. (default=::)
: 2001:db8::860

Input SIP server Port Number.
(1024-65535(default=5060)):5060


Select SIP server Router type.
 0=Strict(default)
 1=Loose
Input:0
```

When IP address (=0) is selected.
(Default: 0)

Assign the IP address of the proxy server
(Default: ::).

Assign the port number of the proxy server
(Default: 5060)

Select a Strict router or Loose router for the proxy server
(Default: 0)
0: Strict router
1: Loose router
Select "0".

```
Select the setting of rport(RFC3581)
function.
 0=disable (default)
 1=enable
Input: 0
```

Enable/disable the rport (RFC3581) function.
(Default: 0)
Note 17

```
Input Domain Name.(default=0,
MAX128(strings))
```

Input a string that specifies the service provider in maximum of 128 characters.

[IPv4]

```
MG(SIP) > set sip_server
Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:0
Input SIP server IP Address.
(default=0.0.0.0)
:192.168.100.100
Input SIP server Port Number.
(1024-65535(default=5060)):5060

Select SIP server Router type.
 0=Strict(default)
 1=Loose
Input:0


Select the setting of rport(RFC3581)
function.
 0=disable (default)
 1=enable
Input: 0

Input Domain Name.(default=0,
MAX128(strings))
```

When IP address (=0) is selected.
(Default: 0)

Assign the IP address of the proxy server
(Default: 0.0.0.0).

Assign the port number of the proxy server
(Default: 5060)

Select a Strict router or Loose router for the proxy server
(Default: 0)
0: Strict router
1: Loose router
Select “0”.

Enable/disable the rport (RFC3581) function.
(Default: 0)

Input a string that specifies the service provider in maximum of 128 characters.

When FQDN (=1) is selected:

```
MG(SIP) > set sip_server

Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:1

Input Fully Qualified Domain Name.(default=0,
MAX63(strings))

Input SIP server Port Number.
(1024-65535(default=5060)):5060

Select SIP server Router type.
 0=Strict(default)
 1=Loose
Input:0


Input Domain Name.(default=0,
MAX128(strings))
```

When FQDN (=1) is selected.

Assign the FQDN of the proxy server in maximum of 63 characters (default: 0).

Assign the port number of the proxy server
(Default: 5060)

Select a Strict router or Loose router for the proxy server
(Default: 0)
0: Strict router
1: Loose router
Select "0".

Input a string that specifies the service provider in maximum of 128 characters.

Note: The conditions of this command are as follows.

- Pressing the Enter key can skip the item, with exceptions of "SIP server type" and "IPaddress/FQDN".
- If you have set a character string to specify the service provider, the character string is used as the SIP domain name.
- Be sure not to enter a blank character to the end of the FQDN (with the Copy and Paste features of your personal computer), and be careful not to mistype a character. ("0"(zero) or "O" (alphabetical O), for example.)
- Even though the setting of rport (RFC3581) is disabled, the rport parameter can be received.
- INVITE message defined in RFC3581 cannot be retransmitted.

(58) sip_tel_service

Setting of additional services

The command is used to enable/disable the use of additional service features (Hold/Retrieve/Transfer from the SIP network side terminal).

[Setting Example]

```
MG(SIP) > set sip_tel_service

Select SIP telephony service function.
 0=disable(default)
 1=enable
Input:1
```

0: additional service feature is disabled (Default)
1: additional service feature is enabled

When enable (=1) is selected, the following screen is displayed. (When disable is selected, no screen is displayed.)

```
Select Replaces function.
 0=enable(default)
 1=disable
Input:0

Select Hold [a=inactive] function.
 0=enable(default)
 1=disable
Input:0

Select Hold [put off hold] function.
 0=disable(default)
 1=enable
Input:1

Select REFER/NOTIFY function.
 0=enable
 1=disable(default)
Input:0

Select 3PCC function.
 0=enable
 1=disable(default)
Input:0
```

Enable/disable Replaces function.
0: enable (Default)
1: disable

0: a=inactive hold function is enabled (Default)
1: a=inactive hold function is disabled

Enable/disable hold (put off hold) function.
0: disable (Default)
1: enable **Note 15**

Enable/disable REFER/NOTIFY function.
0: enable
1: disable (Default)

Enable/disable 3PCC (3rd Party Call Control) function.
0: enable
1: disable (Default)

When enable (=0) is selected for 3PCC function, the following screen is displayed. (When disable is selected, no screen is displayed.)

```
Select 3PCC function(codec).
 0=PCMU
 1=PCMA
 2=AUTO(default)
Input:0


Select Unhold w/o SDP function.
 0=disable(default)
 1=enable
Input:1
```

Select 3PCC function (codec). **Note 16**
0: Fixed to μ-law
1: Fixed to A-law
2: MGC Control (Telephony Server System Data)* (Default) **Note 17**
*: μ-law is set if no Telephony Server System Data is set.

Enable/disable Unhold w/o SDP function.
0: disable (Default)
1: enable
Note 18

Note: The conditions of this command are as follows.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.
- Music On Hold may not be sent to some remote terminals if this command is not enabled.

Note 15: When this parameter is enabled, answer “Unhold” for Hold Offer (C=0.0.0.0).

Note 16: When INVITE without SDP is received, the following conditions are applied.
- Only G.711 (20ms) μ-law/A-law connection is available.
- AMGVL/AIVCL data assignment cannot give an offer.

Note 17:
- When “2=AUTO (default)” is selected, the codec used for 3PCC function (codec) complies with the A-law/μ-law information which the Telephony Server informs MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].
- In the Telephony Server side, by the system data assignment (ASYD, SYS1, Index 64, Bit 0), either μ-law or A-law can be specified as the A-law/μ-law information which the Telephony Server informs MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].
- The Telephony Server informs MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] the A-law/μ-law information only when the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] performs registration.
- When you change the system data (ASYD, SYS1, Index 64, Bit 0) during operation, the data change will be reflected after rebooting MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

Note 18: This parameter is available for SP-4058 PROG-J Issue 3 or later. If a reINVITE without SDP is received while being on hold, the following happens depending on the settings.
- disable: the hold is maintained.
- enable: the hold is released.

(59) sip_transport

Setting of SIP transport protocol

This command is used to select whether SIP requests to be sent with TCP or UDP as the transport protocol.

[Setting Example]

```
MG(SIP) > set sip_transport

Select the setting of SIP Transport
Protocol.
 0=UDP(default)
 1=TCP
Input:1
```

Select the setting of SIP Transport Protocol.
0: UDP (Default)
1: TCP

(60) slipresp

Setting of error response codes used when bypassing a SIP server

This command is used to determine an error response code that is sent in order to prompt a SIP server to bypass when all the resources of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] are busy.

[Setting Example]

```
MG(SIP) > set slipresp

Input SIP server slip response code.
(400-699(default=488)):488
```

Set the error response code.
(400 to 699, Default: 488)

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.

(61) softdsp

Setting of A-law /μ-law converting and PAD value

This command is used for the settings of the A-law /μ-law converting feature and for the PAD value settings. The following table shows the operating status of MG (SIP) when the A-law /μ-law converting feature is enabled.

Note: This command is available for the following firmware versions:
- SP-4051 MGSIP PROG-G Issue 2 or later
- SP-4058 MGSIP PROG-J

When MG (SIP) receives an incoming call

Station Side (ASYD SYS1 INDEX64 BIT0)	MG (SIP) Codec Convert Mode	Network Side	Operating Status	Conversion
A-law	μ-law	μ-law	Normal Communication	Performed
A-law	μ-law	A-law	Normal Communication	Not performed
A-law	μ-law	G.729	Error Response	Not performed
A-law	A-law	A-law	Normal Communication	Not performed

When MG (SIP) receives an incoming call

Station Side (ASYD SYS1 INDEX64 BIT0)	MG (SIP) Codec Convert Mode	Network Side	Operating Status	Conversion
A-law	A-law	μ-law	Normal Communication	Performed
A-law	A-law	G.729	Error Response	Not performed
μ-law	μ-law	μ-law	Normal Communication	Not performed
μ-law	μ-law	A-law	Normal Communication	Performed
μ-law	μ-law	G.729	Error Response	Not performed
μ-law	A-law	A-law	Normal Communication	Performed
μ-law	A-law	μ-law	Normal Communication	Not performed
μ-law	A-law	G.729	Error Response	Not performed

When MG (SIP) places an outgoing call

Station Side (ASYD SYS1 INDEX64 BIT0)	MG (SIP) Codec Convert Mode	Network Side	Operating Status	Conversion
A-law	μ-law	μ-law	Normal Communication	Performed
A-law	μ-law	A-law	Error Response	Not performed
A-law	μ-law	G.729a	Error Response	Not performed
A-law	A-law	A-law	Normal Communication	Not performed
A-law	A-law	μ-law	Error Response	Not performed
A-law	A-law	G.729a	Error Response	Not performed
μ-law	μ-law	μ-law	Normal Communication	Not performed
μ-law	μ-law	A-law	Error Response	Not performed
μ-law	μ-law	G.729a	Error Response	Not performed
μ-law	A-law	A-law	Normal Communication	Performed
μ-law	A-law	μ-law	Error Response	Not performed
μ-law	A-law	G.729a	Error Response	Not performed

The followings are the setting example:

When enabling/disabling the A-law /μ-law converting feature

Note: Just enabling the A-law/μ-law conversion requires selecting the PAD adjustment option.

```
MG(SIP) > set softdsp
<< Current Setting >>
codec convert mode  : disable
PAD setting         : disable
```

Displays the current setting.

```
Select the PCM codec convert mode
according to SIP side.
  0 = disable (default)
  1 = PCMU
  2 = PCMA
Input  : 1
Select the PAD setting for voice/FAX.
  0 = disable (default)
  1 = local setting
  2 = auto
Input  : 0
```

0: Disabled (default)
1: μ-law
2: A-law

Select the PAD adjustment option.
0: Disable PAD value adjusting feature
1: Adjusting PAD value according to the configuration data setting
2: Adjusting PAD value according to the settings on the Telephony Server.

When adjusting PAD value according to the configuration data setting

Note: Just enabling the PAD adjustment option requires the setting of the A-law/μ-law conversion.

```
MG(SIP) > set softdsp
<< Current Setting >>
codec convert mode  : disable
PAD setting         : disable
Select the PCM codec convert mode
according to SIP side.
  0 = disable (default)
  1 = PCMU
  2 = PCMA
Input  : 1

Select the PAD setting for voice/FAX.
  0 = disable (default)
  1 = local setting
  2 = auto
Input  : 1
```

Displays the current setting.

0: Disabled (default)
1: μ-law
2: A-law

Select the PAD adjustment option.
0: Disable PAD value adjusting feature
1: Adjusting PAD value according to the configuration data setting
2: Adjusting PAD value according to the settings on the Telephony Server.

```
Input PAD reception setting for voice.
[-20 (dB) - 20 (dB) ]  : -20
Input PAD transmission setting for voice.
[-20 (dB) - 20 (dB ) ] : 20
Input PAD reception setting for FAX.
[-20 (dB) - 20 (dB) ]  : -20
Input PAD transmission setting for FAX.
[-20 (dB) - 20 (dB) ]  : 20
```

Assign PAD value for each setting.

When adjusting PAD value automatically

Note: Just enabling the PAD adjustment option requires the setting of the A-law/μ-law conversion.

```
MG(SIP) > set softdsp
<< Current Setting >>
codec convert mode  : disable
PAD setting         : disable
Select the PCM codec convert mode
according to SIP side.
  0 = disable (default)
  1 = PCMU
  2 = PCMA
Input  : 1

Select the PAD setting for voice/FAX.
  0 = disable (default)
  1 = local setting
  2 = auto
Input  : 2
```

Displays the current setting.

0: Disabled (default)
1: μ-law
2: A-law

Select the PAD adjustment option.
0: Disable PAD value adjusting feature
1: Adjusting PAD value according to the configuration data setting
2: Adjusting PAD value according to the settings on the Telephony Server.

(62) update

Setting of update method

This command is used to enable/disable the use of update method.

[Setting Example]

```
MG(SIP) > set update

Select the setting of UPDATE method.
 0=disable(default)
 1=enable
Input:0
```

0: Update method is disabled (Default)
1: Update method is enabled

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connects.

5.2.2 show Command

(1) arp

Displaying of ARP table

This command is used to show the Address Resolution Protocol (ARP) table of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

[Setting Example]

```
MG(SIP)> show arp
AddressNote 1   HWtype  HWaddressNote 2     Flags MaskNote 3  Iface
192.168.0.250 ether   00:1D:92:9E:2A:E0 C                 eth0
192.168.0.99  ether   00:B0:D0:31:FE:64 C                 eth0
192.168.0.1   ether   00:30:13:76:7B:52 C                 eth0
```

Note: Actual values such as Address or HWaddress may differ from this sample.

Note 1: Address: IP address (IP address or host name of an entry)

Note 2: HWaddress: Physical address /Hardware address (For Ethernet, MAC address of an entry)

Note 3: Flags Mask: Entry type (C: Used for normal entries only.)

(2) config

Displaying of a configuration data list

This command is used to show the configuration that has been currently specified for the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

The following shows a sample display.

[MAC configuration data]

```
MG(SIP)> show config
[2013-10-10 14:49:29]

[SP-4058:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit
Select a reference number:0
Ether[1]
MAC Address:00-00-00-00-00-00
Ether[2]
MAC Address:00-00-00-00-00-00
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

MAC Data=MAC configuration data

DRS Data=Configuration data of the Telephony Server

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select “0”.

MAC addresses of Ether [1] [2] of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

[DRS configuration data]

```
MG(SIP)> show config
[2013-10-10 14:49:29]

[SP-4058:01.00.00.00]


0=MAC Data

1=DRS Data
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

MAC Data=MAC configuration data

DRSData=Configuration data of the Telephony Server

```
2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit
Select a reference number:1
Primary DRS IP Address:0. 0. 0. 0:PortNo[3456]
Secondary DRS IP Address:0. 0. 0. 0:PortNo[3456]
Tertiary DRS IP Address:0. 0. 0. 0:PortNo[3456]
Quaternary DRS IP Address:0. 0. 0. 0:PortNo[3456]
```

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select “1”.

IP address and port number of the currently configured DRS will be displayed.

[Common configuration data]

```
MG(SIP)> show config
[2013-10-10 14:49:29]

[SP-4058:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit
Select a reference number:2
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

MAC Data=MAC configuration data

DRSData=Configuration data of the Telephony Server

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select 2

```
set signaling_port_no:
 Signaling Port Number        :61012
------------------------------------------------
set registration_port_no:
 Registration Port Number     :3456
------------------------------------------------
set pre_negotiation_port_no:
 Pre-negotiation Port Number  :61014
------------------------------------------------
set ipx_rtp_port_no:
 IPX side RTP port number     :51000
------------------------------------------------
set sip_rtp_port_no:
 SIP side RTP port number     :50000
------------------------------------------------
set h245_base_port_no:
 H245 base port number        :40000
------------------------------------------------
Does it display more? Y/N=y




------------------------------------------------
set drs_qos:
DRS QoS:0xa0                  :0xa0
 PRECEDENCE                   :5
 DELAY                        :0
 THROUGHPUT                   :0
 RELIABILITY                  :0
 COST                         :0
------------------------------------------------
```

Currently assigned config data will be displayed.

After displaying about 20 lines of config data, you can select if you want to see more data or not.
To see the config data more, enter “y”. To exit this command, press “n”.

```
set rtp_qos:
RTP QOS                         :0xa0
 PRECEDENCE                     :5
 DELAY                          :0
 THROUGHPUT                     :0
 RELIABILITY                    :0
 COST                           :0
-------------------------------------------------
Does it display more? Y/N=y
-------------------------------------------------
set sip_qos:
SIP QOS                         :0xa0
 PRECEDENCE                     :5
 DELAY                          :0
 THROUGHPUT                     :0
 RELIABILITY                    :0
 COST                           :0
-------------------------------------------------
set domain:
 Domain name                    :0
-------------------------------------------------
set dnsaddress:
 DNS IP address                 :0.0.0.0
-------------------------------------------------
```

```
set hc_alarm:
 H/C Alarm type         :IPX and SIP Side enable
```

H/C Alarm type display varies depending on the type that is assigned by the "set hc_alarm."

- When assigned the Telephony Server network side and SIP network side: "IPX and SIP side enable"
- When assigned the Telephony Server network side: "IPX side enable"
- When assigned SIP network side: "SIP side enable"
- When assigned not to send: "Disable"

```
------------------------------------------------
set hc_timer:
 H/C Timer value              :240sec
------------------------------------------------
set musictype:
 Music Type                   :Type1
```

Display (Type1/Type2/Type3/ Type4) depends on which type you set.

```
------------------------------------------------
set call_hold:
 Call Hold function           :enable
 RTP detect timer value       :3sec
 Response code to reject      :488
```

Displays the current setting of MG Based Call Retention. When "disable" is selected by a SET command "call_hold", "disable" is displayed, but "RTP detect timer value" and "Response code to reject" are not displayed.

```
------------------------------------------------
set name_display :
 Name Display                 : enable
```

Displays the current setting of Name Display service.

```
-----------------------------------------------
set ip_version :
 IP Version                  : IPv4
-----------------------------------------------
set country_code :
 Country Code                : 1 (JP)
-----------------------------------------------
set softdsp:
 codec convert mode          :PCMU
 PAD setting                 :local setting
 PAD reception(voice)        :-20
 PAD transmission(voice)     :20
 PAD reception(FAX)          :-20
 PAD transmission(FAX)       :20
-----------------------------------------------
```

Displays the current setting of the IP version.

Displays the current setting of Country Code.

Displays the current settings of codec conversion and PAD value. **Note 5**

[Port configuration data]

```
MG(SIP)> show config
[2013-10-10 14:49:29]

[SP-4058:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

MAC Data=MAC configuration data

DRSData=Configuration data of the Telephony Server

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

```
9=Exit
Select a reference number:3
Using all port

Ether[1]
 IP address:172.16.253.200
 Subnet    :255.255.255.0
 Interface :Speed/Duplex=Auto/Auto
 Port type :IPX Side Port
Ether[2]

 IP address:192.168.35.200
 Subnet    :255.255.255.0
 Interface :Speed/Duplex=Auto/Auto
 Port type :SIP Side Port
```

End of show command

Select “3”.

Data that is set to each port number is displayed.

If “one-port only” is selected with the “set ipaddress” command, only Ether [1] is displayed. Also, it is displayed whether Ethernet Port Redundancy function is enabled or disabled.

Example: Ethernet Port Redundancy function: enable **Note 4**

Displays the current setting of the Ether[2] information. When IPv6 (=1) is selected by “set ip_version” command, this IP address will be shown in IPv6 address format.

Note 4: Ethernet Port Redundancy can be used since SP-4058 MGSIP PROG-J Issue 3.

[SIP configuration data]

```
MG(SIP)> show config
[2013-10-10 14:49:29]

[SP-4058:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

MAC Data=MAC configuration data

DRSData=DRS configuration data

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

```
5=Route Config Data

9=Exit
Select a reference number:4
set sip_server:

Server type                     :IP Address
Server IP Address               :0.0.0.0









SIP server Port Number          :5060
SIP server Router type          :Strict
rport(RFC3581) function         :disable
Domain Name                     :0
-------------------------------------------------
set sip_register:
SIP register type               :IP Address
SIP register IP Address         :0.0.0.0




SIP register Port Number        :5060
SIP register Expires time       :3600sec
-------------------------------------------------
set keynumber:
Keynumber                       :0
```

Route Config Data=Route information configuration data

End of show command

Select “4”.

Currently assigned common config data will be displayed.

When FQDN is set by a SET command “sip_server”, “SIP server FQDN”, not “SIP server IP Address”, is displayed.

Displays the current setting of the Server IP Address.
When IPv6 (=1) is selected by “set ip_version” command, this IP address will be shown in IPv6 address format.

Displays the current setting of the SIP register IP Address.
When IPv6 (=1) is selected by “set ip_version” command, this IP address will be shown in IPv6 address format.

```
-----------------------------------------------
set auth:
User ID                          :0
Password                         :0
-----------------------------------------------
Does it display more? Y/N=y
```

After displaying about 20 lines of config data, you can select if you want to see more data or not.
To see the config data more, enter "y". To exit this command, press "n".

```
-----------------------------------------------
set privacy_pattern:
 Privacy pattern                 :DisplayName
```

When "DisplayName" is selected by the SET command "privacy_pattern", "DisplayName" is shown. When RFC3325 Pattern (0) is selected, "RFC3323/3325 (0)" is shown. When Pattern (1) is selected, "RFC3323/3325 (1)" is shown. When Pattern (6) is selected, "RFC3325 (SIP-URI (no privacy))" is shown.

```
-----------------------------------------------
set session_timer:
Session-timer                    :enable
```

When "disable" is selected by the SET command "Session_timer", "disable" is displayed. In this case, "Session-expires" and "Refresher" are not displayed.

```
Session-expires                  :180sec
Refresher                        :UAC
```

When UAS is selected for Refresher, "UAS" is displayed.

```
Invite Refresher                 :disable
```

When "enable" is selected for "Invite Refresher" by the SET command "session_timer", "enable" is displayed.

```
Forced mode                          :disable


set prack:
Supported 100rel                     :enable


Stop cyclical-send of 18x            :disable


------------------------------------------------
set cdn_pattern:
 Prior Called Party Number pattern:To[userinfo]


------------------------------------------------
set sip_port_no:
 SIP Port Number                     :5060
------------------------------------------------
Does it display more? Y/N=y
------------------------------------------------
set 184ToPrivacy:
 184 to privacy pattern              :disable


------------------------------------------------
set slipresp:
```

When “enable” is selected for “Forced mode” by the SET command “session_timer”, “enable” is displayed.

When “disable” is selected by the SET command “prack”, “disable” is displayed.

“enable” may be displayed according to the setting.
When “set prack” is disabled, nothing is displayed.

When “Request-URI[isub]” is selected by the SET command “cdn_pattern”, “Request-URI[isub]” is displayed, and when “Request-URI[userinfo]” is selected, “Request-URI[userinfo]” is displayed, and “P-Called-Party-ID” is selected, “P-Called-Party-ID” is displayed.

When “Pattern 1” is selected by the SET command “184toprivacy”, “Pattern 1” is displayed, and when “Pattern 2” is selected, “Pattern 2” is displayed.

```
 SIP server slip response code    :488
-------------------------------------------------
set self_sip_domain:
 Self SIP Domain mode             :disable
-------------------------------------------------
Does it display more? Y/N=y
-------------------------------------------------
set dtmf_mode:
DTMF Mode                  :Negotiation(SIP/SDP)
DTMF Duration                    :120ms
DTMF Pause                       :100ms
Payload type                     :101
-------------------------------------------------
set 183rbt:
 RBT Addition (183w/oSDP)        :enable
-------------------------------------------------
set rtp_pathon:
 Path-on 183 after 180           :disable
-------------------------------------------------
set another_keynumber:
```

When "enable" is selected by the SET command "self_sip_domain", "enable" is selected as well as the set domain name.
Example) Self SIP Domain string: xxxxxxxx

When "In-Band" is the mode set by a SET command "dtmf_mode", "IN-Band (G.711) is displayed, and when "Out-Band" is selected, "Out-Band (RFC2833)" is displayed.

When DTMF Mode is In-Band, Payload type is not displayed.

When "disable" is selected by the SET command "183rbt", "disable" is displayed.

When "enable" is selected by the SET command "typ-pathon", "enable is displayed.

```
Another Keynumber 1                :0
Another Keynumber 2                :0
Another Keynumber 3                :0
-------------------------------------------------
Does it display more? Y/N=y
-------------------------------------------------
set multi_regist:
 Multi-registration mode           :disable
-------------------------------------------------
set sip_tel_service:
 SIP telephony service function    :disable
-------------------------------------------------
set reg_interval:
 REGISTER interval timer           :5min
-------------------------------------------------
set update:
 UPDATE method support function    :disable
-------------------------------------------------
set auth_header:
 Auth-Header Cache function        :enable
-------------------------------------------------
```

When "enable" is selected by SET command "multi-regist", "enable" is displayed as well as the following:
Transmitting interval timer: 1sec
Standby timer value: 30sec
Contact Header type: Privacy or SIP-URI
When "disable" is set, nothing is displayed.

Note 8

When "enable" is selected by the SET command "update", "enable" is displayed.

When "disable" is selected by the SET command "auth_header", "disable" is displayed.

```
Does it display more? Y/N=y
------------------------------------------------
set cause_table:
 Cause table                        :normal
------------------------------------------------
set response_table:
 Response table                     :normal
------------------------------------------------
set cpn_pattern:
 Prior Calling Party Number pattern:DisplayName
------------------------------------------------
set cc_convert:
 Country Code convert               :disable
------------------------------------------------
set check_number:
```

When “alternate routing/Route Advance” is selected by the SET command “cause_table”, “alternate routing/Route Advance” is displayed.

When “revised_table” is selected by the SET command “response_table”, “revised_table” is displayed.

When “Userinfo” is selected by the SET command “cpn_pattern”, “Userinfo” is displayed, when “Anonymous” is selected, “Anonymous” is displayed, and when “P-Asserted-ID” is selected, “P-Asserted-ID” is displayed.

When “Pattern 1” or “Pattern 2” is selected by the SET command “cc_convert”, the following parameters are displayed.
For example, when “Pattern 2” is selected: **Note 5**
Country Code: 81
National Prefix: 0
National Destination Code: 3
International Prefix: 010
Number of Local Number digits: 3

```
 telephone-number check function  :disable


-------------------------------------------------
set out_of_area_code:
 Response code when out of area   :408(default)


-------------------------------------------------
set sdp_style:
 SDP style setting                :RFC4566

 G729 annexb=no                   :enable


-------------------------------------------------
set call_id_relay:
 Call-ID relay mode               :disable


-------------------------------------------------
set sip_accfilter:
```

When “enable” is selected by the SET command “check_number”, “enable” is displayed.

The number for a response code set by the SET command “out-_of_area_code” is displayed.

When “normal” is selected by the SET command “sdp_style”, “normal” is displayed.

When “disable” is selected by the SET command “sdp_style”, “disable” is displayed.

When “enable” is selected by the SET command “call_id_relay”, “enable” is displayed.

```
 SIP Access Filter                  :disable
```

When “enable” is selected for “SIP Access Filter” by the SET command “sip_accfilter”, “enable” and the following settings are displayed:

- When IP address is assigned by the SET command “sip_server”
  (SIP server IP Address: 192.168.100.100)
  SIP Access Filter mask: 255.255.255.255
- When FQDN is assigned by the SET command “sip_server”
  (SIP server FQDN: sipserver.nec.com)
  SIP Access Filter mask: 255.255.255.255

When “disable” is selected for “SIP Access Filter”, the above settings are not shown.

```
 Burst Access Filter                :disable
```

When “enable” is selected for “Burst Access Filter” by the SET command “sip_accfilter”, “enable” and the following settings are displayed:
Burst Access Filter: enable
Burst Access limit timer value: 30
Burst Access limit number value: 500
Burst Access reject response code: 600

When “disable” is selected for “Burst Access Filter”, the above settings are not shown. **Note 6**

```
------------------------------------------------

set sip_transport:
 SIP transport protocol             :UDP
```

When “TCP” is selected by the SET command “sip_transport”, “TCP” is displayed.

```
-----------------------------------------------
set dns_option:
 DNS type                    :Locating SIP
                              servers function
                              (RFC3263)
 DNS cache                   :enable




-----------------------------------------------
set codec_change:
 Codec Change function          :enable
 G711 Fax renegotiation         :enable


-----------------------------------------------
set no_media_code:
 Response code(unsupported codec) :415


-----------------------------------------------
set ppi_to_pai:
 PAID transmission function     :enable


-----------------------------------------------
```

Locating SIP servers function (RFC3263) data and DNS cache data are displayed. When "A Record resolve (single IP Address)", "A Record resolve (multi IP Address)" or "A Record resolve (multi IP Address for REGISTER bypass" is selected by the SET command "dns_option", the selected item is displayed. **Note 7**

When "disable" is selected by the SET command "codec_change", "disable" is displayed.

The number for a response code specified by "no_media_code" command is displayed.

When "disable" is selected by the SET command "ppi_to_pai", "disable" is displayed.

Note 5: Pattern 2 is displayed since SP-4058 MGSIP PROG-J Issue 2.

Note 6: This parameter is displayed from the following firmware version:
- SP-4051 MGSIP PROG-G Issue 2
- SP-4058 MGSIP PROG-J

Note 7: "3: A Record resolve (multi IP Address for REGISTER bypass)" is displayed since SP-4058 MGSIP PROG-J Issue 2.

Note 8: The conditions of “SIP telephony service function” are as follows.

- When “SIP telephony service function” is enabled by the SET command “sip_tel_service”, “enable” is displayed, as well as enablement/disablement of the following settings:
  - Replaces function
  - Hold [a=inactive] function
  - Hold [put off hold] function
  - REFER/NOTIFY function
  - 3PCC function
- When “SIP telephony service function” is disabled by the SET command “sip_tel_service”, the following is displayed:
  - “SIP telephony service function: disable”
  - Then nothing is displayed below “SIP telephony service function: disable”.
- “3PCC function(codec)” and “Unhold w/o SDP function” are displayed only when 3PCC function is enabled by the SET command “sip_tel_service”.
- The following is an example of display when “SIP telephony service function” is enabled by the SET command “sip_tel_service”.

```
SIP telephony service function   :enable
Replaces function                :enable
Hold [a=inactive] function       :enable
Hold [put off hold] function     :enable
REFER/NOTIFY function            :enable
3PCC function                    :enable
3PCC function(codec)             :PCMU
Unhold w/o SDP function          :enable
```

Note 9

Note 9: This parameter is displayed since SP-4058 PROG-J Issue 3.

[Route information configuration data]

```
MG(SIP)> show config

[2013-10-10 14:49:29]

[SP-4058:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

MAC Data=MAC configuration data

DRS Data=DRS configuration data

Common Config Data=Common configuration data

```
3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit

Select a reference number : 5

Ether[1]

 Route type:Static

No|Gateway Address|Destination network/Prefix
------------------------------------------------
1 |192.168.0.254  |172.16.0.0        /16

Ether[2]

 Route type:Static

No|Gateway Address|Destination network/Prefix
------------------------------------------------
1 |192.168.0.254  |0.0.0.0           /0
```

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select “5”.

Data currently configured to each port number will be displayed.

When IPv6 (=1) is selected by “set ip_version” command, Gateway Address and Destination network will be shown in IPv6 address format.

(3) interface

Displaying of Link and Display states of Ether

This command is used to show the link and setting states for Ether ports of MG-SIP128 [MG-128SIP-MGG-B/MG-128SIPMGG].

[Setting Example]

```
MG(SIP)> show interface

Using one-port only

Ether[1]  Link up

MAC Address  :00-00-00-00-00-00

IP Address   :10.1.0.1

Subnet mask  :255.255.255.0

Interface    :Speed/Duplex=Auto/Auto
```

The number of ports in use.

Link state

MAC address

IP address

Subnet mask

Operation speed and operation mode

(4) version

Displaying of version information

This command is used to display version information of MG-SIP128 [MG-128SIPMGG-B/MG-128SIP-MGG] functions (base system and firmware).

[Setting Example]

```
MG(SIP)> show version

Firmware Information   |SPNo     |Issue

-----------------------+---------+-------------

Base System Version    |-------  |Ver2.6.18 Thu
Oct 10 16:45:44 JST 2013

SP-4058 MGSIP PROG-G   |SP-4058  |Ver01.00.00.00
```

Version information of the base system.

Software version information of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

(5) route

Displaying of Route table

This command is used to show the Route Table of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

[Setting Example]

```
MG(SIP)> show route

Kernel IP routing table

                                    Note 10Note 11 Note 12 Note 13      Note 14Note 15  Note 16
Destination Gateway Genmask         Flags Metric Ref    Use  Iface MSS   Window irtt
172.16.0.0  *       255.255.0.0 U     0      0      0    eth1  0     0       0
192.0.0.0   *       255.0.0.0   U     0      0      0    eth0  0     0       0
```

Note: The conditions of this command are as follows.

- Actual values such as Destination or Genmask may differ from this sample.
- It may take time to display the route table information when DNS server IP address has been assigned. (“set dnsaddress”)
- Settings of “Flags”, “Metric”, Ref”, “Use”, “MSS”, “Window” and “irtt” do not affect the operation of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] directly.

Note 10: Flags: Indicates a route type. (“U” is usable, “H” is host, “G” is gateway.)

Note 11: Metric: Indicates route metric. (In the range of one to 9999.)

Note 12: Ref: Indicates the number that the route is referred.

Note 13: Use: Indicates the number that the route was actually used (routed).

Note 14: MSS: Indicates the Maximum Segment Size (MSS: Maximum data size of a TCP segment) at a route.

Note 15: Window: Indicates a window size of TCP.

Note 16: irtt: Indicates the initial round-trip time of TCP connections to each route. MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] regards a TCP connection where no reply lasts for the round-trip time (1 to 12000) as no connection.

(6) status

Displaying status of ports and registration

This command is used to show status of ports and registration on MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

[Setting Example]

- If displaying port status

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:0

IPX Port link up(100Base-TX/Full)
SIP Port link up(100Base-TX/Full)
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 17

Note 17: The following describes display of port status.

Port type	Status of port to LAN	Status of port to SIP network
1000M/Full	IPX port link up (1000Base-T/Full)	SIP port link up (1000Base-T/Full)
100M/Half	IPX port link up (100Base-TX/Half)	SIP port link up (100Base-TX/Half)
100M/Full	IPX port link up (100Base-TX/Full)	SIP port link up (100Base-TX/Full)
10M/Half	IPX port link up (10Base-T/Half)	SIP port link up (10Base-T/Half)
10M/Full	IPX port link up (10Base-T/Full)	SIP port link up (10Base-T/Full)
Link Down	IPX port link down	SIP port link down

- If displaying status of registration to LAN (Telephony Server side)

```
MG(SIP)> show status
```

```
0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:1

IPX Registration Information
Registration is OK. (DRS IP address
192.168.0.1)
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 18

Note 18: Display changes depending on the registration status:

When MG-SIP128 is trying to register: Now Registrating.

After MG-SIP128 successfully registered: Registration is OK. (DRS IP address 192.168.0.1) (The IP address succeeding in registration appears as well.)

- If displaying status of registration to SIP network (when the registration function per number is disabled)

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:2

SIP Registration Information
Registration is OK.
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 19

Note 19: Display changes depending on the registration status:

When MG-SIP128 is trying to register: Now Registrating.

After MG-SIP128 successfully registered: Registration is OK.

After MG-SIP128 fails to register: Registration is NG. Waiting Re-Registration timer.
(MG-SIP128 is trying to register again)

When registration is disabled: Register Server Configuration data is not set.
(No setting data of “set sip_register” command)

- If displaying status of registration to SIP network (when the registration function per number is enabled)

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:2

SIP Registration Information

------Registration NG RegIndex------

[MG-No:1]

9 10 11 12 13 14 15 16

[MG-No:2]

[MG-No:3]

[MG-No:4]

[MG-No:5]

[MG-No:6]

[MG-No:7]

[MG-No:8]

[MG-No:9]

[MG-No:10]

[MG-No:11]

[MG-No:12]

[MG-No:13]

[MG-No:14]

[MG-No:15]

------Registration OK RegIndex------

[MG-No:1]

1 2 3 4 5 6 7 8

[MG-No:2]
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 20

Information on CNTs (RegIndex) failing in registration

MG-No: 1

CNTs failing in registration

MG-No: 2

MG-No: 3

MG-No: 4

MG-No: 5 **Note 20**

MG-No: 6

MG-No: 7

MG-No: 8

MG-No: 9

MG-No: 10

MG-No: 11

MG-No: 12

MG-No: 13

MG-No: 14

MG-No: 15

Information on CNTs (RegIndex) succeeding in registration

MG-No: 1

CNTs succeeding in registration

MG-No: 2

```
[MG-No:3]
[MG-No:4]
[MG-No:5]
[MG-No:6]
[MG-No:7]
[MG-No:8]
[MG-No:9]
[MG-No:10]
[MG-No:11]
[MG-No:12]
[MG-No:13]
[MG-No:14]
[MG-No:15]
-----------------------------------
```

MG-No: 3
MG-No: 4
MG-No: 5
MG-No: 6
MG-No: 7
MG-No: 8
MG-No: 9
MG-No: 10
MG-No: 11
MG-No: 12
MG-No: 13
MG-No: 14
MG-No: 15

Note 20: The example above shows a total of 16 CNTs tried registration, and eight (9 to 16) of them failed.
(Use the ASRIL command to set MG-Nos and a pilot number. CNT is a parameter set with the ASRIL command.)

- If displaying information on channels in use

```
MG(SIP)> show status
0:Port status
1:IPX status
2:SIP status
3:CH Status
9:Exit
Select a reference number:3
---------------------------------------
|  |    0|   1|  2|  3|  4|  5|  6|  7|
---------------------------------------
|  0|ACT(S)| --| --| --| --| --| --| --|
|  8| --   | --| --| --| --| --| --| --|
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

"ACT(S)"appears for a channel in use; "--" appears for a channel not in use.

```
| 16| --    | --| --| --| --| --| --| --|
| 24| --    | --| --| --| --| --| --| --|
| 32| --    | --| --| --| --| --| --| --|
| 40| --    | --| --| --| --| --| --| --|
| 48| --    | --| --| --| --| --| --| --|
| 56| --    | --| --| --| --| --| --| --|
| 64| --    | --| --| --| --| --| --| --|
| 72| --    | --| --| --| --| --| --| --|
| 80| --    | --| --| --| --| --| --| --|
| 88| --    | --| --| --| --| --| --| --|
| 96| --    | --| --| --| --| --| --| --|
|104| --    | --| --| --| --| --| --| --|
|112| --    | --| --| --| --| --| --| --|
|120| --    | --| --| --| --| --| --| --|
----------------------------------------
|            |actch=1|                  |
----------------------------------------
Use Session Count=1
INVITE Client Transaction = 0, max=0

INVITE Server Transaction = 0,  max=0

Other Client Transaction = 0,  max=1

Other Server Transaction = 0,  max=1
```

Number of channels in use

Number of sessions in use

Number of INVITE client transactions and their maximum number

Number of INVITE server transactions and their maximum number

Number of client transactions other than INVITE and their maximum number

Number of server transactions other than INVITE and their maximum number (the maximum number represents the maximum number counting up to this time from when MG-SIP128 [MG-128SIPMGG-B/MG-128SIP-MGG] is turned on.)

```
The number of Filtered Messages = 0
( Out of Range = 0 , No DNS Cache = 0)



The number of Burst Filtered Messages =
0


MG(SIP)>
```

Number of SIP packets that were discarded by SIP Access Filter
When "disable" is selected for "SIP Access Filter", this parameter is not shown.

Number of incoming calls that are rejected by Burst Access Filter **Note 21**
When "disable" is selected for "Burst Access Filter", this parameter is not shown.

Note 21: This parameter is displayed from the following firmware version:
- SP-4051 MGSIP PROG-G Issue 2 or later
- SP-4058 MGSIP PROG-J

5.2.3 download Command

This command is used to download MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] program and Music/Tone file via Ether1 port (Ether port on the LAN side).

The following figure shows an example of a display.

[When downloading all programs]

```
MG(SIP) > download

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:1
--- IP Address setting of MG(SIP) ---
```

Input "download" at the configuration mode.

To download all programs, enter "1".

```
Select Ether Port [1(Ether1)/2(Ether2)/
Q(quit)]:1
```

Select a port to use.
(With the default setting, select Ether1. If selecting Ether2, using two ports must be set in the “set ipaddress” command.)

Note: When IPv6 function is in service, download is not available on Ether2. So “2(Ether2)” does not appear.

```
Current IP Address of MG(SIP):10.41.1.100
Do you change IP Address of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.100
Current Subnet mask of MG(SIP):255.0.0.0
Do you change Subnet mask of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new Subnet mask:255.255.0.0

--- IP Address setting of TFTP server ---
Current IP Address of TFTP server:10.41.1.250

Do you change IP Address of TFTP server?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.250
IP Address change was completed.
New IP Address of MG(SIP):172.16.253.100
```

To change the IP address that is used for downloading, enter “y”.

Enter the IP address.

To change the subnet mask of the selected port, enter “y”.

Enter a subnet mask.

To change the IP address of a TFTP server, enter “y”.
(Default address: 10.41.1.250)

Enter an IP address.

```
New Subnet mask of MG(SIP):255.255.0.0
New IP Address of TFTP server:172.16.253.250
Are these IP Address correct? [Y(correct)/
N(change)/Q(quit)]
If you enter Y, MG(SIP) ONLINE service will be
stop:y
mgsipmwlist.txt download...
tftpDownload:User file TFTP start.
Received.
SP4051/MAIN/main.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
SP4051/TONE/tone.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
SP4051/MUSIC/music.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
Download was completed!
Please reboot after a download menu end.

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
```

When the specified IP addresses are correct, enter ‘y’.

```
Input:q


MG(SIP) >
```

When download is complete, the menu appears again.
Enter ‘q’ to exit download command.

[When downloading one program]

```
MG(SIP) > download

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:2
--- IP Address setting of MG(SIP) ---
Select Ether Port [1(Ether1)/2(Ether2)/
Q(quit)]:1



Current IP Address of MG(SIP):10.41.1.100
Do you change IP Address of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.100
Current Subnet mask of MG(SIP):255.0.0.0
Do you change Subnet mask of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new Subnet mask:255.255.0.0


--- IP Address setting of TFTP server ---
```

Enter “download” in configuration mode.

To download one program, enter “2”.

Select a port to use.
(With the default setting, select Ether1. If selecting Ether2, using two ports must be set in the “set ipaddress” command.)

To change the IP address that is used for downloading, enter “y”.

Enter the IP address.

To change the subnet mask of the selected port, enter “y”.

Enter a subnet mask.

```
Current IP Address of TFTP server:10.41.1.250


Do you change IP Address of TFTP server?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.250
IP Address change was completed.
New IP Address of MG(SIP):172.16.253.100
New Subnet mask of MG(SIP):255.255.0.0
New IP Address of TFTP server:172.16.253.250
Are these IP Address correct? [Y(correct)/
N(change)/Q(quit)]
If you enter Y, MG(SIP) ONLINE service will be
stop:y
mgsipmwlist.txt download...
tftpDownload:User file TFTP start.
Received.


--- Program download ---
Main program:0
tone data:1
music data:2
wave file:3
config data:4
Quit:[Q/q]
Input:0
SP4051/MAIN/main.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
```

To change the TFTP server IP address, enter “y”.
(Default address: 10.41.1.250)

Enter the IP address.

When the specified IP addresses are correct, enter ‘y’.

Select a file you want to download.

Download starts.

```
Download was completed!


--- Program download ---
Main program:0
tone data:1
music data:2
wave file:3
config data:4
Quit:[Q/q]
Input:q


Please reboot after a download menu end.


--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:q


MG(SIP) >
```

When download is complete, the program download menu appears again. Enter ‘q’ to exit download command.

5.2.3.1 How to download a WAVE file

If you select Type3 (WAVE file) for the music type of "set musictype" command, you can use a WAVE file for music on hold. Note that the payload type of the RTP header sent by MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] must be G.711.

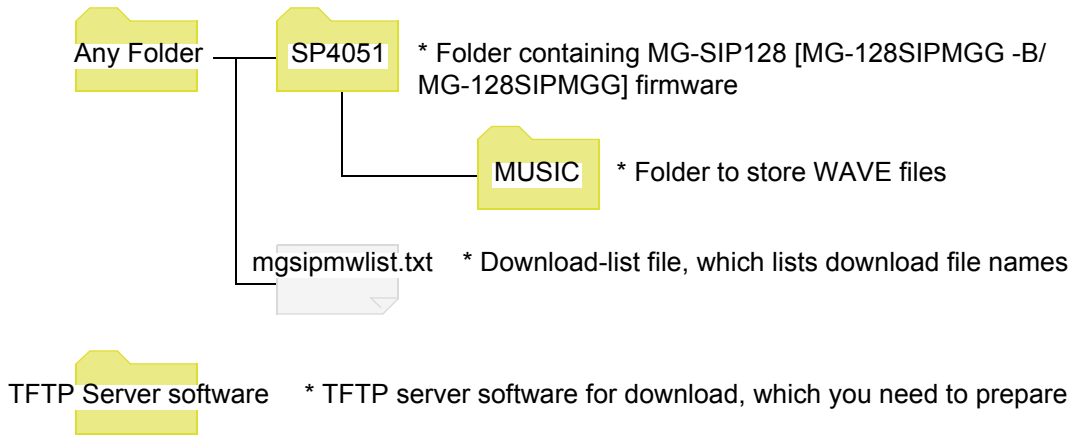
The following explains how to download a WAVE file.

- Place the firmware of MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] in a folder on a TFTP server. If the firmware is not present, create a folder with the name of the MG-SIP128 firmware ("SP4051" in this case) in a folder on the server, and then create a subfolder named "MUSIC" to store WAVE files. A WAVE file must be named as "music_3.wav".
- Place the WAVE file in the MUSIC folder (a subfolder of the above-mentioned firmware folder).
- Form the download-list file (mgsipmwlist.txt) under the firmware folder as below.

```
# This is Firmware list for SN8178
00,SP4051/MUSIC/music_3.wav,0
```

Note: When adding WAVE files to the download-list (mgsipmwlist.txt), assign sequential numbers (such as 00, 01, 02,...) to all files as shown in the red frame in the image above.

File Structure



5.2.3.2 About WAVE file format

A WAVE file must meet the following specifications as its format:

- Sampling Frequency: 8kHz
- Quantifying Bit Number:8 bit
- Quantifying Format: G.711 μ-law/A-law
- Channel: Monaural
- Capacity: Only a single WAVE file with about 10 MB (about 20 minutes) **Note 1**
  * Note that the actual capacity may be smaller because the capacity of 10 MB includes the management area of the file system.

Note 1: The capacity of a WAVE file is about 10 MB (about 20 minutes) from the following firmware version:
- SP-4051 MGSIP PROG-G Issue 2
- SP-4058 MGSIP PROG-J

[Display example of downloading a WAVE file (music_3.wav) individually]

```
MG(SIP) > download

--- Download menu ---

Download of all programs. (default) ---
input:1

Download of one program. --- input:2

Quit --- [Q/q]

Input:2

--- IP Address setting of MG(SIP) ---

Select Ether Port [1(Ether1)/2(Ether2)/
Q(quit)]:1



Current IP Address of MG(SIP):10.41.1.100

Do you change IP Address of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y

If you want to return to the previous step,
please input 'Q'.

Input new IP Address:172.16.253.100

Current Subnet mask of MG(SIP):255.0.0.0
```

Enter “download” in configuration mode.

Enter “2” to download a program individually.

Select a port to use.
(With the default setting, select Ether1. If selecting Ether2, using two ports must be set in the “set ipaddress” command.)

To change the IP address of the selected port, enter “y”.

Enter an IP address.

```
Do you change Subnet mask of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new Subnet mask:255.255.0.0


--- IP Address setting of TFTP server ---
Current IP Address of TFTP server:10.41.1.250


Do you change IP Address of TFTP server?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.250
IP Address change was completed.
New IP Address of MG(SIP):172.16.253.100
New Subnet mask of MG(SIP):255.255.0.0
New IP Address of TFTP server:172.16.253.250
Are these IP Address correct? [Y(correct)/
N(change)/Q(quit)]
If you enter Y, MG(SIP) ONLINE service will be
stop:y
mgsipmwlist.txt download...
tftpDownload:User file TFTP start.
Received.


--- Program download ---
Main program:0
tone data:1
music data:2
wave file:3
```

To change the subnet mask of the selected port, enter “y”.

Enter a subnet mask.

To change the TFTP server IP address, enter “y”.
(Default address: 10.41.1.250)

Enter an IP address.

Enter “y” after confirming the entered IP address.

```
config data:4
Quit:[Q/q]
Input:3
SP4051/MUSIC/music_3.wav download...
tftpDownload:User file TFTP start.
Received.
Checksum No Check. Checksum of SP4051/MUSIC/
music_3.wav is 23915.
Download was completed!

--- Program download ---
Main program:0
tone data:1
music data:2
wave file:3
config data:4
Quit:[Q/q]
Input:q

Please reboot after a download menu end.

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:q

MG(SIP) >
```

Select “3” representing wave file.

Download starts.

After the download is finished, download menu is restored.

Enter “download” in configuration mode.

Note: The conditions of “Display example of downloading a WAVE file (music_3.wav) individually” are as follows.

- Be sure to check the product name of the firmware to download before downloading.
- After downloading, initialize the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].
- Make sure of the following to set an IP address for download.

1. A port to download files needs to have a different network address (or segment) from the other ports.
2. Do not use a network address set as a static route in the routing table.

- If checksum error occurs during download, an error message similar to the following is displayed.

```
Checksum unmatched!
Checksum of SP4051/MAIN/main.tar.gz is 1234. Not 5678.
Download failed!
```

If an error message is displayed, the display goes back to the download menu. In this case, execute download again.

- If download fails, an error message and an error code are displayed.

```
Error code: Cause of error
Download failed!
```

The following lists causes and solutions of error codes.

Error Code	Error Display	Cause of Error	Troubleshooting
0	Undefined error	No specified folder (MAIN, TONE, MUSIC) in the TFTP server	Check the name of the TFTP server’s folder to download files.
1	File not found	No download-list file	Check the folder setting of the download-list file in the TFTP server.
		Error in specifying the download-list file	Check the contents of the download-list file and the file name of the actually-downloaded file.
2	Access violation	No access permission	Check the TFTP server settings.

Some errors in downloading can be classified into none of the error codes; they are listed below: display, causes, solutions.

Error Display	Cause of Error	Troubleshooting
Hardware type ERROR! allDLoad: ListDLoad Error Download failed!	Hardware type discrepancy (for SN8178)	Check if the downloaded file is compatible with the hardware type (for SN8178).
Checksum unmatched! Checksum of SP4051/MAIN/main.tar.gz is 1234. Not 5678. Download failed!	Checksum discrepancy	Check if the contents of the download-list file correspond to the actually-downloaded file.

Error Display	Cause of Error	Troubleshooting
Download list unmatched! Download failed!	Request to download a file not written in the download-list file (individual download)	Check if the contents of the download-list file correspond to the actually-downloaded file. Download only files set in the download-list file.
ListDLoad : Sub directory error =[subfolder name] ListDLoad: Download file is not found Download failed!	Incorrect name of the subfolder of the download-list file (only MAIN, TONE, MUSIC, and CONFIG are allowed)	Check the name of the subfolder of the download-list file.
ListDLoad: DataKind = [number] (0-255) is too large	Out of running numbers (0-255)	Check the contents of the download-list file.
ListDLoad: Comment strings too long =[comment strings]	Bad length of comment strings in the download-list file	Check if the download-list file is proper.
ListDLoad: Download file name is too long(91) =[download file name]	Bad length of the downloaded file name (representing 92 characters or more when including the subfolder)	Check if the download-list file is proper.
Transfer timed out. Download failed!	Specifying non-existing IP address	Check the IP address of the TFTP server.
	Specifying incorrect IP address	
	Enabled Windows firewall	Disable Windows firewall.
	Disconnected LAN cable	Make sure of no network problems including disconnection of an LAN cable.
	Inactivated TFTP server	Make sure that the TFTP server is activated.

5.2.4 Other Commands

(1) exit

(2) logout

[Function]

To exit the configuration command menu.

[Setting Example]

```
MG(SIP)> exit

login:
```

Note: After changing the configuration, if you execute this command without saving the running configuration, the system discards the change and exits the configuration command menu.

(3) reboot

[Function]

To reboot MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]. It is also possible to save the running configuration data to the flash memory.

[Setting Example]

```
MG(SIP)> reboot

  Do you want to save Config data? Y/N=y

  Do you want to reboot MG(SIP)? Y/N=y

Config data flash write start.
Config data flash write end.

MG(SIP)reboot start...
```

Select if you want to save the running configuration data.
y: Saves the configuration data. **Note 1 Note 2**
n: Do not save the configuration data.
If other than the above is selected, the following message is displayed.
Reboot command was interrupted.

Select if you want to reboot MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].
y: Reboots MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]. **Note 2**
n: Do not reboot MG-SIP128 [MG-128SIP-MGG-B/MG-128SIPMGG].
If other than the above is selected, the following message is displayed.
Reboot command was interrupted.

Note 1: Before selecting "Y" to save the running configuration data to the Flash memory, be sure to execute the following commands:
- "set ipaddress": Assigns the IP addresses on LAN side, and SIP side.
- "set drsaddress": Assigns the IP address of DRS.
- "set sip_server": Assigns the IP address of SIP proxy server.
- "set keynumber": Assigns a pilot number.

If any of these items have not been assigned when saving the running configuration data, the following message will be displayed to the unassigned item. When these messages are displayed, you can select if you want to set the default configuration data. If you select "Y" here, the default values are applied to the configuration data.

Note 2: The configuration data is not saved until MG-SIP128 [MG-128SIPMGG-B/MG-128SIP-MGG] is rebooted.

```
The following setting commands are not
perfect.
```

```
"set ipaddress" command.(IPX side)
"set ipaddress" command.(SIP side)

"set drsaddress" command.
"set sip_server" command.

"set keynumber" command.
So, Config data is made a default
setup.
Is it all right? Y/N=y
```

If IP address for LAN side has not been assigned.

If IP address for SIP network side has not been assigned.

If IP address of DRS has not been assigned.

If IP address of SIP proxy server has not been assigned.

If a pilot number has not been assigned.

You can select if you want to apply the default values to the configuration data.
y: apply default value
n: do not apply default value
If other than the above is selected, the following message is displayed.
Reboot command was interrupted.

(4) ping

[Function]

To attempt "ping" command five times to the designated IPv4 host on the network.

[Setting Example]

```
MG(SIP)> ping 172.16.253.3



PING 172.16.253.3 (172.16.253.3) 56(84) bytes of data.
64 bytes from 172.16.253.3: icmp_seq=1 ttl=128
time=0.599 ms
64 bytes from 172.16.253.3: icmp_seq=2 ttl=128 time=1.02
ms
64 bytes from 172.16.253.3: icmp_seq=3 ttl=128
time=0.443 ms
64 bytes from 172.16.253.3: icmp_seq=4 ttl=128
time=0.304 ms
64 bytes from 172.16.253.3: icmp_seq=5 ttl=128
time=0.727 ms
---172.16.253.3 ping statistics---
```

Enter "ping" command and designate the target IPv4 address.

```
5 packets transmitted, 5 received, 0% packet loss, time
3997ms

rtt min/avg/max/mdev = 0.304/0.618/1.020/0.247 ms

MG(SIP)>
```

Note: The number of ping attempts (5 times) and packet size (56 bytes) cannot be changed.

(5) ping6

[Function]

To attempt “ping” command five times to the designated IPv6 host on the network.

[Setting Example]

```
MG(SIP)> ping6 2001:db8:1:0:216:97ff:fee7:a8c0



PING 2001:db8:1:0:216:97ff:fee7:a8c0
(2001:db8:1:0:216:97ff:fee7:a8c0) from
2001:db8:1:0:216:97ff:fee7:a8c0 eth1: 56 data bytes

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=1 ttl=64 time=0.015 ms

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=2 ttl=64 time=0.011 ms

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=3 ttl=64 time=0.010 ms

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=4 ttl=64 time=0.013 ms

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=5 ttl=64 time=0.011 ms

--- 2001:db8:1:0:216:97ff:fee7:a8c0 ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time
3997ms

rtt min/avg/max/mdev = 0.010/0.012/0.015/0.002 ms

MG(SIP)>
```

Enter “ping6” command and designate the target IPv6 address.

Note: The number of ping attempts (5 times) and packet size (56 bytes) cannot be changed.

(6) traceroute

[Function]

To inquire network routes. The following figures show display examples.

[On the Telephony Server Side]

```
MG(SIP)> traceroute
  Interface number(0:IPX side/1:SIP side):0



  Target IP Address:172.16.253.3
  traceroute to 172.16.253.3 (172.16.253.3), 3
  hops max, 38 byte packets
1 172.16.253.3 (172.16.253.3) 0.047 ms 0.028
ms 0.010 ms
MG(SIP)>
```

Select if this is on the Telephony Server side or SIP side.
0: Telephony Server side
1: SIP side
"0" is selected.

Designate the IP address of the target.

[SIP Side]

```
MG(SIP)> traceroute
  Interface number(0:IPX side/1:SIP side):1



  Target IP Address:172.17.253.210

  traceroute to 172.17.253.210
  (172.17.253.210), 3 hops max, 38 byte
  packets
1 172.17.253.210 (172.17.253.210) 0.047 ms
0.028 ms 0.010 ms
MG(SIP)>
```

Select if this is on the Telephony Server side or SIP side.
0: Telephony Server side
1: SIP side
"1" is selected.

Designate the IP address of the target.
Note 3

Note: When the response from the network is delayed, it takes time to complete the command.

Note 3: When "IPv6" is selected by "set ip_version", input an IPv6 address for Target IP Address. When "IPv4" is selected by "set ip_version", input an IPv4 address for Target IP Address.

(7) help or ?

[Function]

This command is used to show the brief explanation of the configuration commands that are available on MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

[Setting Example]

```
MG(SIP)> help
set       :sets config data of MG(SIP).
show      :shows config data of MG(SIP).
download  :downloads program of MG(SIP).
ping      :Ping command.
traceroute:Traceroute command.
exit      :log-out command of config mode.
logout    :log-out command of config mode.
reboot    :reboots MG(SIP).
help      :shows help information.
?         :shows help information.
```

5.3 Error Messages

When an error occurs while using a configuration command, an error message prompting for re-registration is displayed.

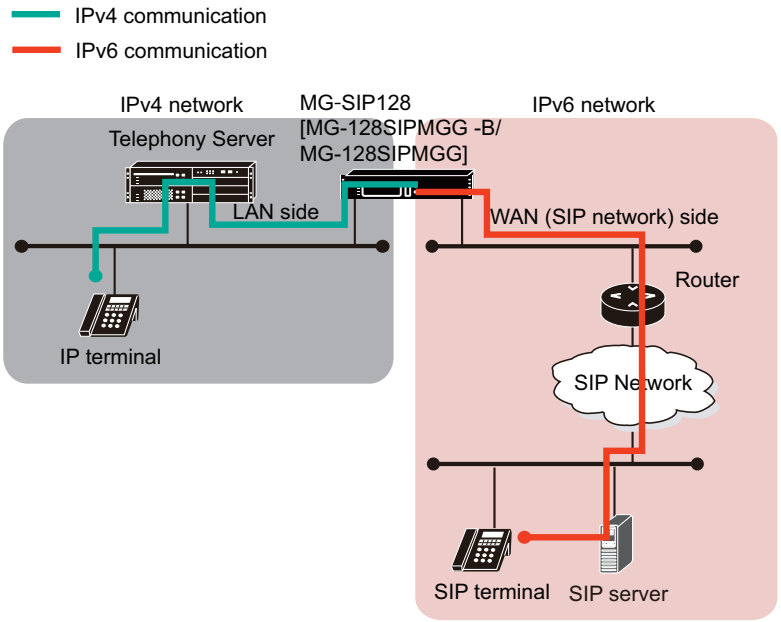
ERROR MESSAGE	TROUBLESHOOTING
Illegal command.	An incorrect command is entered. Enter the command correctly.
Illegal parameters.	An incorrect parameter is entered. Enter the parameter correctly.
Illegal parameters. (Not IPv6 address)	An incorrect parameter is entered. Enter the IPv6 parameter correctly.
Illegal parameters. (Not IPv4 address)	An incorrect parameter is entered. Enter the IPv4 parameter correctly.

Refer to each command for the other error messages.

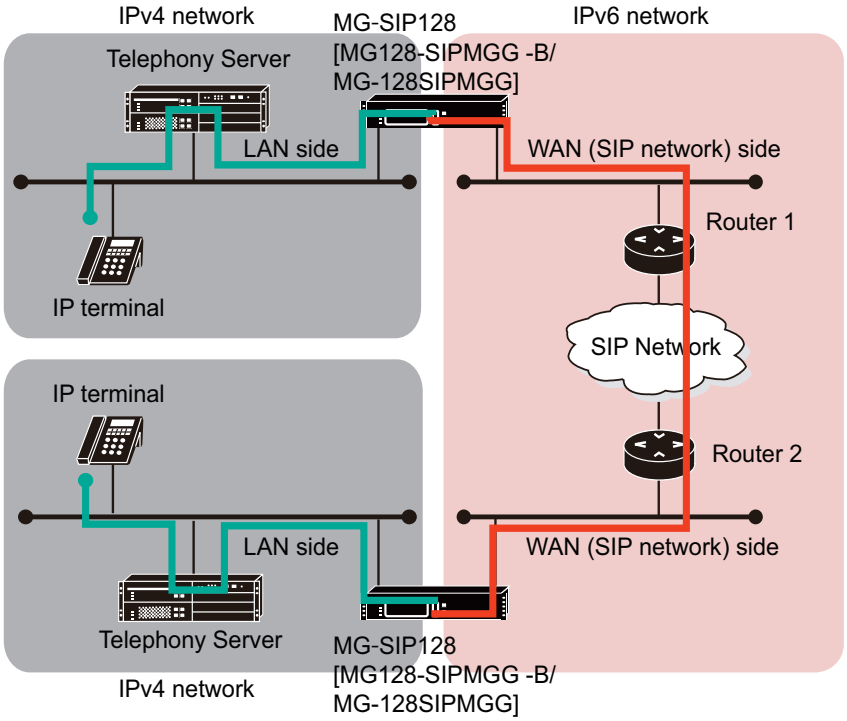
5.4 IPv6 Function

MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] supports IPv6 function based on RFC2460 in order to communicate with the SIP server having an IPv6 address. When IPv6 mode is enabled, IPv6 packets are sent from/received to WAN side (through the Ether2 port) on MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]. You can select an IP version to be used on the Ether2 port by a configuration command.

- When SIP server exists



- When SIP server does not exist



[Operating Procedure]

To enable IPv6 function, execute the following commands. For the details of the commands, refer to 5.2. List of Maintenance Console Commands.

STEP 1: Select "IPv6" by "set ip_version" command. **Note 1**

STEP 2: Set SIP server address by "set sip_server" command.

STEP 3: Set the SIP register address by "set sip_register" command if needed.

* This command is required depending on the carrier that MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connected.

STEP 4: Set the IP address of the Telephony Server by "set drsaddress" command.

STEP 5: Set Ether1 information by "set ipaddress" command. **Note 2**

STEP 6: Set the key number by "set keynumber" command.

STEP 7: Set the user ID and the password by "set auth" command if needed.

* This command is required depending on the carrier that MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] connected.

STEP 8: Set other commands if needed.

STEP 9: Execute the "reboot" command to save the configuration and restart the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

Note 1: If you change the IP version by "set ip_version" command, you also need to change the following command settings to activate IPv6 function. After those settings, execute the "reboot" command to save the configuration and restart the MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG].

<table>
<tr><th rowspan="2"></th><th colspan="2">Changing IPv4 to IPv6</th><th colspan="2">Changing IPv6 to IPv4</th></tr>
<tr><th>IPv6 Related Data Settings Exist</th><th>No IPv6 Related Data Settings Exist</th><th>IPv4 Related Data Settings Exist</th><th>No IPv4 Related Data Settings Exist</th></tr>
<tr><td>dnsaddress</td><td rowspan="3">Change the current setting to the last setting.</td><td rowspan="3">Change the current setting to "::".</td><td rowspan="4">Change the current setting to the last setting.</td><td rowspan="4">Change the current setting to "0.0.0.0".</td></tr>
<tr><td>sip_server</td></tr>
<tr><td>sip_register</td></tr>
<tr><td>ipaddress
Note 3</td><td colspan="2">For Ether2 port, an IP address is generated by receiving the Router Advertisement (RA) message.</td></tr>
<tr><td>sip_route</td><td>Change the current setting to the last setting.</td><td>Change the current setting to "::".</td></tr>
<tr><td>sip_accfilter</td><td>Change the current setting of SIP Access Filter mask to the last setting.</td><td>Change the current setting of SIP Access Filter mask to "128".</td><td>Change the current setting of SIP Access Filter mask to the last setting.</td><td>Change the current setting of SIP Access Filter mask to "255.255.255.255".</td></tr>
</table>

Note 2: When IPv6 function is in service, Ether2 IP address can be generated by MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] after MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] receives the RA message from the router. So Ether2 IP address setting is unnecessary.

Note 3:

- "set ip_version: IPv6" is executed.
  When the last IP address set for Ether2 port remains, it appears.
  When the last IP address set for Ether2 port does not remain,"::" appears.
  When Ether2 port fails to obtain an IP address,"::" appears.
- "set ip_version: IPv4" is executed.
  When the last IP address set for Ether2 port remains, it appears.
  When the last IP address set for Ether2 port does not remain,"0.0.0.0" appears.

[Conditions Specific to IPv6 Function]

(1) IPv6 and IPv4 cannot be used simultaneously.

(2) IPv6 address can be set only by "stateless address autoconfiguration" in the router. So, this function requires to connect a router supporting IPv6. When two or more routers exist or two or more prefixes used for the router in the WAN side, IP address settings may be overlapped. To avoid it, this function allows only one router to be connected in the WAN side, and one prefix can be used per router. This function does not support allocating fixed IP addresses manually and distributing IP addresses from DHCPv6 server.

(3) When IPv6 function is in service, IPv4 packets are discarded. When a SIP request for IPv6 packet has any IPv4 address in its message body using SDP, MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] responses to the request with returning 488 Not Acceptable Here. A warning code is not added to 488 Not Acceptable Here.

(4) When IPv6 function is out of service, IPv6 packets are discarded. When a SIP request for IPv4 packet has any IPv6 address in its message body using SDP, MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] responses to the request with returning 488 Not Acceptable Here. A warning code is not added to 488 Not Acceptable Here.

(5) When IPv6 function is in service, be sure to set an IPv6 address for each configuration command requiring IP address setting.

(6) In this feature, IPv6 addresses can be abbreviated. For example, "2001:db8::850" can be typed. Also, IPv6 addresses can be typed in the general form. For example, "2001:0db8:0000:0000:0000:0000:0000:0850" can be typed.

- Short Form

```
2001:db8::850
```

- General Form

Lowercase letters only	2001:0db8:0000:0000:0000:0000:0000:0850
Uppercase letters only	2001:DB8::850
Mix of Lowercase and Uppercase letters	2001:dB8::850

(7) "One-port only" is not supported by IPv6 function. Do not enable "one-port only" with the set_ipaddress command when IPv6 is selected with the set ip_version command.

(8) When Ether2 port fails to obtain an IPv6 address while IPv6 function is active, it attempts to obtain the address for 30 minutes. If it fails again, MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] reboots itself.

(9) When Ether2 port fails to obtain an IPv6 address while IPv6 function is active, MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] attempts to obtain the address for 30 minutes. If the SC Health Check is performed, MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] may reboot itself while attempting to obtain the IPv6 address information again. So the Health Check is not performed.

(10) Address information is not deleted by removing and inserting Ether2 cable. IPv6 information is valid if it is obtained before expiring the time limit.

(11) When Ether2 port attempts to obtain an IPv6 address during the system initialization, the system initialization is not completed and ONLINE START/OFFLINE START does not appear until Ether2 port obtains the IPv6 address.

(12) When IPv6 function is in service, download and upload is not available on Ether2 port.

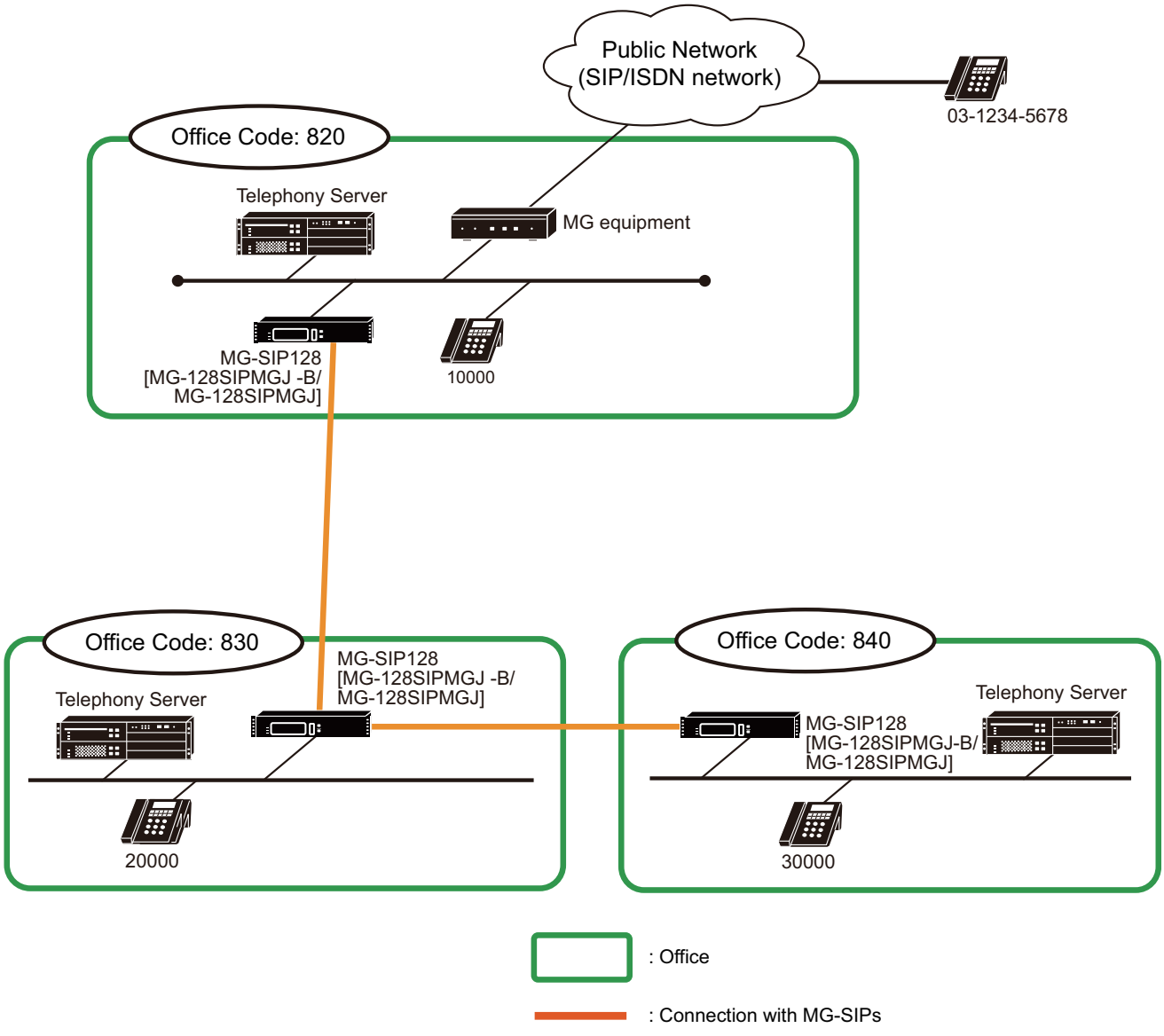
MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

The following explains MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]: function overview, configuration, and installation procedure.

1 General

MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] is a SIP-compatible Media Gateway for Simplified TIE Line. MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] provides VoIP devices supporting SIP (Session Initiation Protocol, based on RFC) with peer-to-peer VoIP services. MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] also connects IP stations located on LAN and maintain voice quality. By connecting with MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]s, Small Call Centers are operated as one Call Center virtually.

For details on service conditions and office data assignment, see MG-SIP TIE LINE [M-122] in UNIVERGE SV9500 Data Programming Manual - Business.



The following table shows the number of available channels of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIP-MGJ].

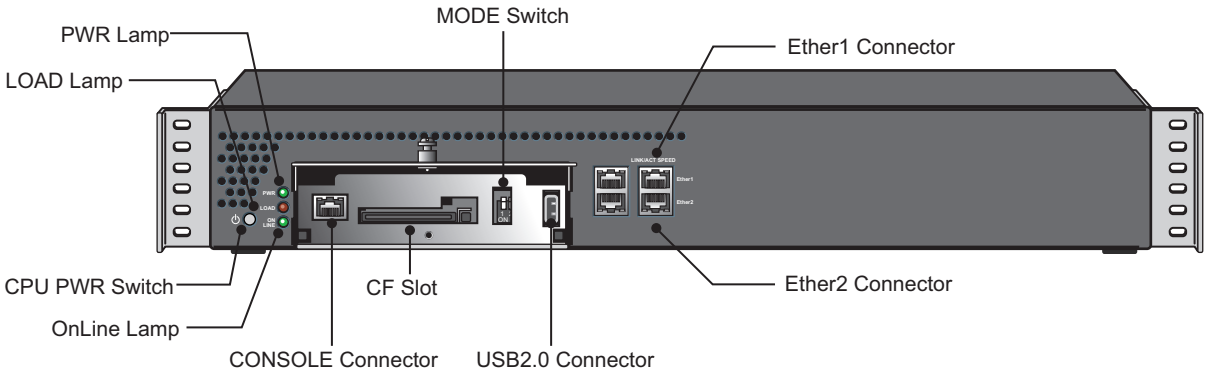
	10ms	20ms	30ms	40ms	60ms
G.711	-	128ch	-	-	-
G.729a	-	-	-	-	-
G.723.1	-	-	-	-	-

1.1 Specifications

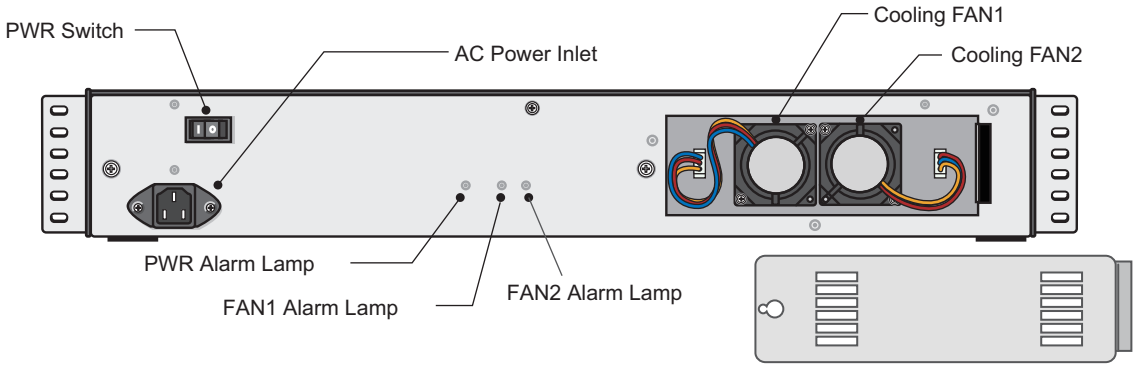
(1) Part Names

The following are the appearances of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

Front



Rear



Note: After installing a MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ], fix the AC power cable with the attached AC power cable stopper.

(2) Details

[1] Hardware specifications

Item	Specifications		Remarks
Connection terminal (on front panel)	CONSOLE connector (RJ-45) x 1		For maintenance
	LAN connectors	1000BASE-T 100BASE-TX 10BASE-T x 2	
		100BASE-TX 10BASE-T x 2	Not used.
	CF slot x 1		
	USB2.0 x 1		Not used.
Dimensions	65 (H) x 430 (W) x 297 (D) mm (corresponds to 1.5U when mounting on a 19-inch rack with depth of A4 paper.)		
Weight	3.8 kg		
Input Power Source	100 VAC (50/60 Hz) ± 10% 120 VAC (50/60 Hz) ± 10% 230 VAC (50/60 Hz) ± 10% 240 VAC (50/60 Hz) ± 10%		
Maximum Power Consumption	75 W (for maximum CPU load)		
QoS	IEEE802.1p (ToS field is supported, Diffserv)		
How to set	Flatly on desktop (basic type)		
Environmental requirement	Operational Temperature Range	0°C to 40°C (32°F to 104°F)	
	Operational Humidity Range	20% to 90% (not condensing)	
Cooling system	Forcible air-cooling by FAN		

[2] Functions

(a) Front

Part	Description		Remarks
PWR lamp	ON (green)	Powered ON.	
	OFF	Powered OFF.	
LOAD lamp	Flash (red)	Accessing to a CF card.	
	OFF	Not accessing to a CF card.	

Part	Description		Remarks
ONLINE lamp	ON (green)	Registration is finished.	
	Flash (green)	Abnormal state	No configuration, no Music/Tone file
	OFF	Registration is not finished.	
LAN connectors	Ether1	Port for LAN cable connection at LAN side	
	Ether2	Port for LAN cable connection at WAN side	Used for connection to a LAN cable only when the Ethernet Port Redundancy function is enabled.
SPEED lamp (Ether1/2)	ON (yellow)	1 Gbps connection	
	ON (green)	100 Mbps connection	
	OFF	10 Mbps	
LINK lamp (Ether1/2)	ON (green)	Layer1 link is established.	
	Flash (green)	Transmitting/receiving packets.	
	OFF	Layer1 link is not established.	
CPU PWR switch	Push to power ON the powered OFF device (**Note 1**); push to execute auto-shutdown the powered ON device (**Note 2**).		
MODE switch	Not used.		Fixed to OFF.
CONSOLE connector	Connected with a maintenance terminal (PC). **Note 3**		CONSOLE CABLE (RJ45 <-> RS-232C serial connection (not included in package)) is used.

Note 1: It works only when CPU PWR switch on the rear panel is ON.

Note 2: To confirm that shutdown is complete, check the PWR lamp. When auto-shutdown does not work, press and hold CPU PWR switch for four seconds to turn off forcibly.

Note 3: When CONSOLE CABLE is used, connect the CONSOLE CABLE with the maintenance terminal (PC) prior to connecting the cable with the CONSOLE connector of MG-SIP128.

(b) Rear

Part	Description		Remarks
AC power inlet	Connected with an attached three-polar grounded AC power cable (Cable Length: 3 m [9.8 ft.])		Fix the cable with the stopper to prevent it from falling out.
PWR switch	Power switch **Note 4**		
PWR alarm lamp	ON (red)	Failure on power module.	
	OFF	Power module works normally.	
FAN1 alarm lamp	ON (red)	FAN1 fails.	
	OFF	FAN1 works properly.	
FAN2 alarm lamp	ON (red)	FAN2 fails.	
	OFF	FAN2 works properly.	
Cooling FAN1	-	A FAN for cooling the device.	Replaceable during operation. **Note 5**
Cooling FAN2	-	A FAN for cooling the device.	Replaceable during operation. **Note 5**

Note 4: Auto-shutdown with CPU PWR switch on the front panel before turning OFF PWR switch.

Note 5: Do not replace both of cooling FAN1 and cooling FAN2 at the same time when MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] is working.

2 Installation



This section describes installing and cabling procedures for an MG-SIP128 [MG-128SIP-MGJ-B/MG-128SIPMGJ]. Take anti-static measures to work on it.

(1) Installing Procedure

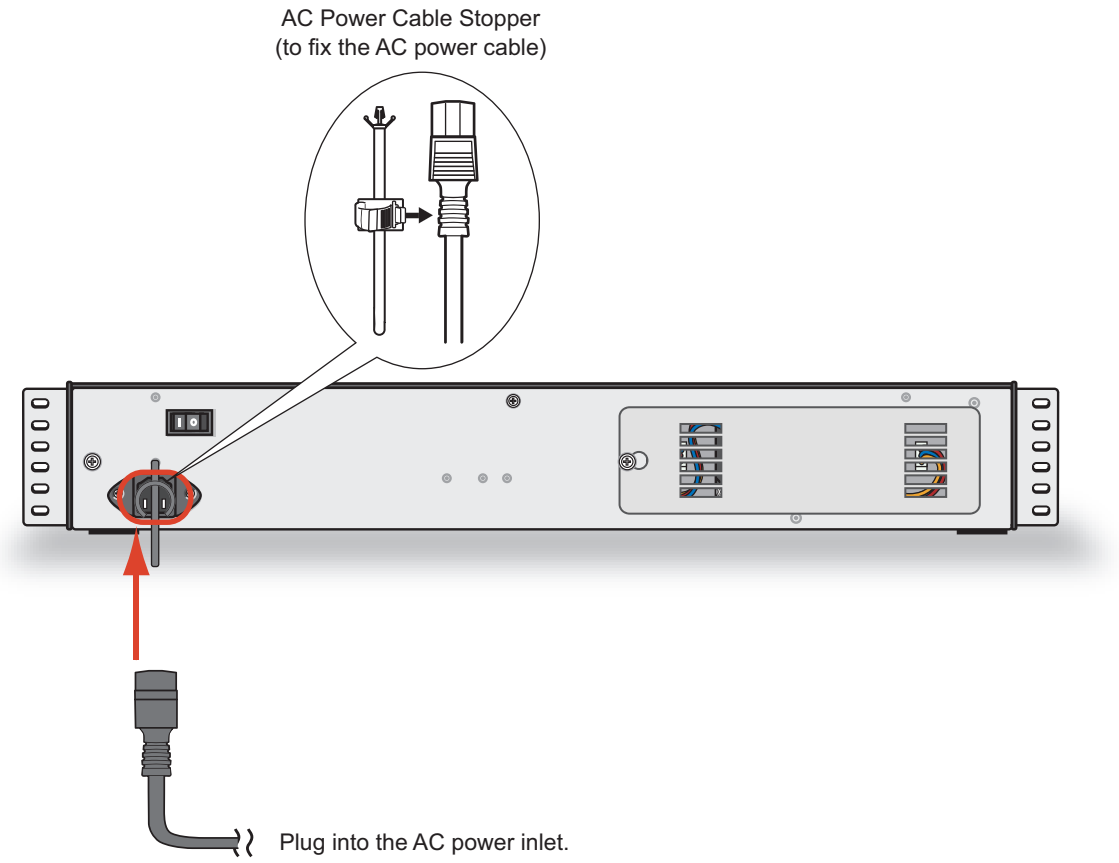
You can mount an MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] on a 19-inch rack. The procedure is the same as mounting an SV9500 server on a 19-inch rack; refer to the UNIVERGE SV9500 Appliance Model Installation Manual.

(2) Cabling Procedure

The following describes the cabling procedure. Follow the following to connect cables.

STEP 1:Plug an attached AC power cable into the AC power inlet on the rear panel of an MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]; fix the AC power cable with the stopper.

Rear Panel

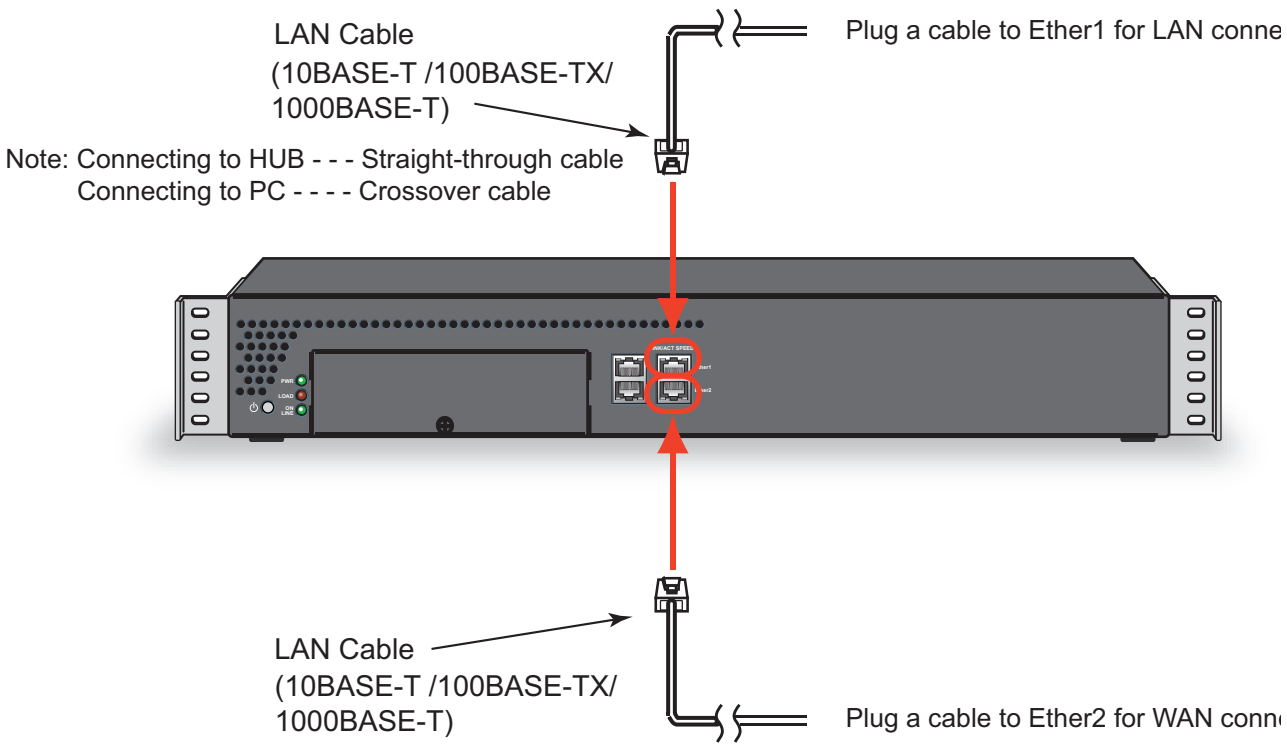


Note: To remove the AC cable, push the hook of the stopper outward, and take off the fixing belt. Push the tab of the stopper, and slide the stopper away from the power inlet.

STEP 2:Connect the other end of the AC power cable with an appropriate AC source.

STEP 3:Plug LAN cables into the Ether1 and Ether2 connectors (RJ-45). **Note 1**

Front Panel



Note 1: If you want to establish IP addresses of LAN and a SIP network in the same segment, connect a LAN cable only to a connector for LAN.

Cable connection is completed. Move on to the next section: Startup and Installation Test.

3 Startup and Installation Test

The following explains procedures for startup and installation test of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJMG-128SIPMGJ-B/MG-128SIPMGJ].

START

↓

STEP 1	Assigning office data on the Telephony Server
STEP 2	Connecting maintenance terminal (PC) and MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]
STEP 3	Turning on MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]
STEP 4	Setting configuration data on MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]
STEP 5	Connecting MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] to LAN and WAN
STEP 6	Checking states of LINK and SPEED lamps on Ether1 and Ether2

END

3.1 Assigning Office Data, Connecting with Console and Turning On MG-SIP128

STEP 1:Assigning office data on the Telephony Server

Refer to MEDIA GATEWAY SIP [M-111] in Data Programming Manual - Business.

STEP 2:Connecting maintenance terminal (PC) and MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

- How to set up MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

  Set up an MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] by connecting a maintenance terminal (PC) to CONSOLE connector and using configuration commands. Connect CONSOLE connector on the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] and a serial port (RS232C) on the maintenance terminal (PC) with CONSOLE CABLE (serial cable for RJ-45 and RS-232C, which is not included in the package).

  Note: When CONSOLE CABLE is used, connect the CONSOLE CABLE with the maintenance terminal (PC) prior to connecting the cable with the CONSOLE connector of MG-SIP128.

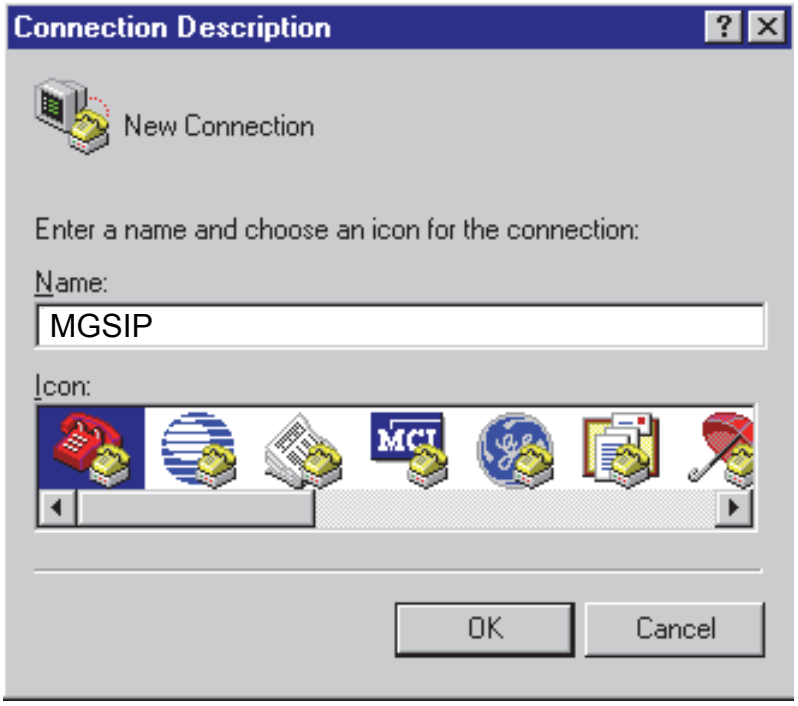
- Activating and connecting maintenance terminal (PC)

  Activate Windows on the maintenance terminal (PC), click Start, point to Programs, point to Accessories, point to Communications, and click HyperTerminal. If your computer does not have HyperTerminal, use another VT-100 compliant software with the same functions.

  “Connection Description” window is opened. Enter a name (whatever you like; here “MGSIP” as an example) in “Name” field. Enter “OK.”

  Note: VT-100 compliant Terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. This section explains the procedure for setting data by using HyperTerminal as an example. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data referring to the description for HyperTerminal.

Note: You can use any icon and name.

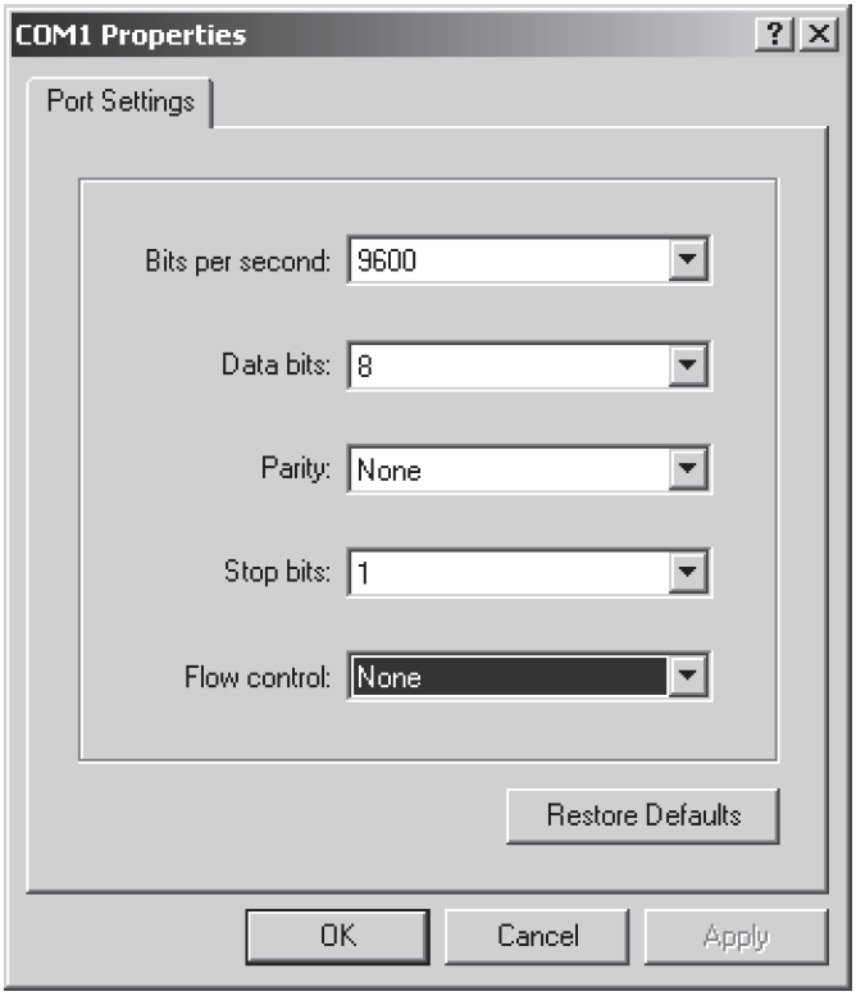


"Connect To" window is opened. Choose a COM port which is connected to MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] in "Connect using" box. Enter "OK." **Note 1**

Note 1: It depends on the PC.



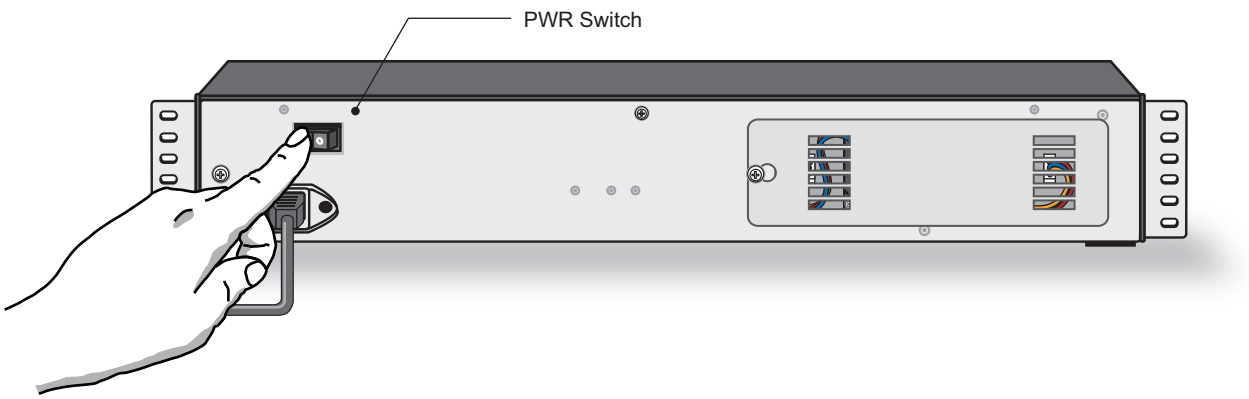
"Port Settings" tab opens. Set the values as the following figure shows.



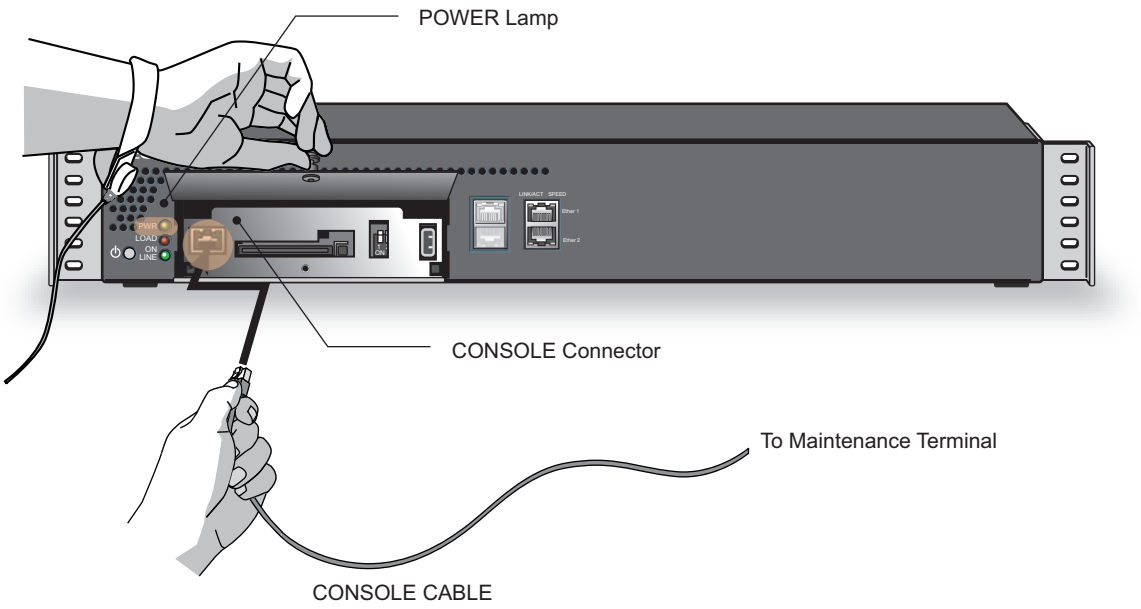
STEP 3:Turning on MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

Make sure of cable connection between the maintenance terminal (PC) and the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] via CONSOLE CABLE before turning on PWR switch. Make sure that PWR lamp on the front panel of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] turns green.

Rear Panel



Front Panel



After MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] is activated, the maintenance terminal (PC) displays "`mgsip login:`" on the screen.

```
mgsip login:
```

Note: If an MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] is connected with a maintenance terminal (PC) after activated, "`mgsip login:`" does not appear. Press Enter key to display "`mgsip login:`."

Now the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] is activated.

STEP 4:Setting configuration data on MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

(1) On the activated MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] with "`mgsip login:`" displayed, type "config" as the login name, and press Enter key.

```
mgsip login:
```

(2) Prompt "MG(SIP)>" appears: you are in data setting mode.

```
mgsip login:config
MG(SIP)>
```

(3) Use configuration commands to set data: Follow the following.

3.2 Setting of Basic Assignment

The following explains procedures for setting of basic assignment of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

Assign each configuration data of MG-SIP to default setting.

```
MG(SIP)> set default
 Are you sure? Y/N=y


 Config data default set.
```

Be sure to select “y”.

Assign the configuration data for Multipoint feature.

```
MG(SIP)> set config_template


Select configuration type
    0=default
    1=template
    2=nurse call  (Pattern1)
    3=PBX multipoint connection


Input : 1


Are you sure? Y/N=y


Selected template is set.
```

Select the type of template.
0: Default setting
1: Assignment data for Multipoint feature
2: Nurse Call (Pattern 1)
3: Assignment data for MG-SIP TIE Line Path Splitting

Select “1” for enabling Multipoint feature. **Note 1**

Be sure to select “y”.

Completing the setting of Basic Assignment.

Note: To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

Note 1: For not using Multipoint feature, select “0”. For details, refer to “Section 5.4 Multipoint Feature”. When “Enter” key is pressed without entering “Input:”, “set config_template” is finished.

3.3 Setting of IP Address

The following explains procedures for setting the number of ports that MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] uses, and IP addresses and subnet masks for each port of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

Note: Set the routing information if required.

Each port of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] is used as follows:

- Ether1 LAN: Telephony Server side
- Ether2 WAN: SIP network side

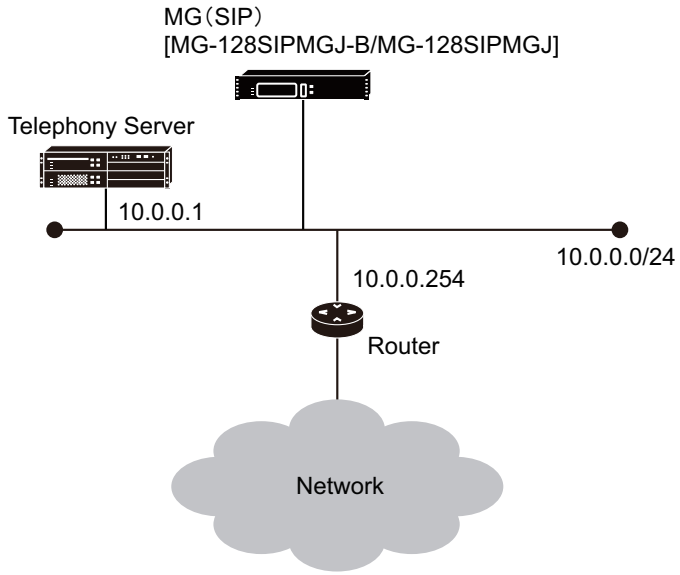
<One-port only>

When the IP addresses of both LAN and WAN are assigned in the same segment, use Ether1 port only. Select "Y" for "Do you use one-port only?" and assign Ether1's IP address only. In this case, Ether2 cannot be used.

Note: Please notice the following:

- If Ether2 data is already assigned, the message "Ether [2] Port data is erased. Are you sure? Y/N" is displayed. To erase the Ether2 data, select "Y".
- If you select one port in the number of port setting, be careful not to use the same RTP port number when setting the non-default SIP network RTP base port number (by "set sip_rtp_port_no" command) or IPX network RTP base port number (by "set ipx_rtp_port_no" command).

Configuration when using one port is as follows:



<Ethernet Port Redundancy function > **Note 1**

Ether1 and Ether2 can be used together as one virtual Ether (Bond [0]) if one-port only is selected and the Ethernet Port Redundancy function is enabled. With this function, if there is a link down (**Note 2**) for Ether1 (or Ether2), Ether2 (or Ether1) is used (**Note 3**).

Note 1: This function is available from SP-4060 MGSIP PROG-L issue 3.

Note 2: Only if the link down state continues for more than 100 milliseconds.

Note 3: Please notice the following:

- When there is a changeover of the port in use, MG-SIP128 is not restarted. However, ongoing voice communication will be interrupted by a silent gap of less than one second.
- Even if there is a link up for Ether1 while Ether2 is an active port, Ether2 continues to be an active port. In this case, only when there is a link down for Ether2, Ether1 replaces it as the port in use.
- Connect a cable both to Ether1 and Ether2 when Ethernet Redundancy function is enabled.

[Display example]

When Ether1 and Ether2 are used:

```
MG(SIP)> set ipaddress

Do you use one-port only? Y/N= n

Ether[1]

  Input IP Address.(default=0.0.0.0)
            : 172.16.0.1

  Input Subnet mask.(default=0.0.0.0)
            : 255.255.255.0

Ether[2]

  Input IP Address.(default=0.0.0.0)
            : 172.16.1.2

  Input Subnet mask.(default=0.0.0.0)
            : 255.255.255.0
```

Note 4

Enter “n”when two ports are used.

Ether [1]: LAN

Assign the IP address (Default: 0.0.0.0) for Ether [1].

Assign the subnet mask (Default: 0.0.0.0) for Ether [1].

Ether [2]: SIP network

Assign the IP address (Default: 0.0.0.0) for Ether [2].

Assign the subnet mask (Default: 0.0.0.0) for Ether [2].

When only Ether1 is used and Ethernet Redundancy function is enabled.

```
MG(SIP)> set ipaddress

Do you use one-port only? Y/N=y

Ether[1]

  Input IP Address. (default=0.0.0.0)
            : 172. 16. 0. 1

  Input Subnet mask. (default=0.0.0.0)
            : 255. 255. 255. 0

Ether[2] port data is erased.
Are you sure? Y/N = y
```

Note 4

Assign Ether1 data.

Assign the IP address (Default: 0.0.0.0) for Ether [1].

Assign the subnet mask (Default: 0.0.0.0) for Ether [1].

Note 5

```
Select the setting of Ethernet Port Redundancy
function.
  0 = disable (default)
  1 = enable
Input : 1
```

Enable Ethernet Port Redundancy. **Note 1**
0: disable (default)
1: enable

Note 4: Please note the following

- Pressing the Enter key can skip the item.
- To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

Note 5: When one-port only is selected, do not assign Ether[2] data.

3.4 Setting of the Telephony Server Information

Assign the IP address and port number of the Telephony Server. Set the Primary DRS only, and skip for Secondary and later DRS by pressing Enter key.

[Display example]

```
MG(SIP) > set drsaddress
[Primary DRS Setting]
Input IP address.(default=0.0.0.0)
          :172.16.253.1
Input Port Number.(1024-65535(default=3456)
          :3456
[Secondary DRS Setting]
Input IP address.(default=0.0.0.0)
          :0.0.0.0
Input Port Number.(1024-65535(default=3456)
          :3456

[Tertiary DRS Setting]
Input IP address. (default=0.0.0.0)
          :0.0.0.0
Input Port Number. (1024-65535(default=3456)
          :3456

[Quaternary DRS Setting]
Input IP address. (default=0.0.0.0)
          :0.0.0.0
Input Port Number. (1024-65535(default=3456)
          :3456
```

Configures Primary DRS.

Assign the IP address of the Telephony Server (Default: 0.0.0.0).

Assign the UDP port number of the Telephony Server (Default: 3456).

Has not been set.

Has not been set.

Has not been set.

Note: To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

3.5 Setting of SIP Server Data

<When using Multipoint Feature (Point-to-point Connection)>

When Multipoint Feature is used, the setting of SIP Server Data is not required.

<When not using Multipoint Feature (Point-to-multipoint Connection)>

Set the IP address or FQDN, and port number, type, and SIP domain of a SIP proxy server. (FQDN=Fully Qualified Domain Name)

* When MG-SIP Simplified TIE Line is used, assign the IP address of the destination MG-SIP to SIP server address.

The following figure shows an example of display.

When IP address (=0) is selected:

```
MG(SIP) > set sip_server
Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:0
Input SIP server IP Address.(default=0.0.0.0)
                          :192.168.100.100
Input SIP server Port Number.
(1024-65535(default=5060)):5060
Select SIP server Router type.

 0=Strict(default)
 1=Loose
Input:0
Input Domain Name.(default=0,
MAX128(strings))
```

Select IP address (Default=0).

Assign the IP address of the proxy server (Default: 0.0.0.0).

Assign the port number of the proxy server (Default: 5060)

Select a Strict router or Loose router for the proxy server (Default: 0).

0: Strict router
1: Loose router

Select “0”.

Input a SIP domain name of 128 characters.

When FQDN (=1) is selected:

```
MG(SIP) > set sip_server
Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:1
```

Select FQDN (=1).

```
Input Fully Qualified Domain Name.(default=0,
MAX63(strings))
                    :
Input SIP server Port Number.
(1024-65535 (default=5060)):5060
Select SIP server Router type.

 0=Strict(default)
 1=Loose
Input:0
Input Domain Name.(default=0,
MAX128(strings))
```

Assign the FQDN of the proxy server in maximum of 63 characters (Default: 0).

Assign the port number of the proxy server (Default: 5060)

Select a Strict router or Loose router for the proxy server (Default: 0).

0: Strict router
1: Loose router

Select “0”.

Input a SIP domain name of 128 characters.

Note:

- Pressing the Enter key can skip the item. Make sure to input data for “SIP server type” and “IPAddress/FQDN”; these cannot be skipped.
- To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].
- Be sure not to enter a blank character to the end of the FQDN (with the Copy and Paste features of your personal computer), and be careful not to mistype a character. (“0”(zero) or “O” (alphabetical O), for example.)

3.6 Setting of Pilot Number for MG-SIP128

Assign a pilot number of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

[Display example]

```
MG(SIP)> set keynumber

Input Keynumber.(default=0, MAX32(strings))
               :0
```

Assign the pilot number used by MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].
(Default: 0).

Note:

- Pressing the Enter key can skip the item.
- To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

3.7 Rebooting of MG-SIP128

Reboot the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] by using “reboot” command. The assigned configuration data can also be saved onto the Flash memory by using this command.

```
MG(SIP)> reboot
 Do you want to save Config data? Y/N=y




 Do you want to reboot MG(SIP)? Y/N=y




Config data File write start.
Config data File write end.
 MG(SIP)reboot start...
```

Select if you want to save the configuration data.
y: save the configuration data.**Note 1**
n: do not save the configuration data.
If other than the above is selected, the following message is displayed.
“Reboot” command was interrupted.

Select if you want to reboot MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].
y: reboot MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].
n: do not reboot MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].
If other than the above is selected, the following message is displayed.
“Reboot” command was interrupted.

Note 1: Before selecting “Y” to save the running configuration data to the Flash memory, be sure to execute the following commands:

- set ipaddress (Assign the IP addresses for LAN network side and SIP network side)
- set drsaddress (Assign the IP address of the Telephony Server)
- set sip_server (Assign the IP address of the SIP proxy server) *
- set keynumber (Assign a pilot number.)

* When Multipoint mode or PBX multipoint connection is enabled by using “set mp_mode” command the “set sip_server” command is not required.

If any of these items have not been assigned when saving the running configuration data, the following message will be displayed to the unassigned item. When these messages are displayed, you can select if you want to set the default configuration data or not. If you select “Y” here, the default values are applied to the configuration data.

```
The following setting commands are not
perfect.
“set ipaddress” command.(IPX side)

“set ipaddress” command.(SIP side)
```

The following is displayed:

if IP address for the system side has not been assigned

if IP address for SIP network side has not been assigned

```
"set drsaddress" command.
"set sip_server" command.

"set keynumber" command.
So, Config data is made a default setup.
Is it all right? Y/N=y
```

if IP address of DRS has not been assigned

if IP address of SIP proxy server has not been assigned

if a pilot number has not been assigned

Select if you want to apply the default values to the configuration data.
y: apply the default values
n: do not apply the default values
If other than the above is selected, the following message is displayed.
"Reboot" command was interrupted.

After the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] is rebooted, the following message appears on the Maintenance Console.

```
mgsip login:
```

STEP 1:Connecting MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] to LAN and WAN

- Connect MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] to LAN and WAN.

  Connect a cable to "LAN" connector (LAN side: Ether1 WAN side: Ether2) that is located on the front panel of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

Note: Before connecting MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] to the network you actually use, make sure of the following by using commands such as "ping".
- Is the IP address set to MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] already used in the network to be connected?
- Is the newly set IP address correct?

When you have finished, the following message appears on the Maintenance Console.

```
****************************************
*          MG(SIP) ONLINE START        *
****************************************
```

Note: Both LAN1 and LAN2 must be connected to make MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] online. (For a one-port configuration, only LAN1 connection makes MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] online.)

STEP 2:Checking the lamp status of LINK and SPEED at Ether1 and Ether2 of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

If the connection is established, the following LINK lamps of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] will light green in a few minutes.

Note: For a one-port configuration, LINK lamp at Ether 2 connector does not light.

- Ether1 connector on LAN side: LINK lamp

- Ether2 connector on WAN side: LINK lamp

[SPEED lamp is lighting in orange]

- The MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects to a network with transmitting speed of 1 Gbps.

[SPEED lamp is lighting in green]

- The MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects to a network with transmitting speed of 100 Mbps.

  If you expected transmitting speed of 1 Gbps, check a connected network device and a cable between them.

[SPEED lamp is not lighting]

- The MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects to a network with transmitting speed of 10 Mbps.

  If you expected transmitting speed of 1 Gbps or 100 Mbps, check a connected network device and a cable between them.

STEP 3:Checking the lighting of ONLINE lamp.

If the settings are correct, ONLINE lamp of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] lights in green.

3.8 Operation Check

Make sure the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] is in normal operation by the following procedure.

STEP 1:When the configuration settings are completed, reboot the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] by using "reboot" command.

STEP 2:Make sure the following message appears on the Maintenance Console after rebooting.

```
****************************************
*          MG(SIP) ONLINE START          *
****************************************
```

STEP 3:Make sure the registration status of the Telephony Server network and SIP network by using "show status" command in the configuration mode. If "Registration is OK." message appears, MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] is in operating state.

```
MG(SIP) > show status

 0:Port status

 1:IPX status

 2:SIP status

 3:CH status

 9:Exit

Please choose reference number:1

MG(SIP) > IPX Registration Information


Registration is OK.(DRS IP address
172.16.253.1)
```

Port status (Default)

Telephony Server network registration status

SIP network registration status

Information on channels in use

Exit

Select a desired status you want to check.

The registration information of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] is displayed.

Note: For the detailed information, refer to "status" of "show" commands of "Configuration Commands" in "Operations and Maintenance".

Note: When using PCPro, make sure of the registration status of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] by using "DIMG" command.

* If "MG (SIP) OFFLINE START" is displayed on Maintenance Console, make sure of the following.

- Is the LAN cable securely inserted to Ether 2 (SIP network side)?
- Is the LINK lamp on the SIP network side lighting?
- Are the settings for the SIP server correct?

If no message appears within 3 minutes, it is estimated that no communication has been established between the Telephony Server and the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]. Check the LAN cable connecting LAN-Telephony Server and the IP address of DRS.

4 Operation and Maintenance

The following explains MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]: operation and maintenance.

4.1 FAN Replacement



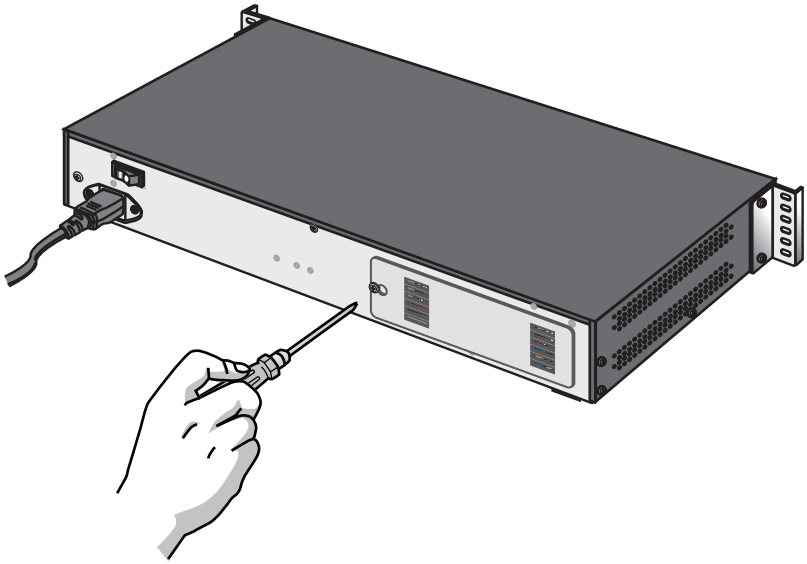
This section describes the procedure to replace FANs inside an MG-SIP128 [MG-128SIP-MGJ-B/MG-128SIPMGJ].

* A failure of a cooling FAN raises the temperature inside of an MG-SIP128 [MG-128SIP-MGJ-B/MG-128SIPMGJ], which greatly influences the system. Please replace a cooling FAN every five years to avoid it, even though the cooling FAN still works normally.

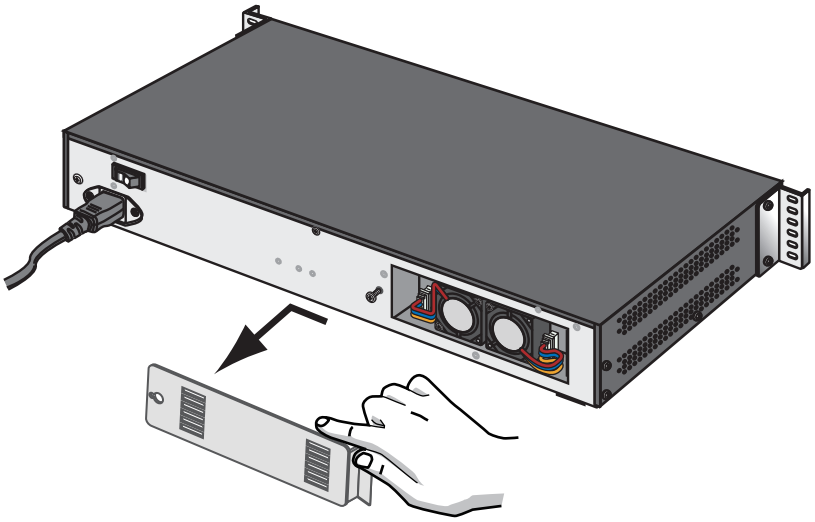
[Replacement Procedure]

Note: You can replace cooling FANs while the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] remains on.

STEP 1:Use a Phillips driver to loosen a screw at the left side of the FAN cover on the rear panel of an MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

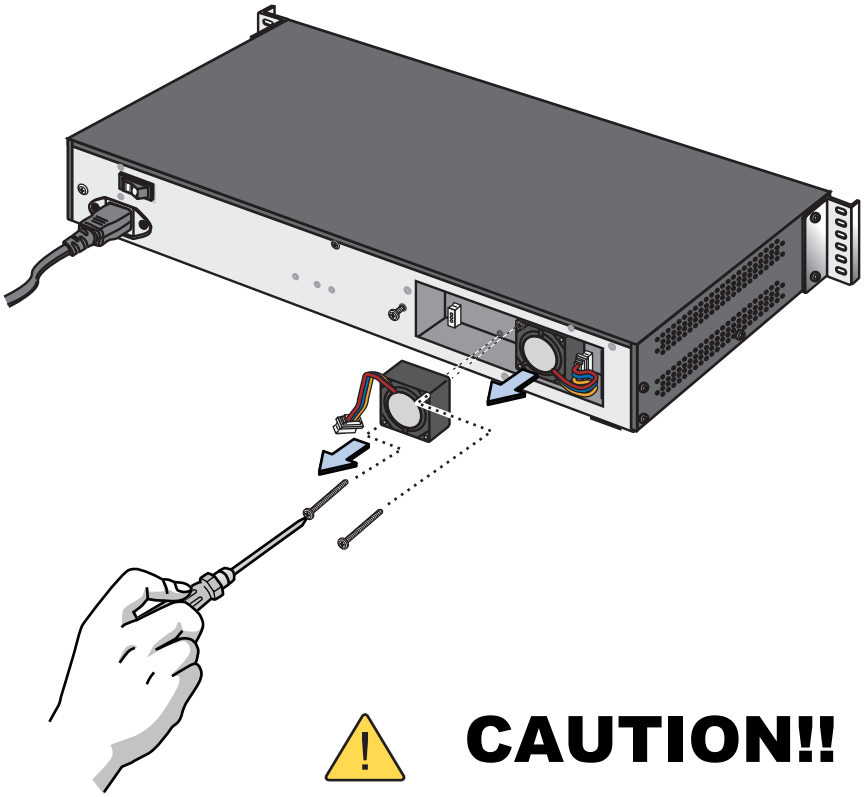


STEP 2:Slide the FAN cover to the left to remove.



STEP 3:Remove the FAN connector; the screw; the FAN.

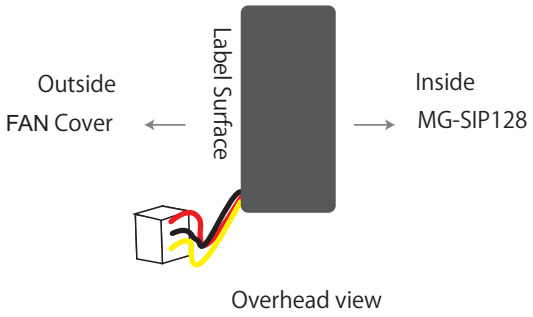
Note: If you are replacing FANs while the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIP-MGJ] remains on, removing both FANs may generate heat inside, resulting in system failure. Be sure to replace one by one, but not at the same time.



STEP 4:Attach new FANs: perform the opposite procedure of removing.

Note: When attaching, pay attention to the direction of a FAN. The label on a FAN must face toward the outside of an MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]. (See the following figure.)

Attach the FAN in the direction as described below.



Overhead view

[Test After Attaching]

Check if the replaced FANs work properly.

- If either of FANs does not work properly, check the cabling.

5 Configuration Commands

5.1 How to Use the Configuration Command

Configuration commands are used to change the default settings. Change the settings only where it is necessary.

Start a communication software such as HyperTerminal (**Note 1**) of Maintenance Console (PC), and turn on MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]. The boot program starts and the configuration command login screen appears.

```
mgsip login:
```

In the above screen, enter “config” after the prompt to login, and press the Enter key. It moves to the configuration mode.

```
mgsip login: config
MG(SIP)>
```

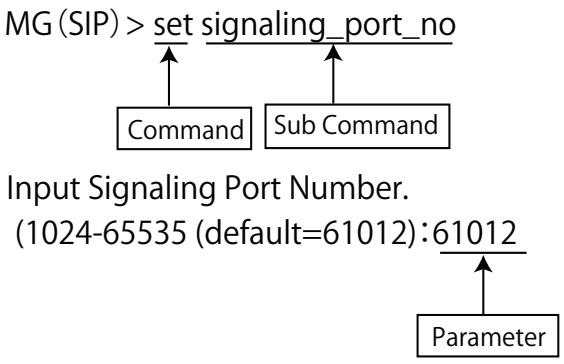
Note 1: Below are the communication conditions.
Speed: 9600bps
Data Length: 8 Bits
Parity Bit: None
Stop Bit: 1
Flow Control: None

Note: Note the following conditions:

- If you input “exit” after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

Commands

A command interface prompt is displayed on a screen waiting for a user input. When a user inputs a character string, the system analyzes the input data, and displays a reply message. Inputting commands and sub commands are necessary, but whether inputting a parameter is necessary or not depends on commands. (Some commands do not have any parameters.) The following figure shows an example of inputting a command, a sub command, and a parameter.



Commands other than "ping" cannot be set within a single line; use interactive mode to input values. The following figure shows an example of data setting using the interactive mode.

[Example of Interactive Mode where Parameter Input is Omitted]

```
MG(SIP)> set drs_qos
Input type:(1=IP Precedence/2=DiffServ/
3=ToS):1
Input following parameters.
Precedence (default=5, 0-7):5

Delay (default=0, 0/1):0



Throughput (default=0, 0/1):0



Reliability (default=0, 0/1):0


Cost (default=0, 0/1):0


```

When "IP PRECEDENCE (=1)" is selected:

Specify the precedence in an IP network (Default: 5). 0-7 (Low - High)

Specify the low delay priority in an IP network.
0: Not specified (Default)
1: Specified

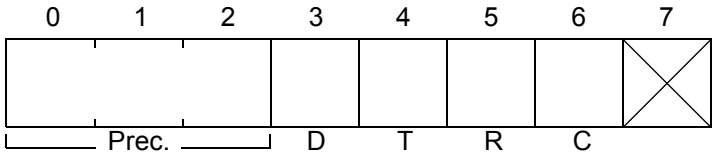
Specify the throughput priority in an IP network.
0: Not specified (Default)
1: Specified

Specify the reliability in an IP network.
0: Not specified (Default)
1: Specified

Specify the low cost priority in an IP network.
0: Not specified (Default)
1: Specified

* The example of the screen below the above example is omitted here.

Note: IP Precedence - ToS field is allocated as shown below.



Prec.=Precedence (3bits)
D=Delay (1bit)
T=Throughput (1bit)
R=Reliability (1bit)
C=Cost (1bit)

5.2 List of Maintenance Console Commands

Note: DRS (Device Registration Server) used in this section refers to a control function of the Telephony Server. Set the IP address of the Telephony Server (TP).

R: Required
C: Not required, but configurable

set: Commands to Set Configuration Data

* If you go out of the configuration mode by using "logout" command without saving the setting information using "reboot" command, the changed settings are discarded. To save the settings, execute "reboot" command, and exit the configuration mode.
* When you input a command, the current setting is displayed. If you change the setting, the changed data is displayed. For "ipx_route" and "sip_route" commands, the changed settings and "Are you sure?" message are displayed.
* Pressing the Enter key can skip each item.

	SUB COMMAND	MUST?	FUNCTION
1	183rbt	C	Assigns whether to enable/disable local RBT when 183 message without SDP is received.
2	184toprivacy	C	Assigns whether to display/block the Caller ID to SIP network when dialing 184/186.
3	another_keynumber	C	Assigns additional three pilot numbers other than the one registered by "set keynumber" command.
4	auth	C	Assigns Digest authentication information.
5	auth_header	C	Assigns whether to enable/disable the cache function of authentication header.
6	call_hold	C	Assigns whether to enable/disable MG Based Call Retention.
7	call_id_relay	C	Assign Call-ID notification function.
8	cause_table	C	Assigns the error translation table.
9	cc_convert	C	Assigns calling party's country code display conversion feature.
10	cdn_pattern	C	Assigns called number pattern.
11	check_number	C	Assigns limit to the number of digits for calling/called party number.
12	config_template	R	Assigns the batch settings of Multipoint feature.
13	country_code	C	Assigns a country code.
14	cpn_pattern	C	Assigns how to obtain cpn (calling party number)
15	default	C	Specifies default settings of the configuration.
16	dnsaddress	C	Assigns the DNS IP address.
17	domain	C	Specifies the DNS domain name.
18	drsaddress	R	Assigns the IP address and the port number of DRS server.
19	drs_qos	C	Specifies the DRS ToS.
20	dtmf_mode	C	Assigns a type of DTMF relay mode on the SIP network.

	SUB COMMAND	MUST?	FUNCTION
21	enc	C	Enables or disables RTP encrypting mode on Telephony Server network. **Note 7**
22	h245_base_port_no	C	Assigns the base port number for H.245 TCP server.
23	hc_alarm	C	Specifies the alarm transmission destination.
24	hc_timer	C	Assigns the Health Check timer value.
25	interface	C	Assigns the operation speed and operation mode of an interface.
26	ipaddress	R	Assigns the IP address and the subnet mask to the port.
27	ipx_route	C	Assigns the route information in the Telephony Server network.
28	ipx_rtp_port_no	C	Assigns the RTP base port number for the Telephony Server network.
29	keynumber	R	Assigns the pilot number of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].
30	mp_data	C	Adds or deletes Multipoint data table. **Note 1**
31	mp_mode	C	Enables or disables Multipoint feature.
32	mp_refresh	C	Refreshes Multipoint data table.
33	multi_regist	C	Assigns the registration function per number.
34	multisession	C	Assigns Multi-path Switch. **Note 3**
35	musictype	C	Assigns the type of music to be sent from MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].
36	options	C	Assigns MG-SIP Failure Detection Per Path. **Note 6**
37	out_of_area_code	C	Assigns the out-of-area error response.
38	prack	C	Assigns Provisional Response Acknowledgment (PRACK) information (RFC3262).
39	pre_negotia-tion_port_no	C	Assigns the UDP port receiving packets for voice control path.
40	privacy_pattern	C	Assigns the privacy pattern.
41	registration_port_no	C	Assigns the UDP port number that receives DRS packets.
42	reg_interval	C	Assigns the waiting time to retry after registration failure.
43	response_table	C	Assigns response table selection.
44	rtp_pathon	C	Assigns Path-on function by 183 Progress after receiving 180 Ringing.
45	rtp_qos	C	Specifies the RTP (on SIP network) ToS value.
46	sdp_style	C	Assigns the SDP receive setting for multiple “m” lines.
47	self_sip_domain	C	Assigns SIP domain name for MG-SIP128 [MG-128SIPMGJ-B/MG-128SIP-MGJ].
48	session_timer	C	Assigns session timer function.
49	signaling_port_no	C	Assigns the UDP port number that receives control signal packets.
50	sip_accfilter	C	Assigns SIP Access Filter and SIP Access Filter mask.
51	sip_domain	C	Assigns SIP domain.
52	sip_port_no	C	Specifies the port number that receives SIP messages.
53	sip_qos	C	Specifies the TOS value for SIP signaling.

	SUB COMMAND	MUST?	FUNCTION
54	sip_register	C	Assigns the information of the SIP registrar.
55	sip_route	C	Assigns the route information of SIP network.
56	sip_rtp_port_no	C	Specifies the RTP base port number of SIP network.
57	sip_server	C	Assigns SIP server information. **Note 2**
58	sip_tel_service	C	Assigns the setting of additional services.
59	slipresp	C	Assigns error response codes used when bypassing a SIP server.
60	softdsp **Note 4**	C	Provides access to the A-law/μ-law conversion feature (**Note 5**) and PAD value.
61	update	C	Assigns the setting of update method.

Note 1: Required to set when Multipoint feature is used. However, Multipoint Data Table can also be registered by downloading CSV file.

Note 2: Required to set when not using Multipoint feature or PBX multipoint connection (MG-SIP TIE Line Path Splitting).

Note 3: Required to set Silent Monitor (Multi-Path Monitor) Connection in the ACD system.

Note 4: Available for SP-4032 MGSIP PROG-E Issue 2 or later.

Note 5: The A-law/μ-law conversion feature cannot be used in combination with “3PCC function” of the `sip_tel_service` command.

Note 6: Available for SP-4060 MGSIP PROG-L Issue 3 or later.

Note 7: Available for SP-4060 MGSIP PROG-L Issue 4 or later.

show: Commands to Display the Contents of Configuration Data

	SUB COMMAND	MUST?	FUNCTION
1	arp	-	Displays the ARP table.
2	config	-	Displays the configuration data.
3	interface	-	Displays the link and setting state of Ether connection
4	version	-	Displays the firmware version installed in MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].
5	route	-	Displays the Route table.
6	status	-	Displays status of the port and the registration.

download Command: Command to Download

	SUB COMMAND	MUST?	FUNCTION
1	-	-	Downloads data from the specified IP address.

upload Command: Command to Upload

	SUB COMMAND	MUST?	FUNCTION
1	-	-	Uploads data to the specified IP address.

exit or logout: Command to Exit the Configuration Mode

	SUB COMMAND	MUST?	FUNCTION
1	-	-	Exits the configuration mode.

reboot: Command to Reboot MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

	SUB COMMAND	MUST?	FUNCTION
1	-	-	Restarts MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] and saves the settings.

ping: Command to Use the "ping" for IPv4 address

	SUB COMMAND	MUST?	FUNCTION
1	parameter (enter the ping destination IPv4 address)	-	"ping" command for IPv4 address

traceroute: Command to Use the "traceroute"

	SUB COMMAND	MUST?	FUNCTION
1	-	-	"traceroute" command

help or ?: Command to Use the Command Help

	SUB COMMAND	MUST?	FUNCTION
1	-	-	"help" command

5.2.1 set Command

(1) 183rbt

Setting of local RBT connection select function when receiving 183 message (w/o SDP)

This command is used to enable/disable the connection of local RBT when 183 message without SDP is received.

[Setting Example]

```
MG(SIP) > set 183rbt

Select mode of RBT Addition when MG(SIP)
receives 183 without SDP.
 0=enable(default)
 1=disable
Input:0
```

Enter 0 or 1 (Default=0).
0: Enable
1: Disable

Note: The conditions of this command are as follows.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.
- Normally this command is not required to be changed.

(2) 184toprivacy

Setting of switching Caller ID display/blocking to SIP network function when dialing 184/186

Note: This command is available for Japan only.

This command is used to set the function to delete 184/186 by MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] when dialing 184/186. When this setting is enabled, if a user adds 184/186 at the beginning of the dialing numbers, MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] deletes the 184 (non-Caller ID) or 186 (Caller ID) from the dialed numbers, and transmits the message to SIP network.

[Setting Example]

```
MG(SIP) > set 184toprivacy

Select privacy function of 184.
 0=disable(default)
 1=Pattern 1
 2=Pattern 2
Input:0
```

0: Switching is disabled (default)
1: Switching is enabled. (Pattern 1)
2: Switching is enabled. (Pattern 2)

When Pattern 1 is set: Performs forced non-Caller ID for 184, forced Caller ID for 186. (The first three digits of the dialed numbers (184/186) are to be deleted.)

When Pattern 2 is set: Performs forced non-Caller ID for 184, forced Caller ID for 186. (The first three digits of the dialed numbers (184/186) are not to be deleted.)

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.

(3) another_keynumber

Setting of additional pilot numbers

Assigns additional three pilot numbers to the SIP server other than the one registered by "set keynumber" command.

[Setting Example]

```
MG(SIP) > set another_keynumber

Input Another Keynumber 1.(default=0,
MAX32(strings))
                          :1000
Input Another Keynumber 2.(default=0,
MAX32(strings))
                          :2000
Input Another Keynumber 3.(default=0,
MAX32(strings))
                          :05011112222
```

Numbers to be newly added (default: 0)

Note: The conditions of this command are as follows.

- Unique number to be assigned for each of Another keynumber 1/2/3. Assign value=0 (default) for parameter when nothing is to be assigned.
- Do not select "Pattern 2" for "set cc_convert" when assigning an additional pilot number with this command.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.
- Normally this command is not required to be changed.

(4) auth

Setting of Digest authentication information

Assigns User ID/password for HTTP-Digest authentication.

[Setting Example]

```
MG(SIP) > set auth

Input User ID.(default=0, MAX32(strings))
            :0

Input Password.(default=0, MAX32(strings))
            :0
```

User ID (Max. 32bytes, Default: 0)

Password (Max. 32bytes, Default: 0)

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.

(5) auth_header

Setting to enable/disable cache function of authentication header

The command is used to assign whether to add cache information to authentication header of request message in updating ACK and REGISTER for re-INVITE/200 OK.

[Setting Example]

```
MG(SIP) > set auth_header

Select Authorization Header Cache function.
 0=enable(default)
 1=disable
Input:0
```

0: Cached authentication information is added (default)
1: Cached authentication information is not added.

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.

(6) call_hold

Setting MG Based Call Retention

The command is used to specify whether to enable MG Based Call Retention.

[Setting Example]

```
MG(SIP) > set call_hold

Select the setting of Call Hold function.
 0=disable(default)
 1=enable
Input:1

Input RTP detect timer value.(sec)
(3-32 (default=3)):3

Input SIP Error Response code to reject new
session.
(400-606 (default=488)):488
```

0: MG Based Call Retention is disabled. (Default)
1: MG Based Call Retention is enabled.

RTP detect timer (seconds)
Range: 3-32 seconds (Default: 3 seconds)

Set the error response code to reject a session by a new call while the MG based call retention is in progress.
(400 to 606, Default: 488) **Note 1**

Note 1: When an Initial-INVITE is received from the SIP network side while a call is retained, an error response 488 (Not Acceptable Here) is sent in the default setting.

(7) call_id_relay

Setting to enable/disable Call-ID Header information of SIP notification function

The command is used to specify whether to send Call-ID Header information of SIP to SV9500.

[Setting Example]

```
MG(SIP) > set call_id_relay

Select function of Call-ID relay mode.
 0=disable(default)
 1=enable
Input:0
```

0: Call-ID is not sent (default).
1: Call-ID is sent to SV9500.

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.

(8) cause_table

Setting of error translation table select function

The command is used to select the translation table of error cause to be sent to LAN received from SIP network as error response.

[Setting Example]

```
MG(SIP) > set cause_table

 Select Cause table(SIP Error Response to
 Error Cause).
  0=normal(default)
  1=alternate routing
 Input:0
```

Select the error translation table.
0 = Normal table (Default)
1 = Alternate routing table

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.
- Normally this command is not required to be changed if there are 255 SIP Trunks or less.

(9) cc_convert

Setting of calling party' s country code display conversion feature.

The command is used to enable/disable calling party's country code display conversion feature. This feature has two patterns (Pattern 1/Pattern 2) as described below:

- Pattern 1

When this feature is available, conversion will take place as in the following table. (The example uses Japanese Country Code.)

Direction of Call termination/ origination	Intended Number	Conversion Feature
Call termination via SIP	Calling party	Convert to “0” if first numbers are “81” or “+81”
Call termination via SIP	Calling party	Add “0” to first number if number is 8 or more digits
Call origination via MG-SIP128	Calling party	Convert to “0” if first number is “81”

- Pattern 2 **Note 2**

When MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] is on the calling party side, the command converts the calling party number and the call number contained in the SIP message into E.164 format. When MG-SIP128 [MG-128SIPMGJ /MG-128SIPMGJ-B] is on the called party side, the command converts the calling party number and the call number contained in the SIP message into 0AB to J numbers form and notifies to the Telephony Server.

Terms and meanings

Terms	Meanings
Country Code	A number used in making a call by E.164, determined per country. Examples: 81 (for Japan), and 1 (for North America)
National Prefix	Domestic call identification number
International Prefix	International call identification number specified per country
National Destination Code	A number specified per national region
Number of Local Number digits	A unique number in a certain region or network only

Note 2: The conditions for this command are as follows.

- Do not implement “set another_keynumber” when setting this parameter.
- This feature (“Pattern 2” of “cc_convert”) and Multipoint feature of MG-SIP simplified tie line cannot be used simultaneously.
- This parameter is available for SP-4060 MGSIP PROG-L Issue 2 or later.
- Even if this feature is enabled, the following number information is to be in 0AB to J numbers format.
  - Dial Number of a terminal
  - Number information to be assigned in the office data of Telephony Server (such as ASRIL/ACDD/ACNN commands)
  - Number information to be assigned with “set keynumber”
- The conditions are as follows depending on the setting status of “set check_number”.
  - When “set check_number” is enabled:
    If MG-SIP is on the calling party side and “#” exists at the beginning, in the middle, or at the end of a destination number, delete “#”, and convert the rest into E.164.
  - When “set check_number” is disabled:
    If MG-SIP is on the calling party side and “#” exists at the beginning, in the middle, or at the end of a destination number, convert “#” into “%23” without converting the Incoming Number into E.164.
- Even if this feature is enabled, receiving calls of a common number format (such

as 0AB to J numbers format) with National Prefix and Local Code (without National Prefix or National Destination Code) is available.

- Making/receiving a call with Local Code requires the setting of National Prefix and National Destination Code.
- For an incoming call from a foreign country, "+Another Country Code" precedes the Calling Party Number. In this case, "+" is removed and then International Prefix of the Receiver's own country is added to the beginning of the number for transmission to the Telephony Server.
- Since this feature does not distinguish a station-to-station call number from an external call number in converting into E.164 format, do not use a station-to-station call number as a notification number to SIP network such as Calling Party Number or a station-to-station call number to be used for an FMC network.
  (Example) When a Country Code is "81" and you assign "2000" as a station number to be provided to a SIP network, it is converted into "+812000".
- When "RFC3325 (P-Associated-URI)" is set for "set privacy_pattern", Calling Party Number in a common format (such as the 0AB to J numbers format) is included in the INVITE sent upon call origination via the MG-SIP.
- Do not use the same number for assignment of the leading digit of Pilot Number and that of International Prefix.
  (Example) Assigning "00" to International Prefix and "00AB to J" to Pilot Number is not available.

[Setting Example]

```
MG(SIP) > set cc_convert

Select Country Code Convert function.
 0=disable(default)
 1=Pattern 1
 2=Pattern 2
Input: 0
```

0: Disable (default)
1: Pattern 1
2: Pattern 2

- When Pattern 2 is selected:

```
MG(SIP) > set cc_convert

Select Country Code Convert function.
 0=disable(default)
 1=Pattern 1
 2=Pattern 2
Input: 2

Input Country Code.(1-99999 (default=81))
  Input : 81

Do you set National Prefix and National
Destination Code? Y/N=Y
```

0: Disable (default)
1: Pattern 1
2: Pattern 2

Input Self Country Code.

Input "Y" if you intend to assign National Prefix and National Destination Code.

```
Input National
Prefix.(default=0,MAX4(strings))
  Input : 0

Input National Destination
Code.(default=1,MAX6(strings))
  Input : 3

Input International
Prefix.(default=010,MAX4(strings))
  Input : 010

Input Number of Local Number digits.(1-15
(default=3))
  Input : 3
```

Input National Prefix.

Input National Destination Code.

Input International Prefix.

Input maximum number of Local Number digits.

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.

Display for the firmware version earlier than SP-4060 MGSIP PROG-L Issue 2 is as follows:

```
MG(SIP) > set cc_convert

Select Country Code Convert function.
 0=disable(default)
 1=enable
Input: 0
```

0: Disable (default)
1: Enable

(10) cdn_pattern

Setting of a way of obtaining information for cdn (called number)

The command is used to assign the way of obtaining information for called number from SIP network.

- When this command is enabled, called number is obtained according to the priority order shown in the table below:

Selected Parameter		Order of priority				
		1	2	3	4	5
0	To	P-N-Dest-Discern	To (userinfo)	Request-URI (userinfo)	-	-
1	Request-URI (isub)	P-N-Dest-Discern	Request-URI (isub)	Request-URI (userinfo)	To (userinfo)	-
2	Request-URI	P-N-Dest-Discern	Request-URI (userinfo)	To (userinfo)	-	-
3	P-Called-Party-ID	P-Called-Party-ID (userinfo)	To (userinfo)	Request-URI (userinfo)	P-N-Dest-Discern	-

Selected Parameter		Order of priority				
		1	2	3	4	5
4	P-Called-Party-ID (isub)	P-Called-Party-ID (isub)	P-Called-Party-ID (userinfo)	To (userinfo)	Request-URI (userinfo)	P-N-Dest-Discern

[Setting Example]

```
MG(SIP) > set cdn_pattern

Select Called Party Number to which you give
priority.
  0=To[userinfo](default)
  1=Request-URI[isub]
  2=Request-URI[userinfo]
  3=P-Called-Party-ID[userinfo]
  4=P-Called-Party-ID[isub]
Input:0
```

0: userinfo part of the To header is given priority (Default)
1: isub of Request-URI given priority
2: userinfo part of Request-URI given priority
3: userinfo part of P-Called-Party-ID given priority
4: isub of P-Called-Party-ID given priority

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.

(11) check_number

Setting a limit to the letters and numerals that can be used for calling/called party number

This command is used to assign a function that permits only numerals for calling/called party number sent via Telephony Server network.

[Setting Example]

```
MG(SIP) > set check_number

Select the setting of function to delete
[#] in telephone-number.
  0=disable(default)
  1=enable
Input:0
```

0: Disable (default)
1: Limit to numerals only

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.

(12) config_template

Batch Setting of MG-SIP [MG-128SIPMGJ-B/MG-128SIPMGJ]

This command is used to assign the batch setting of MG-SIP [MG-128SIPMGJ/MG-128SIPMGJ -B]. For

details of each parameter, refer to "MG-SIP config_template Data".

[Setting Example]

```
Select configuration type
   0=default
   1=template
   2=nurse call  (Pattern1)
   3=PBX multipoint connection
```

Select the type of template.
0: Default setting
1: Assignment data for Multipoint feature
2: Nurse Call (Pattern 1)
3: Assignment data for MG-SIP TIE Line Path Splitting

Display for the firmware version earlier than SP-4060 MGSIP PROG-L Issue 2 is as follows:

```
MG(SIP) > set config_template
Select configuration type.
   0=default
   1=template
Input : 1
```

0: Default setting
1: Assignment for Multipoint feature

Note: The conditions of this command are as follows.
- By setting this command to "1", Multipoint mode (set mp_mode) is enabled.
- By pressing Enter key with null entered in "input:","set config_template" is finished.

(13) country_code

Setting of a country code

This command is used to set a country code on MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

[Setting Example]

```
MG(SIP) > set country_code

Input Country Code.
  (0-255 (default=0)):0
```

Set a country code.
0 = AUTO (Follow the Telephony Server setting)
1 = JP (Japan)
2 = US (North America)
3 = AU (Australia)
4 = OTHER (Other countries)
5 = HK (Hong Kong)
6 = MY (Malaysia)
7 = SG (Singapore)
8 = GB (England)
9 = MX (Mexico)
10 = TW (Taiwan)
11 = NZ (New Zealand)
12 = KR (Korea)
13 = BR (Brazil)
14 = CN (China)
15 = TH (Thailand)
16 = TH [EGAT] (Thailand (EGAT))
17 = LK (Sri Lanka)
200 = DE (Germany)
201 = IT (Italy)
202 = NL (Netherlands)
204 = DK (Denmark)
205 = SE (Sweden)
211 = ES (Spain)
212 = AT (Austria)
213 = BE (Belgium)
214 = GB [EMEA] (England [for EMEA])
215 = GR (Greece)
216 = SZ (Switzerland)
217 = ZA (South Africa)
Other values = xx (Not used)

Note: Inband Tone of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] can be changed by using the following System Data (ASYDL SYS1 INDEX811). To change the Inband Tone of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ], set the configuration command “set country_code” to “0”.

(14) cpn_pattern

Setting of a way of obtaining information for cpn (calling party number)

This command is used to assign how to obtain cpn (calling party number), and to change the priority of

obtaining calling party number when a call terminates via SIP network.

When this command is enabled, calling party number is obtained according to the priority order shown in the table below:

- The following shows the method of obtaining cpn when this feature is available.

Selected Parameter		Order of Priority		
		1	2	3
0	Displayname	Displayname	Userinfo	-
1	Userinfo	Userinfo	Displayname	-
2	Anonymous	Userinfo (Anonymous)	Userinfo	Displayname
3	P-Asserted-ID	P-Asserted-ID	Displayname	Userinfo

[Setting Example]

```
MG(SIP) > set cpn_pattern

Select Calling Party Number to which you
give priority.
 0=DisplayName(default)
 1=Userinfo
 2=Anonymous
 3=P-Asserted-ID
Input:0
```

0: Display name is given priority (Default)
1: Userinfo is given priority
2: When Anonymous is detected in Userinfo, cpn is handled as blocked, disregarding the second priority and later.
3: P-Asserted-ID is given priority.

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.
- Select 2 when the caller ID blocking is judged by the userinfo in From header on the SIP network side specification.
  e.g.) From: “01234567” <sip:anonymous@anonymous.invalid>
- Do not select 2 when the caller ID blocking is assigned by Displayname only on the SIP network side.
  e.g.) From: “Anonymous” <sip:01234567@xxx.com> In this case, the cpn is informed when 2 is selected.
- Numbers from 0 to 9, *, or # can only be obtained as a calling party number. When any other characters are contained in the calling party number, the order of priority will shift to the next precedence.
  However, if any characters other than the ones indicated above are detected in Displayname, the next and later priority will be disregarded and the cpn will be handled as blocked.
  e.g.) From: “0123ABC” <sip:01234567@xxx.com> In this case, the cpn will be handled as blocked when 0 is selected.

(15) default

Setting the default values to the configuration data

The command is used to set back to the default setting of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIP-MGJ] configuration. Make sure to execute this command when updating firmware to a different firmware name (SP-XXXX).

[Setting Example]

```
MG(SIP) > set default

 Are you sure? Y/N=y



 Config data default set.

MG(SIP)>
```

Note: When other than “y” is selected, the following message is displayed.

Default setting command was interrupted.

Note: Normally this command is not required to be used.

(16) dnsaddress

Setting of the IP address of DNS server

This command is used to specify the DNS IP address to resolve an address by DNS server.

[Setting Example]

```
MG(SIP) > set dnsaddress

Input DNS IP Address.(default=0.0.0.0)
                :0.0.0.0
```

Specify DNS IP address. (Default: 0.0.0.0)

Note: You do not have to change this command if you do not use DNS server.

(17) domain

Setting of DNS domain name

This command is used to specify the domain name of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIP-MGJ].

[Setting Example]

```
MG(SIP) > set domain

Input Domain Name.(default=0,
MAX128(strings))
                :nec.com
```

Specify the domain name. (Default: 0/Maximum: 128 bytes)

Note: The conditions of this command are as follows.

- Normally this command is not required to be changed.
- To set SIP domain, change the domain name from the “domain name” parameter of “set sip_server” command or “set_self_sip_domain” command.

(18) drsaddress

Setting of IP address and port number of DRS server

This command is used to assign IP address and port number of DRS server.

[Setting Example]

```
MG(SIP) > set drsaddress
[Primary DRS Setting]
 Input IP Address.(default=0.0.0.0)
           :172.16.253.1
 Input Port Number.(1024-65535
(default=3456))
           :3456
[Secondary DRS Setting]
 Input IP Address.(default=0.0.0.0)
           :172.16.253.2
 Input Port Number.(1024-65535
(default=3456))
           :3456
[Tertiary DRS Setting]
 Input IP Address.(default=0.0.0.0)
           :172.16.253.3
 Input Port Number.(1024-65535
(default=3456))
           :3456
[Quaternary DRS Setting]
 Input IP Address.(default=0.0.0.0)
           :172.16.253.4
 Input Port Number.(1024-65535
(default=3456))
           :3456
```

Setting Primary DRS;

IP address of DRS server
(Default: 0.0.0.0)

UDP Port number of DRS server
(Default: 3456)

Setting Secondary DRS;

IP address of DRS server
(Default: 0.0.0.0)

UDP Port number of DRS server
(Default: 3456)

Setting Tertiary DRS;

IP address of DRS server
(Default: 0.0.0.0)

UDP Port number of DRS server
(Default: 3456)

Setting Quaternary DRS;

IP address of DRS server
(Default: 0.0.0.0)

UDP Port number of DRS server
(Default: 3456)

(19) drs_qos

Setting of ToS value of DRS server

This command is used to specify the ToS value of IP packets to be sent to DRS server.

[Setting Example]

```
MG(SIP) > set drs_qos

Input type: (1=IP Precedence/2=DiffServ/
3=ToS):1

Input following parameters.

Precedence(default=5, 0-7):5

Delay(default=0, 0/1):0

Throughput(default=0, 0/1):0

Reliability(default=0, 0/1):0

Cost(default=0, 0/1):0
```

When IP Precedence (=1) is selected:

Specify the precedence in an IP network (Default: 5). 0-7 (Low - High)

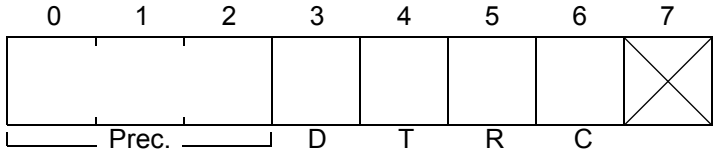
Specify the low delay priority in an IP network.
0: Not specified (Default)
1: Specified

Specify the throughput priority in an IP network.
0: Not specified (Default)
1: Specified

Specify the reliability in an IP network.
0: Not specified (Default)
1: Specified

Specify the low cost priority in an IP network.
0: Not specified (Default)
1: Specified

Note: IP Precedence - ToS field is allocated as shown below.



Prec.=PRECEDENCE(3bits)
D=Delay(1bit)
T=Throughput(1bit)
R=Reliability(1bit)
C=Cost(1bit)

```
MG(SIP) > set drs_qos

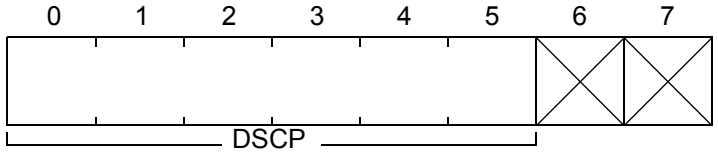
Input type: (1=IP Precedence/2=DiffServ/
3=ToS): 2
```

When DiffServ (=2) is selected:

```
Input DSCP value.
(0-63 default=40):40
```

Specify the service code point of DiffServ (default: 40).

Note: DiffServ - ToS field is allocated as shown below.



DSCP=Differentiated Service Code Point(6bits)

```
MG(SIP) > set drs_qos
Input type: (1=IP Precedence/2=DiffServ/
3=ToS): 3
Input ToS value with HEX format.
(00-FE(default=A0)):a0
```

When ToS (=3) is selected:

Specify the ToS field (default: a0).

Note: The conditions of this command are as follows.

- Pressing the Enter key can skip the item, with an exception of “Input type”. Be sure to input a value to “Input type.”
- Normally this command is not required to be changed.
- If you set “1” to the least significant bit, an error message “Please input an even number value.” is displayed.

(20) dtmf_mode

Setting of DTMF relay system (SIP network)

This command is used to specify the DTMF relay system in SIP network. MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] supports Out-Band (RFC2833) and In-Band (G.711 data transmission as voice data). Negotiation, Out-Band, or In-Band can be assigned.

Note: DTMF relay method on the Telephony Server network side is automatically set according to the one on the MG-SIP network side, as follows

DTMF relay system on the SIP network side	DTMF relay system on the Telephony Server network side	Remarks
RFC2833 (out-band)	Proprietary (out-band)	Conversions between "RTP (DTMF: RFC2833) packets on SIP network" and "UDP (DTMF: Proprietary) packets on Telephony Server network"
G.711 PassThrough (in-band)	G.711 PassThrough (in-band)	Conversions between "RTP packets on SIP network" and "RTP packets on Telephony Server network"

[Setting Example]

- When Negotiation is selected:

```
MG(SIP) > set dtmf_mode

Select DTMF Mode.
 0=Negotiation(default)
 1=Out-Band
 2=In-Band
Input:0

Input DTMF Duration value.(ms)
(50-240(default=120)):120

Input DTMF Pause value.(ms)
(30-240(default=100)):100

Input Payload type(RFC2833).
(96-127(default=101)):101
```

0: Negotiation (Default)
1: Out-Band (fixed)
2: In-Band (fixed)

Specify DTMF Duration.
(50 to 240ms/Default: 120ms)

Specify DTMF Pause.
(30 to 240ms/Default: 100ms)

Specify Payload type.
(96 to 127/Default: 101)

- When Out-Band is selected:

```
MG(SIP) > set dtmf_mode

Select DTMF Mode.
 0=Negotiation(default)
 1=Out-Band
 2=In-Band
Input:1

Input DTMF Duration value.(ms)
(50-240(default=120)):120

Input DTMF Pause value.(ms)
(30-240(default=100)):100

Input Payload type(RFC2833).
(96-127(default=101)):101
```

0: Negotiation (Default)
1: Out-Band (fixed)
2: In-Band (fixed)

Specify DTMF Duration.
(50 to 240ms/Default: 120ms)

Specify DTMF Pause.
(30 to 240ms/Default: 100ms)

Specify Payload type.
(96 to 127/Default: 101)

- When In-Band is selected:

```
MG(SIP) > set dtmf_mode

Select DTMF Mode.
 0=Negotiation(default)
 1=Out-Band
 2=In-Band
Input:2
```

0: Negotiation (Default)
1: Out-Band (fixed)
2: In-Band (fixed)

```
Input DTMF Duration value.(ms)
(50-240(default=120)):120

Input DTMF Pause value.(ms)
(30-240(default=100)):100
```

Specify DTMF Duration.
(50 to 240ms/Default: 120ms)

Specify DTMF Pause.
(30 to 240ms/Default: 100ms)

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.
- At DTMF Mode Negotiation/Out-Band, the payload type 103 cannot be used.
- Note that the sum of DTMF Duration and DTMF Pause values must be specified more than 120ms. If not, the following error message is displayed.

```
Input parameter error,
 reason [DTMF Duration + DTMF Pause<Min120ms]
```

(21) enc

Setting of RTP encrypting mode on Telephony Server network

This command is used to specify the RTP encrypting mode on Telephony Server network.

[Setting Example]

```
MG(SIP) > set enc

Select the setting of IPX side RTP encrypting
mode.
 0 = disable (default)
 1 = enable
Input : 1
```

Assign the RTP encrypting mode on Telephony Server network.
0 = Disable the RTP encrypting mode on Telephony Server network. (default)
1 = Enable the RTP encrypting mode on Telephony Server network.

Note: The conditions of this command are as follows.

- Normally this command is not required to be changed.
- This command is available for SP-4060 MGSIP PROG-L Issue 4 or later.

(22) h245_base_port_no

Setting of the base port number for H.245 TCP server

This command is used to specify the port number for H.245 TCP server.

[Setting Example]

```
MG(SIP) > set h245_base_port_no

Input H245 base Port Number.
(1024-64511(default=40000)):40000
```

Assign the port number for H.245 TCP server.
(Default: 40000)
(receiving side of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ])

Note: Normally this command is not required to be changed.

(23) hc_alarm

Setting of the alarm transmission destination

This command is used to set the alarm function which is activated to send a warning tone when a Health Check timeout occurs.

[Setting Example]

```
MG(SIP) > set hc_alarm

Select H/C Alarm type.
 0=IPX and SIP side enable(default)
 1=IPX side enable
 2=SIP side enable
 3=disable
Input:0
```

0: Warning tone is sent to the Telephony Server and SIP sides (Default).
1: Warning tone is sent to Telephony Server side only.
2: Warning tone is sent to SIP side only.
3: disable

Note: Normally this command is not required to be changed.

(24) hc_timer

Setting of Health Check timer value

This command is used to specify the Health Check time-out value.

[Setting Example]

```
MG(SIP) > set hc_timer

Input H/C timer value.(sec)
(130-65535(default=240)):240
```

Assign the Health Check timer value (Default: 240 seconds).

Note: Normally this command is not required to be changed.

(25) interface

Setting of the operation speed and operation mode of an interface

This command is used to assign the Ether speed and the duplex type to each port on MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

[Setting Example]

```
MG(SIP) > set interface
```

```
Select Ether[1] speed.
 0=AUTO(default)
 1=10M
 2=100M
 3=1000M
Input:0

Select Ether[2] speed.
 0=AUTO(default)
 1=10M
 2=100M
 3=1000M
Input:1

Select Ether[2] duplex.
 1=Half
 2=Full
Input:2
```

Assign an Ether speed type to Ether 1.(Example: when AUTO is set.)
0=Automatic Negotiation (Default)
1=10 Mbps (fixed)
2=100 Mbps (fixed)
3=1000 Mbps (fixed) **Note 4**
Select "0". **Note 3**

Assign an Ether speed type to Ether 2.(Example: when 100M/Full is set.)
0=Automatic Negotiation (Default)
1=10 Mbps (fixed)
2=100 Mbps (fixed)
3=1000 Mbps (fixed) **Note 4**
Select "1".

Assign a duplex type to Ether 1 and Ether 2.
1=Half Duplex
2=Full Duplex
Select "2".

Note 3: When "Automatic Negotiation" is selected, "AUTO" is automatically applied to the interface. Therefore, this command line will not appear for interface that is specified as "Automatic Negotiation".

Note 4: When100 Mbps (fixed) is selected, "Full Duplex" is automatically applied to the interface. Therefore, this command line will not appear for interface that is specified as "100 Mbps (fixed)".

Note: Normally this command is not required to be changed.

(26) ipaddress

Setting of IP address and subnet mask

The following explains procedures for setting the number of ports that MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] uses, and IP addresses and subnet masks for each port of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

Each port of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] is used as follows:

- Ether1 LAN: Telephony Server side
- Ether2 WAN: SIP network side

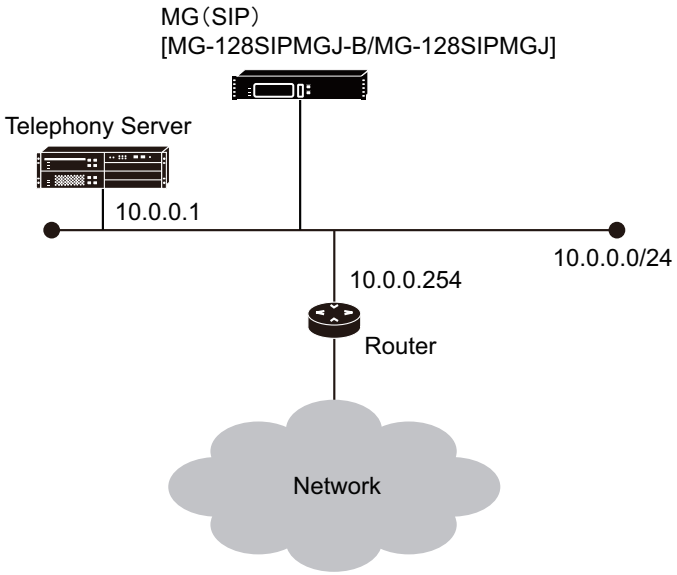
<One-port only>

When the IP addresses of both LAN and WAN are assigned in the same segment, use Ether1 port only. Select "Y" for "Do you use one-port only?" and assign Ether1's IP address only. In this case, Ether2 cannot be used.

Note: Please notice the following:

- If Ether2 data is already assigned, the message “Ether [2] Port data is erased. Are you sure? Y/N” is displayed. To erase the Ether2 data, select “Y”.
- If you select one port in the number of port setting, be careful not to use the same RTP port number when setting the non-default SIP network RTP base port number (by “set sip_rtp_port_no” command) or IPX network RTP base port number (by “set ipx_rtp_port_no” command).

Configuration when using one port is as follows:



<Ethernet Port Redundancy function > **Note 5**

Ether1 and Ether2 can be used together as one virtual Ether (Bond [0]) if one-port only is selected and the Ethernet Port Redundancy function is enabled. With this function, if there is a link down (**Note 6**) for Ether1 (or Ether2), Ether2 (or Ether1) is used (**Note 7**).

Note 5: This function is available from SP-4060 MGSIP PROG-L issue 3.

Note 6: Only if the link down state continues for more than 100 milliseconds.

Note 7: Please notice the following:

- When there is a changeover of the port in use, MG-SIP128 is not restarted. However, ongoing voice communication will be interrupted by a silent gap of less than one second.
- Even if there is a link up for Ether1 while Ether2 is an active port, Ether2 continues to be an active port. In this case, only when there is a link down for Ether2, Ether1 takes the place of it.
- Connect a cable both to Ether1 and Ether2 when Ethernet Redundancy function is enabled.

[Display example]

When Ether1 and Ether2 are used:

```
MG(SIP)> set ipaddress
Do you use one-port only? Y/N= n
Ether[1]
  Input IP Address.(default=0.0.0.0)
            : 172.16.0.1
  Input Subnet mask.(default=0.0.0.0)
            : 255.255.255.0
Ether[2]
  Input IP Address.(default=0.0.0.0)
            : 172.16.1.2
  Input Subnet mask.(default=0.0.0.0)
            : 255.255.255.0
```

Enter “n”when two ports are used.

Ether [1]: LAN

Assign the IP address (Default: 0.0.0.0) for Ether [1].

Assign the subnet mask (Default: 0.0.0.0) for Ether [1].

Ether [2]: SIP network

Assign the IP address (Default: 0.0.0.0) for Ether [2].

Assign the subnet mask (Default: 0.0.0.0) for Ether [2].

When only Ether1 is used and Ethernet Redundancy function is enabled.

```
MG(SIP)> set ipaddress
Do you use one-port only? Y/N=y
Ether[1]
  Input IP Address. (default=0.0.0.0)
            : 172. 16. 0. 1
  Input Subnet mask. (default=0.0.0.0)
            : 255. 255. 255. 0
Ether[2] port data is erased.
Are you sure? Y/N = y
Select the setting of Ethernet Port Redundancy
function.
  0 = disable (default)
  1 = enable
Input : 1
```

Assign Ether1 data.

Assign the IP address (Default: 0.0.0.0) for Ether [1].

Assign the subnet mask (Default: 0.0.0.0) for Ether [1].

Note 8

Enable Ethernet Port Redundancy. **Note 5**
0: disable (default)
1: enable

Note 8: When one-port only is selected, do not assign Ether[2] data.

(27) ipx_route

Setting of the route information in the Telephony Server network

This command is used to specify route information on the Telephony Server side network. A maximum

of 500 route data sets can be assigned.

Note: Before SP-4032 MGSIP PROG-E Issue 2, a maximum of 10 route data sets can be assigned.

The following figure shows an example of display.

When Route type = 0 is selected:

```
MG(SIP) > set ipx_route
Select Route type(0:Exit/1:None/2:Static):0



MG(SIP)>
```

0: Exit
1: None (Default)
2: Static
Select “0”.

Exit the command without executing anything.

When Route type = 1 is selected:

```
MG(SIP) > set ipx_route
Select Route type(0:Exit/1:None/2:Static):1



<< Result >>
Route type: None
Are you sure? Y/N=y



MG(SIP) >
```

0: Exit
1: None (Default)
2: Static
Select “1”.

Note: Pressing any key other than “y” causes the following message.

Route setting command was interrupted.

When Route type = 2 is selected:

- [To Assign Destination Network Address and Gateway Address]

  Usually, gateway data should be set as ‘Static’ at LAN (Telephony Server network) side.

```
MG(SIP) > set ipx_route
Select Route type(0:Exit/1:None/2:Static):2
```

0: Exit
1: None (Default)
2: Static
Select “2”.

```
Select command(0:Exit/1:Set/2:Delete):1



Select Gateway type(0:Exit/1:Gateway/
2:Default Gateway):1



Input Destination network
Address:172.16.0.0

Input Subnet mask bit(0-32):16









Input IP Address of Gateway:192.168.0.254

<< Result >>
Route type: Static

Gateway Address|Destination network/Prefix
---------------+---------------------------
192.168.0.254  |172.16.0.0        /32

Are you sure? Y/N=y



MG(SIP)>
```

0: Exit (Exit the command without executing anything.)
1: Set route information.
2: Delete route information.
Select "1".

0: Exit (Exit the command without executing anything.)
1: Specify the gateway.
2: Specify the default gateway.
Select "1".

Specify the network address. **Note 9**
(Default: 0.0.0.0)

Specify the subnet mask. **Note 9**
(Default: 0)

Note: If an invalid value is set here, the following error message is displayed. Input the valid value.

Input destination network address invalid.

Specify the gateway address.
(Default: 0.0.0.0)

Note: Pressing any key other than "y" displays the following message.

Route setting command was interrupted.

Note 9: Do not set routing in the segment where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] belongs.

- [To Assign Routing Information (Gateway Address only)]

  To set a default gateway, it should be assigned to either LAN side port or SIP network side port. Usually, assign a default gateway to SIP network side port. Two or more Default Gateways cannot be registered.

```
MG(SIP) > set ipx_route
Select Route type(0:Exit/1:None/2:Static):2
Select command(0:Exit/1:Set/2:Delete):1
Select Gateway type(0:Exit/1:Gateway/
2:Default Gateway):2
Input IP Address of Default
Gateway:192.168.0.254
<< Result >>
Route type:Static
Gateway Address|Destination network/Prefix
---------------+---------------------------
192.168.0.254  |0.0.0.0           /32
Are you sure? Y/N=y
MG(SIP)>
```

0: Exit
1: None (Default)
2: Static
Select "2.

0: Exit (Exit the command without executing anything.)
1: Set routing information.
2: Delete routing information.
Select "1".

0: Exit (Exit the command without executing anything.)
1: Specify the gateway.
2: Specify the default gateway.
Select "2".

Specify the default gateway.
(Default: 0.0.0.0)

Note: Pressing any key other than "y" displays the following message.

Route setting command was interrupted.

- [To Delete the assigned Routing Information]

```
MG(SIP) > set ipx_route
Select Route type(0:Exit/1:None/2:Static):2
```

0: Exit
1: None (Default)
2: Static
Select "2.

```
Select command(0:Exit/1:Set/2:Delete):2




No|Gateway Address|Destination network/
Prefix
--+---------------+-----------------------
1 |192.168.0.254 |172.16.0.0         /16
2 |192.168.0.254 |10.0.0.0           /8

Select delete No?: 1


No|Gateway Address|Destination network/
Prefix
--+---------------+-----------------------
1 |192.168.0.254 |10.0.0.0           /8

Are you sure? Y/N=y



MG(SIP)>
```

0: Exit (Exit the command without executing anything.)
1: Set routing information.
2: Delete routing information.
Select "2".

Note: When there is no information to delete here, the following message is displayed.

There is no static route table to delete.

Select the number (No) of the route information you want to delete.
Select "1.

Note: Pressing any key other than "y" displays the following message.

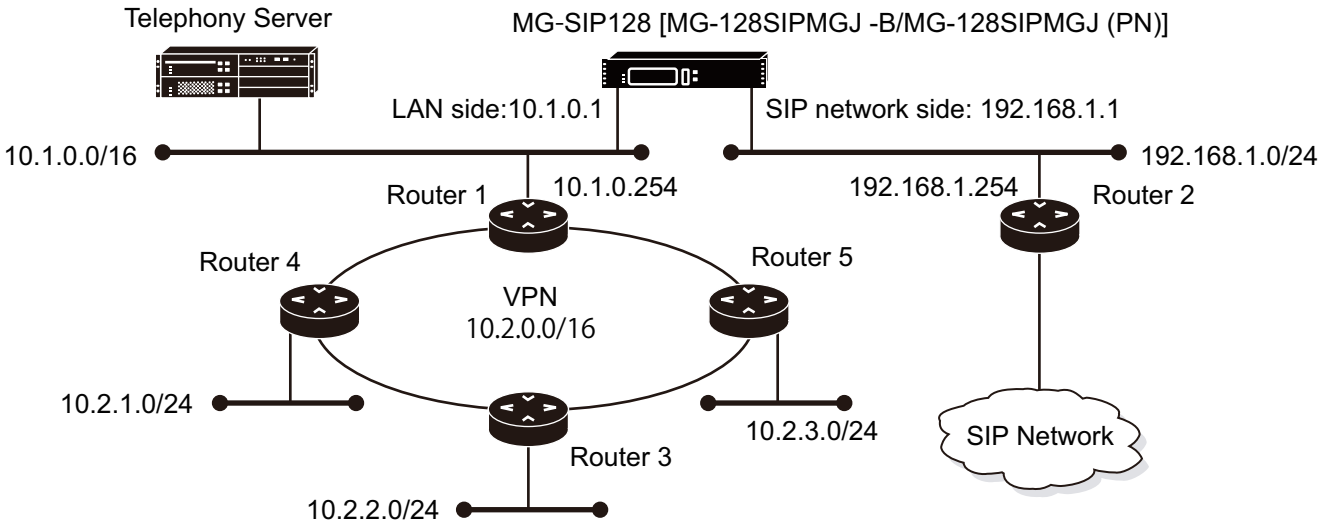
Route setting command was interrupted.

Note: The conditions of this command are as follows.

- To set a default gateway, it should be assigned to either one of the LAN side port or SIP network side port.
- Routing assignment is unnecessary for network segment assigned to Ether (0).

The following shows a typical network configuration and the sample data setting.

[Typical Network Configuration]



Note: The conditions of network configuration is as follows.

- Summarize the network addresses if possible.
- If you set an invalid gateway address and reboot the system, a message of “Please set correct gateway address!!” stays displayed after rebooting the system.

[Example of setting]

- Router 3/4/5 that are placed downstream of Router 1 on LAN (Telephony Server) side can be summarized to “10.2.0.0/16”. Set the summarized network address statically.
- Downstream of Router 2 on SIP network side cannot be specified; perform the default gateway settings.

[Sample Data Setting for the above network configuration]

```
MG(SIP) > set ipx_route

Select Route type(0: Exit/1: None/2: Static): 2

Select command(0: Exit/1: Set/2: Delete): 1

Select Gateway type(0: Exit/1: Gateway/2: Default
Gateway):1

Input Destination network Address:10.2.0.0

Input Subnet mask bit(0-32): 16

Input IP Address of Gateway:10.1.0.254

<< Result >>
Route type: Static
```

```
|Gateway Address|Destination network/Prefix
-------------------------------------------------
|10.1.0.254    |10.2.0.0          /16

Are you sure? Y/N=y

MG(SIP) > set ipx_route

Select Route type(0: Exit/1: None/2: Static): 2

Select command(0: Exit/1: Set/2: Delete): 1

Select Gateway type(0: Exit/1: Gateway/2: Default
Gateway):2

Input IP Address of Default Gateway:192.168.1.254

<< Result >>
Route type: Static

|Gateway Address|Destination network/Prefix
---------------+---------------------------------
|192.168.1.254 |0.0.0.0           /0
```

(28) ipx_rtp_port_no

Setting of the RTP base port number for LAN (Telephony Server network)

This command is used to assign the base port number that is used for RTP at LAN side. (Even numbers only.)

[Setting Example]

```
MG(SIP) > set ipx_rtp_port_no

Input IPX side RTP Port Number.
(1024-64000(default=51000)):51000
```

Assign the base port number that is used for RTP at LAN side (Default: 51000).
(Receiving side of MG-SIP128 [MG-128SIP-MGJ-B/MG-128SIPMGJ])

Note: The conditions of this command are as follows.

- Normally this command is not required to be changed.
- RTP ports occupy 512 (128×4) ports (counting from the RTP base port number).
- If you select one port in the number of port setting (by “set ipaddress” command), be careful not to use the same RTP port number (set by “set sip_rtp_port_no” or “set ipx_rtp_port_no” command) when setting the non-default IPX network RTP base port number.

(29) keynumber

Setting of the pilot number for MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

The command is used to assign a pilot number of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] for

registration.

[Setting Example]

```
MG(SIP) > set keynumber

Input Keynumber.(default=0, MAX32(strings))
          :0
```

Assign the pilot number when register is performed (Default: 0).

Note: Be sure not to enter a blank character to the end of the pilot number (with the Copy and Paste features of your personal computer), and be careful not to mistype a character ("0"(zero) or "O" (alphabetical O), for example).

(30) mp_data

Addition or deletion of Multipoint data table

The command is used to add or delete Search Number for Multipoint data table. After setting this command, execute "set_mp_refresh" for reflecting this setting without system restart. (**Note 11**) (**Note 12**)

[Setting Example]

```
MG(SIP) > set mp_data
Select the method to operation.
 0 : Exit
 1 : Set
 2 : Delete
Input:1

Input Search Number.(number of digits=7)
: 1230200
Search Number 1230200 is no data.


Edit this data. Are you sure? (y/n) : y

Input Group Name.(MAX10(strings))
: tokyo1

Input Primary Dest IP
Address.(default=0.0.0.0)
: 192.168.x.xx

Input Primary Dest Port Number.(1024-65535
(default=5060))
: 5060
```

0 : Exit
1 : Set
2 : Delete

Input the Search Number. When the entered number is already entered, the existing setting is displayed. **Note 10**

When adding the number, select "y".

Input Group Name.

Input Primary IP address.

Input Primary Port Number.

```
Input Secondary Dest IP
Address.(default=0.0.0.0)
: 0.0.0.0
```
Input Secondary IP address.

```
Input Secondary Dest Port Number.(1024-65535
(default=5060))
: 0
```
Input Secondary Port Number.

```
Input Tertiary Dest IP
Address.(default=0.0.0.0)
: 0.0.0.0
```
Input Tertiary IP address.

```
Input Tertiary Dest Port Number.(1024-65535
(default=5060))
: 0
```
Input Tertiary Port Number.

```
Input Quaternary Dest IP
Address.(default=0.0.0.0)
: 0.0.0.0
```
Input Quaternary IP address.

```
Input Quaternary Dest Port Number.(1024-65535
(default=5060))
: 0
```
Input Quaternary Port Number.

Note 10: Input the digits of Search Number (default: 7 digits) assigned by “set mp_mode”. Error occurs when the input digits are different from the number of digits assigned by “set mp_mode”.

Note 11: If any changes have been made with the "set mp_mode" command, be sure to restart MG-SIP128 before using the “set mp_data” command.

Note 12: When the PBX multipoint connection (MG-SIP TIE Line Path Splitting) feature is enabled, an error message will be displayed if you try to run this command.

(31) mp_mode

Enabling or disabling Multipoint feature

The command is used to enable or disable Multipoint feature. After enabling this feature, assign Search Number digits and Server Priority. After disabling this feature, assign PBX multipoint connection (MG-SIP TIE Line Path Splitting).

Note: SIP Access Filter (sip_accfilter command) cannot be simultaneously used with this command.

[Setting Example]

When Multipoint Feature is Enabled:

```
MG(SIP) > set mp_mode
Select the setting of Multipoint mode.
 0 = disable (default)
 1 = enable
Input:1



If you change Number of Search Number digits,
update mp_data file after reboot.
Input Number of Search Number digits.
(1-8 (default=7)) : 7

Select Server Priority.
 0 = Fixed (default)
 1 = Round Robin
Input:0
```

0: Multipoint mode is disabled (This setting is finished without setting Search Number digits and Server Priority)
1: Multipoint mode is enabled (This setting is finished after setting Search Number digits and Server Priority)

Assign the digits of Search Number.

0: Address that is assigned to Primary for Multipoint data table is prioritized
1: Address is determined by Round Robin method

Note: When the “set mp_mode” command has been assigned, be sure to reboot MG-SIP128 before assigning the “set mp_data” command.

When Multipoint Feature is Disabled and PBX Multipoint Connection (MG-SIP TIE Line Path Splitting) is Enabled:

```
MG (SIP) > set mp_mode

Select the setting of Multipoint mode.
  0 = disable  (default)
  1 = enable
Input:0



Select the setting of Multipoint mode by PBX
indication.
  0 = disable (default)
  1 = enable
Input : 1
```

0: Multipoint mode is disabled (This setting is finished without setting Search Number digits and Server Priority)
1: Multipoint mode is enabled (This setting is finished after setting Search Number digits and Server Priority)

PBX Multipoint Connection (MG-SIP TIE Line Path Splitting) is enabled/disabled **Note 13**.
0: disable
1: enable

Note 13: Please note the following:

- This feature requires the Telephony Server side software to be FP95-113 V3 or later.
- This feature can be set if MG (SIP) is SP-4060 MGSIP PROG-L Issue 3 or later.
- If Multipoint mode has been already set to “enable”, erase the data with the “set mp_mode” command before enabling PBX Multipoint Connection (MG-SIP TIE Line Path Splitting).
- This feature does not require the setting of the “set sip_server” command. Assigned IP address will not be used.

(32) mp_refresh

Refreshing of the Multipoint data table

The command is used to refresh the Multipoint data table.

[Setting Example]

```
MG(SIP) > set mp_refresh
This command writes mp_data file to a memory.
Are you sure?(y/n): y
mp_data file load start...
mp_data file load end.
```

To refresh the Multipoint Data Table, enter “y”.

Note: When refreshing of the Multipoint data table is failed, the number and the details (up to 10) of error are displayed on the console. Then, Error Code is written into CSV file.

Note: When the PBX multipoint connection (MG-SIP TIE Line Path Splitting) feature is enabled, an error message will be displayed if you try to run this command.

(33) multi_regist

Setting of the registration function per number

This command is used to enable/disable the setting of registration to SIP server per number.

Note: For MG-SIP [MG-128SIPMGJ-B/MG-128SIPMGJ], multi registration feature is not used.

[When this function is enabled]

Registers to SIP server per SIP-URI (or Telephone number).

```
MG(SIP) > set multi_regist
Select Multi-registration mode.
 0=disable(default)
 1=enable
Input:1
Input the interval of REGISTER message
transmitting. (sec)(1-10(default=1)):1
```

0: disable
1: enable
Select “1”.

Assign the time interval to send register (Default: 1sec).

```
Input Standby timer value.(sec)(10-
3600(default=30)):30

Select Contact Header type.
 0=Privacy(default)
 1=SIP-URI
Input:0
```

Assign the time value to re-register after fault recovery (Default 30sec).

0: Random value
1: SIP-URI **Note 14**

[When this function is disabled]

Only the pilot number that is set in the configuration of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] by "set keynumber" command registers to SIP server.

```
MG(SIP) > set multi_regist

Select Multi-registration mode.
 0=disable(default)
 1=enable
Input:0
```

0: disable
1: enable
Select "0".

Note 14: Please note the following:

- When "Privacy" is selected: Assign a random value to the User ID field of SIP message "Contact header".
- When "SIP-URI" is selected: Assign the SIP-URI to the User ID field of SIP message "Contact header". Assign the telephone number if SIP-URI has not been assigned.

Note: The conditions of this command are as follows.

- Use configuration command "set sip_register" to assign the SIP server for register destination.
- The assignment of "set sip_register" is necessary when registration is to be done per number.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.

(34) multisession

Setting of Silent Monitor (Multi-Path Monitor) Connection

This command is used to set Silent Monitor (Multi-Path Monitor) Connection using MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] in the ACD system.

[Setting Example]

```
MG(SIP) > set multisession

<< Current Setting >>
    Multi-Session setting:disable

Select Multi-Session setting.
  0 = disable (default)
  1 = enable
Input:1

<< Result >>
  Multi-Session setting:enable
```

Displays the current setting.

0: Disabled (default)
1: Enabled

Displays the result.

(35) musictype

Setting of the type of music to be sent from MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

This command is used to select music type that is sent from MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

[Setting Example]

```
MG(SIP) > set musictype

Select Music Type.
 0=Type1(default)
 1=Type2
 2=Type3
 3=Type4
Input:0
```

0: Type1: Minuet
1: Type2: For Elise
2: Type3: WAVE file
3: Type4: No sound

(36) options

This command is used to assign the interval timer value of the MG-SIP Failure Detection Per Path feature.

After enabling or disabling MG-SIP Failure Detection Per Path, if the feature is enabled, set the interval time for the health checks.

Note: This command is available for SP-4060 MGSIP PROG-L Issue 3 or later.

[Setting Example]

```
MG (SIP) > set options
```

```
Select the setting of OPTIONS method.
  0 = disable (default)
  1 = enable
Input : 1

Input OPTIONS interval timer value.(sec)
(35-86400 (default=60)) : 60
```

MG-SIP Failure Detection Per Path.
1: disable (default)
2: enable

Health Checks interval (seconds)
(35-86400, default: 60)

Note: Please note the following:

- This feature requires the Telephony Server side software to be FP95-113 V3 or later.
- Once this command data has been assigned, if the settings need to be changed, use the AMGIL command to erase the data of MG-SIP Failure Detection Per Path of the Telephony Server side before performing any change.
- MG-SIP128 must be restarted after completing the settings.

(37) out_of_area_code

Setting of the out-of-area error response

This command is used to set the out-of-area (IPX network) error response.

[Setting Example]

```
MG(SIP) > set out_of_area_code

Input the SIP Error Response code when the out
of area.
(400-606(default=408)):408
```

Set the error response code.
(Default: 408)

Note: Normally this command is not required to be changed.

(38) prack

Setting of PRACK (Provisional Response Acknowledgment) function (RFC3262)

This command is used to enable/disable Provisional Response Acknowledgment (PRA) function (RFC3262). When this is set enabled, the 18x cyclical-send of provisional response function can be specified.

[Setting Example]

```
MG(SIP) > set prack

Select function to add 100rel to Supported
Header.
  0=enable(default)
  1=disable
Input:0
```

0: enable (Default)
1: disable

```
Select function to stop cyclical-send of
Provisional Response.
 0=disable(default)
 1=enable
Input:0
```

0: enable 18x cyclical-send
1: disable 18x cyclical-send

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.

(39) pre_negotiation_port_no

Setting of the UDP port receiving packets for voice control path

This command is used to specify the UDP port number that receives packets regarding the voice control path.

[Setting Example]

```
MG(SIP) > set pre_negotiation_port_no

Input Pre-negotiation Port Number.
(1024-65535(default=61014)):61014
```

Assign the UDP port receiving packets for voice control path (Default: 61014)

Note: Normally this command is not required to be changed.

(40) privacy_pattern

Setting of the privacy pattern

This command is used to specify a type of Calling Line Identification Non-Presentation when calling to SIP network.

[Setting Example]

```
MG(SIP) > set privacy_pattern

Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

When “0” is selected:

```
MG(SIP) > set privacy_pattern
```

```
Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
Input: 0
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

When “2” is selected:.

```
MG(SIP) > set privacy_pattern

Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
Input:2

Select RFC3325 pattern.
 0=Pattern 1:privacy_only(default)
 1=Pattern 2:TEL-URI
 2=Pattern 3:isub
 3=Pattern 4:SIP-URI
 4=Pattern 5:P-Associated-URI
Input:0
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

Select an RFC3325 pattern **Note 15**
0: privacy_only (Default)
1: TEL-URI
2: isub
3: SIP-URI
4: P-Associated-URI

Note 15: Use of P-Preferred-ID headers of INVITE message differs for each pattern.

When Pattern 1 is set: P-Preferred-ID header is not attached.
When Pattern 2 is set: P-Preferred-ID header is attached (tel is used).
When Pattern 3 is set: P-Preferred-ID header is attached (isub is used).
When Pattern 4 is set: P-Preferred-ID header is attached (sip is used).
When Pattern 5 is set: P-Preferred-ID header is attached. (P-Associated-URI is used)

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.

(41) registration_port_no

Setting of the UDP port number that receives DRS packets

This command is used to specify the UDP port number that receives the registration packets.

[Setting Example]

```
MG(SIP) > set registration_port_no
```

```
Input Registration Port Number.
(1024-65535(default=3456)):3456
```

Assign the UDP port number that receives the DRS packets. (Default: 3456).

Note: Normally this command is not required to be changed.

(42) reg_interval

Setting of the waiting time to retry after registration failure

This command is used to assign the retry waiting time when failed to register, due to the error-response or no answer from the server when Register packet was sent to SIP server from MG-SIP128 [MG-128SIP-MGJ-B/MG-128SIPMGJ].

[Setting Example]

```
MG(SIP) > set reg_interval
Input REGISTER interval timer value.(min)
(1-255(default=5)):5
```

Re-register waiting time (min): (Default: 5min)

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.
- When registration per number function is effective, assign by setting MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] using the largest number within the same MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] group referring to table below.

Amount of Numbers	Time (minute)
1 to 300	5
301 to 600	10
601 to 900	15
901 to 1000	20

(43) response_table

Setting of response table selection

This command is used to set the response table.

[Setting Example]

```
MG(SIP) > set response_table
Select Response table(Error Cause to
SIP Error Response).
 0=normal(default)
 1=revised
Input:0
```

0: normal table selection (Default)
1: Select not to send a server error from MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] to SIP network.

Note: Normally this command is not required to be changed.

(44) rtp_pathon

Setting of Path-on function by 183 Progress after receiving 180 Ringing

This command is used to assign Path-on function by 183 Progress after receiving 180 Ringing.

[Setting Example]

```
MG(SIP) > set rtp_pathon

Select Path-on 183 after 180.
 0=disable(default)
 1=enable
Input:0
```

0: disable (Default)
1: enable

Note: The conditions of this command are as follows.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.
- Normally this command is not required to be changed.

(45) rtp_qos

This command is used to specify the ToS value of Real-Time Protocol (RTP) packets on SIP network side.

[Setting Example]

```
MG(SIP) > set rtp_qos
```

* See “drs_qos” command for a display example and the contents of the configuration.

Note: Normally this command is not required to be changed.

(46) sdp_style

This command is used to receive SDP with multiple “m” lines.

- When normal style is specified:

```
MG(SIP) > set sdp_style

Select SDP style setting.
 0=normal(default)
 1=RFC4566
Input:0
```

0: normal (default)
1: conforms to RFC4566

Note: This command can be skipped by pressing Enter key.

(47) self_sip_domain

Setting of SIP domain name for MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

This command is used to set the SIP domain name for MG-SIP128 [MG-128SIPMGJ-B/MG-128SIP-MGJ].

[Setting Example]

- When this command is enabled:

```
MG(SIP) > set self_sip_domain
Select Self SIP Domain mode.
 0=disable(default)
 1=enable
Input:1
Input a Self SIP Domain
string.(MAX128(strings))
                      :
```

0: without domain name (Default)
1: with domain name

Input the SIP domain name in maximum of 128 characters.

- disable

```
MG(SIP) > set self_sip_domain
Select Self SIP Domain mode.
 0=disable(default)
 1=enable
Input:0
```

0: without domain name (Default)
1: with domain name

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.
- This command is required only when SIP domain must be separated between the SIP server and MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].
- If this command is not set, the SIP domain set by “set sip_server” command is used for the SIP domain of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

(48) session_timer

Setting of session timer

This command is used to specify the Session Timer.

[Setting Example]

```
MG(SIP) > set session_timer

Select the setting of Session-timer.
 0=enable(default)
 1=disable
```

0: Session Timer is enabled (Default)
1: Session Timer is disabled

When Session-Timer is Enable (=0) is selected:

```
MG(SIP) > set session_timer

Select the setting of Session-timer.
 0=enable(default)
 1=disable
Input:0

Input Session-expires timer value.(sec)
(0-86400(default=180)):180

Select Refresher type.
 0=UAC(default)
 1=UAS
Input:0

Select "refresher=uac" ini-INVITE.
 0=disable(default)
 1=enable
Input:0

Select Forced mode.
 0=disable(default)
 1=enable
Input:0
```

Set the session timer.
(Default: 180 sec)

Determine a point to make refresher.
UAC: User Agent Client
UAS: User Agent Server

refresher=uac addition to INVITE message:
0: refresher=uac is not added
1: refresher=uac is added

0: Session timer will not be activated when Supported/Require header does not exist (default).
1: Session timer will be activated by using Session-Expires when Supported/Require header does not exit.

When Session-Timer is Disable (=1) is selected:

```
MG(SIP) > set session_timer
```

```
Select the setting of Session-timer.
 0=enable(default)
 1=disable
Input:1
```

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.

(49) signaling_port_no

Setting of the UDP port number that receives control signal packets

This command is used to specify the UDP port number that receives the control signal packets.

[Setting Example]

```
MG(SIP) > set signaling_port_no

Input Signaling Port Number.
(1024-65535(default=61012)):61012
```

Assign the UDP port number that receives the control signal packets (Default: 61012).

Note: Normally this command is not required to be changed.

(50) sip_accfilter

Setting of SIP Access Filter

This command is used to enable the SIP Access Filter which discards SIP packets received from an unauthorized destination.

Also, this command is used to enable the Burst Access Filter which temporarily limits the maximum number of incoming calls that can be received by a Telephony server when a rush of calls from a SIP network occurs instantaneously.

Note: When Multipoint feature or PBX Multipoint Connection (MG-SIP TIE Line Path Splitting) feature is enabled, SIP access filter is not available.

[Setting Example]

When IP address (=0) is selected by “set sip_server” command:

```
MG(SIP) > set sip_accfilter

Select the setting of SIP Access
Filter.
 0=disable (default)
 1=enable
Input: 1
```

Enable/disable SIP Access Filter.
0: SIP Access Filter is disabled (default).
1: SIP Access Filter is enabled.

```
Input SIP Access Filter mask. (default
=255.255.255.255)
(SIP server IP Address:
192.168.100.100)
                    : 255.255.255.255



Select the setting of Burst Access
Filter.
0 = disable (default)
1 = enable

Input : 1
Input Burst Access limit timer value.
(sec)
(1-60(default=1)) : 30

Input Burst Access limit number value.
(1-1000(default=10)) : 500


Input Burst Access reject response
code.
(400-699(default=488)) : 600




MG(SIP)
```

When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

Note: The IP address of Register Server is authorized although it is not displayed.

Enable/disable Burst Access Filter. **Note 16**
0: Burst Access Filter is disabled (default).
1: Burst Access Filter is enabled.

Assign the period of monitoring incoming calls (sec.).
(1-60, default is 1.)

Assign the limit number of incoming calls (INVITE number) to be received during a monitoring period (sec.). **Note 17**
(1-1000, default is 10.)

Assign the error response code that is sent back to a SIP network when the INVITE number exceeds the limit during a monitoring period (sec.).
(400-699, default is 488.)

When FQDN (=1) is selected by “set sip_server” command:

```
MG(SIP) > set sip_accfilter

Select the setting of SIP Access
Filter.
 0=disable (default)
 1=enable
Input: 1
```

Enable/disable SIP Access Filter.
0: SIP Access Filter is disabled (default).
1: SIP Access Filter is enabled.

```
Input SIP Access Filter mask. (default
=255.255.255.255)
(SIP server FQDN: sipserver.nec.com)
                    : 255.255.255.255



Select the setting of Burst Access
Filter.
0 = disable (default)
1 = enable

Input : 1
Input Burst Access limit timer value.
(sec)
(1-60(default=1)) : 30

Input Burst Access limit number value.
(1-1000(default=10)) : 500


Input Burst Access reject response
code.
(400-699(default=488)) : 600




MG(SIP)
```

When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

Note: The IP address of Register Server is authorized although it is not displayed.

Enable/disable Burst Access Filter. **Note 16**
0: Burst Access Filter is disabled (default).
1: Burst Access Filter is enabled.

Assign the period of monitoring incoming calls (sec.).
(1-60, default is 1.)

Assign the limit number of incoming calls (INVITE number) to be received during a monitoring period (sec.). **Note 17**
(1-1000, default is 10.)

Assign the error response code that is sent back to a SIP network when the INVITE number exceeds the limit during a monitoring period (sec.).
(400-699, default is 488.)

Note 16: This feature is available for SP-4032 MGSIP PROG-E Issue 2 or later.
When receiving incoming calls that exceed the assigned limit number while this feature is enabled, an error response code is sent back to a SIP network and further incoming calls are rejected until the next period of monitoring incoming calls.

Note 17: Only Initial-INVITE is counted as an incoming call. In addition, INVITE from an unauthorized destination is also counted as an incoming call when SIP Access Filter feature is disabled. The followings are not counted as an incoming call:

- Outgoing call
- Abandoned or received call
- Re-INVITE
- INVITE from unauthorized destination (when SIP Access Filter feature is enabled)

- INVITE without the following header
  - Via
  - From
  - To
  - CSeq
  - CallID

(51) sip_domain

Setting of the SIP domain

This command is used to assign the SIP domain.

[Setting Example]

```
MG(SIP) > set sip_domain

Input Domain Name.(default=0,
MAX128(strings)):tokyo
```

Input a SIP domain name in maximum of 128 characters.

Note: As with this command, SIP domain can be assigned by “set sip_server” command.

(52) sip_port_no

Setting of the port number that receives SIP messages

This command is used to specify a UDP port number that receives SIP messages.

[Setting Example]

```
MG(SIP) > set sip_port_no

Input SIP Port Number.
(1024-65535(default=5060)):5060
```

Assign the port number that receives SIP messages (Default: 5060).

Note: Normally this command is not required to be changed.

(53) sip_qos

Setting of the ToS value for SIP signaling

This command is used to specify the ToS value of IP packets for SIP signaling.

[Setting Example]

```
MG(SIP) > set sip_qos
```

* See “set drs_qos” command for a display example and the contents of the configuration.

Note: Normally this command is not required to be changed.

(54) sip_register

Setting of the information of SIP registrar

This command is used to assign an IP address or a Fully Qualified Domain Name (FQDN), and port num-

ber and expiration time of the SIP registrar.

The following figure shows an example of display.

When IP address (=0) is selected:

```
MG(SIP) > set sip_register

Select SIP register type.
 0=IPAddress(default)
 1=FQDN
Input:0

Input SIP register IP Address.
(default=0.0.0.0)
                    :192.168.100.100

Input SIP register Port Number.
(1024-65535(default=5060)):5060

Input SIP register Expires timer value.
(sec)
(1-65535(default=3600)):3600
```

When IP address (=0) is selected.

Assign the IP address of the SIP registrar (Default: 0.0.0.0).

Assign the port number of the SIP registrar (Default: 5060)

Assign the SIP registrar alive time in seconds (Default: 3600)

When FQDN (=1) is selected:

```
MG(SIP) > set sip_register

Select SIP register type.
 0=IPAddress(default)
 1=FQDN
Input:1

Input Fully Qualified Domain Name.
(default=0, MAX63(strings))
                              :nec.com

Input SIP register Port Number.
(1024-65535(default=5060)):5060

Input SIP register Expires timer value.
(sec)
(1-65535(default=3600)):3600
```

When FQDN (=1) is selected.

Assign the FQDN of the SIP registrar (Default:0, max 63 characters).

Assign the port number of the registrar (Default: 5060)

Assign the SIP registrar alive time in seconds (Default: 3600)

Note: The conditions of this command are as follows.

- Pressing the Enter key can skip the item, with exceptions of “SIP register type” and “IP address/FQDN”.
- Normally this command is not required to be changed.
- Be sure not to enter a blank character to the end of the FQDN (with the Copy and Paste features of your personal computer), and be careful not to mistype a character. (“0”(zero)

or “O” (alphabetical O), for example.)

(55) sip_route

Setting of the route information of SIP network

This command is used to specify route information in the SIP side network.
Use “set sip_route” command.
For details, see “ipx_route”(Setting of the route information in the Telephony Server network).

(56) sip_rtp_port_no

Setting of the RTP base port number of SIP network

This command is used to assign the RTP base port number from SIP network. (Even numbers only.)

[Setting Example]

```
MG(SIP) > set sip_rtp_port_no

Input SIP side RTP Port Number.
(1024-64000(default=50000)):50000
```

Assign the RTP base port number for SIP side (Default: 50000)
(Receiving side of MG-SIP128 [MG-128SIP-MGJ-B/MG-128SIPMGJ])

Note: The conditions of this command are as follows.

- Normally this command is not required to be changed.
- RTP ports occupy 256 (128x2) ports (counting from the RTP base port number).
- If you select one port in the number of port setting, be careful not to use the same RTP port number (set by “set sip_rtp_port_no” or “set ipx_rtp_port_no” command) when setting the non-default SIP network RTP base port number.

(57) sip_server

Setting of the information of SIP server

This command is used to assign an IP address or a Fully Qualified Domain Name (FQDN), and port number, type, and SIP domain of the SIP server.

The following figure shows an example of display.

When IP address (=0) is selected:

```
MG(SIP) > set sip_server

Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:0

Input SIP server IP Address.
(default=0.0.0.0)
:192.168.100.100
```

When IP address (=0) is selected.
(Default: 0)

Assign the IP address of the proxy server
(Default: 0.0.0.0).

```
Input SIP server Port Number.
(1024-65535(default=5060)):5060

Select SIP server Router type.
 0=Strict(default)
 1=Loose
Input:0


Input Domain Name.(default=0,
MAX128(strings))
```

Assign the port number of the proxy server
(Default: 5060)

Select a Strict router or Loose router for the proxy server
(Default: 0)
0: Strict router
1: Loose router
Select "0".

Input a SIP domain name in maximum of 128 characters.

When FQDN (=1) is selected:

```
MG(SIP) > set sip_server

Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:1

Input Fully Qualified Domain Name.(default=0,
MAX63(strings))

Input SIP server Port Number.
(1024-65535(default=5060)):5060

Select SIP server Router type.
 0=Strict(default)
 1=Loose
Input:0


Input Domain Name.(default=0,
MAX128(strings))
```

When FQDN (=1) is selected.

Assign the FQDN of the proxy server in maximum of 63 characters
(default: 0).

Assign the port number of the proxy server
(Default: 5060)

Select a Strict router or Loose router for the proxy server
(Default: 0)
0: Strict router
1: Loose router
Select "0".

Input a SIP domain name in maximum of 128 characters.

Note: The conditions of this command are as follows.

- Pressing the Enter key can skip the item, with exceptions of "SIP server type" and "IPaddress/FQDN".
- Be sure not to enter a blank character to the end of the FQDN (with the Copy and Paste features of your personal computer), and be careful not to mistype a character ("0"(zero) or "O" (alphabetical O), for example).

(58) sip_tel_service

Setting of additional services

The command is used to enable/disable the use of additional service features (Hold/Retrieve/Transfer from the SIP network side terminal).

[Setting Example]

```
MG(SIP) > set sip_tel_service

Select SIP telephony service function.
 0=disable(default)
 1=enable
Input:1
```

0: additional service feature is disabled (Default)
1: additional service feature is enabled

When enable (=1) is selected, the following screen is displayed. (When disable is selected, no screen is displayed.)

```
Select Replaces function.
 0=enable(default)
 1=disable
Input:0

Select Hold [a=inactive] function.
 0=enable(default)
 1=disable
Input:0
```

Enable/disable Replaces function.
0: enable (Default)
1: disable

0: a=inactive hold function is enabled (Default)
1: a=inactive hold function is disabled

Note: The conditions of this command are as follows.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.
- Music On Hold may not be sent to some remote terminals if this command is not enabled.

(59) slipresp

Setting of error response codes used when bypassing a SIP server

This command is used to determine an error response code that is sent in order to prompt a SIP server to bypass when all the resources of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] are busy.

[Setting Example]

```
MG(SIP) > set slipresp

Input SIP server slip response code.
(400-699(default=488)):488
```

Set the error response code.
(400 to 699, Default: 488)

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.

(60) softdsp

Setting of A-law /μ-law converting and PAD value

This command is used for the settings of the A-law /μ-law converting feature and for the PAD value settings. The following table shows the operating status of MG (SIP) when the A-law /μ-law converting feature is enabled.

Note: This command is available for SP-4032 MGSIP PROG-E Issue 2 or later.

When MG (SIP) receives an incoming call

Station Side (ASYD SYS1 INDEX64 BIT0)	MG (SIP) Codec Convert Mode	Network Side	Operating Status	Conversion
A-law	μ-law	μ-law	Normal Communication	Performed
A-law	μ-law	A-law	Normal Communication	Not performed
A-law	μ-law	G.729	Error Response	Not performed
A-law	A-law	A-law	Normal Communication	Not performed
A-law	A-law	μ-law	Normal Communication	Performed
A-law	A-law	G.729	Error Response	Not performed
μ-law	μ-law	μ-law	Normal Communication	Not performed
μ-law	μ-law	A-law	Normal Communication	Performed
μ-law	μ-law	G.729	Error Response	Not performed
μ-law	A-law	A-law	Normal Communication	Performed
μ-law	A-law	μ-law	Normal Communication	Not performed
μ-law	A-law	G.729	Error Response	Not performed

When MG (SIP) places an outgoing call

Station Side (ASYD SYS1 INDEX64 BIT0)	MG (SIP) Codec Convert Mode	Network Side	Operating Status	Conversion
A-law	μ-law	μ-law	Normal Communication	Performed
A-law	μ-law	A-law	Error Response	Not performed
A-law	μ-law	G.729a	Error Response	Not performed
A-law	A-law	A-law	Normal Communication	Not performed
A-law	A-law	μ-law	Error Response	Not performed
A-law	A-law	G.729a	Error Response	Not performed
μ-law	μ-law	μ-law	Normal Communication	Not performed
μ-law	μ-law	A-law	Error Response	Not performed
μ-law	μ-law	G.729a	Error Response	Not performed
μ-law	A-law	A-law	Normal Communication	Performed
μ-law	A-law	μ-law	Error Response	Not performed

When MG (SIP) places an outgoing call

Station Side (ASYD SYS1 INDEX64 BIT0)	MG (SIP) Codec Convert Mode	Network Side	Operating Status	Conversion
μ-law	A-law	G.729a	Error Response	Not performed

The followings are the setting example:

When enabling/disabling the A-law /μ-law converting feature

```
MG(SIP) > set softdsp

<< Current Setting >>
codec convert mode  : disable
PAD setting         : disable

Select the PCM codec convert mode
according to SIP side.
  0 = disable (default)
  1 = PCMU
  2 = PCMA
Input  : 1

Select the PAD setting for voice/FAX.
  0 = disable (default)
  1 = local setting
  2 = auto
Input  : 0
```

Displays the current setting.

0: Disabled (default)
1: μ-law
2: A-law

Select the settings for PAD value adjusting.
0: Disable PAD value adjusting feature
1: Adjusting PAD value according to the configuration data setting
2: Adjusting PAD value according to the settings on the Telephony Server.

Note: The PAD value settings are also needed to be assigned when enabling the A-law /μ-law converting feature.

When adjusting PAD value according to the configuration data setting.

```
MG(SIP) > set softdsp
<< Current Setting >>
codec convert mode  : disable
PAD setting         : disable
Select the PCM codec convert mode
according to SIP side.
  0 = disable (default)
  1 = PCMU
  2 = PCMA
Input  : 1

Select the PAD setting for voice/FAX.
  0 = disable (default)
  1 = local setting
  2 = auto
Input  : 1


Input PAD reception setting for voice.
[-20 (dB) - 20 (dB) ]  : -20
Input PAD transmission setting for voice.
[-20 (dB) - 20 (dB ) ] : 20
Input PAD reception setting for FAX.
[-20 (dB) - 20 (dB) ]  : -20
Input PAD transmission setting for FAX.
[-20 (dB) - 20 (dB) ]  : 20
```

Displays the current setting.

0: Disabled (default)
1: μ-law
2: A-law

Select the settings for PAD value adjusting.
0: Disable PAD value adjusting feature
1: Adjusting PAD value according to the configuration data setting
2: Adjusting PAD value according to the settings on the Telephony Server.

Assign PAD value for each setting.

Note: The A-law /μ-law converting feature setting is also needed to be assigned when enabling the PAD value adjusting feature.

When adjusting PAD value automatically

```
MG(SIP) > set softdsp
<< Current Setting >>
codec convert mode  : disable
PAD setting         : disable
Select the PCM codec convert mode
according to SIP side.
  0 = disable (default)
  1 = PCMU
  2 = PCMA
Input  : 1

Select the PAD setting for voice/FAX.
  0 = disable (default)
  1 = local setting
  2 = auto
Input  : 2
```

Displays the current setting.

0: Disabled (default)
1: μ-law
2: A-law

Select the settings for PAD value adjusting.
0: Disable PAD value adjusting feature
1: Adjusting PAD value according to the configuration data setting
2: Adjusting PAD value according to the settings on the Telephony Server.

Note: The A-law / μ-law converting feature setting is also needed to be assigned when enabling the PAD value adjusting feature.

(61) update

Setting of update method

This command is used to enable/disable the use of update method.

[Setting Example]

```
MG(SIP) > set update
Select the setting of UPDATE method.
 0=disable(default)
 1=enable
Input:0
```

0: Update method is disabled (Default)
1: Update method is enabled

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] connects.

5.2.2 show Command

(1) arp

Displaying of ARP table

This command is used to show the Address Resolution Protocol (ARP) table of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

[Setting Example]

```
MG(SIP)> show arp
Address Note 1  HWtype  HWaddress Note 2    Flags Mask Note 3 Iface
192.168.0.250 ether   XX:XX:XX:XX:XX:XX C                 eth0
192.168.0.99  ether   XX:XX:XX:XX:XX:XX C                 eth0
192.168.0.1   ether   XX:XX:XX:XX:XX:XX C                 eth0
```

Note: Actual values such as Address or HWaddress may differ from this sample.

Note 1: Address: IP address (IP address or host name of an entry)

Note 2: HWaddress: Physical address /Hardware address (For Ethernet, MAC address of an entry)

Note 3: Flags Mask: Entry type (C: Used for normal entries only.)

(2) config

Displaying of a configuration data list

This command is used to show the configuration that has been currently specified for the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

The following shows a sample display.

[MAC configuration data]

```
MG(SIP)> show config
[2015-10-10 14:49:29]

[SP-4060:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

MAC Data=MAC configuration data

DRS Data=Configuration data of the Telephony Server

Common Config Data=Common configuration data

```
3=Port Config Data

4=SIP Config Data

5=Route Config Data

6=Multipoint Data

9=Exit

Select a reference number:0

Ether[1]
MAC Address:00-00-00-00-00-00

Ether[2]
MAC Address:00-00-00-00-00-00
```

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

Multipoint Data

End of show command

Select “0”.

MAC addresses of Ether [1] [2] of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

[DRS configuration data]

```
MG(SIP)> show config

[2015-10-10 14:49:29]

[SP-4060:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

6=Multipoint Data

9=Exit

Select a reference number:1
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

MAC Data=MAC configuration data

DRSData=Configuration data of the Telephony Server

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

Multipoint Data

End of show command

Select “1”.

```
Primary DRS IP Address:0. 0. 0. 0:PortNo[3456]
Secondary DRS IP Address:0. 0. 0. 0:PortNo[3456]
Tertiary DRS IP Address:0. 0. 0. 0:PortNo[3456]
Quaternary DRS IP Address:0. 0. 0. 0:PortNo[3456]
```

IP address and port number of the currently configured DRS will be displayed.

[Common configuration data]

```
MG(SIP)> show config
[2015-10-10 14:49:29]

[SP-4060:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

6=Multipoint Data
9=Exit
Select a reference number:2
set signaling_port_no:
 Signaling Port Number        :61012
-------------------------------------------------
set registration_port_no:
 Registration Port Number     :3456
-------------------------------------------------
set pre_negotiation_port_no:
 Pre-negotiation Port Number  :61014
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGJ-B/ MG-128SIPMGJ]

MAC Data=MAC configuration data

DRSData=Configuration data of the Telephony Server

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

Multipoint Data

End of show command

Select 2

Currently assigned config data will be displayed.

```
-------------------------------------------------
set ipx_rtp_port_no:
 IPX side RTP port number     :51000
-------------------------------------------------
set sip_rtp_port_no:
 SIP side RTP port number     :50000
-------------------------------------------------
set h245_base_port_no:
 H245 base port number        :40000
-------------------------------------------------
Does it display more? Y/N=y




-------------------------------------------------
set drs_qos:
DRS QoS:0xa0                  :0xa0
 PRECEDENCE                   :5
 DELAY                        :0
 THROUGHPUT                   :0
 RELIABILITY                  :0
 COST                         :0
-------------------------------------------------
set rtp_qos:
RTP QOS                       :0xa0
 PRECEDENCE                   :5
 DELAY                        :0
 THROUGHPUT                   :0
 RELIABILITY                  :0
 COST                         :0
-------------------------------------------------
Does it display more? Y/N=y
```

After displaying about 20 lines of config data, you can select if you want to see more data or not.
To see the config data more, enter “y”. To exit this command, press “n”.

```
-------------------------------------------------
set sip_qos:
SIP QOS                         :0xa0
 PRECEDENCE                     :5
 DELAY                          :0
 THROUGHPUT                     :0
 RELIABILITY                    :0
 COST                           :0
-------------------------------------------------
set domain:
 Domain name                    :0
-------------------------------------------------
set dnsaddress:
 DNS IP address                 :0.0.0.0
-------------------------------------------------
set hc_alarm:
 H/C Alarm type          :IPX and SIP Side enable
-------------------------------------------------
set hc_timer:
 H/C Timer value                :240sec
-------------------------------------------------
set musictype:
```

H/C Alarm type display varies depending on the type that is assigned by the “set hc_alarm.”

- When assigned the Telephony Server network side and SIP network side: “IPX and SIP side enable”
- When assigned the Telephony Server network side: “IPX side enable”
- When assigned SIP network side: “SIP side enable”
- When assigned not to send: “Disable”

```
 Music Type                    :Type1


-------------------------------------------------

set call_hold:
 Call Hold function            :enable
 RTP detect timer value        :3sec
 Response code to reject       :488




-------------------------------------------------

set country_code :
 Country Code                  : 1 (JP)

-------------------------------------------------

set softdsp:
 codec convert mode            :PCMU
 PAD setting                   :local setting
 PAD reception(voice)          :-20
 PAD transmission(voice)       :20
 PAD reception(FAX)            :-20
 PAD transmission(FAX)         :20
-------------------------------------------------

set enc:
 IPX side RTP encrypting mode :enable

-------------------------------------------------
```

Display (Type1/Type2/Type3/ Type4) depends on which type you set.

Displays the current setting of MG Based Call Retention. When “disable” is selected by a SET command “call_hold”, “disable” is displayed, but “RTP detect timer value” and “Response code to reject” are not displayed.

Displays the current setting of Country Code.

Displays the current settings of codec conversion and PAD value. **Note 4**

Displays the current settings of the RTP encrypting mode on Telephony Server network. **Note 5**

Note 4: This parameter is displayed since SP-4032 MGSIP PROG-E Issue 2.

Note 5: This parameter is displayed since SP-4060 MGSIP PROG-L Issue 4.

[Port configuration data]

```
MG(SIP)> show config
[2015-10-10 14:49:29]
```

Time when the configuration is acquired.

```
[SP-4060:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

6=Multipoint Data
9=Exit
Select a reference number:3
Using all port

Ether[1]
 IP address:172.16.253.200
 Subnet    :255.255.255.0
 Interface :Speed/Duplex=Auto/Auto
 Port type :IPX Side Port
Ether[2]

 IP address:192.168.35.200
 Subnet    :255.255.255.0
 Interface :Speed/Duplex=Auto/Auto
 Port type :SIP Side Port
```

Software version information of MG-SIP128 [MG-128SIPMGJ-B/ MG-128SIPMGJ]

MAC Data=MAC configuration data

DRSData=Configuration data of the Telephony Server

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

Multipoint Data

End of show command

Select “3”.

Data that is set to each port number is displayed.

If “one-port only” is selected with the “set ipaddress” command, only Ether [1] is displayed. Also, it is displayed whether Ethernet Port Redundancy function is enabled or disabled.

Example: Ethernet Port Redundancy function: enable

Note 6

Displays the current setting of the Ether[2] information.

Note 6: Ethernet Port Redundancy can be used since SP-4060 MGSIP PROG-L Issue 3.

[SIP configuration data]

```
MG(SIP)> show config
[2015-10-10 14:49:29]

[SP-4060:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

6=Multipoint Data
9=Exit
Select a reference number:4
set sip_server:

Server type                         :IP Address
Server IP Address                   :0.0.0.0




SIP server Port Number              :5060
SIP server Router type              :Strict
Domain Name                         :0
-------------------------------------------------
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGJ-B/ MG-128SIPMGJ]

MAC Data=MAC configuration data

DRSData=DRS configuration data

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

Multipoint Data

End of show command

Select “4”.

Currently assigned common config data will be displayed.

When FQDN is set by a SET command “sip_server”, “SIP server FQDN”, not “SIP server IP Address”, is displayed.

Displays the current setting of the Server IP Address.

```
set sip_register:
SIP register type                   :IP Address
SIP register IP Address             :0.0.0.0

SIP register Port Number            :5060
SIP register Expires time           :3600sec
-------------------------------------------------
set sip_domain:
Domain Name                         :0
-------------------------------------------------
set keynumber:
Keynumber                           :0
-------------------------------------------------
set auth:
User ID                             :0
Password                            :0
-------------------------------------------------
Does it display more? Y/N=y




-------------------------------------------------
set privacy_pattern:
 Privacy pattern                    :DisplayName




-------------------------------------------------
```

Displays the current setting of the SIP register IP Address.

After displaying about 20 lines of config data, you can select if you want to see more data or not.
To see the config data more, enter “y”. To exit this command, press “n”.

When “DisplayName” is selected by the SET command “privacy_pattern”, “DisplayName” is displayed. When RFC3325 Pattern (0) is selected, “RFC3323/3325 (0)” is displayed. When Pattern (1) is displayed, “RFC3323/3325 (1)” is displayed.

```
set session_timer:
Session-timer                       :enable
Session-expires                     :180sec
Refresher                           :UAC
Invite Refresher                    :disable
Forced mode                         :disable
set prack:
Supported 100rel                    :enable
Stop cyclical-send of 18x           :disable
-------------------------------------------------
set cdn_pattern:
 Prior Called Party Number pattern:To[userinfo]
-------------------------------------------------
set sip_port_no:
```

When “disable” is selected by the SET command “Session_timer”, “disable” is displayed. In this case, “Session-expires” and “Refresher” are not displayed.

When UAS is selected for Refresher, “UAS” is displayed.

When “enable” is selected for “Invite Refresher” by the SET command “session_timer”, “enable” is displayed.

When “enable” is selected for “Forced mode” by the SET command “session_timer”, “enable” is displayed.

When “disable” is selected by the SET command “prack”, “disable” is displayed.

“enable” may be displayed according to the setting.
When “set prack” is disabled, nothing is displayed.

When “Request-URI[isub]” is selected by the SET command “cdn_pattern”, “Request-URI[isub]” is displayed, and when “Request-URI[userinfo]” is selected, “Request-URI[userinfo]” is displayed, and “P-Called-Party-ID” is selected, “P-Called-Party-ID” is displayed.

```
 SIP Port Number                  :5060
-------------------------------------------------
Does it display more? Y/N=y
-------------------------------------------------
set 184ToPrivacy:
 184 to privacy pattern           :disable
-------------------------------------------------
set slipresp:
 SIP server slip response code    :488
-------------------------------------------------
set self_sip_domain:
 Self SIP Domain mode             :disable
-------------------------------------------------
Does it display more? Y/N=y
-------------------------------------------------
set dtmf_mode:
DTMF Mode                  :Negotiation(SIP/SDP)
DTMF Duration                    :120ms
DTMF Pause                       :100ms
Payload type                     :101
```

When “Pattern 1” is selected by the SET command “184toprivacy”, “Pattern 1” is displayed, and when “Pattern 2” is selected, “Pattern 2” is displayed.

When “enable” is selected by the SET command “self_sip_domain”, “enable” is selected as well as the set domain name.
Example) Self SIP Domain string: xxxxxxxx

When “In-Band” is the mode set by a SET command “dtmf_mode”, “IN-Band (G.711) is displayed, and when “Out-Band” is selected, “Out-Band (RFC2833)” is displayed.

When DTMF Mode is In-Band, Payload type is not displayed.

```
-------------------------------------------------
set 183rbt:
 RBT Addition (183w/oSDP)          :enable


-------------------------------------------------
set rtp_pathon:
 Path-on 183 after 180             :disable


-------------------------------------------------
set another_keynumber:
Another Keynumber 1                :0
Another Keynumber 2                :0
Another Keynumber 3                :0
-------------------------------------------------
Does it display more? Y/N=y
-------------------------------------------------
set multi_regist:
 Multi-registration mode           :disable
```

When “disable” is selected by the SET command “183rbt”, “disable” is displayed.

When “enable” is selected by the SET command “typ-pathon”, “enable is displayed.

When “enable” is selected by SET command “multi-regist”, “enable” is displayed as well as the following:

Transmitting interval timer: 1sec
Standby timer value: 30sec
Contact Header type: Privacy or SIP-URI

When “disable” is set, nothing is displayed.

```
-------------------------------------------------
set sip_tel_service:
 SIP telephony service function    :disable
-------------------------------------------------
set reg_interval:
```

Note 7

```
 REGISTER interval timer          :5min
-------------------------------------------------
set update:
 UPDATE method support function   :disable
-------------------------------------------------
set auth_header:
 Auth-Header Cache function       :enable
-------------------------------------------------
Does it display more? Y/N=y
-------------------------------------------------
set cause_table:
 Cause table                      :normal
-------------------------------------------------
set response_table:
 Response table                   :normal
-------------------------------------------------
set cpn_pattern:
 Prior Calling Party Number pattern:DisplayName
-------------------------------------------------
```

When “enable” is selected by the SET command “update”, “enable” is displayed.

When “disable” is selected by the SET command “auth_header”, “disable” is displayed.

When “alternate routing” is selected by the SET command “cause_table”, “alternate routing” is displayed.

When “revised_table” is selected by the SET command “response_table”, “revised_table” is displayed.

When “Userinfo” is selected by the SET command “cpn_pattern”, “Userinfo” is displayed, when “Anonymous” is selected, “Anonymous” is displayed, and when “P-Asserted-ID” is selected, “P-Asserted-ID” is displayed.

```
set cc_convert:
 Country Code convert              :disable
```

When “Pattern 1” or “Pattern 2” is selected by the SET command “cc_convert”, the following parameters are displayed.
(Example) When “Pattern 2” is selected: **Note 9**
Country Code: 81
National Prefix: 0
National Destination Code: 3
International Prefix: 010
Number of Local Number digits: 3

```
------------------------------------------------
set check_number:
 telephone-number check function   :disable
```

When “enable” is selected by the SET command “check_number”, “enable” is displayed.

```
------------------------------------------------
set sdp_style:
 SDP style setting                 :RFC4566
```

When “normal” is selected by the SET command “sdp_style”, “normal” is displayed.

```
------------------------------------------------
set call_id_relay:
 Call-ID relay mode                :disable
```

When “enable” is selected by the SET command “call_id_relay”, “enable” is displayed.

```
------------------------------------------------
set mp_mode:
```

```
 Multipoint mode :enable
 Number of Search Number digits :7
 Server Select priority :Fixed




-------------------------------------------------

set sip_accfilter:
 SIP Access Filter                :disable
```

Currently assigned common config data of Multipoint Mode will be displayed.
If using the "mp_mode" command the "Multipoint mode" is disabled and the PBX Multipoint Connection (MG-SIP TIE Line Path Splitting) is enabled, the following is displayed:
Multipoint mode(PBX indication): enable **Note 10**

When "enable" is selected for "SIP Access Filter" by the SET command "sip_accfilter", "enable" and the following settings are displayed:

- When IP address is assigned by the SET command "sip_server"
  (SIP server IP Address: 192.168.100.100)
  SIP Access Filter mask: 255.255.255.255
- When FQDN is assigned by the SET command "sip_server"
  (SIP server FQDN: sipserver.nec.com)
  SIP Access Filter mask: 255.255.255.255

When "disable" is selected for "SIP Access Filter", the above settings are not shown.

```
 Burst Access Filter                :disable
```

When "enable" is selected for "Burst Access Filter" by the SET command "sip_accfilter", "enable" and the following settings are displayed:
Burst Access Filter: enable
Burst Access limit timer value: 30
Burst Access limit number value: 500
Burst Access reject response code: 600

When "disable" is selected for "Burst Access Filter", the above settings are not shown. **Note 8** **Note 10**

```
set options:

 OPTIONS method request mode        :enable
 OPTIONS request timer value        :60s
```

Note 7: The conditions of "SIP telephony service function" are as follows.

- When "SIP telephony service function" is enabled by the SET command "sip_tel_service", "enable" is displayed, as well as the current status of the following functions (enable/disable):
  Replaces function
  Hold [a=inactive] function
- When "SIP telephony service function" is disabled by the SET command "sip_tel_service", the following is displayed:"SIP telephony service function: disable"
  Then nothing is displayed below "SIP telephony service function: disable".
- The following is an example of display when "SIP telephony service function" is enabled by the SET command "sip_tel_service". However, when "SIP telephony service function" is disabled, the following is not displayed.
  When Replaces function is enabled:
  Replaces function :enable
  When Replaces function is disabled:
  Replaces function :disable
  When Replaces function is enabled:
  Hold [a=inactive] function :enable
  When Replaces function is disabled:
  Hold [a=inactive] function :disable

Note 8: This parameter is displayed since SP-4032 MGSIP PROG-E Issue 2.

Note 9: "Pattern 2" is displayed since SP-4060 MGSIP PROG-L Issue 2 or later.

Note 10: This parameter is displayed since SP-4060 MGSIP PROG-L Issue 3 or later.

[Route information configuration data]

```
MG(SIP)> show config
[2015-10-10 14:49:29]

[SP-4060:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

6=Multipoint Data
9=Exit
Select a reference number : 5
Ether[1]

 Route type:Static
No|Gateway Address|Destination network/Prefix
------------------------------------------------
1 |192.168.0.254  |172.16.0.0        /16
Ether[2]
 Route type:Static
No|Gateway Address|Destination network/Prefix
------------------------------------------------
1 |192.168.0.254  |0.0.0.0           /0
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGJ-B/ MG-128SIPMGJ]

MAC Data=MAC configuration data

DRS Data=DRS configuration data

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

Multipoint Data

End of show command

Select “5”.

Data currently configured to each port number will be displayed.

[Multipoint data]

```
MG(SIP)> show config
```

```
[2015-10-10 14:49:29]

[SP-4060:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

6=Multipoint Data
9=Exit
Select a reference number : 6
mp_data file time stamp : 2012-05-01 17:54:31

Total data   : 30

Failure data : 2

-------------------------------------------------
|NUMBER|  NAME   |      DESTINATION        | ERR |
-------------------------------------------------
|  100 |  tokyo1 | 172. 16. xx. xx :  5060 |     |
|      |         | 172. 16. xx. xx :  5070 |     |
|      |         | 172. 16. xx. xx : 65535 |     |
|      |         |   0.  0.  0.  0 :    0 |     |
-------------------------------------------------
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

MAC Data=MAC configuration data

DRS Data=DRS configuration data

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

Multipoint Data

End of show command

Select “6”. **Note 11**

Time stamp of CSV file will be displayed.

The number of Multipoint data in CSV file will be displayed.

The number of error data in CSV file will be displayed.

The informations of Multipoint data table is displayed by 5.

```
|  161 |  tokyo2 | 192.168.xxx. xx :  5060 |     |
|      |         | 192.168.xxx. xx :  5070 |     |
|      |         | 192.168.xxx. xx :  5060 |     |
|      |         | 192.168.xxx. xx :  1024 |     |
-------------------------------------------------
|  267 |  tokyo3 |   x.  x. xx.xxx :  5060 |     |
|      |         |   x.  x. xx.xxx :  5070 |     |
|      |         |   0.  0.  0.  0 :     0 |     |
|      |         |   0.  0.  0.  0 :     0 |     |
-------------------------------------------------
|  380 |  tokyo4 |  10. xx.  x.xxx :  5060 |     |
|      |         |   0.  0.  0.  0 :     0 |     |
|      |         |   0.  0.  0.  0 :     0 |     |
|      |         |   0.  0.  0.  0 :     0 |     |
-------------------------------------------------
|  430 |  tokyo5 |  xx.xxx. xx. xx :  1024 |     |
|      |         |  xx.xxx. xx. xx :  1024 |     |
|      |         |  xx.xxx. xx. xx :  1024 |     |
|      |         |  xx.xxx. xx. xx :  1024 |     |
-------------------------------------------------
Does it display more? Y/N = y
-------------------------------------------------
|  500 |  osaka1 | 192.168.xxx. xx :  5060 |     |
|      |         | 192.168.xxx. xx :  5070 |     |
|      |         | 192.168.xxx. xx :  5060 |     |
|      |         | 192.168.xxx. xx :  1024 |     |
-------------------------------------------------
|  670 |  osaka2 |  xx. xx. xx.xxx :  5060 |     |
|      |         |  xx. xx. xx.xxx :  5070 |     |
|      |         |   0.  0.  0.  0 :     0 |     |
```

When next 5 Multipoint table is displayed, select “y”.

```
|      |         |   0.  0.  0.  0 :     0 |     |
-----------------------------------------------
|  770 |  osaka3 | xxx. xx.xxx.xxx :  5060 |     |
|      |         |   0.  0.  0.  0 :     0 |     |
|      |         |   0.  0.  0.  0 :     0 |     |
|      |         |   0.  0.  0.  0 :     0 |     |
-----------------------------------------------
|  800 |  tokyo1 | 172. 16. xx. xx :  5060 |     |
|      |         | 172. 16. xx. xx :  5070 |     |
|      |         | 172. 16. xx. xx : 65535 |     |
|      |         |   0.  0.  0.  0 :     0 |     |
-----------------------------------------------
|  900 |  tokyo2 | 182.168.xxx. xx :  5060 |     |
|      |         | 182.168.xxx. xx :  5070 |     |
|      |         | 182.168.xxx. xx :  5060 |     |
|      |         | 182.168.xxx. xx :  1024 |     |
-----------------------------------------------
```

Note 11: The screen below is displayed when the Telephony Server is FP95-113 V3 or later, MG (SIP) is SP-4060 MGSIP PROG-L Issue 3 or later, and PBX Multipoint Connection (MG-SIP TIE Line Path Splitting) is enabled.

```
-----------------------------------------------
| PATH_INDEX | DESTINATION | CHNUM |
-----------------------------------------------
| 1 |  189. 10. 3. 30 : 5060   | 12  |
| 2 |  189. 20. 3. 3  : 5024   | 2   |
| 3 |  189. 10. 3. 45 : 6025   | 101 |
| 4 |  189. 10. 4. 5  : 65535  | 16  |
       .
       .
       .
| 32 | 189. 10. 4. 15 : 65535  | 1   |
-----------------------------------------------
```

If MG-SIP TIE Line Path Splitting data has not been assigned, “Multipoint mode (PBX indication) is no data” is displayed.

(3) interface

Displaying of Link and Display states of Ether

This command is used to show the link and setting states for Ether ports of MG-SIP128 [MG-128SIP-MGJ-B/MG-128SIPMGJ].

[Setting Example]

```
MG(SIP)> show interface
Using one-port only
Ether[1]  Link up
MAC Address  :00-00-00-00-00-00
IP Address   :10.1.0.1
Subnet mask  :255.255.255.0
Interface    :Speed/Duplex=Auto/Auto
```

The number of ports in use.

Link state

MAC address

IP address

Subnet mask

Operation speed and operation mode

(4) version

Displaying of version information

This command is used to display version information of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIP-MGJ] functions (base system and firmware).

[Setting Example]

```
MG(SIP)> show version
Firmware Information  |SPNo    |Issue
----------------------+--------+--------------
Base System Version   |------- |Ver2.6.18 Thu Oct
10 16:45:44 JST 2013
SP-4060 MGSIP PROG-E  |SP-4060 |Ver01.00.00.00
```

Version information of the base system.

Software version information of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

(5) route

Displaying of Route table

This command is used to show the Route Table of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

[Setting Example]

```
MG(SIP)> show route

Kernel IP routing table

                                    Note 12Note 13 Note 14Note 15      Note 16 Note 17  Note 18
Destination Gateway Genmask     Flags Metric Ref    Use  Iface MSS   Window irtt
172.16.0.0  *       255.255.0.0 U     0      0      0    eth1  0     0      0
192.0.0.0   *       255.0.0.0   U     0      0      0    eth0  0     0      0
```

Note: The conditions of this command are as follows.
- Actual values such as Destination or Genmask may differ from this sample.
- It may take time to display the route table information when DNS server IP address has been assigned. (“set dnsaddress”)

Note: Settings of “Flags”, “Metric”, Ref”, “Use”, “MSS”, “Window” and “irtt” do not affect the operation of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] directly.

Note 12: Flags: Indicates a route type. (“U” is usable, “H” is host, “G” is gateway.)

Note 13: Metric: Indicates route metric. (In the range of one to 9999.)

Note 14: Ref: Indicates the number that the route is referred.

Note 15: Use: Indicates the number that the route was actually used (routed).

Note 16: MSS: Indicates the Maximum Segment Size (MSS: Maximum data size of a TCP segment) at a route.

Note 17: Window: Indicates a window size of TCP.

Note 18: irtt: Indicates the initial round-trip time of TCP connections to each route. MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] regards a TCP connection where no reply lasts for the round-trip time (1 to 12000) as no connection.

(6) status

Displaying status of ports and registration

This command is used to show status of ports and registration on MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

[Setting Example]

- If displaying port status

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:0

IPX Port link up(100Base-TX/Full)
SIP Port link up(100Base-TX/Full)
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 19

Note 19: The following describes display of port status.

Port type	Status of port to LAN	Status of port to SIP network
1000M/Full	IPX port link up (1000Base-T/Full)	SIP port link up (1000Base-T/Full)
100M/Half	IPX port link up (100Base-TX/Half)	SIP port link up (100Base-TX/Half)
100M/Full	IPX port link up (100Base-TX/Full)	SIP port link up (100Base-TX/Full)
10M/Half	IPX port link up (10Base-T/Half)	SIP port link up (10Base-T/Half)
10M/Full	IPX port link up (10Base-T/Full)	SIP port link up (10Base-T/Full)
Link Down	IPX port link down	SIP port link down

- If displaying status of registration to LAN (Telephony Server side)

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:1

IPX Registration Information
Registration is OK. (DRS IP address
192.168.0.1)
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 20

```
----------------------------------

Call Hold function start time : Sat
Aug 27
21:00:22 2011
Keep Calling count  : xx
Cancel count(IPX)  : xxx
Cancel count(SIP)  : xxx

Now  : Sat Aug 27 22:22:22 2011
```

MG Based Call Retention start time **Note 21**

Keep Calling count: xx
Cancel count (IPX): xxx
Cancel count (SIP): xxx

Present time

Note 20: Display changes depending on the registration status:

When MG-SIP128 is trying to register:
Now Registrating.

After MG-SIP128 successfully registered:
Registration is OK. (DRS IP address 192.168.0.1)
(The IP address succeeding in registration appears as well.)

Note 21: This is displayed only when MG Based Call Retention is enabled.

- If displaying status of registration to SIP network (when the registration function per number is disabled)

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:2

SIP Registration Information
Registration is OK.
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 22

Note 22: Display changes depending on the registration status:

When MG-SIP128 is trying to register:
Now Registrating.

After MG-SIP128 successfully registered:
Registration is OK.

After MG-SIP128 fails to register:Registration is NG. Waiting Re-Registration timer.
(MG-SIP128 is trying to register again)

When registration is disabled:Register Server Configuration data is not set.
(No setting data of “set sip_register” command)

- If displaying status of registration to SIP network (when the registration function per number is enabled)

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:2

------Registration NG RegIndex------

[MG-No:1]
9 10 11 12 13 14 15
[MG-No:2]
[MG-No:3]
[MG-No:4]
[MG-No:5]
[MG-No:6]
[MG-No:7]
[MG-No:8]
[MG-No:9]
[MG-No:10]
[MG-No:11]
[MG-No:12]
[MG-No:13]
[MG-No:14]
[MG-No:15]

------Registration OK RegIndex------
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

```
[MG-No:1]
1 2 3 4 5 6 7 8
[MG-No:2]
[MG-No:3]
[MG-No:4]
[MG-No:5]
[MG-No:6]
[MG-No:7]
[MG-No:8]
[MG-No:9]
[MG-No:10]
[MG-No:11]
[MG-No:12]
[MG-No:13]
[MG-No:14]
[MG-No:15]

-----------------------------------
```

Note: The example above shows a total of 16 CNTs tried registration, and eight (9 to 16) of them failed (Use the ASRIL command to set MG-Nos and a pilot number. CNT is a parameter set with the ASRIL command).

- If displaying information on channels in use

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH Status
9:Exit

Select a reference number:3

----------------------------------------

|  |    0|   1|  2|  3|  4|  5|  6|  7|

----------------------------------------

|  0|ACT(S)| --| --| --| --| --| --| --|

|  8| --    | --| --| --| --| --| --| --|
| 16| --    | --| --| --| --| --| --| --|
| 24| --    | --| --| --| --| --| --| --|
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

“ACT(S)”appears for a channel in use; “-” appears for a channel not in use.

```
| 32| --    | --| --| --| --| --| --| --|
| 40| --    | --| --| --| --| --| --| --|
| 48| --    | --| --| --| --| --| --| --|
| 56| --    | --| --| --| --| --| --| --|
| 64| --    | --| --| --| --| --| --| --|
| 72| --    | --| --| --| --| --| --| --|
| 80| --    | --| --| --| --| --| --| --|
| 88| --    | --| --| --| --| --| --| --|
| 96| --    | --| --| --| --| --| --| --|
|104| --    | --| --| --| --| --| --| --|
|112| --    | --| --| --| --| --| --| --|
|120| --    | --| --| --| --| --| --| --|
----------------------------------------
|            |actch=1|                  |
----------------------------------------
Use Session Count=1
INVITE Client Transaction = 0, max=0

INVITE Server Transaction = 0,  max=0

Other Client Transaction = 0,  max=1

Other Server Transaction = 0,  max=1




The number of Filtered Messages = 0
( Out of Range = 0 , No DNS Cache = 0)
```

Number of channels in use

Number of sessions in use

Number of INVITE client transactions and their maximum number

Number of INVITE server transactions and their maximum number

Number of client transactions other than INVITE and their maximum number

Number of server transactions other than INVITE and their maximum number
(the maximum number represents the maximum number counting up to this time from when MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] is turned on.)

Number of SIP packets that were discarded by SIP Access Filter
When “disable” is selected for “SIP Access Filter”, this parameter is not shown.

```
The number of Burst Filtered Messages =
0


MG(SIP)>
```

Number of incoming calls that are rejected by Burst Access Filter **Note 23**
When "disable" is selected for "Burst Access Filter", this parameter is not shown.

Note 23: This parameter is displayed for SP-4032 MGSIP PROG-E Issue 2 or later.

5.2.3 download Command

This command is used to download MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] program, Music/Tone file, and Multipoint data via Ether1 port (Ether port on the LAN side).

The following figure shows an example of a display.

[When downloading all programs]

```
MG(SIP) > download

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:1
--- IP Address setting of MG(SIP) ---
Select Ether Port [1(Ether1)/2(Ether2)/
Q(quit)]:1



Current IP Address of MG(SIP):10.41.1.100
Do you change IP Address of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.100
Current Subnet mask of MG(SIP):255.0.0.0
Do you change Subnet mask of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new Subnet mask:255.255.0.0


--- IP Address setting of TFTP server ---
```

Input “download” at the configuration mode.

To download all programs, enter “1”.

Select a port to use.
(With the default setting, select Ether1. If selecting Ether2, using two ports must be set in the “set ipaddress” command.)

To change the IP address that is used for downloading, enter “y”.

Enter the IP address.

To change the subnet mask of the selected port, enter “y”.

Enter a subnet mask.

```
Current IP Address of TFTP server:10.41.1.250


Do you change IP Address of TFTP server?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.250
IP Address change was completed.
New IP Address of MG(SIP):172.16.253.100
New Subnet mask of MG(SIP):255.255.0.0
New IP Address of TFTP server:172.16.253.250
Are these IP Address correct? [Y(correct)/
N(change)/Q(quit)]
If you enter Y, MG(SIP) ONLINE service will be
stop:y
mgsipmwlist.txt download...
tftpDownload:User file TFTP start.
Received.
SP4032/MAIN/main.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
SP4032/TONE/tone.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
SP4032/MUSIC/music.tar.gz download...
tftpDownload:User file TFTP start.
Received.
--- Multipoint file download ---
```

To change the IP address of a TFTP server, enter “y”.
(Default address: 10.41.1.250)

Enter an IP address.

When the specified IP addresses are correct, enter ‘y’.

```
Download mp_data file ? [Y(download)/N(skip)/
Q(skip)] : y

SP4032/CONFIG/mp_data.csv download...

tftpDownload : User file TFTP start.

Received.

Checksum matched!

Download was completed!

If you download except for mp_data file,
Please reboot after a download menu end.


--- Download menu ---

Download of all programs. (default) ---
input:1

Download of one program. --- input:2

Quit --- [Q/q]

Input:q


MG(SIP) >
```

Whether to download the Multipoiht data or not is displayed. Be sure to enter ‘y’.

When other than “mp_data” file is downloaded, be sure to execute the “reboot” command.

When download is complete, the menu appears again.
Enter ‘q’ to exit download command.

[When downloading one program]

```
MG(SIP) > download

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:2
--- IP Address setting of MG(SIP) ---
Select Ether Port [1(Ether1)/2(Ether2)/
Q(quit)]:1



Current IP Address of MG(SIP):10.41.1.100
Do you change IP Address of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.100
Current Subnet mask of MG(SIP):255.0.0.0
Do you change Subnet mask of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new Subnet mask:255.255.0.0


--- IP Address setting of TFTP server ---
Current IP Address of TFTP server:10.41.1.250


Do you change IP Address of TFTP server?
[Y(change)/N(current)/Q(quit)]:y
```

Enter "download" in configuration mode.

To download one program, enter "2".

Select a port to use.
(With the default setting, select Ether1. If selecting Ether2, using two ports must be set in the "set ipaddress" command.)

To change the IP address that is used for downloading, enter "y".

Enter the IP address.

To change the subnet mask of the selected port, enter "y".

Enter a subnet mask.

To change the TFTP server IP address, enter "y".
(Default address: 10.41.1.250)

```
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.250
IP Address change was completed.
New IP Address of MG(SIP):172.16.253.100
New Subnet mask of MG(SIP):255.255.0.0
New IP Address of TFTP server:172.16.253.250
Are these IP Address correct? [Y(correct)/
N(change)/Q(quit)]
If you enter Y, MG(SIP) ONLINE service will be
stop:y
mgsipmwlist.txt download...
tftpDownload:User file TFTP start.
Received.

--- Program download ---
Main program:0
tone data:1
music data:2
wave file:3
config data:4
Multipoint data:5
Quit:[Q/q]
Input:0
SP4032/MAIN/main.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
Download was completed!

--- Program download ---
```

Enter the IP address.

When the specified IP addresses are correct, enter ‘y’.

Select a file you want to download.

Download starts.

```
Main program:0
tone data:1
music data:2
wave file:3
config data:4
Multipoint data:5
Quit:[Q/q]
Input:q


If you download except for mp_data file,
Please reboot after a download menu end.


--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:q


MG(SIP) >
```

When download is complete, the program download menu appears again. Enter ‘q’ to exit download command.

When other than “mp_data” file is downloaded, be sure to execute the “reboot” command.

When download is complete, the program download menu appears again. Enter ‘q’ to exit download command.

5.2.3.1 How to download a WAVE file

If you select Type3 (WAVE file) for the music type of "set musictype" command, you can use a WAVE file for music on hold. Note that the payload type of the RTP header sent by MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] must be G.711.

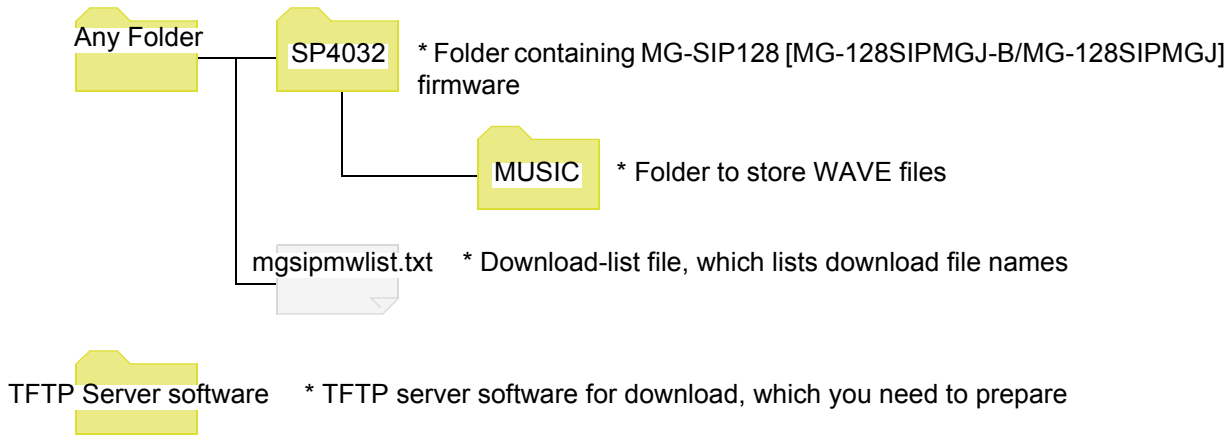
The following explains how to download a WAVE file.

- Place the firmware of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] in a folder on a TFTP server. If the firmware is not present, create a folder with the name of the MG-SIP128 firmware ("SP4032" in this case) in a folder on the server, and then create a subfolder named "MUSIC" to store WAVE files. A WAVE file must be named as "music_3.wav".
- Place the WAVE file in the MUSIC folder (a subfolder of the above-mentioned firmware folder).
- Form the download-list file (mgsipmwlist.txt) under the firmware folder as below.

```
# This is Firmware list for SN8178
00,SP4032/MUSIC/music_3.wav,0
```

Note: When adding WAVE files to the download-list (mgsipmwlist.txt), assign sequential numbers (such as 00, 01, 02,...) to all files as shown in the red frame in the image above.

Directory tree



5.2.3.2 About WAVE file format

A WAVE file must meet the following specifications as its format:

- Sampling Frequency: 8kHz
- Quantifying Bit Number:8 bit
- Quantifying Format: G.711 μ-law/A-law
- Channel: Monaural
- Capacity: Only a single WAVE file with about 10 MB (about 20 minutes) **Note 1**
  * Note that the actual capacity may be smaller because the capacity of 10 MB includes the management area of the file system.

Note 1: The capacity of a WAVE file is about 10 MB (about 20 minutes) since SP-4032 MGSIP PROG-E Issue 2.

[Display example of downloading a WAVE file (music_3.wav) individually]

```
MG(SIP) > download

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:2

--- IP Address setting of MG(SIP) ---
Select Ether Port [1(Ether1)/2(Ether2)/
Q(quit)]:1



Current IP Address of MG(SIP):10.41.1.100
Do you change IP Address of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.100
Current Subnet mask of MG(SIP):255.0.0.0
```

Enter “download” in configuration mode.

Enter “2” to download a program individually.

Select a port to use.
(With the default setting, select Ether1. If selecting Ether2, using two ports must be set in the “set ipaddress” command.)

To change the IP address of the selected port, enter “y”.

Enter an IP address.

```
Do you change Subnet mask of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new Subnet mask:255.255.0.0


--- IP Address setting of TFTP server ---
Current IP Address of TFTP server:10.41.1.250


Do you change IP Address of TFTP server?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.250
IP Address change was completed.
New IP Address of MG(SIP):172.16.253.100
New Subnet mask of MG(SIP):255.255.0.0
New IP Address of TFTP server:172.16.253.250
Are these IP Address correct? [Y(correct)/
N(change)/Q(quit)]
If you enter Y, MG(SIP) ONLINE service will be
stop:y
mgsipmwlist.txt download...
tftpDownload:User file TFTP start.
Received.


--- Program download ---
Main program:0
tone data:1
music data:2
wave file:3
```

To change the subnet mask of the selected port, enter “y”.

Enter a subnet mask.

To change the TFTP server IP address, enter “y”.
(Default address: 10.41.1.250)

Enter an IP address.

Enter “y” after confirming the entered IP address.

```
config data:4
Multipoint data:5
Quit:[Q/q]
Input:3
SP4032/MUSIC/music_3.wav download...
tftpDownload:User file TFTP start.
Received.
Checksum No Check. Checksum of SP4032/MUSIC/
music_3.wav is 23915.
Download was completed!

--- Program download ---
Main program:0
tone data:1
music data:2
wave file:3
config data:4
Multipoint data:5
Quit:[Q/q]
Input:q

If you download except for mp_data file,
Please reboot after a download menu end.


--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:q
```

Select “3” representing wave file.

Download starts.

After the download is finished, download menu is restored.

When other than “mp_data” file is downloaded, be sure to execute the “reboot” command.

```
MG(SIP) >
```

Enter “download” in configuration mode.

Note:

- Be sure to check the product name of the firmware to download before downloading.
- After downloading, initialize the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].
- Make sure of the following to set an IP address for download.
  1.A port to download files needs to have a different network address (or segment) from the other ports.
  2.Do not use a network address set as a static route in the routing table.
- If checksum error occurs during download, an error message similar to the following is displayed.
  Checksum unmatched!
  Checksum of SP4032/MAIN/main.tar.gz is 1234. Not 5678.
  Download failed!
  If an error message is displayed, the display goes back to the download menu. In this case, execute download again.
- If download fails, an error message and an error code are displayed.
  Error code: Cause of error
  Download failed!

The following lists causes and solutions of error codes.

Error Code	Error Display	Cause of Error	Troubleshooting
0	Undefined error	No specified folder (MAIN, TONE, MUSIC) in the TFTP server	Check the name of the TFTP server’s folder to download files.
1	File not found	No download-list file	Check the folder setting of the download-list file in the TFTP server.
		Error in specifying the download-list file	Check the contents of the download-list file and the file name of the actually-downloaded file.
2	Access violation	No access permission	Check the TFTP server settings.

Some errors in downloading can be classified into none of the error codes; they are listed below: display, causes, solutions.

Error Display	Cause of Error	Troubleshooting
Hardware type ERROR! allDLoad: ListDLoad Error Download failed!	Hardware type discrepancy (for SN8178)	Check if the downloaded file is compatible with the hardware type (for SN8178).
Checksum unmatched! Checksum of SP4032/MAIN/main.tar.gz is 1234. Not 5678. Download failed!	Checksum discrepancy	Check if the contents of the download-list file correspond to the actually-downloaded file.

Error Display	Cause of Error	Troubleshooting
Download list unmatched! Download failed!	Request to download a file not written in the download-list file (individual download)	Check if the contents of the download-list file correspond to the actually-downloaded file. Download only files set in the download-list file.
ListDLoad: Sub directory error =[subfolder name] ListDLoad: Download file is not found Download failed!	Incorrect name of the subfolder of the download-list file (only MAIN, TONE, MUSIC, and CONFIG are allowed)	Check the name of the subfolder of the download-list file.
ListDLoad: DataKind = [number] (0-255) is too large	Out of running numbers (0-255)	Check the contents of the download-list file.
ListDLoad: Comment strings too long =[comment strings]	Bad length of comment strings in the download-list file	Check if the download-list file is proper.
ListDLoad: Download file name is too long(91) =[download file name]	Bad length of the downloaded file name (representing 92 characters or more when including the subfolder)	Check if the download-list file is proper.
Transfer timed out. Download failed!	Specifying non-existing IP address	Check the IP address of the TFTP server.
	Specifying incorrect IP address	
	Enabled Windows firewall	Disable Windows firewall.
	Disconnected LAN cable	Make sure of no network problems including disconnection of a LAN cable.
	Inactivated TFTP server	Make sure that the TFTP server is activated.

5.2.4 upload Command

This command is used to upload Multipoint data via Ether1 port (Ether port on the LAN side).

The following figure shows an example of a display.

[Example]

```
MG(SIP) > upload

--- Upload menu ---
Upload of mp_data. --- input:1
Quit --- [Q/q]
Input:1
--- IP Address and Subnet mask setting of
MG(SIP) ---
Select Ether Port [1(Ether1)/2(Ether2)/
Q(quit)]:1



Current IP Address of MG(SIP):10.xx.x.xxx
Do you change IP Address of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.yy.yyy.yyy
Current Subnet mask of MG(SIP):255.0.0.0
Do you change Subnet mask of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new Subnet mask:255.255.0.0


--- IP Address setting of TFTP server ---
Current IP Address of TFTP server:10.41.1.250

```

Input “upload” in the configuration mode.

Specify the information to upload.

To upload CSV file, enter “1”.

Select Ether port.
(When this feature is used as default setting, be sure to use Ether 1. When Ether 2 is used, assign 2 port setting by “set ipaddress” command.)

To change the IP address that is used for uploading, enter “y”.

Enter the IP address.

To change the subnet mask of the selected port, enter “y”.

Enter a subnet mask.

To change the IP address of a TFTP server, enter “y”.
(Default address: 10.41.1.250)

```
Do you change IP Address of TFTP server?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.nn.nnn.nnn
IP Address change was completed.
New IP Address of MG(SIP):172.yy.yyy.yyy
New Subnet mask of MG(SIP):255.255.0.0
New IP Address of TFTP server:172.nn.nnn.nnn
Are these IP Address correct? [Y(correct)/
N(change)/Q(quit)]
mp_data.csv upload...
tftpUpload:User file TFTP start.
Send.
Upload was completed!
```

Enter an IP address.

When the specified IP addresses are correct, enter ‘y’.

The following lists causes and solutions of error codes.

Error Code	Error Display	Cause of Error	Troubleshooting
NONE	File not found	No multipoint data file (mp_data.csv), or no CONFIG folder	Assign “set mp_data” command.
2	Access violation	No access permission	Check the TFTP server settings.

5.2.5 Other Commands

(1) exit

(2) logout

[Function]

To exit the configuration command menu.

[Setting Example]

```
MG(SIP)> exit
login:
```

Note: After changing the configuration, if you execute this command without saving the running configuration, the system discards the change and exits the configuration command menu.

(3) reboot

[Function]

To reboot MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]. It is also possible to save the running configuration data to the flash memory.

[Setting Example]

```
MG(SIP)> reboot

  Do you want to save Config data? Y/N=y

  Do you want to reboot MG(SIP)? Y/N=y

Config data flash write start.
Config data flash write end.

MG(SIP)reboot start...
```

Select if you want to save the running configuration data.
y: Saves the configuration data. **Note 1 Note 2**
n: Do not save the configuration data.
If other than the above is selected, the following message is displayed.
Reboot command was interrupted.

Select if you want to reboot MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].
y: Reboots MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]. **Note 2**
n: Do not reboot MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].
If other than the above is selected, the following message is displayed.
Reboot command was interrupted.

Note 1: Before selecting “Y” to save the running configuration data to the Flash memory, be sure to execute the following commands:

- “set ipaddress”: Assigns the IP addresses on LAN side, and SIP side.
- “set drsaddress”: Assigns the IP address of DRS.
- “set sip_server”: Assigns the IP address of SIP proxy server.
  - When Multipoint mode is enabled by using “set mp_mode”, “set sip_server” is not required to assign.
- “set keynumber”: Assigns a pilot number.

If any of these items have not been assigned when saving the running configuration data, the following message will be displayed to the unassigned item. When these messages are displayed, you can select if you want to set the default configuration data. If you select “Y” here, the default values are applied to the configuration data.

Note 2: The configuration data is not saved until MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] is rebooted.

```
The following setting commands are not
perfect.
"set ipaddress" command.(IPX side)
"set ipaddress" command.(SIP side)

"set drsaddress" command.
"set sip_server" command.

"set keynumber" command.
So, Config data is made a default
setup.
Is it all right? Y/N=y
```

If IP address for LAN side has not been assigned.

If IP address for SIP network side has not been assigned.

If IP address of DRS has not been assigned.

If IP address of SIP proxy server has not been assigned.

If a pilot number has not been assigned.

You can select if you want to apply the default values to the configuration data.
y: apply default value
n: do not apply default value
If other than the above is selected, the following message is displayed.
Reboot command was interrupted.

(4) ping

[Function]

To attempt "ping" command five times to the designated IPv4 host on the network.

[Setting Example]

```
MG(SIP)> ping 172.16.253.3



PING 172.16.253.3 (172.16.253.3) 56(84) bytes of data.
64 bytes from 172.16.253.3: icmp_seq=1 ttl=128
time=0.599 ms
64 bytes from 172.16.253.3: icmp_seq=2 ttl=128 time=1.02
ms
64 bytes from 172.16.253.3: icmp_seq=3 ttl=128
time=0.443 ms
64 bytes from 172.16.253.3: icmp_seq=4 ttl=128
time=0.304 ms
```

Enter "ping" command and designate the target IPv4 address.

```
64 bytes from 172.16.253.3: icmp_seq=5 ttl=128
time=0.727 ms

---172.16.253.3 ping statistics---

5 packets transmitted, 5 received, 0% packet loss, time
3997ms

rtt min/avg/max/mdev = 0.304/0.618/1.020/0.247 ms

MG(SIP)>
```

Note: The number of ping attempts (5 times) and packet size (56 bytes) cannot be changed.

(5) traceroute

[Function]

To inquire network routes. The following figures show display examples.

[On the Telephony Server Side]

```
MG(SIP)> traceroute

 Interface number(0:IPX side/1:SIP side):0




 Target IP Address:172.16.253.3

 traceroute to 172.16.253.3 (172.16.253.3), 3
 hops max, 38 byte packets

1 172.16.253.3 (172.16.253.3) 0.047 ms 0.028
ms 0.010 ms

MG(SIP)>
```

Select if this is on the Telephony Server side or SIP side.
0: Telephony Server side
1: SIP side
"0" is selected.

Designate the IP address of the target.

[SIP Side]

```
MG(SIP)> traceroute

 Interface number(0:IPX side/1:SIP side):1




 Target IP Address:172.17.253.210
```

Select if this is on the Telephony Server side or SIP side.
0: Telephony Server side
1: SIP side
"1" is selected.

Designate the IP address of the target.

```
 traceroute to 172.17.253.210
 (172.17.253.210), 3 hops max, 38 byte
 packets
1 172.17.253.210 (172.17.253.210) 0.047 ms
0.028 ms 0.010 ms
MG(SIP)>
```

Note: When the response from the network is delayed, it takes time to complete the command.

(6) help or ?

[Function]

This command is used to show the brief explanation of the configuration commands that are available on MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

[Setting Example]

```
MG(SIP)> help
set       :sets config data of MG(SIP).
show      :shows config data of MG(SIP).
download  :downloads program of MG(SIP).
upload    :uploads program of MG(SIP).
ping      :Ping command.
traceroute:Traceroute command.
exit      :log-out command of config mode.
logout    :log-out command of config mode.
reboot    :reboots MG(SIP).
help      :shows help information.
?         :shows help information.
```

5.3 Error Messages

When an error occurs while using a configuration command, an error message prompting for re-registration is displayed.

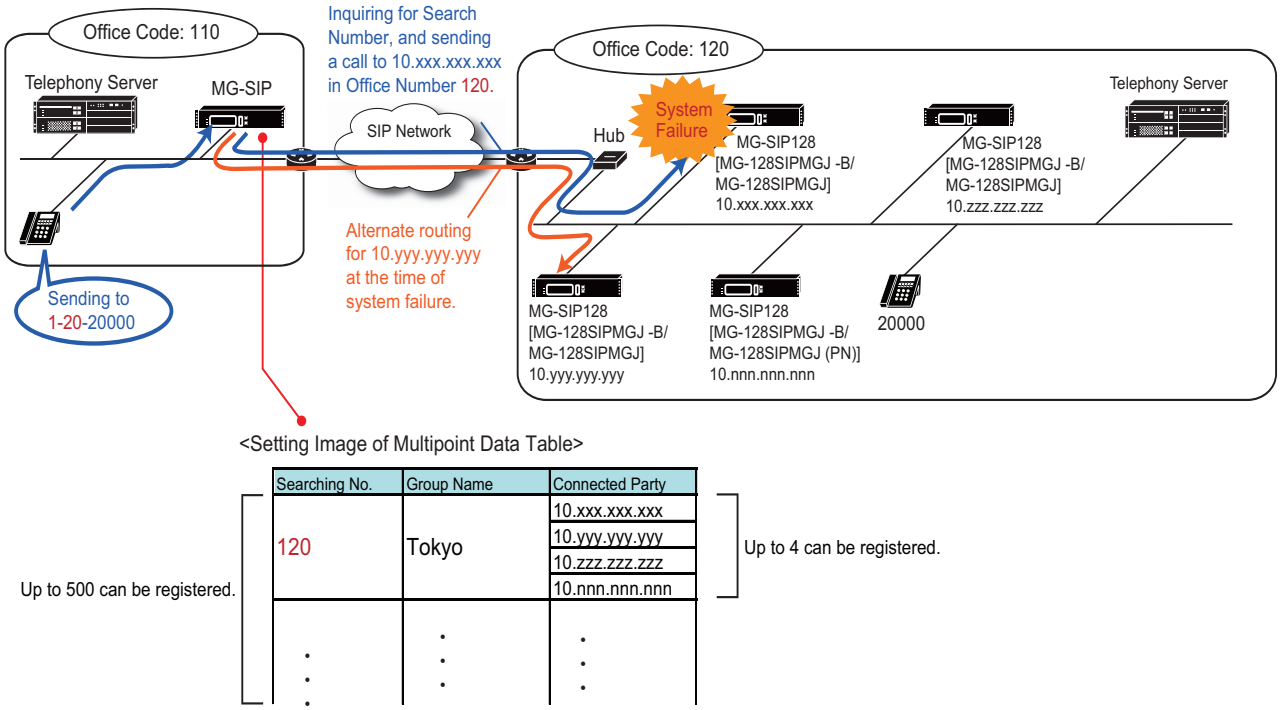
ERROR MESSAGE	TROUBLESHOOTING
Illegal command.	An incorrect command is entered. Enter the command correctly.
Illegal parameters.	An incorrect parameter is entered. Enter the parameter correctly.
Illegal parameters. (Not IPv4 address)	An incorrect parameter is entered. Enter the IPv4 parameter correctly.

Refer to each command for the other error messages.

5.4 Multipoint Feature

This feature allows to connect an outgoing call to the counter office specified by dialed Caller ID for registering multiple connected parties with MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

Dial Number (Search Number) and Connected Party is controlled by Multipoint Data Table in MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]. By using this feature, a call is originated for each Search Number without passing through SIP server. Registering multiple Connected Parties to one Search Number can execute alternate routing by MG-SIP when the system failure occurs.



<Setting Image of Multipoint Data Table>

Searching No.	Group Name	Connected Party
120	Tokyo	10.xxx.xxx.xxx
		10.yyy.yyy.yyy
		10.zzz.zzz.zzz
		10.nnn.nnn.nnn
⋮	⋮	⋮

Up to 500 can be registered.

Up to 4 can be registered.

5.4.1 Precautions

(1) By using “set mp_mode” command, Multipoint mode can be switched to valid/invalid.

(2) Up to 4 connected parties from Primary to Quaternary are registered for each Search Number.

(3) Up to 500 Search Numbers are registered.

Note: Dial Number cannot be registered redundantly.

(4) Alternate routing is executed by Round Robin method.

(5) When multiple connected parties are registered for one Search Number, if Server Priority is assigned to “Address that is assigned to Primary for Multipoint Data Table is prioritized (fixed)” by “set mp_mode” command, a normal outgoing call uses the connected party assigned as Primary only when alternate rout-

ing is executed, Secondary or later is used.
When Server Priority is assigned to Round Robin, alternate routing is executed from Primary to Quaternary in order.

(6) The number of times executing alternate routings is up to 3 times for each Search Number. When an outgoing call is originated, if there is no data matched with the Search Number in Multipoint Data Table, or alternate routing is failed, Release Message is sent to the Telephony Server. **Note 1**

Note 1: When alternate routing is originated for no answer, the number of times executing alternate routings is up to twice.

(7) Multipoint Data Table supports download and upload with TFTP protocol.

(8) When Multipoint Data Table file (CSV format) is uploaded, if there is an existing uploaded file whose name is the same with the new uploaded file, the existing file is overwritten.

Note: There is no confirmation message for overwriting the existing file.

(9) Fax communications support Fax Passthrough only.

5.4.2 Operating Procedure

STEP 1: Execute the “set default” command, and then select "y".

STEP 2: Execute the “set config_template” command, and then select "1".

STEP 3: Execute the “set ipaddress” command for assigning the IP address and the Subnet mask of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

STEP 4: Execute the “set drsaddress” command for assigning the IP address and the port number of DNS Server.

STEP 5: Execute the “set keynumber” command for assigning the Pilot number of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

STEP 6: When you change Search Number digits, execute the “set mp_mode” command. If the Search Number digits have been changed, be sure to save the configuration in the “reboot “ command and then restart MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

STEP 7: Assign the Connected Party number to each dial number in the Multipoint Data Table by using either the following method.

- Registration by downloading CSV file
- Registration by “set mp_data” command

STEP 8: To make this assignment effective, it is required to execute the “reboot” command to save the configuration and restart the MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].

5.4.3 Registration by downloading CSV file

You can use a CSV file to add Connected Party number to the Multipoint Data Table. Upload and edit Multipoint data file (mp_data.csv) on the TFTP server, and then download it to the MG-SIP, following the steps below:

STEP 1:Access the configuration mode and upload the Multipoint data file (mp_data.csv) from the MG-SIP.

`MG(SIP)> upload`	Enter “upload” in configuration mode.
`--- Upload menu ---`	
`Upload of mp_data file. --- input:1`	
`Quit --- [Q/q]`	
`Input:1`	To upload CSVfile, enter “1”.
`--- IP Address and Subnet mask setting of MG(SIP) ---`	
`Select Ether Port [1(Ether1)/2(Ether2)/ Q(quit)]:1`	Select ether port. (Be sure to use Ether1 port for default setting. Assign 2 port by “set ipaddress” command for using Ether2 port.)
`Current IP Address of MG(SIP):10.xx.x.xxx`	
`Do you change IP Address of MG(SIP) ? [Y(change)/N(current)/Q(quit)]:y`	To change IP address of the selected port, enter “y”.
`If you want to return to the previous step, please input 'Q'.`	
`Input new IP Address:172.yy.yyy.yyy`	Enter IP address.
`Current Subnet mask of MG(SIP):255.0.0.0`	
`Do you change Subnet mask of MG(SIP) ? [Y(change)/N(current)/Q(quit)]:y`	To change Subnet mask of the selected port, enter “y”.
`If you want to return to the previous step, please input 'Q'.`	
`Input new Subnet mask:255.255.0.0`	Enter Subnet mask.
`--- IP Address setting of TFTP server ---`	
`Current IP Address of TFTP server:10.41.1.250`	To change IP address of the TFTP server, enter “y”. (default: 10.41.1.250)
`Do you change IP Address of TFTP server ? [Y(change)/N(current)/Q(quit)]:y`	

```
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.nn.nnn.nnn
IP Address change was completed.
New IP Address of MG(SIP):172.yy.yyy.yyy
New Subnet mask of MG(SIP):255.255.0.0
New IP Address of TFTP server:172.nn.nnn.nnn
Are these IP Address correct ? [Y(correct)/
N(change)/Q(quit)]:y
mp_data.csv upload...
tftpUpload:User file TFTP start.
Send.
Upload was completed!
```

Enter IP address.

When these IP addresses are correct, enter "y".

STEP 2:Edit the uploaded Multipoint data file (mp_data.csv).

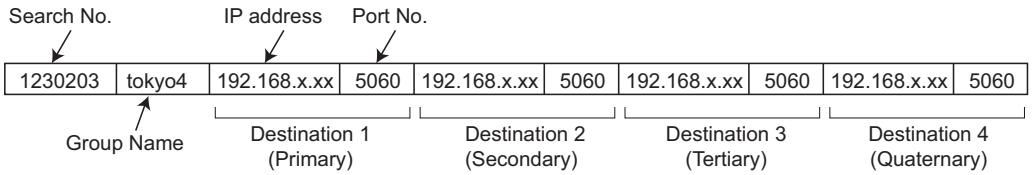
Item	Setting Data
SearchNo	Phone Number [0-9, #] (1-8 digits)
GroupName	Arbitrary string [single byte alphanumeric characters] (1-8 digits)
IPAddress	IP address of the connected party **Note 1**
PortNo	Port number of the connected party **Note 2**
ErrorNo	Error Information for executing "mp_refresh" command **Note 3**

Note 1: When IP address is not used, do not enter anything in this field.

Note 2: When Port number is not used, do not enter anything in this field.

Note 3: Be sure not to enter anything in this field, which is filled with an error code when an error occurs by executing "mp_fresh" command.

The following format shows Multipoint table on Excel.



<CSV Data Assignment Sample>

- Excel file

1230200	tokyo1	192.168.x.xx	5060						
1230203	tokyo4	192.168.x.xx	5060	192.168.x.xx	5060	192.168.x.xx	5060	192.168.x.xx	5060
1230201	tokyo2	192.168.x.xx	5060	192.168.x.xx	5060				
1230202	tokyo3	192.168.x.xx	5060	192.168.x.xx	5060	192.168.x.xx	5060		
9870204	tokyo5	172.16.xx.xx	5060						

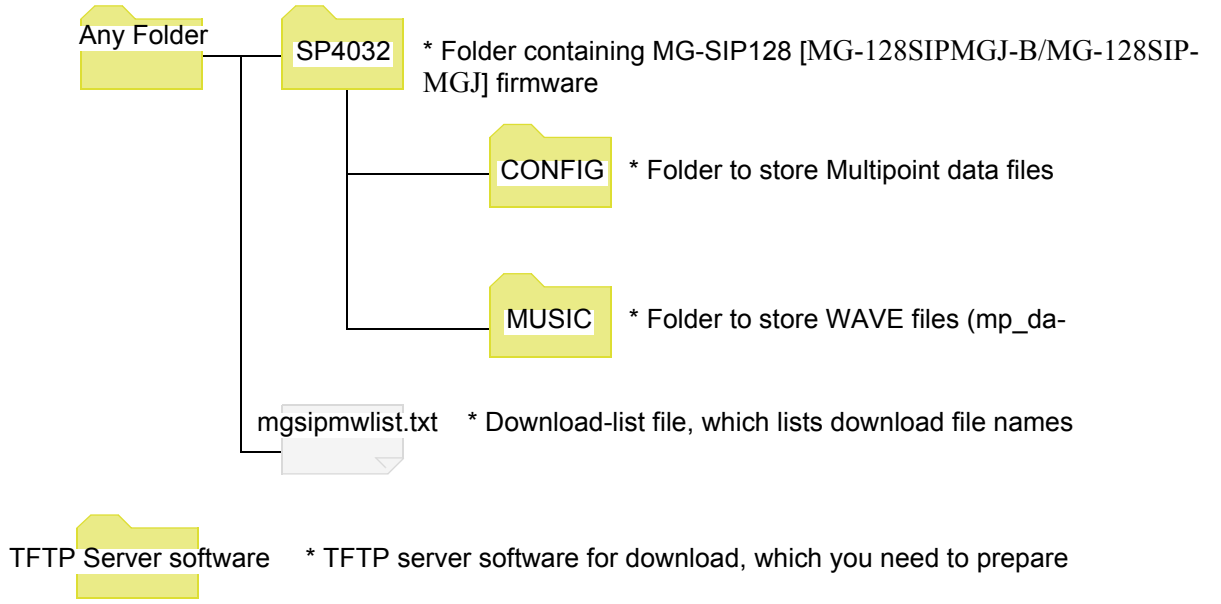
- Text file (CSV format)

```
1230200,tokyo1,192.168.x.xx,5060,,,,,,
1230203,tokyo4,192.168.x.xx,5060,192.168.x.xx,5060,192.168.x.xx,5060,192.168.x.xx,5060
1230201,tokyo2,192.168.x.xx,5060,192.168.x.xx,5060,,,,
1230202,tokyo3,192.168.x.xx,5060,192.168.x.xx,5060,192.168.x.xx,5060,,
9870204,tokyo5,172.16.xx.xx,5060,,,,,,
```

STEP 3: Place the firmware of MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] in a folder on a TFTP server. If the firmware is not present, create a folder with the name of the MG-SIP128 firmware (“SP4032” in this case) in a folder on the server, and then create a subfolder named “CONFIG” to store the Multipoint data file (mp_data.csv). See “File Structure” below.

STEP 4: Save the edited Multipoint data file (mp_data.csv) in the CONFIG folder (a subfolder of the above-mentioned firmware folder).

File Structure



STEP 5: Form the download-list file (mgsipmwlist.txt) under the firmware folder as below.

[Example]

```
# This is Firmware list for SN8178
00,SP4032/CONFIG/mp_data.csv,0
```

Note: When adding files to the download-list (mgsipmwlist.txt), assign sequential numbers (such as 00, 01, 02,...) to all files as shown in the red frame in the image above.

STEP 6:Access the configuration mode and download the Multipoint data file (mp_data.csv).

<Display example of individual download>

`MG(SIP)> download`	Enter “download” in configuration mode.

`--- Download menu ---`
`Download of all programs. (default) --- input:1`
`Download of one program. --- input:2`
`Quit --- [Q/q]`	

`Input:2`	To download the program individually, enter “2”.
`--- IP Address and Subnet mask setting of MG(SIP) ---`	
`Select Ether Port [1(Ether1)/2(Ether2)/ Q(quit)]:1`	Select ether port. (Be sure to use Ether1 port for default setting. Assign 2 port by “set ipaddress” command for using Ether2 port.)
`Current IP Address of MG(SIP) : 10.xx.x.xxx`	
`Do you change IP Address of MG(SIP) ? [Y(change)/N(current)/Q(quit)] : y`	To change IP address of the selected port, enter “y”.
`If you want to return to the previous step, please input 'Q'.`	
`Input new IP Address:172.yy.yyy.yyy`	Enter IP address.
`Current Subnet mask of MG(SIP) : 255.0.0.0`	
`Do you change Subnet mask of MG(SIP) ? [Y(change)/N(current)/Q(quit)] : y`	To change Subnet mask of the selected port, enter “y”.
`If you want to return to the previous step, please input 'Q'.`	
`Input new Subnet mask:255.255.0.0`	Enter Subnet mask.

```
--- IP Address setting of TFTP server ---
Current IP Address of TFTP server :
10.41.1.250

Do you change IP Address of TFTP server ?
[Y(change)/N(current)/Q(quit)] : y
If you want to return to the previous
step, please input 'Q'.
Input new IP Address : 172.nn.nnn.nnn
IP Address change was completed.
New IP Address of MG(SIP)     :
172.yy.yyy.yyy
New Subnet mask of MG(SIP)    :
255.255.0.0
New IP Address of TFTP server :
172.nn.nnn.nnn
Are these IP Address correct ?
[Y(correct)/N(change)/Q(quit)]
If you enter Y, MG(SIP) ONLINE service
will be stop : y
mgsipmwlist.txt download...
tftpDownload : User file TFTP start.
Received.


--- Program download ---
Main program     : 0
tone data        : 1
music data       : 2
wave file        : 3
config data      : 4
Multipoint data  : 5
```

To change IP address of the TFTP server, enter “y”.
(default: 10.41.1.250)

Enter IP address.

When these IP addresses are correct, enter “y”.

```
Quit              : [Q/q]
Input : 5


 --- Multipoint file download ---
Download mp_data file ? [Y(download)/
N(skip)/Q(skip)] : y
SP4032/CONFIG/mp_data.csv download...
tftpDownload : User file TFTP start.
Received.
Checksum No Check. Checksum of SP4032/
CONFIG/mp_data.csv is 34646.
Download was completed!


--- Program download ---
Main program      : 0
tone data         : 1
music data        : 2
wave file         : 3
config data       : 4
Multipoint data   : 5
Quit              : [Q/q]
Input : q
If you download except for mp_data file,

please reboot after a download menu end.


--- Download menu ---


Download of all programs. (default) ---
input : 1
Download of one program.     --- input : 2
```

To download Multipoint data, enter “5”.

The download status of Multipoint data is displayed.

Be sure to execute the “reboot” command.
Note 4

```
Quit                              ---   [Q/q]

Input :q
```

Download is completed.

Note 4: It is possible to reflect the update of Multipoint Data Table by executing “set mp_refresh” command.

5.4.4 Registration by “set mp_data” command

You can register Connected Party number to the Multipoint Data Table directly from the Maintenance Console by using “set mp_data” command.

Step1: Enter “set mp_data” in configuration mode.

```
MG(SIP)> set mp_data

Select the method to operation.
0 : Exit
1 : Set
2 : Delete
Input:1

Input Search Number.(number of digits=7)


: 1230200

Search Number 1230200 is no data.



Edit this data. Are you sure? (y/n) : y

Input Group Name.(MAX10(strings))

: tokyo1

Input Primary Dest IP
Address.(default=0.0.0.0)

: 192.168.x.xx

Input Primary Dest Port Number.(1024-65535
(default=5060))

: 5060

Input Secondary Dest IP
Address.(default=0.0.0.0)

: 0.0.0.0
```

Enter “upload” in configuration mode.

The method to operation is displayed.
0: Exit
1: Set
2: Delete

Search Number entry screen and number of digits are displayed.

Enter Search Number.

When the entered number is already entered, existing setting is displayed.
Note 1

To enter new data, enter “y”.

Enter Group Name.

Enter Primary IP address.

Enter Primary Port Number.

Enter Secondary IP address.

```
Input Secondary Dest Port Number.(1024-
65535 (default=5060))
: 0
Input Tertiary Dest IP
Address.(default=0.0.0.0)
: 0.0.0.0
Input Tertiary Dest Port Number.(1024-
65535 (default=5060))
: 0
Input Quaternary Dest IP
Address.(default=0.0.0.0)
: 0.0.0.0
Input Quaternary Dest Port Number.(1024-
65535 (default=5060))
: 0
<< Result >>
----------------------------------------
|NUMBER |  NAME |     DESTINATION     |ERR|
----------------------------------------
|1230200| tokyo1|192.168.  x. xx:5060|   |
|       |       |  0.  0.  0.  0:   0|   |
|       |       |  0.  0.  0.  0:   0|   |
|       |       |  0.  0.  0.  0:   0|   |
----------------------------------------
Select the method to operation.
0 : Exit
1 : Set
2 : Delete
Input:0
Do you want to save mp_data?(y/n) = y
The data is saving.
Save is completed. Please refresh mp_data.
MG(SIP) >
```

Enter Secondary Port Number.

Enter Tertiary IP address.

Enter Tertiary Port Number.

Enter Quaternary IP address.

Enter Quaternary Port Number.

Setting Result is displayed.

The method to operation is displayed again.

To finish the registration, enter “0”.

To save these assignments, enter “y”.

Note 1: Input the digits of Search Number (default: 7 digits) assigned by “set mp_mode”. Error occurs when the input digits are different from the number of digits assigned by “set mp_mode”.

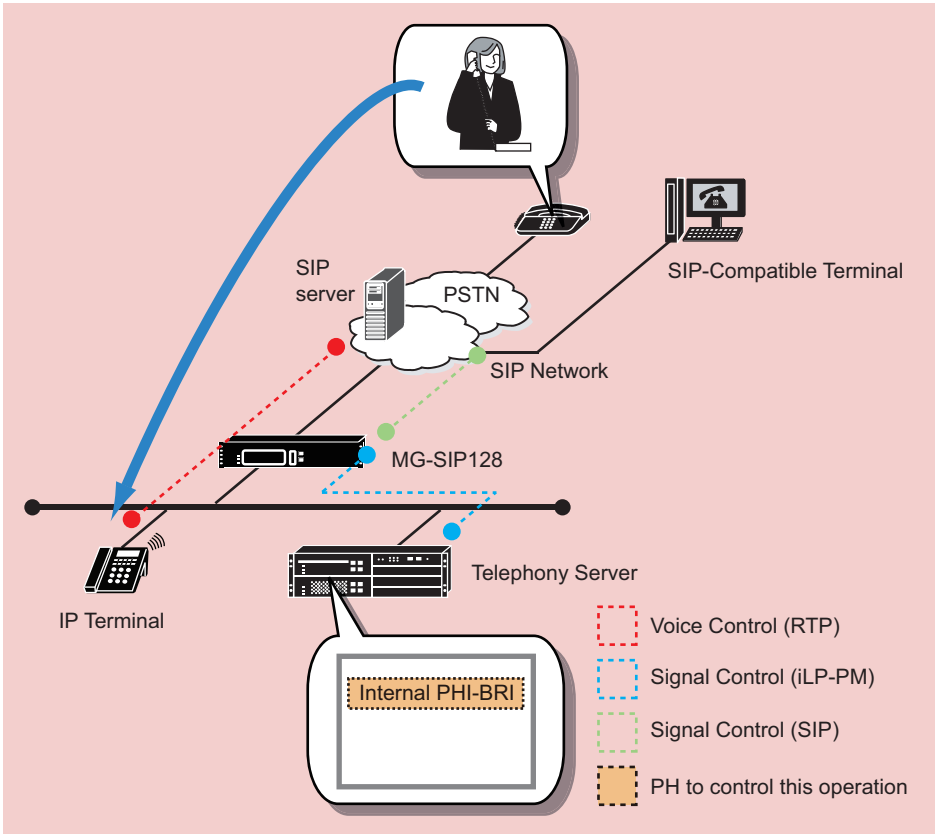
MG-SIP128 [MG-128SIPMGL-A]

The following explains MG-SIP128 [MG-128SIPMGL-A]: function overview, configuration, and installation procedure.

1 General

MG-SIP128 [MG-128SIPMGL-A] is a SIP-compatible Media Gateway to realize communication with service networks. MG-SIP128 [MG-128SIPMGL-A] provides VoIP devices supporting SIP (Session Initiation Protocol, based on RFC) with peer-to-peer VoIP services. MG-SIP128 [MG-128SIPMGL-A] also connects an IP station located on LAN with a SIP terminal (based on RFC3261) located on the WAN-side (SIP network) and maintain voice quality.

For details on service conditions and office data assignment, see MEDIA GATEWAY SIP [M-111] in UNIVERGE SV9500 Data Programming Manual - Business.



The following table shows the number of available channels of MG-SIP128 [MG-128SIPMGL-A].

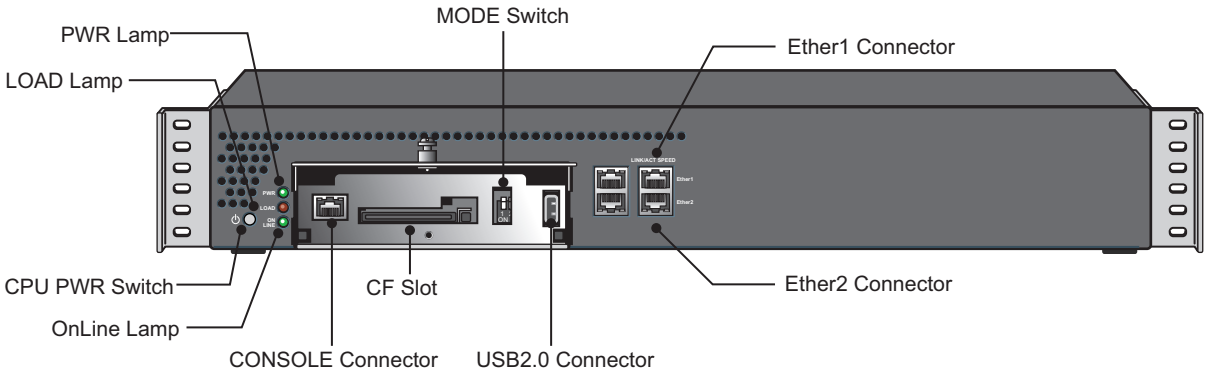
	10ms	20ms	30ms	40ms	60ms
G.711	-	128ch	128ch	128ch	-
G.729a	-	128ch	128ch	128ch	-
G.723.1	-	-	-	-	-

1.1 Specifications

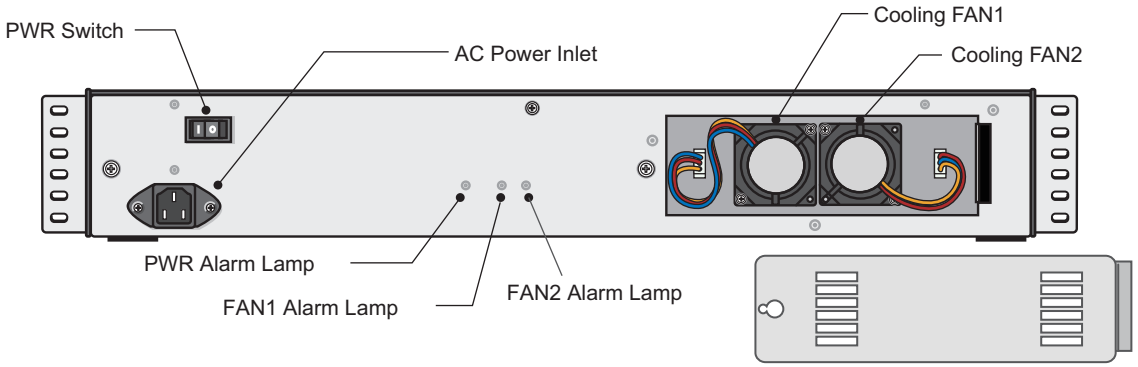
(1) Part Names

The following are the appearances of MG-SIP128 [MG-128SIPMGL-A].

Front



Rear



Note: After installing a MG-SIP128 [MG-128SIPMGL-A], fix the AC power cable with the attached AC power cable stopper.

(2) Details

[1] Hardware specifications

Item	Specifications		Remarks
Connection terminal (on front panel)	CONSOLE connector (RJ-45) x 1		For maintenance
	LAN connectors	1000BASE-T 100BASE-TX 10BASE-T x 2	
		100BASE-TX 10BASE-T x 2	Not used.
	CF slot x 1		
	USB2.0 x 1		Not used.
Dimensions	65 (H) x 430 (W) x 297 (D) mm (corresponds to 1.5U when mounting on a 19-inch rack with depth of A4 paper.)		
Weight	3.8 kg		
Input Power Source	100 VAC (50/60 Hz) ± 10% 120 VAC (50/60 Hz) ± 10% 230 VAC (50/60 Hz) ± 10% 240 VAC (50/60 Hz) ± 10%		
Maximum Power Consumption	75 W (for maximum CPU load)		
QoS	IEEE802.1p (ToS field is supported, Diffserv)		
How to set	Flatly on desktop (basic type)		
Environmental requirement	Operational Temperature Range	0°C to 40°C (32°F to 104°F)	
	Operational Humidity Range	20% to 90% (not condensing)	
Cooling system	Forcible air-cooling by FAN		

[2] Functions

(a) Front

Part	Description		Remarks
PWR lamp	ON (green)	Powered ON.	
	OFF	Powered OFF.	
LOAD lamp	Flash (red)	Accessing to a CF card.	
	OFF	Not accessing to a CF card.	

Part	Description		Remarks
ONLINE lamp	ON (green)	Registration is finished.	
	Flash (green)	Abnormal state	No configuration, no Music/Tone file
	OFF	Registration is not finished.	
LAN connectors	Ether1	Port for LAN cable connection at LAN side	
	Ether2	Port for LAN cable connection at WAN side	For IPv4 connection, this port is used for connection to a LAN cable only when the Ethernet Port Redundancy function is enabled. For IPv6 connection, both ports (Ether1 and Ether2) are used for connection to a LAN cable.
SPEED lamp (Ether1/2)	ON (yellow)	1 Gbps connection	
	ON (green)	100 Mbps connection	
	OFF	10 Mbps	
LINK lamp (Ether1/2)	ON (green)	Layer1 link is established.	
	Flash (green)	Transmitting/receiving packets.	
	OFF	Layer1 link is not established.	
CPU PWR switch	Push to power ON the powered OFF device (**Note 1**); push to execute auto-shutdown the powered ON device (**Note 2**).		
MODE switch	Not used.		Fixed to OFF.
CONSOLE connector	Connected with a maintenance terminal (PC). **Note 3**		CONSOLE CABLE (RJ45 <-> RS-232C serial connection (not included in package)) is used.

Note 1: It works only when CPU PWR switch on the rear panel is ON.

Note 2: To confirm that shutdown is complete, check the PWR lamp. When auto-shutdown does not work, press and hold CPU PWR switch for four seconds to turn off forcibly.

Note 3: When CONSOLE CABLE is used, connect the CONSOLE CABLE with the maintenance terminal (PC) prior to connecting the cable with the CONSOLE connector of MG-SIP128.

(b) Rear

Part	Description		Remarks
AC power inlet	Connected with an attached three-polar grounded AC power cable (Cable Length: 3 m [9.8 ft.])		Fix the cable with the stopper to prevent it from falling out.
PWR switch	Power switch **Note 4**		
PWR alarm lamp	ON (red)	Failure on power module.	
	OFF	Power module works normally.	
FAN1 alarm lamp	ON (red)	FAN1 fails.	
	OFF	FAN1 works properly.	
FAN2 alarm lamp	ON (red)	FAN2 fails.	
	OFF	FAN2 works properly.	
Cooling FAN1	-	A FAN for cooling the device.	Replaceable during operation. **Note 5**
Cooling FAN2	-	A FAN for cooling the device.	Replaceable during operation. **Note 5**

Note 4: Auto-shutdown with CPU PWR switch on the front panel before turning OFF PWR switch.

Note 5: Do not replace cooling FAN1 and cooling FAN2 at the same time when MG-SIP128 [MG-128SIPMGL-A] is working.

2 Installation



This section describes installing and cabling procedures for an MG-SIP128 [MG-128SIP-MGL-A]. Take anti-static measures to work on it.

(1) Installing Procedure

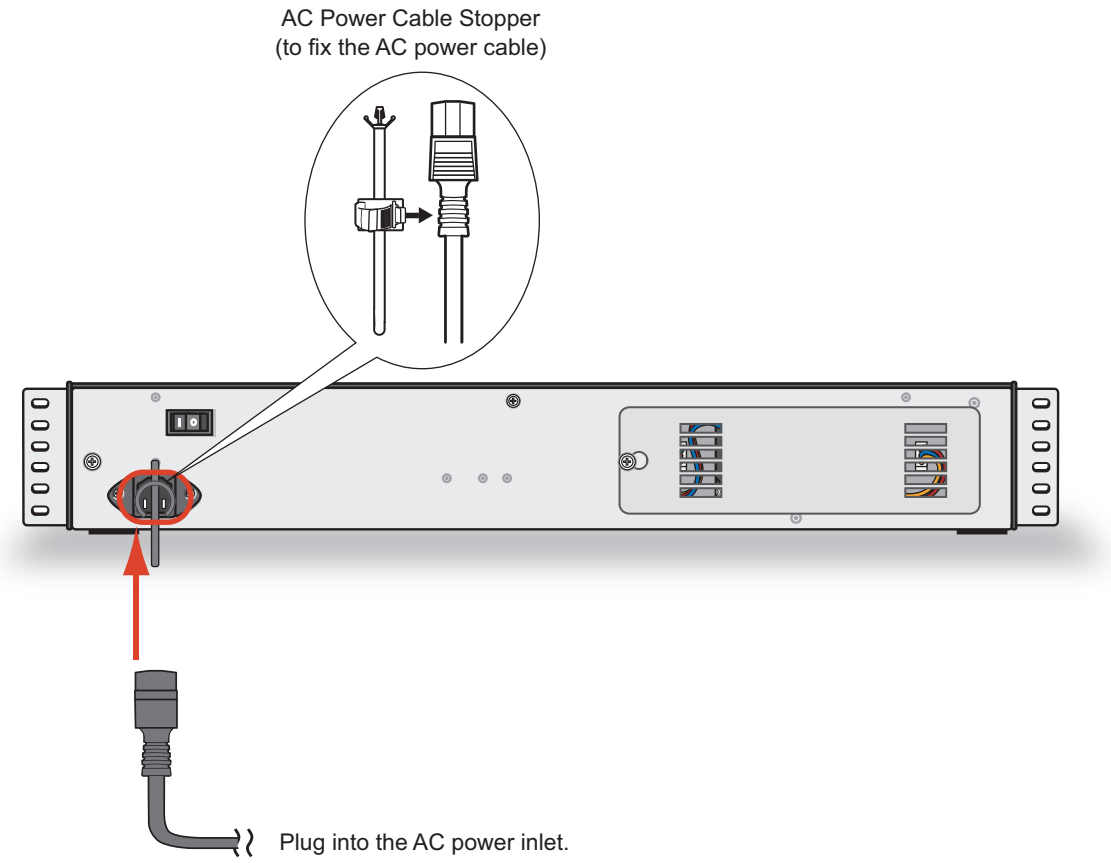
You can mount an MG-SIP128 [MG-128SIPMGL-A] on a 19-inch rack. The procedure is the same as mounting an SV9500 server on a 19-inch rack; refer to the UNIVERGE SV9500 Appliance Model Installation Manual.

(2) Cabling Procedure

The following describes the cabling procedure. Follow the following to connect cables.

STEP 1: Plug an attached AC power cable into the AC power inlet on the rear panel of an MG-SIP128 [MG-128SIPMGL-A]; fix the AC power cable with the stopper.

Rear Panel

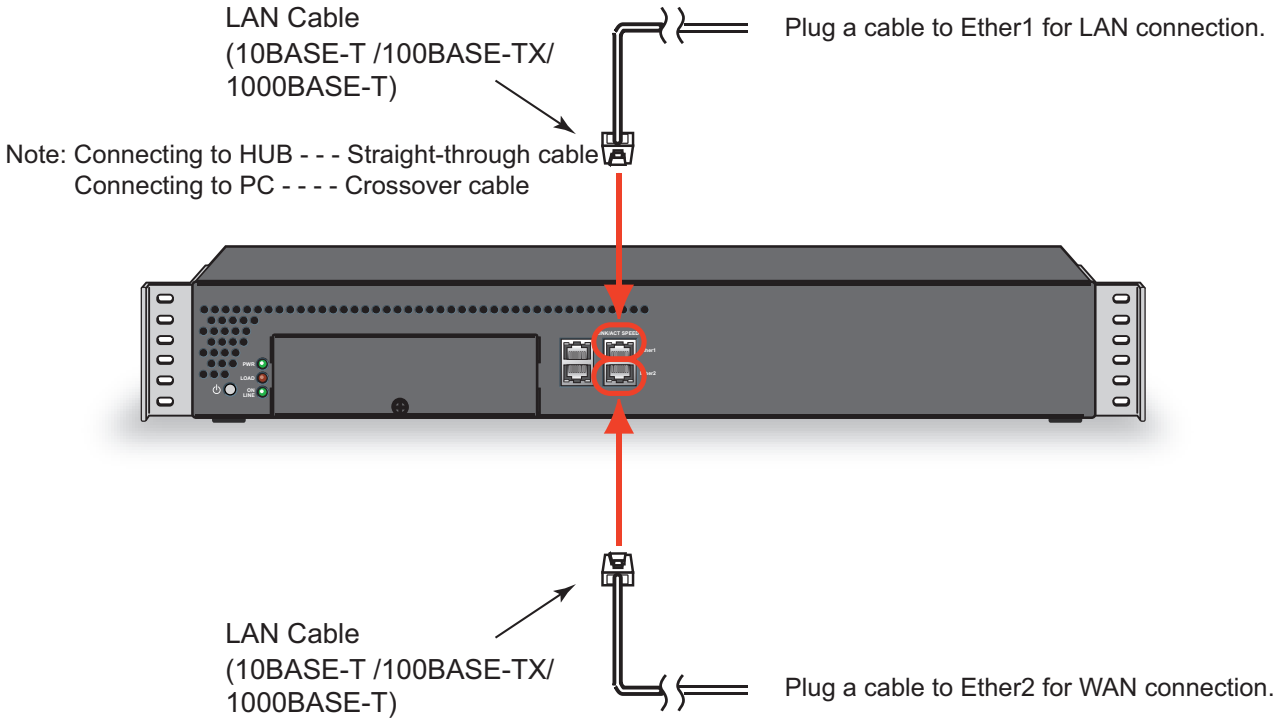


Note: To remove the AC cable, push the hook of the stopper outward, and take off the fixing belt. Push the tab of the stopper, and slide the stopper away from the power inlet.

STEP 2: Connect the other end of the AC power cable with an appropriate AC source.

STEP 3: Plug LAN cables into the Ether1 and Ether2 connectors (RJ-45). **Note 1**

Front Panel



Note 1: If you want to establish IP addresses of LAN and a SIP network in the same segment, connect a LAN cable only to a connector for LAN.

Cable connection is completed. Move on to the next section: Startup and Installation Test.

3 Startup and Installation Test

The following explains procedures for startup and installation test of MG-SIP128 [MG-128SIPMGL-A].

START

↓

STEP 1 Assigning office data on the Telephony Server

↓

STEP 2 Connecting maintenance terminal (PC) and MG-SIP128 [MG-128SIPMGL-A]

↓

STEP 3 Turning on MG-SIP128 [MG-128SIPMGL-A]

↓

STEP 4 Setting configuration data on MG-SIP128 [MG-128SIPMGL-A]

↓

STEP 5 Connecting MG-SIP128 [MG-128SIPMGL-A] to LAN and WAN

↓

STEP 6 Checking states of LINK and SPEED lamps on Ether1 and Ether2

↓

END

3.1 Assigning Office Data, Connecting with Console and Turning On MG-SIP128

STEP 1: Assigning office data on the Telephony Server
Refer to MEDIA GATEWAY SIP [M-111] in Data Programming Manual - Business.

STEP 2: Connecting maintenance terminal (PC) and MG-SIP128 [MG-128SIPMGL-A]

- How to set up MG-SIP128 [MG-128SIPMGL-A]

  Set up an MG-SIP128 [MG-128SIPMGL-A] by connecting a maintenance terminal (PC) to CONSOLE connector and using configuration commands. Connect CONSOLE connector on the MG-SIP128 [MG-128SIPMGL-A] and a serial port (RS232C) on the maintenance terminal (PC) with CONSOLE CABLE (serial cable for RJ-45 and RS-232C, which is not included in the package).

  Note: When CONSOLE CABLE is used, connect the CONSOLE CABLE with the maintenance terminal (PC) prior to connecting the cable with the CONSOLE connector of MG(SIP).

- Activating and connecting maintenance terminal (PC)

  Activate Windows on the maintenance terminal (PC), click Start, point to Programs, point to Accessories, point to Communications, and click HyperTerminal. If your computer does not have HyperTerminal, use another VT-100 compliant software with the same functions. **Note 1**

  "Connection Description" window is opened. Enter a name (whatever you like; here "MGSIP" as an example) in "Name" field. Enter "OK."

  Note 1: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. This section explains the procedure for setting data by using HyperTerminal as an example. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data referring to the description for HyperTerminal.

Note: You can use any icon and name.

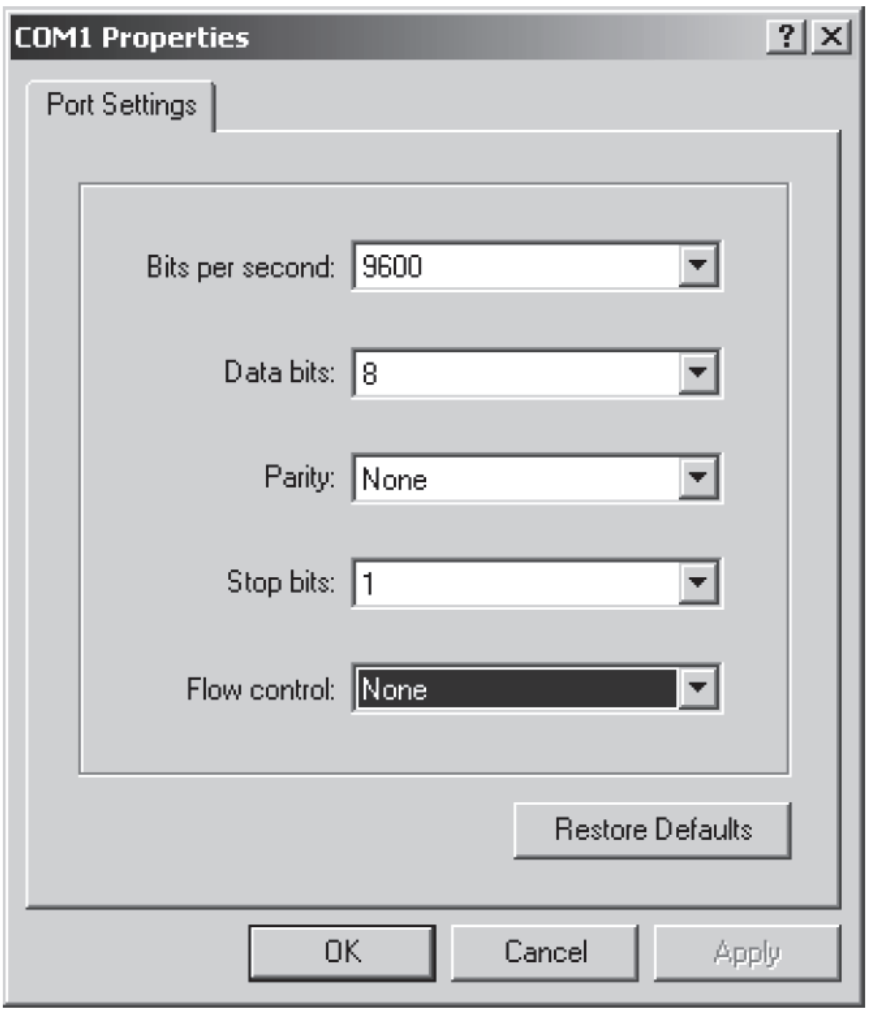


"Connect To" window is opened. Choose a COM port which is connected to MG-SIP128 [MG-128SIPMGL-A] in "Connect using" box. Enter "OK." **Note 2**

Note 2: It depends on the PC.



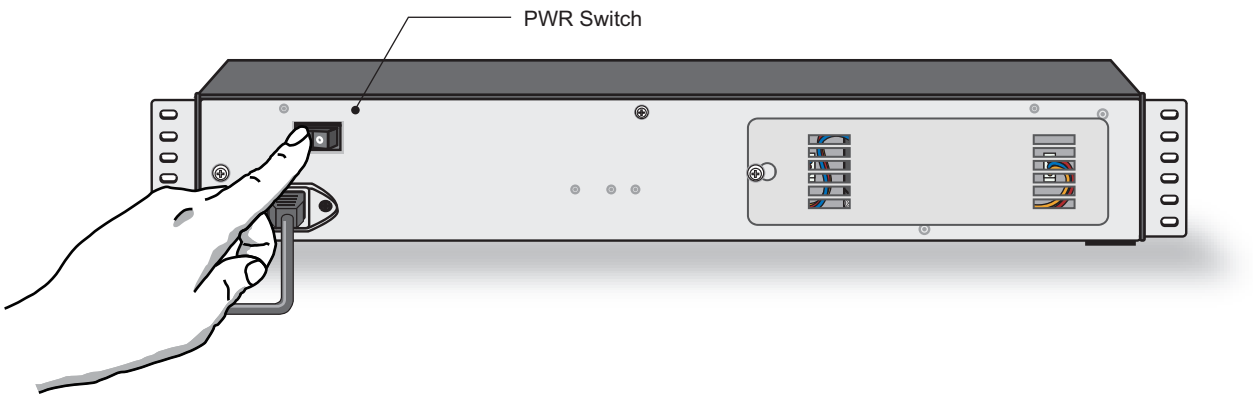
"Port Settings" tab opens. Set the values as the following figure shows.



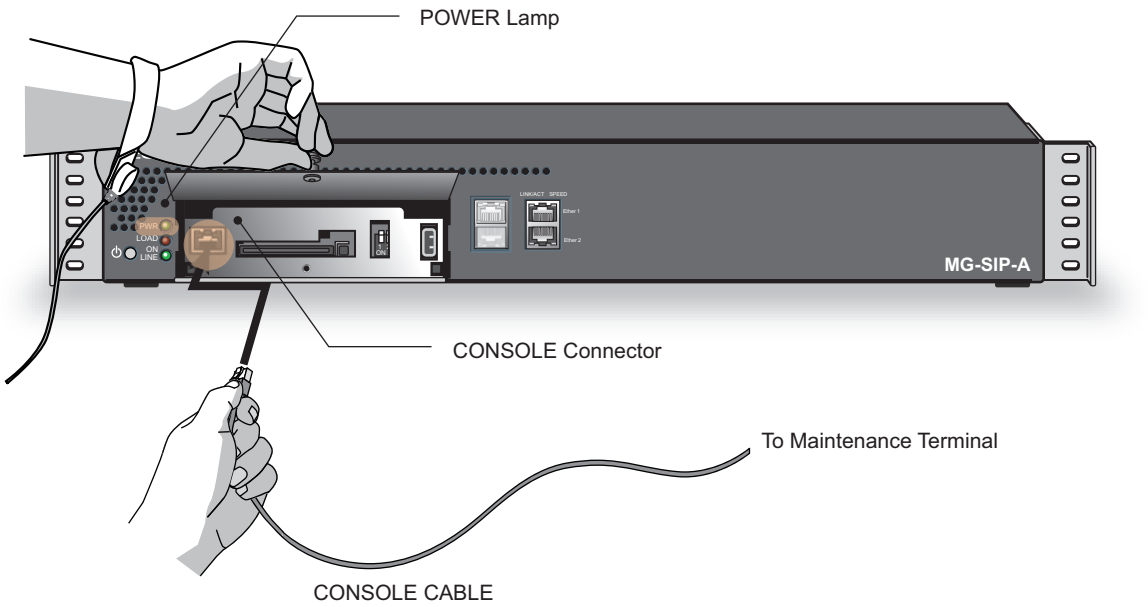
STEP 3: Turning on MG-SIP128 [MG-128SIPMGL-A]

Make sure of cable connection between the maintenance terminal (PC) and the MG-SIP128 [MG-128SIPMGL-A] via CONSOLE CABLE before turning on PWR switch. Make sure that PWR lamp on the front panel of MG-SIP128 [MG-128SIPMGL-A] turns green.

Rear Panel



Front Panel



After MG-SIP128 [MG-128SIPMGL-A] is activated, the maintenance terminal (PC) displays "`mgsip login:`" on the screen.

```
mgsip login:
```

Note: If an MG-SIP128 [MG-128SIPMGL-A] is connected with a maintenance terminal (PC) after activated, "`mgsip login:`" does not appear. Press Enter key to display "`mgsip login:`."

Now the MG-SIP128 [MG-128SIPMGL-A] is activated.

STEP 4: Setting configuration data on MG-SIP128 [MG-128SIPMGL-A]

(1) On the activated MG-SIP128 [MG-128SIPMGL-A] with "`mgsip login:`" displayed, type "config" as the login name, and press Enter key.

```
mgsip login:
```

(2) Prompt "MG(SIP)>" appears: you are in data setting mode.

```
mgsip login:config
MG(SIP)>
```

(3) Use configuration commands to set data: Follow the steps described in the next section.

3.2 Setting of Basic Assignment

The following explains procedures for setting of basic assignment of MG-SIP128 [MG-128SIPMGL-A].

Assign each configuration data of MG-SIP to default setting.

```
MG(SIP)> set default
 Are you sure? Y/N=y


 Config data default set.
```

Be sure to select “y”.

Assign the configuration data. For details of each parameter, refer to “MG-SIP config_template Data”

```
MG(SIP)> set config_template

Imput template pattern. (0-255):2

Are you sure? Y/N=y

Selected template is set.
```

Enter the template pattern number 2. **Note 1**

Be sure to select “y”.

Completing the setting of Basic Assignment.

Note: To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP128 [MG-128SIPMGL-A].

Note 1: When other than 0-6 is entered for the template pattern number, “Not used” is displayed.

3.3 Setting of IP Address

The following explains procedures for setting the number of ports that MG-SIP128 [MG-128SIPMGL-A] uses, and IP addresses and subnet masks for each port of MG-SIP128 [MG-128SIPMGL-A].

Note: Set the routing information if required.

Each port of MG-SIP128 [MG-128SIPMGL-A] is used as follows:

- Ether1 LAN: Telephony Server side
- Ether2 WAN: SIP network side

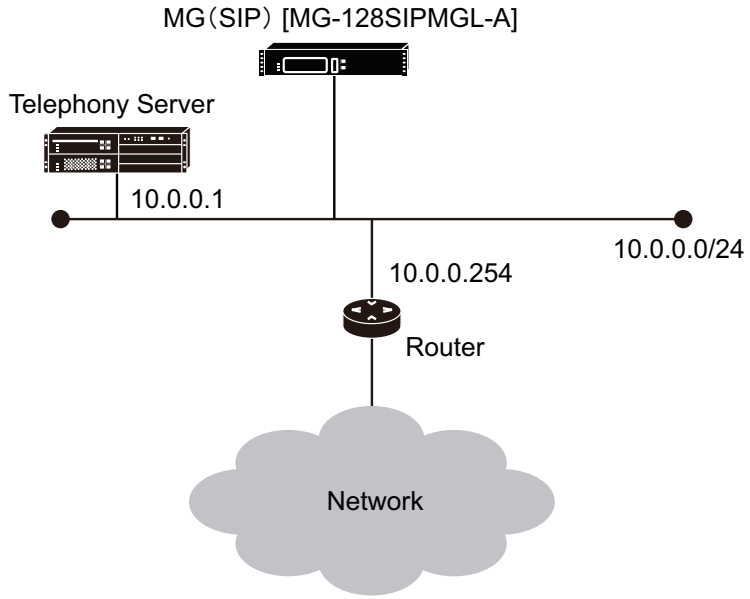
<One-port only>

When the IP addresses of both LAN and WAN are assigned in the same segment, use Ether1 port only. Select "Y" for "Do you use one-port only?" and assign Ether1's IP address only. In this case, Ether2 cannot be used.

Note: Please notice the following:

- If Ether2 data is already assigned, the message "Ether [2] Port data is erased. Are you sure? Y/N" is displayed. To erase the Ether2 data, select "Y".
- If you set a port number, be careful not to choose the same number set in other port numbers (set by "set sip_rtp_port_no", "set ipx_rtp_port_no", "set sip_media_port_no", "set ipx_media_port_no", "set registration_port_no", "set signaling_port_no", "set pre_negotiation_port_no", "set sip_port_no" commands).
  When the same port number is set, a warning message is displayed.

Configuration when using one port is as follows:



<Ethernet Port Redundancy function >

Ether1 and Ether2 can be used together as one virtual Ether (Bond [0]) if one-port only is selected and the Ethernet Port Redundancy function is enabled. With this function, if there is a link down (**Note 1**) for Ether1 (or Ether2), Ether2 (or Ether1) is used (**Note 2**).

Note 1: Only if the link down state continues for more than 100 milliseconds.

Note 2: Please notice the following:

- When there is a changeover of the port in use, MG (SIP) is not restarted. However, ongoing voice communication will be interrupted by a silent gap of less than one second.
- Even if there is a link up for Ether1 while Ether2 is an active port, Ether2 continues being an active port. In this case, only when there is a link down for Ether2, Ether1 takes the place of it.
- Connect a cable both to Ether1 and Ether2 when Ethernet Redundancy function is enabled.

[Display example]

When Ether1 and Ether2 are used:

```
MG(SIP)> set ipaddress

Do you use one-port only? Y/N= n

Ether[1]

  Input IP Address.(default=0.0.0.0)
            : 172.16.0.1

  Input Subnet mask.(default=0.0.0.0)
            : 255.255.255.0

Ether[2]

  Input IP Address.(default=0.0.0.0)
            : 172.16.1.2

  Input Subnet mask.(default=0.0.0.0)
            : 255.255.255.0
```

Note 3

Enter “n” when two ports are used.

Ether [1]: LAN

Assign the IP address (Default: 0.0.0.0) for Ether [1].

Assign the subnet mask (Default: 0.0.0.0) for Ether [1].

Ether [2]: SIP network

Assign the IP address (Default: 0.0.0.0) for Ether [2].

Assign the subnet mask (Default: 0.0.0.0) for Ether [2].

When only Ether1 is used and Ethernet Redundancy function is enabled.

```
MG(SIP)> set ipaddress

Do you use one-port only? Y/N=y

Ether[1]

  Input IP Address. (default=0.0.0.0)
            : 172. 16. 0. 1

  Input Subnet mask. (default=0.0.0.0)
            : 255. 255. 255. 0
```

Note 3

Assign Ether1 data.

Assign the IP address (Default: 0.0.0.0) for Ether [1].

Assign the subnet mask (Default: 0.0.0.0) for Ether [1].

```
Ether[2] port data is erased.
Are you sure? Y/N = y

Select the setting of Ethernet Port Redundancy
function.
  0 = disable (default)
  1 = enable
Input : 1
```

Note 4

Enable Ethernet Port Redundancy.
0: disable (default)
1: enable

Note 3: Please note the following

- Pressing the Enter key can skip the item.
- To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP128 [MG-128SIPMGL-A].

Note 4: When one-port only is selected, do not assign Ether[2] data.

3.4 Setting of the Telephony Server Information

Assign the IP address and port number of the Telephony Server. Set the Primary DRS only, and skip for Secondary and later DRS by pressing Enter key.

[Display example]

```
MG(SIP) > set drsaddress
[Primary DRS Setting]
Input IP address.(default=0.0.0.0)
          :172.16.253.1
Input Port Number.(1024-65535(default=3456)
          :3456
[Secondary DRS Setting]
Input IP address.(default=0.0.0.0)
          :0.0.0.0
Input Port Number.(1024-65535(default=3456)
          :3456

[Tertiary DRS Setting]
Input IP address. (default=0.0.0.0)
          :0.0.0.0
Input Port Number. (1024-65535(default=3456)
          :3456

[Quaternary DRS Setting]
Input IP address. (default=0.0.0.0)
          :0.0.0.0
Input Port Number. (1024-65535(default=3456)
          :3456
```

Configures Primary DRS.

Assign the IP address of the Telephony Server (Default: 0.0.0.0).

Assign the UDP port number of the Telephony Server (Default: 3456).

Do not assign.

Do not assign.

Do not assign.

Note: To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP128 [MG-128SIPMGL-A].

3.5 Setting of SIP Server Data

Set the IP address or FQDN, and port number, type, and SIP domain of a SIP proxy server. (FQDN=Fully Qualified Domain Name)

Set SIP proxy server data by using "set sip_server" command. This data can be assigned by using IP address or Fully Qualified Domain Name (FQDN).

The following figure shows an example of display.

When IP address (=0) is selected:

```
MG(SIP) > set sip_server
Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:0
Input SIP server IP Address.(default=0.0.0.0)
                          :192.168.100.100
Input SIP server Port Number.
(1024-65535(default=5060)):5060
Select SIP server Router type.

 0=Strict(default)
 1=Loose
Input:0
Select the setting of rport(RFC3581)
function.
 0=disable (default)
 1=enable
Input: 1
Input Domain Name.(default=0,
MAX128(strings))
```

Select IP address (Default=0).

Assign the IP address of the proxy server (Default: 0.0.0.0).

Assign the port number of the proxy server (Default: 5060)

Select a Strict router or Loose router for the proxy server (Default: 0).

0: Strict router
1: Loose router

Select "0".

Enable/disable the rport (RFC3581) function.
(Default: 0)

Input a string that specifies the service provider in maximum of 128 characters.

When FQDN (=1) is selected:

```
MG(SIP) > set sip_server
Select SIP server type.
 0=IPAddress(default)
 1=FQDN
```

```
Input:1

Input Fully Qualified Domain Name.(default=0,
MAX63(strings))

                    :

Input SIP server Port Number.
(1024-65535 (default=5060)):5060

Select SIP server Router type.


 0=Strict(default)
 1=Loose

Input:0

Input Domain Name.(default=0,
MAX128(strings))
```

Select FQDN (=1).

Assign the FQDN of the proxy server in maximum of 63 characters (Default: 0).

Assign the port number of the proxy server (Default: 5060)

Select a Strict router or Loose router for the proxy server (Default: 0).

0: Strict router
1: Loose router

Select “0”.

Input a string that specifies the service provider in maximum of 128 characters.

Note:

- Pressing the Enter key can skip the item. Make sure to input data for “SIP server type” and “IPAddress/FQDN”; these cannot be skipped.
- To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP128 [MG-128SIPMGL-A].
- If you have set a character string to specify the service provider, the character string is used as the SIP domain name.
- Be sure not to enter a blank character to the end of the FQDN (with the Copy and Paste features of your personal computer), and be careful not to mistype a character. (“0”(zero) or “O” (alphabetical O), for example.)

3.6 Setting of Pilot Number for MG-SIP128

Assign a pilot number of MG-SIP128 [MG-128SIPMGL-A], which is used to register to the SIP server.

[Display example]

```
MG(SIP)> set keynumber

Input Keynumber.(default=0, MAX32(strings))
               :0
```

Assign the pilot number used by MG-SIP128 [MG-128SIPMGL-A] to register. (Default: 0).

Note:

- Pressing the Enter key can skip the item.
- To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP128 [MG-128SIPMGL-A].

3.7 Rebooting of MG-SIP128

Reboot the MG-SIP128 [MG-128SIPMGL-A] by using “reboot” command. The assigned configuration data can also be saved onto the Flash memory by using this command.

```
MG(SIP)> reboot

 Do you want to save Config data? Y/N=y




 Do you want to reboot MG(SIP)? Y/N=y




Config data File write start.
Config data File write end.
 MG(SIP)reboot start...
```

Select if you want to save the configuration data.
y: save the configuration data.**Note 1**
n: do not save the configuration data.
If other than the above is selected, the following message is displayed.
“Reboot” command was interrupted.

Select if you want to reboot MG-SIP128 [MG-128SIPMGL-A].
y: reboot MG-SIP128 [MG-128SIPMGL-A].
n: do not reboot MG-SIP128 [MG-128SIPMGL-A].
If other than the above is selected, the following message is displayed.
“Reboot” command was interrupted.

Note 1: Before selecting “Y” to save the running configuration data to the Flash memory, be sure to execute the following commands:

- set ipaddress (Assign the IP addresses for LAN network side and SIP network side)
- set drsaddress (Assign the IP address of the Telephony Server)
- set sip_server (Assign the IP address of the SIP proxy server)
- set keynumber (Assign a pilot number.)

If any of these items have not been assigned when saving the running configuration data, the following message will be displayed to the unassigned item. When these messages are displayed, you can select if you want to set the default configuration data or not. If you select “Y” here, the default values are applied to the configuration data.

```
The following setting commands are not
perfect.
“set ipaddress” command.(IPX side)

“set ipaddress” command.(SIP side)

“set drsaddress” command.
```

The following is displayed:

if IP address for the system side has not been assigned

if IP address for SIP network side has not been assigned

if IP address of DRS has not been assigned

```
"set sip_server" command.

"set keynumber" command.

So, Config data is made a default setup.
Is it all right? Y/N=y
```

if IP address of SIP proxy server has not been assigned

if a pilot number has not been assigned

Select if you want to apply the default values to the configuration data.
y: apply the default values
n: do not apply the default values
If other than the above is selected, the following message is displayed.
"Reboot" command was interrupted.

After the MG-SIP128 [MG-128SIPMGL-A] is rebooted, the following message appears on the Maintenance Console.

```
mgsip login:
```

STEP 1: Connecting MG-SIP128 [MG-128SIPMGL-A] to LAN and WAN

- Connect MG-SIP128 [MG-128SIPMGL-A] to LAN and WAN.

  Connect a cable to "LAN" connector (LAN side: Ether1 WAN side: Ether2) that is located on the front panel of MG-SIP128 [MG-128SIPMGL-A].

Note: Before connecting MG-SIP128 [MG-128SIPMGL-A] to the network you actually use, make sure of the following by using commands such as "ping".
- Is the IP address set to MG-SIP128 [MG-128SIPMGL-A] already used in the network to be connected?
- Is the newly set IP address correct?

When you have finished, the following message appears on the Maintenance Console.

```
****************************************
*         MG(SIP) ONLINE START         *
****************************************
```

Note: Both LAN1 and LAN2 must be connected to make MG-SIP128 [MG-128SIP-MGL-A] online. (For a one-port configuration, only LAN1 connection makes MG-SIP128 [MG-128SIPMGL-A] online.)

STEP 2: Checking the lamp status of LINK and SPEED at Ether1 and Ether2 of MG-SIP128 [MG-128SIPMGL-A]

If the connection is established, the following LINK lamps of MG-SIP128 [MG-128SIPMGL-A] will light green in a few minutes.

Note: For a one-port configuration, LINK lamp at Ether 2 connector does not light.

- Ether1 connector on LAN side: LINK lamp
- Ether2 connector on WAN side: LINK lamp

[SPEED lamp is lighting in orange]

- The MG-SIP128 [MG-128SIPMGL-A] connects to a network with transmitting speed of 1 Gbps.

[SPEED lamp is lighting in green]

- The MG-SIP128 [MG-128SIPMGL-A] connects to a network with transmitting speed of 100 Mbps.

  If you expected transmitting speed of 1 Gbps, check a connected network device and a cable between them.

[SPEED lamp is not lighting]

- The MG-SIP128 [MG-128SIPMGL-A] connects to a network with transmitting speed of 10 Mbps.

  If you expected transmitting speed of 1 Gbps or 100 Mbps, check a connected network device and a cable between them.

STEP 3: Checking the lighting of ONLINE lamp.

If the settings are correct, ONLINE lamp of MG-SIP128 [MG-128SIPMGL-A] lights in green.

3.8 Operation Check

Make sure the MG-SIP128 [MG-128SIPMGL-A] is in normal operation by the following procedure.

STEP 1: When the configuration settings are completed, reboot the MG-SIP128 [MG-128SIPMGL-A] by using "reboot" command.

STEP 2: Make sure the following message appears on the Maintenance Console after rebooting.

```
****************************************
*          MG(SIP) ONLINE START        *
****************************************
```

STEP 3: Make sure the registration status of the Telephony Server network and SIP network by using "show status" command in the configuration mode. If "Registration is OK." message appears, MG-SIP128 [MG-128SIPMGL-A] is in operating state.

```
MG(SIP) > show status

 0:Port status

 1:IPX status

 2:SIP status

 3.CH status

 9:Exit

Please choose reference number:1

MG(SIP) > IPX Registration Information

Registration is OK.(DRS IP address
172.16.253.1)
```

Port status (Default)

Telephony Server network registration status

SIP network registration status

Information on channels in use

Exit

Select a desired status you want to check.

The registration information of MG-SIP128 [MG-128SIPMGL-A] is displayed.

Note: For the detailed information, refer to "status" of "show" commands of "Configuration Commands" in "Operations and Maintenance".

Note: When using PCPro, make sure of the registration status of MG-SIP128 [MG-128SIPMGL-A] by using "DIMG" command.

* If "MG (SIP) OFFLINE START" is displayed on Maintenance Console, make sure of the following.

- Is the LAN cable securely inserted to Ether 2 (SIP network side)?
- Is the LINK lamp on the SIP network side lighting?
- Are the settings for the SIP server correct?

If no message appears within 3 minutes, it is estimated that no communication has been established between the Telephony Server and the MG-SIP128 [MG-128SIPMGL-A]. Check the LAN cable connecting LAN-Telephony Server and the IP address of DRS.

4 Operation and Maintenance

This section explains MG-SIP128 [MG-128SIPMGL-A]: operation and maintenance.

4.1 FAN Replacement



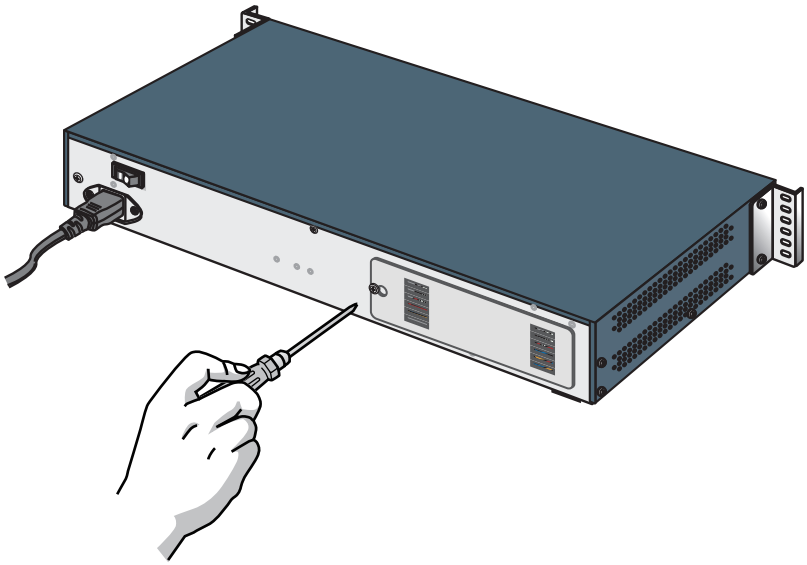
This section describes the procedure to replace FANs inside an MG-SIP128 [MG-128SIP-MGL-A].

Note: A failure of a cooling FAN raises the temperature inside of an MG-SIP128 [MG-128SIPMGL-A], which greatly influences the system. Please replace a cooling FAN every five years to avoid it, even though the cooling FAN still works normally.

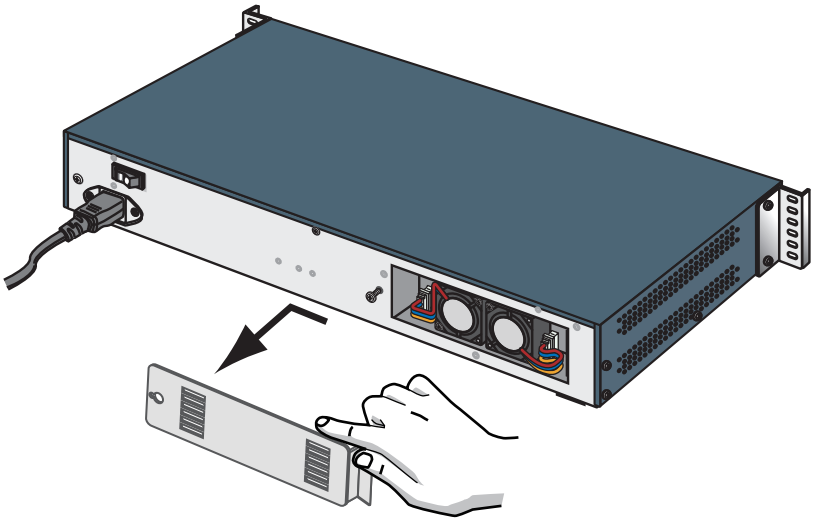
[Replacement Procedure]

Note: You can replace cooling FANs while the MG-SIP128 [MG-128SIPMGL-A] remains on.

STEP 1: Use a Phillips driver to loosen a screw at the left side of the FAN cover on the rear panel of an MG-SIP128 [MG-128SIPMGL-A].

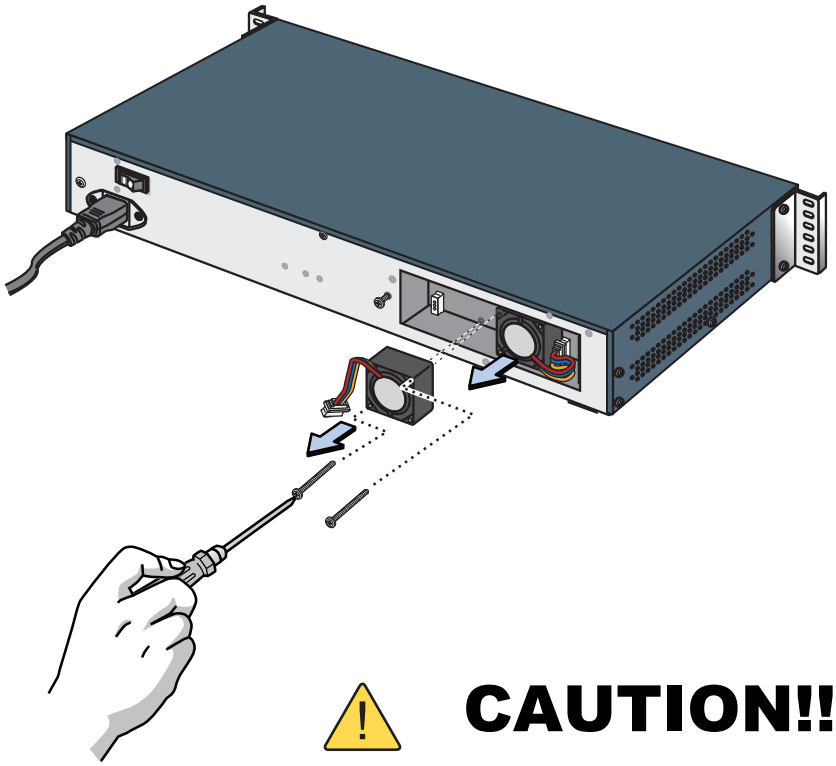


STEP 2: Slide the FAN cover to the left to remove.



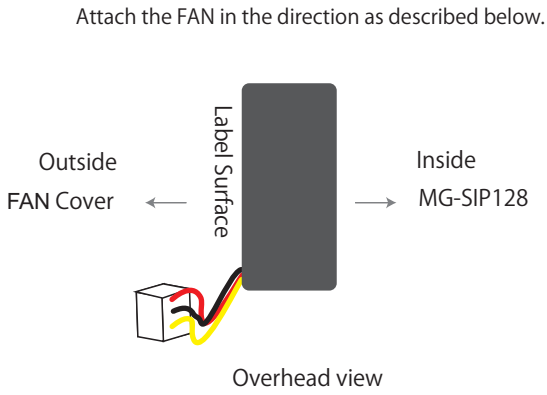
STEP 3: Remove the FAN connector; the screw; the FAN.

Note: If you are replacing FANs while the MG-SIP128 [MG-128SIPMGL-A] remains on, removing both FANs may generate heat inside, resulting in system failure. Be sure to replace one by one, but not at the same time.



STEP 4: Attach new FANs: perform the opposite procedure of removing.

Note: When attaching, pay attention to the direction of a FAN. The label on a FAN must face toward the outside of an MG-SIP128 [MG-128SIPMGL-A]. (See the following figure.)



[Test After Attaching]

Check if the replaced FANs work properly.

- If either of FANs does not work properly, check the cabling.

5 Configuration Commands

5.1 How to Use the Configuration Command

Configuration commands are used to change the default settings. Change the settings only where it is necessary.

Start a communication software such as HyperTerminal (**Note 1**) of Maintenance Console (PC), and turn on MG-SIP128 [MG-128SIPMGL-A]. The boot program starts and the configuration command login screen appears.

```
mgsip login:
```

In the above screen, enter “config” after the prompt to login, and press the Enter key. It moves to the configuration mode.

```
mgsip login: config
MG(SIP)>
```

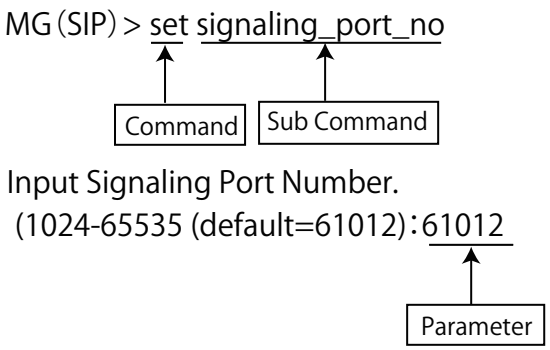
Note 1: Below are the communication conditions.
Speed : 9600bps
Data Length : 8 Bits
Parity Bit : None
Stop Bit : 1
Flow Control : None

Note: Note the following conditions:

- If you input “exit” after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

Commands

A command interface prompt is displayed on a screen waiting for a user input. When a user inputs a character string, the system analyzes the input data, and displays a reply message. Inputting commands and sub commands are necessary, but whether inputting a parameter is necessary or not depends on commands. (Some commands do not have any parameters.) The following figure shows an example of inputting a command, a sub command, and a parameter.



Commands other than "ping" cannot be set within a single line; use interactive mode to input values. The following figure shows an example of data setting using the interactive mode.

[Example of Interactive Mode where Parameter Input is Omitted]

```
MG(SIP)> set drs_qos
Input type:(1=IP Precedence/2=DiffServ/
3=ToS):1
Input following parameters.
Precedence (default=5, 0-7):5

Delay (default=0, 0/1):0



Throughput (default=0, 0/1):0



Reliability (default=0, 0/1):0


Cost (default=0, 0/1):0


```

When "IP PRECEDENCE (=1)" is selected:

Specify the precedence in an IP network (Default: 5). 0-7 (Low - High)

Specify the low delay priority in an IP network.
0: Not specified (Default)
1: Specified

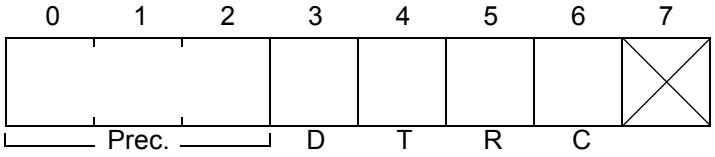
Specify the throughput priority in an IP network.
0: Not specified (Default)
1: Specified

Specify the reliability in an IP network.
0: Not specified (Default)
1: Specified

Specify the low cost priority in an IP network.
0: Not specified (Default)
1: Specified

* The example of the screen below the above example is omitted here.

Note: IP Precedence - ToS field is allocated as shown below.



Prec.=Precedence (3bits)
D=Delay (1bit)
T=Throughput (1bit)
R=Reliability (1bit)
C=Cost (1bit)

5.2 List of Maintenance Console Commands

Note: DRS (Device Registration Server) used in this section refers to a control function of the Telephony Server. Set the IP address of the Telephony Server (TP).

R: Required
C: Not required, but configurable

set: Commands to Set Configuration Data

* If you go out of the configuration mode by using "logout" command without saving the setting information using "reboot" command, the changed settings are discarded. To save the settings, execute "reboot" command, and exit the configuration mode.
* When you input a command, the current setting is displayed. If you change the setting, the changed data is displayed. For "ipx_route" and "sip_route" commands, the changed settings and "Are you sure?" message are displayed.
* Pressing the Enter key can skip each item.

	SUB COMMAND	MUST?	FUNCTION
1	183rbt	C	Assigns whether to enable/disable local RBT when 183 message without SDP is received.
2	184toprivacy	C	Assigns whether to display/block the Caller ID to SIP network when dialing 184/186.
3	another_keynumber	C	Assigns additional three pilot numbers other than the one registered by "set keynumber" command.
4	auth	C	Assigns Digest authentication information.
5	auth_header	C	Assigns whether to enable/disable the cache function of authentication header.
6	call_hold	C	Assigns whether to enable/disable MG Based Call Retention.
7	call_id_relay	C	Assign Call-ID notification function.
8	cause_table	C	Assigns the error translation table.
9	cc_convert	C	Assigns calling party's country code display conversion feature.
10	cdn_pattern	C	Assigns called number pattern.

	SUB COMMAND	MUST?	FUNCTION
11	check_number	C	Assigns limit to the number of digits for calling/called party number.
12	codec_change	C	Assigns Codec Change function and G711 Fax renegotiation.
13	config_template	C	Assigns the batch settings of Multipoint feature.
14	country_code	C	Assigns a country code.
15	cpn_pattern	C	Assigns how to obtain cpn (calling party number)
16	default	C	Specifies default settings of the configuration.
17	dnsaddress	C	Assigns the DNS IP address.
18	dns_option	C	Assigns the Optional Data for DNS server.
19	domain	C	Specifies the DNS domain name.
20	drsaddress	R	Assigns the IP address and the port number of DRS server.
21	drs_qos	C	Specifies the DRS ToS.
22	dtmf_mode	C	Assigns a type of DTMF relay mode on the SIP network.
23	enc	C	Enables or disables RTP encrypting mode on Telephony Server network. **Note 4**
24	h245_base_port_no	C	Assigns the base port number for H.245 TCP server.
25	hc_alarm	C	Specifies the alarm transmission destination.
26	hc_timer	C	Assigns the Health Check timer value.
27	interface	C	Assigns the operation speed and operation mode of an interface.
28	ipaddress	R	Assigns the IP address and the subnet mask to the port.
29	ip_version	C	Assigns the SIP side IP version.
30	ipx_media_port_no	C	Assigns the Telephony Server network side media port number.
31	ipx_route	C	Assigns the route information in the Telephony Server network.
32	ipx_rtp_port_no	C	Assigns the RTP base port number for the Telephony Server network.
33	keynumber	R	Assigns the pilot number of MG-SIP128 [MG-128SIPMGL-A].
34	multi_regist	C	Assigns the registration function per number.
35	multisession	C	Assigns Multi-path Switch. **Note 1**
36	musictype	C	Assigns the type of music to be sent from MG-SIP128 [MG-128SIPMGL-A].
37	name_display	C	Enable/disable Name Display service.
38	nataddress	C	Assigns the global IP address for NAT.
39	no_media_code	C	Assigns the SIP Error Response code.
40	out_of_area_code	C	Assigns the out-of-area error response.
41	ppi_to_pai	C	Assigns the PAID transmission function.
42	prack	C	Assigns Provisional Response Acknowledgment (PRACK) information (RFC3262).
43	pre_negotia-tion_port_no	C	Assigns the UDP port receiving packets for voice control path.
44	privacy_pattern	C	Assigns the privacy pattern.

	SUB COMMAND	MUST?	FUNCTION
45	registration_port_no	C	Assigns the UDP port number that receives DRS packets.
46	reg_interval	C	Assigns the waiting time to retry after registration failure.
47	response_table	C	Assigns response table selection.
48	rfc2833_pass	C	Assigns enable/disable RFC2833 packet transparency feature.
49	rtp_pathon	C	Assigns Path-on function by 183 Progress after receiving 180 Ringing.
50	rtp_qos	C	Specifies the RTP (on SIP network) ToS value.
51	sdp_style	C	Assigns the SDP receive setting for multiple “m” lines.
52	self_sip_domain	C	Assigns SIP domain name for MG-SIP128 [MG-128SIPMGL-A].
53	session_timer	C	Assigns session timer function.
54	signaling_port_no	C	Assigns the UDP port number that receives control signal packets.
55	sip_accfilter	C	Assigns SIP Access Filter and SIP Access Filter mask.
56	sip_media_port_no	C	Assigns the SIP network side media port number.
57	sip_port_no	C	Specifies the port number that receives SIP messages.
58	sip_qos	C	Specifies the TOS value for SIP signaling.
59	sip_register	C	Assigns the information of the SIP registrar.
60	sip_route	C	Assigns the route information of SIP network.
61	sip_rtp_port_no	C	Specifies the RTP base port number of SIP network.
62	sip_server	R	Assigns SIP server information.
63	sip_tel_service	C	Assigns the setting of additional services.
64	sip_transport	C	Specifies a SIP transport protocol.
65	slipresp	C	Assigns error response codes used when bypassing a SIP server.
66	softdsp	C **Note 2**	Provides access to the A-law/μ-law conversion feature (**Note 3**) and PAD value.
67	update	C	Assigns the setting of update method.

Note 1: Required to set Silent Monitor (Multi-Path Monitor) Connection in the ACD system.

Note 2: This command cannot be used in combination with the **codec_change** command.

Note 3: The A-law/μ-law conversion feature cannot be used in combination with “3PCC function” of the **sip_tel_service** command.

Note 4: Available for SP-4089 MGSIP(MM) PROG-A Issue 3 or later.

show: Commands to Display the Contents of Configuration Data

	SUB COMMAND	MUST?	FUNCTION
1	arp	-	Displays the ARP table.
2	config	-	Displays the configuration data.

show: Commands to Display the Contents of Configuration Data

	SUB COMMAND	MUST?	FUNCTION
3	interface	-	Displays the link and setting state of Ether connection
4	version	-	Displays the firmware version installed in MG-SIP128 [MG-128SIPMGL-A].
5	route	-	Displays the Route table.
6	status	-	Displays status of the port and the registration.

download Command: Command to Download

	SUB COMMAND	MUST?	FUNCTION
1	-	-	Downloads data from the specified IP address.

exit or logout: Command to Exit the Configuration Mode

	SUB COMMAND	MUST?	FUNCTION
1	-	-	Exits the configuration mode.

reboot: Command to Reboot MG-SIP128 [MG-128SIPMGL-A]

	SUB COMMAND	MUST?	FUNCTION
1	-	-	Restarts MG-SIP128 [MG-128SIPMGL-A] and saves the settings.

ping: Command to Use the “ping” for IPv4 address

	SUB COMMAND	MUST?	FUNCTION
1	parameter (enter the ping destination IPv4 address)	-	“ping” command for IPv4 address

ping6: Command to Use the “ping” for IPv6 address

	SUB COMMAND	MUST?	FUNCTION
1	parameter (enter the ping destination IPv6 address)	-	“ping” command for IPv6 address

traceroute: Command to Use the "traceroute"

	SUB COMMAND	MUST?	FUNCTION
1	-	-	"traceroute" command

help or ?: Command to Use the Command Help

	SUB COMMAND	MUST?	FUNCTION
1	-	-	"help" command

5.2.1 set Command

(1) 183rbt

Setting of local RBT connection select function when receiving 183 message (w/o SDP)

This command is used to enable/disable the connection of local RBT when 183 message without SDP is received.

[Setting Example]

```
MG(SIP) > set 183rbt

Select mode of RBT Addition when MG(SIP)
receives 183 without SDP.
 0=enable(default)
 1=disable
Input:0
```

Enter 0 or 1 (Default=0).
0: Enable
1: Disable

Note: The conditions of this command are as follows.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.
- Normally this command is not required to be changed.

(2) 184toprivacy

Setting of switching Caller ID display/blocking to SIP network function when dialing 184/186

Note: This command is available for Japan only.

This command is used to set the function to delete 184/186 by MG-SIP128 [MG-128SIPMGL-A] when dialing 184/186. When this setting is enabled, if a user adds 184/186 at the beginning of the dialing numbers, MG-SIP128 [MG-128SIPMGL-A] deletes the 184 (non-Caller ID) or 186 (Caller ID) from the dialed numbers, and transmits the message to SIP network.

[Setting Example]

```
MG(SIP) > set 184toprivacy
```

```
Select privacy function of 184.
 0=disable(default)
 1=Pattern 1
 2=Pattern 2
Input:0
```

0: Switching is disabled (default)
1: Switching is enabled. (Pattern 1)
2: Switching is enabled. (Pattern 2)

When Pattern 1 is set: Performs forced non-Caller ID for 184, forced Caller ID for 186. (The first three digits of the dialed numbers (184/186) are to be deleted.)

When Pattern 2 is set: Performs forced non-Caller ID for 184, forced Caller ID for 186. (The first three digits of the dialed numbers (184/186) are not to be deleted.)

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.

(3) another_keynumber

Setting of additional pilot numbers

Assigns additional three pilot numbers to the SIP server other than the one registered by “set keynumber” command.

[Setting Example]

```
MG(SIP) > set another_keynumber
Input Another Keynumber 1.(default=0,
MAX32(strings))
                          :1000
Input Another Keynumber 2.(default=0,
MAX32(strings))
                          :2000
Input Another Keynumber 3.(default=0,
MAX32(strings))
                          :05011112222
```

Numbers to be newly added (default: 0)

Note: The conditions of this command are as follows.

- Unique number to be assigned for each of Another keynumber 1/2/3. Assign value=0 (default) for parameter when nothing is to be assigned.
- When you add a pilot number with this command, do not select “Pattern 2” for “set cc_convert”.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.
- Normally this command is not required to be changed.

(4) auth

Setting of Digest authentication information

Assigns User ID/password for HTTP-Digest authentication.

[Setting Example]

```
MG(SIP) > set auth
Input User ID.(default=0, MAX32(strings))
            :0
Input Password.(default=0, MAX32(strings))
            :0
```

User ID (Max. 32bytes, Default: 0)

Password (Max. 32bytes, Default: 0)

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.

(5) auth_header

Setting to enable/disable cache function of authentication header

The command is used to assign whether to add cache information to authentication header of request message in updating ACK and REGISTER for re-INVITE/200 OK.

[Setting Example]

```
MG(SIP) > set auth_header
Select Authorization Header Cache function.
 0=enable(default)
 1=disable
Input:0
```

0: Cached authentication information is added (default)
1: Cached authentication information is not added.

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.

(6) call_hold

Setting MG Based Call Retention

The command is used to specify whether to enable MG Based Call Retention.

[Setting Example]

```
MG(SIP) > set call_hold
Select the setting of Call Hold function.
 0=disable(default)
 1=enable
Input:1
Input RTP detect timer value.(sec)
(3-32 (default=3)):3
```

0: MG Based Call Retention is disabled. (Default)
1: MG Based Call Retention is enabled.

RTP detect timer (seconds)
Range: 3-32 seconds (Default: 3 seconds)

```
Input SIP Error Response code to reject new
session.
(400-606 (default=488)):488
```

Set the error response code to reject a session by a new call while the MG based call retention is in progress. (400 to 606, Default: 488) **Note 1**

Note: RTP detect timer does not work on the media port for Video/T.38 Fax when the MG Based Call Retention is enabled. If the packet for Video/T.38 is canceled during the Calling Keep, the Calling Keep does not terminate the processing.

Note 1: When an Initial-INVITE is received from the SIP network side while a call is retained, an error response 488 (Not Acceptable Here) is sent in the default setting.

(7) call_id_relay

Setting to enable/disable Call-ID Header information of SIP notification function

The command is used to specify whether to send Call-ID Header information of SIP to SV9500.

[Setting Example]

```
MG(SIP) > set call_id_relay

Select function of Call-ID relay mode.
 0=disable(default)
 1=enable
Input:0
```

0:Call-ID is not sent (default).
1: Call-ID is sent to SV9500.

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.

(8) cause_table

Setting of error translation table select function

The command is used to select the translation table of error cause to be sent to LAN received from SIP network as error response.

[Setting Example]

```
MG(SIP) > set cause_table


 Select Cause table(SIP Error Response to
 Error Cause).

  0=normal(default)
  1=alternate routing
  2=customized pattern1
  3=Route Advance

 Input:3
```

Select the error translation table.
0 = Normal table (Default)
1 = Alternate routing table
2 = This setting is prohibited.
3 = Route Advance

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.
- Normally this command is not required to be changed if there are 255 SIP Trunks or less.

(9) cc_convert

Setting of calling party's country code display conversion feature.

The command is used to enable/disable the calling party's country code display conversion feature. This feature has two patterns (Pattern 1/Pattern 2) as described below:

- Pattern 1

When you select Pattern 1, conversion will take place as in the following table.(The example uses Japanese Country Code.)

Direction of Call termination/ origination	Intended Number	Conversion Feature
Call termination via SIP	Calling party	Convert to "0" if first numbers are "81" or "+81"
Call termination via SIP	Calling party	Add "0" to first number if number is 8 or more digits
Call origination via MG-SIP128	Calling party	Convert to "0" if first number is "81"

- Pattern 2

Do not select "Pattern 2" for MG-SIP128 [MG-128SIPMGL-A].

[Setting Example]

```
MG(SIP) > set cc_convert

Select Country Code Convert function.
 0=disable(default)
 1=Pattern 1
 2=Pattern 2
Input: 0
```

0: Disable (default)
1: Pattern 1
2: Pattern 2 (not used)

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.

(10) cdn_pattern

Setting of a way of obtaining information for cdn (called number)

The command is used to assign the way of obtaining information for called number from SIP network.

- When this command is enabled, called number is obtained according to the priority order shown in the table below:

Selected Parameter		Order of priority				
		1	2	3	4	5
0	To	P-N-Dest-Discern	To (userinfo)	Request-URI (userinfo)	-	-
1	Request-URI (isub)	P-N-Dest-Discern	Request-URI (isub)	Request-URI (userinfo)	To (userinfo)	-
2	Request-URI	P-N-Dest-Discern	Request-URI (userinfo)	To (userinfo)	-	-
3	P-Called-Party-ID	P-Called-Party-ID (userinfo)	To (userinfo)	Request-URI (userinfo)	P-N-Dest-Discern	-
4	P-Called-Party-ID (isub)	P-Called-Party-ID (isub)	P-Called-Party-ID (userinfo)	To (userinfo)	Request-URI (userinfo)	P-N-Dest-Discern

[Setting Example]

```
MG(SIP) > set cdn_pattern

Select Called Party Number to which you give
priority.
  0=To[userinfo](default)
  1=Request-URI[isub]
  2=Request-URI[userinfo]
  3=P-Called-Party-ID[userinfo]
  4=P-Called-Party-ID[isub]
Input:0
```

0: userinfo part of the To header is given priority (Default)
1: isub of Request-URI is given priority
2: userinfo part of Request-URI is given priority
3: userinfo part of P-Called-Party-ID is given priority
4: isub of P-Called-Party-ID is given priority

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.

(11) check_number

Setting a limit to the letters and numerals that can be used for calling/called party number

This command is used to assign a function that permits only numerals for calling/called party number sent via the Telephony Server network.

[Setting Example]

```
MG(SIP) > set check_number

Select the setting of function to delete
[#] in telephone-number.
 0=disable(default)
 1=enable
Input:0
```

0: Disable (default)
1: Limit to numerals only

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.

(12) codec_change

Setting of Codec Change function and G711 Fax renegotiation

This command is used to enable Codec Change function and G711 Fax renegotiation.
Codec Change function enables a call to be retained when a forwarding call is placed to a destination located in the SIP network and the payload type is different between an intermediate station and the destination.
G711 Fax renegotiation enables a called party to receive a facsimile with Fax Pass Through when communication is changed over to a FAX communication while a call is in progress with G.729a.

[Setting Example]

```
MG(SIP) > set codec_change

Select the setting of Codec Change
function.
 0=disable (default)
 1=enable
Input: 1

Select the setting of G711 Fax
renegotiation.
 0=disable (default)
 1=enable
Input: 1
```

Enable/disable the Codec Change function.
0 = Disable (default)
1 = Enable

Enable/disable the G711 Fax renegotiation.
0 = Disable (default)
1 = Enable

Note: The conditions of this command are as follows.

- In the Telephony Server side, a system data setting (ASYDL, SYS1, Index 1144, Bit 6=1 (Codec Change function is in service) is required to enable this function.
- In the Telephony Server side, payload type and payload size need to be assigned by AIVCL/AIVCN, AMGVL/AMGVN, and ARTI/ARTIN commands.
- Also specify G.711 (fixed) as FXPT (Payload Type for IP FAX) and specify the payload size equal to that of voice data as FXPS (Payload Size for IP FAX). Then assign the FXPT and FXPS data to AIVCL/AIVCN and AMGVL/AMGVN commands.
- Payload size cannot be converted in MG-SIP128 [MG-128SIPMGL-A]. When an RTP packet whose payload size is 20 ms is received from the Telephony Server network, the packet is transferred to the SIP network without converting the payload size. Same behavior applies to the RTP packet received from the SIP network.
- To use the following methods, enable commands shown below.
  - [ReINVITE] method: enable “set sip_tel_service” command
  - [UPDATE] method: enable “set sip_tel_service” and “set update” commands

(13) config_template

Batch Setting of MG-SIP128 [MG-128SIPMGL-A]

This command is used to assign the batch setting of MG-SIP128 [MG-128SIPMGL-A]. For details of each parameter, refer to “MG-SIP config_template Data”.

[Setting Example]

```
MG(SIP) > set config_template
Input template pattern. (0-255)  : 2
```

Enter the template pattern number.

(14) country_code

Setting of a country code

This command is used to set a country code on MG-SIP128 [MG-128SIPMGL-A].

[Setting Example]

```
MG(SIP) > set country_code
```

```
Input Country Code.
  (0-255 (default=0)):0(AUTO)
```

Set a country code.

0 = AUTO (Follow the Telephony Server setting)
1 = JP (Japan)
2 = US (North America)
3 = AU (Australia)
4 = OTHER (Other countries)
5 = HK (Hong Kong)
6 = MY (Malaysia)
7 = SG (Singapore)
8 = GB (England)
9 = MX (Mexico)
10 = TW (Taiwan)
11 = NZ (New Zealand)
12 = KR (Korea)
13 = BR (Brazil)
14 = CN (China)
15 = TH (Thailand)
16 = TH [EGAT] (Thailand (EGAT))
17 = LK (Sri Lanka)
200 = DE (Germany)
201 = IT (Italy)
202 = NL (Netherlands)
204 = DK (Denmark)
205 = SE (Sweden)

211 = ES (Spain)
212 = AT (Austria)
213 = BE (Belgium)
214 = GB [EMEA] (England [for EMEA])
215 = GR (Greece)
216 = SZ (Switzerland)
217 = ZA (South Africa)
Other values = xx (Not used)

Note: Inband Tone of MG-SIP128 [MG-128SIPMGL-A] can be changed by using the following System Data (ASYDL, SYS1, Index 811). To change the Inband Tone of MG-SIP128 [MG-128SIPMGL-A], set the configuration command “set country_code” to “0”.

(15) cpn_pattern

Setting of a way of obtaining information for cpn (calling party number)

This command is used to assign how to obtain cpn (calling party number), and to change the priority of obtaining calling party number when a call terminates via SIP network.

When this command is enabled, calling party number is obtained according to the priority order shown in the table below:

- The following shows the method of obtaining cpn when this feature is available.

Selected Parameter		Order of priority		
		1	2	3
0	Displayname	Displayname	Userinfo	-
1	Userinfo	Userinfo	Displayname	-
2	Anonymous	Userinfo (Anonymous)	Userinfo	Displayname
3	P-Asserted-ID	P-Asserted-ID	Displayname	Userinfo

[Setting Example]

```
MG(SIP) > set cpn_pattern

Select Calling Party Number to which you
give priority.
 0=DisplayName(default)
 1=Userinfo
 2=Anonymous
 3=P-Asserted-ID
Input:0
```

0: Display name is given priority (Default)
1: Userinfo is given priority
2: When Anonymous is detected in Userinfo, cpn is handled as blocked, disregarding the second priority and later.
3: P-Asserted-ID is given priority.

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.
- Select 2 when the caller ID blocking is judged by the userinfo in From header on the SIP network side specification.
  e.g.) From: “01234567” <sip:anonymous@anonymous.invalid>
- Do not select 2 when the caller ID blocking is assigned by Displayname only on the SIP network side.
  e.g.) From: “Anonymous” <sip:01234567@xxx.com> In this case, the cpn is informed when 2 is selected.
- Numbers from 0 to 9, *, or # can only be obtained as a calling party number. When any other characters are contained in the calling party number, the order of priority will shift to the next precedence.
  However, if any characters other than the ones indicated above are detected in Displayname, the next and later priority will be disregarded and the cpn will be handled as blocked.
  e.g.) From: “0123ABC” <sip:01234567@xxx.com> In this case, the cpn will be handled as blocked when 0 is selected.

(16) default

Setting the default values to the configuration data

The command is used to set back to the default setting of MG-SIP128 [MG-128SIPMGL-A] configuration. Make sure to execute this command when updating firmware to a different firmware name (SP-XXXX).

[Setting Example]

```
MG(SIP) > set default

 Are you sure? Y/N=y



 Config data default set.

MG(SIP)>
```

Note: When other than “y” is selected, the following message is displayed.

Default setting command was interrupted.

Note: Normally this command is not required to be used.

(17) dnsaddress

Setting of the IP address of DNS server

This command is used to specify the DNS IP address to resolve an address by DNS server.

[Setting Example]

[IPv6]

```
MG(SIP) > set dnsaddress

Input DNS IP Address.(default=::)
               :2001:db8::820
```

Specify DNS IP address. (Default: ::)

[IPv4]

```
MG(SIP) > set dnsaddress

Input DNS IP Address.(default=0.0.0.0)
               :0.0.0.0
```

Specify DNS IP address. (Default: 0.0.0.0)

Note: You do not have to change this command if you do not use DNS server.

(18) dns_option

Setting of the Optional Data for DNS server

This command is used to enable multiple SIP servers to be supported by a DNS server. When IP addresses of multiple SIP servers are obtained by A record lookup or NAPTR lookup (RFC3263), an alternative route can be used for transmission. REGISTER bypass is also enabled.

Note: Be careful when you set "A record resolve (single IP Address)" and it is also used the "SIP Access Filter" feature of the sip_accfilter command. If the IP address of the SIP message does not belong to the range defined by the mask of the "SIP Access Filter", the message will be discarded.
Example: The IP address of the alternative route is 10.10.2.1 and the IP server address is 10.10.3.1. If the SIP access filter mask is set to 255.255.255.0, the message will be discarded. Set the mask to 255.255.0.0 to allow the message to be received.

[Setting Example]

```
MG(SIP) > set dns_option

Select DNS type
 0=A Record resolve(single IP
Address)(default)
 1=A Record resolve(multi IP Address)
 2=Locating SIP servers function(RFC3263)
 3=A Record resolve (multi IP Address for
REGISTER bypass)
Input: 0
```

Select DNS type.
0: An alternative route is not used. (Default)
1: An alternative route is used by A record lookup.
2: An alternative route is used by NAPTR record lookup.
3: An alternative route is used by A record lookup. (REGISTER bypass is available.)
Note 2

When Locating SIP servers function (RFC3263) (=2) is selected

```
MG(SIP) > set dns_option

Select DNS type
 0=A Record resolve(single IP
Address)(default)
 1=A Record resolve(multi IP Address)
 2=Locating SIP servers function(RFC3263)
 3=A Record resolve (multi IP Address for
REGISTER bypass)
Input: 2

Select the setting of DNS cache
 0=enable(default)
 1=disable
Input: 1
```

Select DNS type.
0: An alternative route is not used. (Default)
1: An alternative route is used by A record lookup.
2: An alternative route is used by NAPTR record lookup.
3: An alternative route is used by A record lookup. (REGISTER bypass is available.)
Note 2

Select the setting of DNS cache. (Default: 0/enable)

Note: The conditions of this command are as follows.
- The cache retention time length is 60 seconds.
- Available transport protocols are TCP and UDP.
- During NAPTR lookup, SIP processing stops.
- This function takes priority over transport protocol (TCP/UDP selection) configured with "set sip_transport" command.
- Up to four servers can be routed in an alternate routing function by A/SRV record.
- You do not have to change this command if you do not use DNS server.

Note 2: When you select “3=A Record resolve (multi IP Address for REGISTER bypass)”, an alternative route for REGISTER is available. Apart from the initial sending, up to three attempts to access different SIP servers are allowed for each DNS query.

When Locating SIP servers function (RFC3263) (=2) is selected

```
MG(SIP) > set dns_option

Select DNS type
 0=A Record resolve(single IP
Address)(default)
 1=A Record resolve(multi IP Address)
 2=Locating SIP servers function(RFC3263)
Input: 2

Select the setting of DNS cache
 0=enable(default)
 1=disable
Input: 1
```

Select DNS type. (Default: 0/A Record resolve (single IP Address))

Select the setting of DNS cache. (Default: 0/enable)

(19) domain

Setting of DNS domain name

This command is used to specify the domain name of MG-SIP128 [MG-128SIPMGL-A].

[Setting Example]

```
MG(SIP) > set domain

Input Domain Name.(default=0,
MAX128(strings))
               :nec.com
```

Specify the domain name. (Default: 0/Maximum: 128 bytes)

Note: The conditions of this command are as follows.
- Normally this command is not required to be changed.
- To set SIP domain, change the domain name from the “domain name” parameter of “set sip_server” command or “set self_sip_domain” command.

(20) drsaddress

Setting of IP address and port number of DRS server

This command is used to assign IP address and port number of DRS server.

[Setting Example]

```
MG(SIP) > set drsaddress
[Primary DRS Setting]
 Input IP Address.(default=0.0.0.0)
           :172.16.253.1
 Input Port Number.(1024-65535
(default=3456))
           :3456
[Secondary DRS Setting]
 Input IP Address.(default=0.0.0.0)
           :172.16.253.2
 Input Port Number.(1024-65535
(default=3456))
           :3456
[Tertiary DRS Setting]
 Input IP Address.(default=0.0.0.0)
           :172.16.253.3
 Input Port Number.(1024-65535
(default=3456))
           :3456
[Quaternary DRS Setting]
 Input IP Address.(default=0.0.0.0)
           :172.16.253.4
 Input Port Number.(1024-65535
(default=3456))
           :3456
```

Setting Primary DRS;

IP address of DRS server
(Default: 0.0.0.0)

UDP Port number of DRS server
(Default: 3456)

Setting Secondary DRS;

IP address of DRS server
(Default: 0.0.0.0)

UDP Port number of DRS server
(Default: 3456)

Setting Tertiary DRS;

IP address of DRS server
(Default: 0.0.0.0)

UDP Port number of DRS server
(Default: 3456)

Setting Quaternary DRS;

IP address of DRS server
(Default: 0.0.0.0)

UDP Port number of DRS server
(Default: 3456)

(21) drs_qos

Setting of ToS value of DRS server

This command is used to specify the ToS value of IP packets to be sent to DRS server.

[Setting Example]

```
MG(SIP) > set drs_qos

Input type: (1=IP Precedence/2=DiffServ/
3=ToS):1

Input following parameters.

Precedence(default=5, 0-7):5

Delay(default=0, 0/1):0

Throughput(default=0, 0/1):0

Reliability(default=0, 0/1):0

Cost(default=0, 0/1):0
```

When IP Precedence (=1) is selected:

Specify the precedence in an IP network (Default: 5). 0-7 (Low - High)

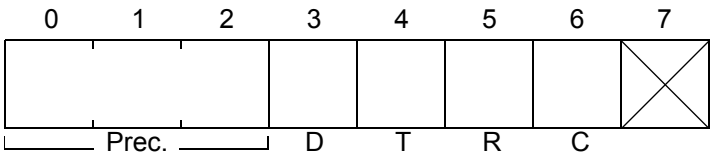
Specify the low delay priority in an IP network.
0: Not specified (Default)
1: Specified

Specify the throughput priority in an IP network.
0: Not specified (Default)
1: Specified

Specify the reliability in an IP network.
0: Not specified (Default)
1: Specified

Specify the low cost priority in an IP network.
0: Not specified (Default)
1: Specified

Note: IP Precedence - ToS field is allocated as shown below.



Prec.=PRECEDENCE(3bits)
D=Delay(1bit)
T=Throughput(1bit)
R=Reliability(1bit)
C=Cost(1bit)

```
MG(SIP) > set drs_qos

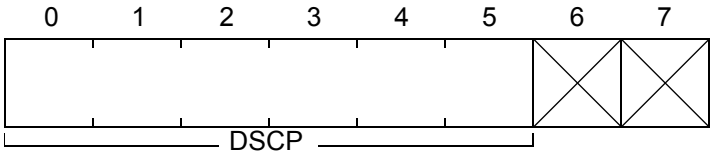
Input type: (1=IP Precedence/2=DiffServ/
3=ToS): 2

Input DSCP value.
(0-63 default=40):40
```

When DiffServ (=2) is selected:

Specify the service code point of DiffServ (default: 40).

Note: DiffServ - ToS field is allocated as shown below.



DSCP=Differentiated Service Code Point(6bits)

```
MG(SIP) > set drs_qos

Input type: (1=IP Precedence/2=DiffServ/
3=ToS): 3

Input ToS value with HEX format.
(00-FE(default=A0)):a0
```

When ToS (=3) is selected:

Specify the ToS field (default: a0).

Note: The conditions of this command are as follows.

- Pressing the Enter key can skip the item, with an exception of “Input type”. Be sure to input a value to “Input type.”
- Normally this command is not required to be changed.
- If you set “1” to the least significant bit, an error message “Please input an even number value.” is displayed.

(22) dtmf_mode

Setting of DTMF relay system (SIP network)

This command is used to specify the DTMF relay system in SIP network. MG-SIP128 [MG-128SIP-MGL-A] supports Out-Band (RFC2833) and In-Band (G.711 data transmission as voice data). Negotiation, Out-Band, or In-Band can be assigned.

Note: DTMF relay method on the Telephony Server network side is automatically set according to the one on the MG-SIP network side, as follows:

DTMF relay system on the SIP network side	DTMF relay system on the Telephony Server network side	Remarks
RFC2833 (out-band)	Proprietary (out-band)	Conversions between "RTP (DTMF: RFC2833) packets on SIP network" and "UDP (DTMF: Proprietary) packets on Telephony Server network"
G.711 PassThrough (in-band)	G.711 PassThrough (in-band)	Conversions between "RTP packets on SIP network" and "RTP packets on Telephony Server network"

[Setting Example]

- When Negotiation is selected:

```
MG(SIP) > set dtmf_mode

Select DTMF Mode.
 0=Negotiation(default)
 1=Out-Band
 2=In-Band
Input:0

Input DTMF Duration value.(ms)
(50-240(default=120)):120

Input DTMF Pause value.(ms)
(30-240(default=100)):100

Input Payload type(RFC2833).
(96-127(default=101)):101
```

0: Negotiation (Default)
1: Out-Band (fixed)
2: In-Band (fixed)

Specify DTMF Duration.
(50 to 240ms/Default: 120ms)

Specify DTMF Pause.
(30 to 240ms/Default: 100ms)

Specify Payload type.
(96 to 127/Default: 101)

- When Out-Band is selected:

```
MG(SIP) > set dtmf_mode

Select DTMF Mode.
 0=Negotiation(default)
 1=Out-Band
 2=In-Band
Input:1

Input DTMF Duration value.(ms)
(50-240(default=120)):120
```

0: Negotiation (Default)
1: Out-Band (fixed)
2: In-Band (fixed)

Specify DTMF Duration.
(50 to 240ms/Default: 120ms)

```
Input DTMF Pause value.(ms)
(30-240(default=100)):100

Input Payload type(RFC2833).
(96-127(default=101)):101
```

Specify DTMF Pause.
(30 to 240ms/Default: 100ms)

Specify Payload type.
(96 to 127/Default: 101)

- When In-Band is selected:

```
MG(SIP) > set dtmf_mode

Select DTMF Mode.
 0=Negotiation(default)
 1=Out-Band
 2=In-Band
Input:2

Input DTMF Duration value.(ms)
(50-240(default=120)):120

Input DTMF Pause value.(ms)
(30-240(default=100)):100
```

0: Negotiation (Default)
1: Out-Band (fixed)
2: In-Band (fixed)

Specify DTMF Duration.
(50 to 240ms/Default: 120ms)

Specify DTMF Pause.
(30 to 240ms/Default: 100ms)

Note: The conditions of this command are as follows:

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.
- At DTMF Mode Negotiation/Out-Band, the payload type 103 cannot be used.
- Note that the sum of DTMF Duration and DTMF Pause values must be specified more than 120ms. If not, the following error message is displayed.

```
Input parameter error,
 reason [DTMF Duration + DTMF Pause<Min120ms]
```

(23) enc

Setting of the RTP encrypting mode on Telephony Server network

This command is used to specify the RTP encrypting mode on Telephony Server network.

[Setting Example]

```
MG(SIP) > set enc

Select the setting of IPX side RTP encrypting
mode.
 0 = disable (default)
 1 = enable
Input : 1
```

Assign the RTP encrypting mode on Telephony Server network.
0 = Disable the RTP encrypting mode on Telephony Server network. (default)
1 = Enable the RTP encrypting mode on Telephony Server network.

Note: The conditions of this command are as follows.
- Normally this command is not required to be changed.
- This command is available for SP-4089 MGSIP(MM) PROG-A Issue 3 or later.

(24) h245_base_port_no

Setting of the base port number for H.245 TCP server

This command is used to specify the port number for H.245 TCP server.

[Setting Example]

```
MG(SIP) > set h245_base_port_no

Input H245 base Port Number.
(1024-64511(default=40000)):40000
```

Assign the port number for H.245 TCP server.
(Default: 40000)
(receiving side of MG-SIP128 [MG-128SIPMGL-A])

Note: Normally this command is not required to be changed.

(25) hc_alarm

Setting of the alarm transmission destination

This command is used to set the alarm function which is activated to send a warning tone when a Health Check timeout occurs.

[Setting Example]

```
MG(SIP) > set hc_alarm

Select H/C Alarm type.
 0=IPX and SIP side enable(default)
 1=IPX side enable
 2=SIP side enable
 3=disable
Input:0
```

0: Warning tone is sent to the Telephony Server and SIP sides (Default).
1: Warning tone is sent to the Telephony Server side only.
2: Warning tone is sent to SIP side only.
3: disable

Note: Normally this command is not required to be changed.

(26) hc_timer

Setting of Health Check timer value

This command is used to specify the Health Check time-out value.

[Setting Example]

```
MG(SIP) > set hc_timer

Input H/C timer value.(sec)
(130-65535(default=240)):240
```

Assign the Health Check timer value (Default: 240 seconds).

Note: Normally this command is not required to be changed.

(27) interface

Setting of the operation speed and operation mode of an interface

This command is used to assign the Ether speed and the duplex type to each port on MG-SIP128 [MG-128SIPMGL-A].

[Setting Example]

```
MG(SIP) > set interface

Select Ether[1] speed.
 0=AUTO(default)
 1=10M
 2=100M
 3=1000M
Input:0

Select Ether[2] speed.
 0=AUTO(default)
 1=10M
 2=100M
 3=1000M
Input:1

Select Ether[2] duplex.
 1=Half
 2=Full
Input:2
```

Assign an Ether speed type to Ether 1.(Example: when AUTO is set.)
0=Automatic Negotiation (Default)
1=10 Mbps (fixed)
2=100 Mbps (fixed)
3=1000 Mbps (fixed) **Note 4**
Select "0". **Note 3**

Assign an Ether speed type to Ether 2.(Example: when 100M/Full is set.)
0=Automatic Negotiation (Default)
1=10 Mbps (fixed)
2=100 Mbps (fixed)
3=1000 Mbps (fixed) **Note 4**
Select "1".

Assign a duplex type to Ether 1 and Ether 2.
1=Half Duplex
2=Full Duplex
Select "2".

Note 3: When "Automatic Negotiation" is selected, "AUTO" is automatically applied to the interface. Therefore, this command line will not appear for interface that is specified as "Automatic Negotiation".

Note 4: When100 Mbps (fixed) is selected, "Full Duplex" is automatically applied to the interface. Therefore, this command line will not appear for interface that is specified as "100 Mbps (fixed)".

Note: Normally this command is not required to be changed.

(28) ipaddress

Setting of IP address and subnet mask

The following explains procedures for setting the number of ports that MG-SIP128 [MG-128SIPMGL-A] uses, and IP addresses and subnet masks for each port of MG-SIP128 [MG-128SIPMGL-A].

Each port of MG-SIP128 [MG-128SIPMGL-A] is used as follows:

- Ether1 LAN: Telephony Server side
- Ether2 WAN: SIP network side

<One-port only>

When “IPv4” is enabled with the “set ip_version” command and the IP addresses of both LAN and WAN are assigned in the same segment, use Ether1 port only. Select “Y” for “Do you use one-port only?” and assign Ether1’s IP address only. In this case, Ether2 cannot be used.

Note: Please notice the following:

- If IPv6 was enabled with the “set ip_version command”, both Ether1 and Ether2 must be used to allow the sending and receiving of IPv6 packets to the WAN (Ether2) side.
- If Ether2 data is already assigned, the message “Ether [2] Port data is erased. Are you sure? Y/N” is displayed. To erase the Ether2 data, select “Y”.
- If you set a non-default port number, be careful not to choose the same number set in other port numbers (set by "set sip_rtp_port_no", "set ipx_rtp_port_no", "set sip_media_port_no", "set ipx_media_port_no", "set registration_port_no", "set signaling_port_no", "set pre_negotiation_port_no", "set sip_port_no" commands). When the same port number is set, a warning message is displayed as follows:

```
************* Warning!! *************
 Port number is duplicated.

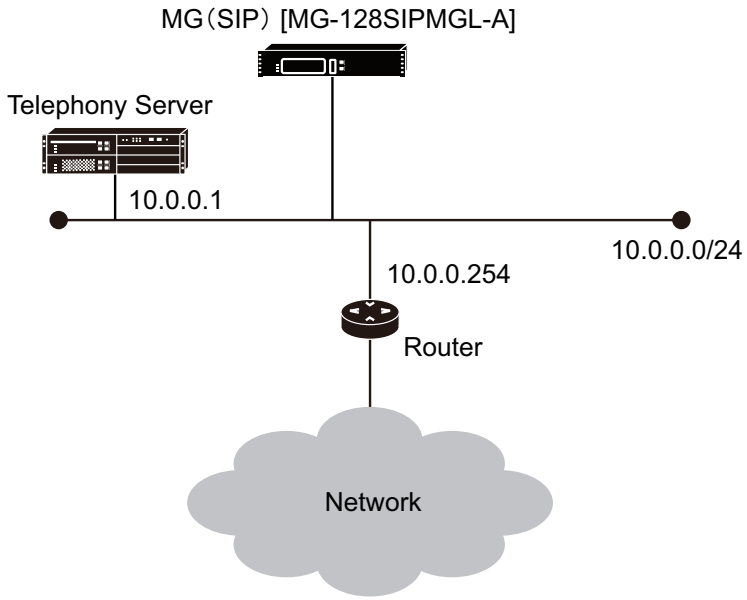

[IPX side]
 RTP Port Number for voice  :51000 -
50511
 Media Port Number for video:55000 -
55255
 Media Port Number for T.38 :56000 -
56127
 Registration Port Number   :3456
 Signaling Port Number      :61012
 Pre-negotiation Port Number:61014
```

[LAN side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The UDP port number that receives the DRS packets.
The UDP port number that receives the control signal packets.
The UDP port number that receives packets for voice control path.

```
[SIP side]
 RTP Port Number for voice  :50000 -
50255
 Media Port Number for video:53000 -
53255
 Media Port Number for T.38 :54000 -
54127
 SIP Port Number:5060
**********************************
```

[SIP side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The port number that receives SIP messages.

Configuration when using one port is as follows:



<Ethernet Port Redundancy function >

Ether1 and Ether2 can be used together as one virtual Ether (Bond [0]) if one-port only is selected and the Ethernet Port Redundancy function is enabled. With this function, if there is a link down (**Note 5**) for Ether1 (or Ether2), Ether2 (or Ether1) is used (**Note 6**).

Note 5: Only if the link down state continues for more than 100 milliseconds.

Note 6: Please notice the following:

- When there is a changeover of the port in use, MG-SIP128 is not restarted. However, ongoing voice communication will be interrupted by a silent gap of less than one second.
- Even if there is a link up for Ether1 while Ether2 is an active port, Ether2 continues to be an active port. In this case, only when there is a link down for Ether2, Ether1 takes the place of it.
- Connect a cable both to Ether1 and Ether2 when Ethernet Redundancy function is enabled.

[Display example]

[IPv6]

```
MG(SIP) > set ipaddress
Do you use one-port only? Y/N=n

Ether[1]
 Input IP Address.(default=0.0.0.0)
           :10.1.0.1
 Input Subnet mask.(default=0.0.0.0)
           :255.255.255.0









<< Result >>
Using all port
Ether[1]
 IP Address : 192.168.100.33
 Subnet mask: 255.255.0.0
Ether[2]
 IP Address : 2001:db8::800(Get by RA)
 Subnet mask: 64(Get by RA)
```

Select “n” to use IPv6 function.
One-port only is not supported by IPv6 function.

Setting Ether1 port:

IP address (Default: 0.0.0.0)

Subnet mask (Default: 0.0.0.0)

Setting Ether2 port:
Inputting Ether[2] setting data is unnecessary.
When IPv6 function is active (“IPv6” is selected by “set ip_version” command), MG-SIP128 [MG-128SIPMGL-A] can generate the IP address and the Subnet mask for Ether2 by receiving the RA message from the router.

Displays the result.
“(Get by RA)” appears subsequent to the IP address and the Subnet mask generated by the Router Advertisement.

[IPv4] (Eher1 and Ether2 are used)

```
MG(SIP) > set ipaddress
Do you use one-port only? Y/N=n
Ether[1]
 Input IP Address.(default=0.0.0.0)
           :10.1.0.1
 Input Subnet mask.(default=0.0.0.0)
           :255.255.255.0
Ether[2]
```

Setting Ether1 port:

IP address (Default: 0.0.0.0)

Subnet mask (Default: 0.0.0.0)

Setting Ether2 port:

```
 Input IP Address.(default=0.0.0.0)
           :192.168.1.1

 Input Subnet mask.(default=0.0.0.0)
           :255.255.255.0
```

IP address (Default: 0.0.0.0)

Subnet mask (Default: 0.0.0.0)

[IPv4] (Only Ether1 is used and Ethernet Redundancy function is enabled)

```
MG(SIP)> set ipaddress

Do you use one-port only? Y/N=y

Ether[1]

 Input IP Address. (default=0.0.0.0)
           : 172. 16. 0. 1

 Input Subnet mask. (default=0.0.0.0)
           : 255. 255. 255. 0

Ether[2] port data is erased.
Are you sure? Y/N = y

Select the setting of Ethernet Port
Redundancy function.
 0 = disable (default)
 1 = enable
Input : 1
```

Assign Ether1 data.

Assign the IP address (Default: 0.0.0.0) for Ether [1].

Assign the subnet mask (Default: 0.0.0.0) for Ether [1].

Note 7

Enable Ethernet Port Redundancy.
0: disable (default)
1: enable

Note 7: When one-port only is selected, do not assign Ether[2] data.

(29) ip_version

Setting of SIP side IP Version

This command is used to specify the IP version for the SIP side network.

[Setting Example]

```
MG(SIP) > set ip_version

Select the setting of SIP side IP
Version.
 0=IPv4 (default)
 1=IPv6
Input: 1
```

Assign the IP version for the SIP side network.
0: IPv4 (Default)
1: IPv6

Note: The conditions of this command are as follows.

- After changing the IP version with this command, you also need to change the IP addresses configured with the following commands before executing the “reboot”

command.
- “DNS IP address” configured with “set dnsaddress”
- “SIP server IP address” configured with “set sip_server”
- “SIP register IP address” configured with “set sip_register”

When you change IPv4 to IPv6, IP address for Ether2 port configured with “set ipaddress” is generated by MG-SIP128 [MG-128SIPMGL-A] after receiving the RA message.

- When you change the IP version with this command, see also the information in set Command.

(30) ipx_media_port_no

Setting of the media port number in the Telephony Server network side

Note: Normally this command is not required to be changed.

This command is used to specify base port numbers for media (Video and T.38 Fax) in the Telephony Server side network. For video, the registered number of the port number must be even, odd numbers are not supported (in case of T.38, there is not such limitation).

The following figure shows an example of display.

```
MG(SIP) > set ipx_media_port_no
<< Current Setting >>
   IPX side Media Port Number for video
:55000
   IPX side Media Port Number for T.38
:56000

 Input IPX side Media Port Number for video.
  (1024-64000 (default=55000)):55000

 Input IPX side Media Port Number for T.38.
  (1024-64000 (default=56000)):56000

<< Result >>
   IPX side Media Port Number for video
:55000
   IPX side Media Port Number for T.38
:56000

MG(SIP)>
```

Assign the base port number for video in the Telephony Server network side. (Default : 55000)

Assign the base port number for T.38 Fax relay in the Telephony Server network side. (Default : 56000)

Note: If you set a non-default Telephone Server side media port number, be careful not to choose the same number set in other port numbers (set by "set sip_rtp_port_no", "set ipx_rtp_port_no", "set sip_media_port_no", "set ipx_media_port_no", "set registration_port_no", "set signaling_port_no", "set pre_negotiation_port_no", "set sip_port_no" commands).
When the same port number is set, a warning message is displayed as follows:

```
************* Warning!! *************
 Port number is duplicated.


[IPX side]
 RTP Port Number for voice  :51000 -
50511
 Media Port Number for video:55000 -
55255
 Media Port Number for T.38 :56000 -
56127
 Registration Port Number   :3456
 Signaling Port Number      :61012
 Pre-negotiation Port Number:61014


[SIP side]
 RTP Port Number for voice  :50000 -
50255
 Media Port Number for video:53000 -
53255
 Media Port Number for T.38 :54000 -
54127
 SIP Port Number:5060
************************************
```

[LAN side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The UDP port number that receives the DRS packets.
The UDP port number that receives the control signal packets.
The UDP port number that receives packets for voice control path.

[SIP side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The port number that receives SIP messages.

(31) ipx_route

Setting of the route information in the Telephony Server network

This command is used to specify route information in the Telephony Server side network. The registered number of the route information is up to 10.

The following figure shows an example of display.

When Route type = 0 is selected:

```
MG(SIP) > set ipx_route
```

```
Select Route type(0:Exit/1:None/2:Static):0



MG(SIP)>
```

0: Exit
1: None (Default)
2: Static
Select “0”.

Exit the command without executing anything.

When Route type = 1 is selected:

```
MG(SIP) > set ipx_route
Select Route type(0:Exit/1:None/2:Static):1



<< Result >>
Route type: None
Are you sure? Y/N=y



MG(SIP) >
```

0: Exit
1: None (Default)
2: Static
Select “1”.

Note: Pressing any key other than “y” causes the following message.

Route setting command was interrupted.

When Route type = 2 is selected:

- [To Assign Destination Network Address and Gateway Address]

  Usually, gateway data should be set as ‘Static’ at LAN (Telephony Server network) side.

```
MG(SIP) > set ipx_route
Select Route type(0:Exit/1:None/2:Static):2



Select command(0:Exit/1:Set/2:Delete):1



Select Gateway type(0:Exit/1:Gateway/
2:Default Gateway):1
```

0: Exit
1: None (Default)
2: Static
Select “2”.

0: Exit (Exit the command without executing anything.)
1: Set route information.
2: Delete route information.
Select “1”.

0: Exit (Exit the command without executing anything.)
1: Specify the gateway.
2: Specify the default gateway.
Select “1”.

```
Input Destination network
Address:172.16.0.0

Input Subnet mask bit(0-32):16









Input IP Address of Gateway:192.168.0.254

<< Result >>
Route type: Static

Gateway Address|Destination network/Prefix
---------------+--------------------------
---
192.168.0.254  |172.16.0.0        /32

Are you sure? Y/N=y



MG(SIP)>
```

Specify the network address. **Note 8**
(Default: 0.0.0.0)

Specify the subnet mask. **Note 8**
(Default: 0)

Note: If an invalid value is set here, the following error message is displayed. Input the valid value.

Input destination network address invalid.

Specify the gateway address.
(Default: 0.0.0.0)

Note: Pressing any key other than "y" displays the following message.

Route setting command was interrupted.

Note 8: Do not set routing in the segment where MG-SIP128 [MG-128SIPMGL-A] belongs.

- [To Assign Routing Information (Gateway Address only)]

  To set a default gateway, it should be assigned to either LAN side port or SIP network side port. Usually, assign a default gateway to SIP network side port. Two or more Default Gateways cannot be registered.

```
MG(SIP) > set ipx_route

Select Route type(0:Exit/1:None/2:Static):2



Select command(0:Exit/1:Set/2:Delete):1



```

0: Exit
1: None (Default)
2: Static
Select "2.

0: Exit (Exit the command without executing anything.)
1: Set routing information.
2: Delete routing information.
Select "1".

```
Select Gateway type(0:Exit/1:Gateway/
2:Default Gateway):2



Input IP Address of Default
Gateway:192.168.0.254

<< Result >>
Route type:Static

Gateway Address|Destination network/Prefix
---------------+--------------------------
---
192.168.0.254 |0.0.0.0           /32

Are you sure? Y/N=y



MG(SIP)>
```

0: Exit (Exit the command without executing anything.)
1: Specify the gateway.
2: Specify the default gateway.
Select “2”.

Specify the default gateway.
(Default: 0.0.0.0)

Note: Pressing any key other than “y” displays the following message.

Route setting command was interrupted.

- [To Delete the assigned Routing Information]

```
MG(SIP) > set ipx_route

Select Route type(0:Exit/1:None/2:Static):2



Select command(0:Exit/1:Set/2:Delete):2
```

0: Exit
1: None (Default)
2: Static
Select “2.

0: Exit (Exit the command without executing anything.)
1: Set routing information.
2: Delete routing information.
Select “2”.

Note: When there is no information to delete here, the following message is displayed.

There is no static route table to delete.

```
No|Gateway Address|Destination network/
Prefix
--+---------------+------------------------
----
1 |192.168.0.254 |172.16.0.0        /16
2 |192.168.0.254 |10.0.0.0          /8

Select delete No?: 1


No|Gateway Address|Destination network/
Prefix
--+---------------+------------------------
----
1 |192.168.0.254 |10.0.0.0          /8

Are you sure? Y/N=y



MG(SIP)>
```

Select the number (No) of the route information you want to delete.
Select "1.

Note: Pressing any key other than "y" displays the following message.

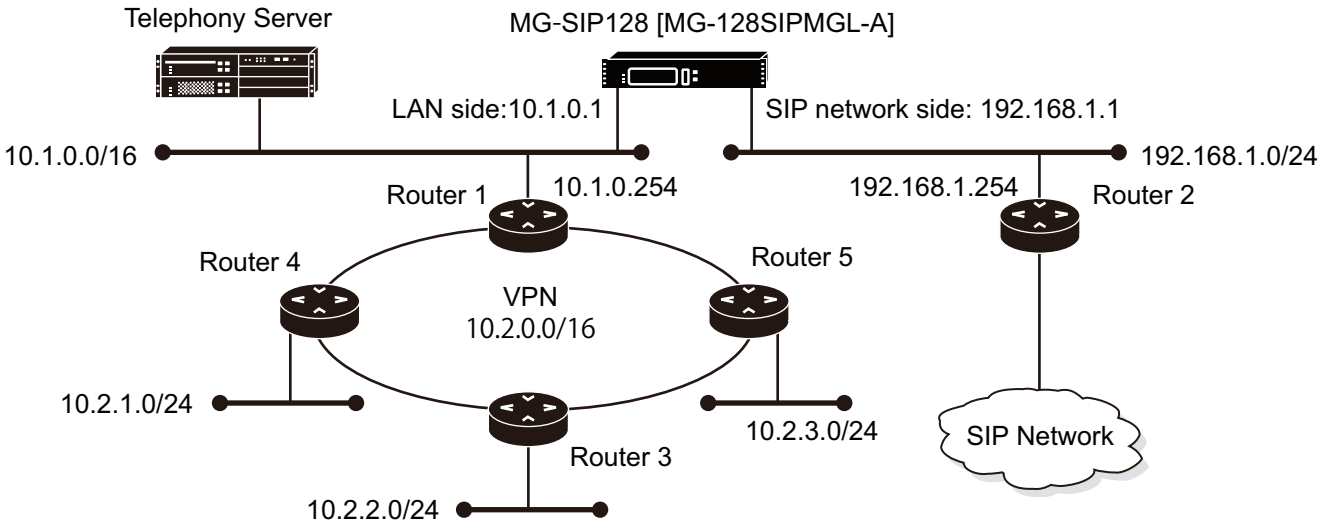
Route setting command was interrupted.

Note: The conditions of this command are as follows.

- To set a default gateway, it should be assigned to either one of the LAN side port or SIP network side port.
- Routing assignment is unnecessary for network segment assigned to Ether (0).

The following shows a typical network configuration and the sample data setting.

[Typical Network Configuration]



Note: The conditions of network configuration is as follows.

- Summarize the network addresses if possible.
- If you set an invalid gateway address and reboot the system, a message of "Please set correct gateway address!!" stays displayed after rebooting the system.

[Example of setting]

- Router 3/4/5 that are placed downstream of Router 1 on LAN (Telephony Server) side can be summarized to "10.2.0.0/16". Set the summarized network address statically.
- Downstream of Router 2 on SIP network side cannot be specified; perform the default gateway settings.

[Sample Data Setting for the above network configuration]

```
MG(SIP) > set ipx_route

Select Route type(0: Exit/1: None/2: Static): 2

Select command(0: Exit/1: Set/2: Delete): 1

Select Gateway type(0: Exit/1: Gateway/2: Default
Gateway):1

Input Destination network Address:10.2.0.0

Input Subnet mask bit(0-32): 16

Input IP Address of Gateway:10.1.0.254

<< Result >>
Route type: Static
```

```
|Gateway Address|Destination network/Prefix
-----------------------------------------------
|10.1.0.254    |10.2.0.0          /16

Are you sure? Y/N=y

MG(SIP) > set ipx_route

Select Route type(0: Exit/1: None/2: Static): 2

Select command(0: Exit/1: Set/2: Delete): 1

Select Gateway type(0: Exit/1: Gateway/2: Default
Gateway):2

Input IP Address of Default Gateway:192.168.1.254

<< Result >>
Route type: Static

|Gateway Address|Destination network/Prefix
---------------+---------------------------------
|192.168.1.254 |0.0.0.0           /0
```

(32) ipx_rtp_port_no

Setting of the RTP base port number for LAN (Telephony Server network)

This command is used to assign the base port number that is used for RTP at LAN side. (Even numbers only.)

[Setting Example]

```
MG(SIP) > set ipx_rtp_port_no

Input IPX side RTP Port Number.
(1024-64000(default=51000)):51000
```

Assign the base port number that is used for RTP at LAN side (Default: 51000).
(Receiving side of MG-SIP128 [MG-128SIP-MGL-A])

Note: The conditions of this command are as follows.

- Normally this command is not required to be changed.
- RTP ports occupy 512 (128×4) ports (counting from the RTP base port number).
- If you set a Telephone Server side RTP port number, be careful not to choose the same number set in other port numbers (set by "set sip_rtp_port_no", "set ipx_rtp_port_no", "set sip_media_port_no", "set ipx_media_port_no", "set registration_port_no", "set signaling_port_no", "set pre_negotiation_port_no", "set sip_port_no" commands). When the same port number is set, a warning message is displayed as follows:

```
************* Warning!! *************
 Port number is duplicated.


[IPX side]
 RTP Port Number for voice  :51000 -
50511
 Media Port Number for video:55000 -
55255
 Media Port Number for T.38 :56000 -
56127
 Registration Port Number   :3456
 Signaling Port Number      :61012
 Pre-negotiation Port Number:61014


[SIP side]
 RTP Port Number for voice  :50000 -
50255
 Media Port Number for video:53000 -
53255
 Media Port Number for T.38 :54000 -
54127
 SIP Port Number:5060
************************************
```

[LAN side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The UDP port number that receives the DRS packets.
The UDP port number that receives the control signal packets.
The UDP port number that receives packets for voice control path.

[SIP side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The port number that receives SIP messages.

(33) keynumber

Setting of the pilot number for MG-SIP128 [MG-128SIPMGL-A]

The command is used to assign a pilot number of MG-SIP128 [MG-128SIPMGL-A] for registration.

[Setting Example]

```
MG(SIP) > set keynumber

Input Keynumber.(default=0, MAX32(strings))
          :0
```

Assign the pilot number when register is performed (Default: 0).

Note: Be sure not to enter a blank character to the end of the pilot number (with the Copy and Paste features of your personal computer), and be careful not to mistype a character. (“0”(zero) or “O” (alphabetical O), for example.)

(34) multi_regist

Setting of the registration function per number

This command is used to enable/disable the setting of registration to SIP server per number.

[When this function is enabled]

Registers to SIP server per SIP-URI (or Telephone number).

```
MG(SIP) > set multi_regist

Select Multi-registration mode.
 0=disable(default)
 1=enable
Input:1

Input the interval of REGISTER message
transmitting. (sec)(1-10(default=1)):1

Input Standby timer value.(sec)(10-
3600(default=30)):30

Select Contact Header type.
 0=Privacy(default)
 1=SIP-URI
Input:0
```

0: disable
1: enable
Select “1”.

Assign the time interval to send register (Default: 1sec).

Assign the time value to re-register after fault recovery (Default 30sec).

0: Random value
1: SIP-URI **Note 9**

[When this function is disabled]

Only the pilot number that is set in the configuration of MG-SIP128 [MG-128SIPMGL-A] by “set keynumber” command registers to SIP server.

```
MG(SIP) > set multi_regist

Select Multi-registration mode.
 0=disable(default)
 1=enable
Input:0
```

0: disable
1: enable
Select “0”.

Note 9:

When “Privacy” is selected: Assign a random value to the User ID field of SIP message “Contact header”.

When “SIP-URI” is selected: Assign the SIP-URI to the User ID field of SIP message “Contact header”. Assign the telephone number if SIP-URI has not been assigned.

Note: The conditions of this command are as follows.

- Use configuration command "set sip_register" to assign the SIP server for register destination.
- The assignment of "set sip_register" is necessary when registration is to be done per number.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.

(35) multisession

Setting of Silent Monitor (Multi-Path Monitor) Connection

This command is used to set Silent Monitor (Multi-Path Monitor) Connection using MG-SIP128 [MG-128SIPMGL-A] in the ACD system.

[Setting Example]

```
MG(SIP) > set multisession

<< Current Setting >>
    Multi-Session setting:disable

Select Multi-Session setting.
  0 = disable (default)
  1 = enable
Input:1

<< Result >>
  Multi-Session setting:enable
```

Displays the current setting.

0: Disabled (default)
1: Enabled

Displays the result.

(36) musictype

Setting of the type of music to be sent from MG-SIP128 [MG-128SIPMGL-A]

This command is used to select music type that is sent from MG-SIP128 [MG-128SIPMGL-A].

[Setting Example]

```
MG(SIP) > set musictype

Select Music Type.
 0=Type1(default)
 1=Type2
 2=Type3
 3=Type4
Input:0
```

0: Type1: Minuet
1: Type2: For Elise
2: Type3: WAVE file
3: Type4: No sound

(37) name_display

Setting of Name Display service

This command is used to enable/disable Name Display service using MG-SIP128 [MG-128SIPMGL-A].

[Setting Example]

```
MG(SIP) > set name_display

Select function of Name Display.
  0 = disable (default)
  1 = enable
Input:1
```

0: Disabled (default)
1: Enabled

(38) nataddress

Setting of the communication between MG-SIP and SIP server via NAT

This command is used to assign the global IP address for NAT using MG-SIP128 [MG-128SIPMGL-A].

[Setting Example]

```
MG(SIP) > set nataddress

<<Current Setting>>
NAT IP Address:0.0.0.0

Input NAT IP Address.
(default=0.0.0.0):189.10.3.41

<<Result>>
NAT IP Address:189.10.3.41
```

Displays the current setting.

Enter a global IP address for NAT.

Displays the result.

Note: The conditions of this command are as follows.

- When this feature is enabled, disable SIP Access Filter (set sip_accfilter) and IPv6 (set ip_version). Also, the installation of the router which supports NAT on SIP network is required.
- IP masquerade (NAPT) is not supported.
- When the entered value of “Input NAT IP Address” exceeds the global IP address range, or you entered characters other than numeric, the error message “Illegal parameters” will be displayed.

(39) no_media_code

Setting of the SIP Error Response code

This command is used to set a SIP error response code. When 415 is set as a response code, 415 Unsupported Media Type is sent instead of response code 488 if an unsupported codec is received.

[Setting Example]

```
MG(SIP) > set no_media_code
```

```
Input the SIP Error Response code when
the unsupported codec.
(400-606 (default=488)): 415
```

Type any number between 400 and 606 (415 is typed in this manual as an example).

Note: The conditions of this command are as follows.
- Accept, Accept-Encoding and Accept-Language headers are not added to 415 Unsupported Media Type.
- 415 Unsupported Media Type response supports only when the request message is the INVITE or UPDATE message.

(40) out_of_area_code

Setting of the out-of-area error response

This command is used to set the out-of-area (IPX network) error response.

[Setting Example]

```
MG(SIP) > set out_of_area_code
Input the SIP Error Response code when the out
of area.
(400-606(default=408)):408
```

Set the error response code.
(Default: 408)

Note: Normally this command is not required to be changed.

(41) prack

Setting of PRACK (Provisional Response Acknowledgment) function (RFC3262)

This command is used to enable/disable Provisional Response Acknowledgement (PRA) function (RFC3262). When this is set enabled, the 18x cyclical-send of provisional response function can be specified.

[Setting Example]

```
MG(SIP) > set prack
Select function to add 100rel to Supported
Header.
 0=enable(default)
 1=disable
Input:0
```

0: enable (Default)
1: disable

```
Select function to stop cyclical-send of
Provisional Response.
 0=disable(default)
 1=enable
Input:0
```

0: enable 18x cyclical-send
1: disable 18x cyclical-send

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.

(42) ppi_to_pai

Setting of PAID transmission function

This command is used to enable/disable P-Asserted-Identity header (PAID) to be transmitted instead of P-Preferred-Identity header (PPID).

[Setting Example]

```
MG(SIP) > set ppi_to_pai

Select the setting that P-Asserted-
Identity is transmitted instead of P-
Preferred-Identity.
  0 = disable (default)
  1 = enable
Input:1
```

0: disable (Default)
1: enable

Note: SIP messages can be sent by converting P-Preferred-ID header (PPID) to P-Asserted-ID header (PAID) only when P-Preferred-ID header (PPID) is used for either of the following settings:

- Enable “privacy_pattern” command and specify “2: RFC3323/3325(P-Preferred-ID/Privacy)”.
- Enable “name_display” command.

(43) pre_negotiation_port_no

Setting of the UDP port receiving packets for voice control path

This command is used to specify the UDP port number that receives packets regarding the voice control path.

[Setting Example]

```
MG(SIP) > set pre_negotiation_port_no

Input Pre-negotiation Port Number.
(1024-65535(default=61014)):61014
```

Assign the UDP port receiving packets for voice control path (Default: 61014)

Note: If you set a non-default pre-negotiation port number, be careful not to choose the same number set in other port numbers (set by "set sip_rtp_port_no", "set ipx_rtp_port_no", "set sip_media_port_no", "set ipx_media_port_no", "set registration_port_no", "set signaling_port_no", "set pre_negotiation_port_no", "set sip_port_no" commands).
When the same port number is set, a warning message is displayed as follows:

```
************* Warning!! *************
 Port number is duplicated.


[IPX side]
 RTP Port Number for voice  :51000 -
50511
 Media Port Number for video:55000 -
55255
 Media Port Number for T.38 :56000 -
56127
 Registration Port Number   :3456
 Signaling Port Number      :61012
 Pre-negotiation Port Number:61014


[SIP side]
 RTP Port Number for voice  :50000 -
50255
 Media Port Number for video:53000 -
53255
 Media Port Number for T.38 :54000 -
54127
 SIP Port Number:5060
************************************
```

[LAN side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The UDP port number that receives the DRS packets.
The UDP port number that receives the control signal packets.
The UDP port number that receives packets for voice control path.

[SIP side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The port number that receives SIP messages.

Note: Normally this command is not required to be changed.

(44) privacy_pattern

Setting of the privacy pattern

This command is used to specify a type of Calling Line Identification Non-Presentation when calling to SIP network.

[Setting Example]

```
MG(SIP) > set privacy_pattern
```

```
Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

When “0” is selected:

```
MG(SIP) > set privacy_pattern
Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
Input: 0
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

When “1” is selected:

```
MG(SIP) > set privacy_pattern
Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
Input:1
Input a Dummy string.(MAX32(strings))
                    :anonymous
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

Enter a dummy string (specified by provider) in maximum of 32 characters.

When “2” is selected:.

```
MG(SIP) > set privacy_pattern
Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
Input:2
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

```
Select RFC3325 pattern.
 0=Pattern 1:privacy_only(default)
 1=Pattern 2:TEL-URI
 2=Pattern 3:unused
 3=Pattern 4:SIP-URI
 4=Pattern 5:P-Associated-URI
 5=pattern 6:SIP-URI(no privacy)
Input:0
```

Select an RFC3325 pattern **Note 10**
0: privacy_only (Default)
1: TEL-URI
2: unused
3: SIP-URI
4: P-Associated-URI
5: SIP-URI (no privacy) **Note 11**

Note 10: Use of P-Preferred-ID headers of INVITE message differs for each pattern.

When Pattern 1 is set: P-Preferred-ID header is not attached.
When Pattern 2 is set: P-Preferred-ID header is attached. (tel is used)
When Pattern 3 is set: Not used.
When Pattern 4 is set: P-Preferred-ID header is attached.
When Pattern 5 is set: P-Preferred-ID header is attached. (P-Associated-URI is used)
When Pattern 6 is set: P-Preferred-ID header is attached.

Note 11: This parameter cannot be assigned when “set multi_regist” or “set 184toprivacy” is enabled.

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.

(45) registration_port_no

Setting of the UDP port number that receives DRS packets

This command is used to specify the UDP port number that receives the registration packets.

[Setting Example]

```
MG(SIP) > set registration_port_no

Input Registration Port Number.
(1024-65535(default=3456)):3456
```

Assign the UDP port number that receives the DRS packets. (Default: 3456).

Note: If you set a non-default registration port number, be careful not to choose the same number set in other port numbers (set by "set sip_rtp_port_no", "set ipx_rtp_port_no", "set sip_media_port_no", "set ipx_media_port_no", "set registration_port_no", "set signaling_port_no", "set pre_negotiation_port_no", "set sip_port_no" commands).
When the same port number is set, a warning message is displayed as follows:

```
************* Warning!! *************
 Port number is duplicated.
```

```
[IPX side]
 RTP Port Number for voice  :51000 -
50511
 Media Port Number for video:55000 -
55255
 Media Port Number for T.38 :56000 -
56127
 Registration Port Number   :3456
 Signaling Port Number      :61012
 Pre-negotiation Port Number:61014


[SIP side]
 RTP Port Number for voice  :50000 -
50255
 Media Port Number for video:53000 -
53255
 Media Port Number for T.38 :54000 -
54127
 SIP Port Number:5060
************************************
```

[LAN side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The UDP port number that receives the DRS packets.
The UDP port number that receives the control signal packets.
The UDP port number that receives packets for voice control path.

[SIP side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The port number that receives SIP messages.

Note: Normally this command is not required to be changed.

(46) reg_interval

Setting of the waiting time to retry after registration failure

This command is used to assign the retry waiting time when failed to register, due to the error-response or no answer from the server when Register packet was sent to SIP server from MG-SIP128 [MG-128SIP-MGL-A].

[Setting Example]

```
MG(SIP) > set reg_interval

Input REGISTER interval timer value.(min)
(1-255(default=5)):5
```

Re-register waiting time (min):
(Default: 5min)

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.

- When registration per number function is effective, assign by setting MG-SIP128 [MG-128SIPMGL-A] using the largest number within the same MG-SIP128 [MG-128SIPMGL-A] group referring to table below.

Amount of Numbers	Time (minute)
1 to 300	5
301 to 600	10
601 to 900	15
901 to 1000	20

(47) response_table

Setting of response table selection

This command is used to set the response table.

[Setting Example]

```
MG(SIP) > set response_table

Select Response table(Error Cause to
SIP Error Response).
 0=normal(default)
 1=revised
Input:0
```

0: normal table selection (Default)
1: Select not to send a server error from MG-SIP128 [MG-128SIPMGL-A] to SIP network.

Note: Normally this command is not required to be changed.

(48) rfc2833_pass

Setting of RFC2833 packet transparency

This command is used to enable/disable RFC2833 packet transparency. When this is set enabled, DTMF relay method with RFC2833 on the Telephony Server network is available.

[Setting Example]

```
MG(SIP) > set rfc2833_pass

<< Current Setting >>
 RFC2833 RTP Event Pass: disable

Select the setting of RFC2833 RTP Event Pass.
 0=disable(default)
 1=enable
Input:1

<<Result>>
 RFC2833 RTP Event Pass: enable
```

Displays the current setting.

0: disable (Default)
1: enable

Displays the result.

Note: The conditions when enabling this command are as follows.

- The payload type 103 is used for the FAX as voice data. Therefore, the payload type 103 cannot be used for RFC2833 packet.
- When the MG-SIP receives RFC2833 packet from the Telephony Server side and sends Inband DTMF signals to SIP Server side, “SequenceNum” and “TimeStamp” in the RTP packet of Inband DTMF will not be consecutive to the RTP packet which are sent previously. Then, a pause of sound may occur.
- The command data, “DTMF Duration” and “DTMF Pause” that are specified by the configuration command “set dtmf_mode” will not be reflected.
- RFC2833 packet is not supported for the PAD adjustment option of the configuration command “set softdsp”.
- The data of RFC2833 packet such as “Event”, “Duration”, “Volume”, “E”, and “R” will be transferred to the network without checking.
- Multiple events and an event coexisting “Tone” and “Event” are not supported per one RFC2833 packet.
- “Telephone Tone” of RFC2833 packet is not supported.

(49) rtp_pathon

Setting of Path-on function by 183 Progress after receiving 180 Ringing

This command is used to assign Path-on function by 183Progress after receiving 180Ringing.

[Setting Example]

```
MG(SIP) > set rtp_pathon

Select Path-on 183 after 180.
 0=disable(default)
 1=enable
Input:0
```

0: disable (Default)
1: enable

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.
- Normally this command is not required to be changed.

(50) rtp_qos

This command is used to specify the ToS value of Real-Time Protocol (RTP) packets on SIP network side.

[Setting Example]

```
MG(SIP) > set rtp_qos
```

* See “drs_qos” command for a display example and the contents of the configuration.

Note: Normally this command is not required to be changed.

(51) sdp_style

This command is used to receive SDP with multiple “m” lines.

- When normal style is specified:

```
MG(SIP) > set sdp_style

Select SDP style setting.
 0=normal(default)
 1=RFC4566
Input:0
```

0: normal (default)
1: conforms to RFC4566

- When RFC4566 style is specified:

```
MG(SIP) > set sdp_style

Select SDP style setting.
 0=normal(default)
 1=RFC4566
Input:1

Select the setting of G729 annexb=no.
 0=disable (default)
 1=enable
Input:1
```

0: normal (default)
1: conforms to RFC4566

Specify the setting of G729 annexb=no.
0: G729 annexb=no is disabled.
1: G729 annexb=no is enabled.

Note: The conditions of this command are as follows.
- This command can be skipped by pressing Enter key.
- To make this command effective, save the Config data in “reboot” command before finishing configuration command, and reboot MG(SIP).
- When Media Ports are used, the SDP style must be “1=RFC4566.”

(52) self_sip_domain

Setting of SIP domain name for MG-SIP128 [MG-128SIPMGL-A]

This command is used to set the SIP domain name for MG-SIP128 [MG-128SIPMGL-A].

[Setting Example]

- When this command is enabled:

```
MG(SIP) > set self_sip_domain

Select Self SIP Domain mode.
 0=disable(default)
 1=enable
Input:1
```

0: without domain name (Default)
1: with domain name

```
Input a Self SIP Domain
string.(MAX128(strings))
                      :
```

Input the SIP domain name in maximum of 128 characters.

- disable

```
MG(SIP) > set self_sip_domain

Select Self SIP Domain mode.
 0=disable(default)
 1=enable
Input:0
```

0: without domain name (Default)
1: with domain name

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.
- This command is required only when SIP domain must be separated between the SIP server and MG-SIP128 [MG-128SIPMGL-A].
- If this command is not set, the SIP domain set by “set sip_server” command is used for the SIP domain of MG-SIP128 [MG-128SIPMGL-A].

(53) session_timer

Setting of session timer

This command is used to specify the Session Timer.

[Setting Example]

```
MG(SIP) > set session_timer

Select the setting of Session-timer.
 0=enable(default)
 1=disable
```

0: Session Timer is enabled (Default)
1: Session Timer is disabled

When Session-Timer is Enable (=0) is selected:

```
MG(SIP) > set session_timer

Select the setting of Session-timer.
 0=enable(default)
 1=disable
Input:0

Input Session-expires timer value.(sec)
(0-86400(default=180)):180
```

Set the session timer.
(Default: 180sec)

```
Select Refresher type.
 0=UAC(default)
 1=UAS
Input:0

Select "refresher=uac" ini-INVITE.
 0=disable(default)
 1=enable
Input:0

Select Forced mode.
 0=disable(default)
 1=enable
Input:0


Select "refresher=uac" re-INVITE.
 0=disable(default)
 1=enable
Input:0
```

Determine a point to make refresher.
UAC: User Agent Client
UAS: User Agent Server

refresher=uac addition to INVITE message:
0: refresher=uac is not added
1: refresher=uac is added

0: Session timer will not be activated when Supported/Require header does not exist (default).
1: Session timer will be activated by using Session-Expires when Supported/Require header does not exit.

0: “refresher=uac” is not added to the re-INVITE message (default).
1: “refresher=uac” is added to the re-INVITE message.

When Session-Timer is Disable (=1) is selected:

```
MG(SIP) > set session_timer

Select the setting of Session-timer.
 0=enable(default)
 1=disable
Input:1
```

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.

(54) signaling_port_no

Setting of the UDP port number that receives control signal packets

This command is used to specify the UDP port number that receives the control signal packets.

[Setting Example]

```
MG(SIP) > set signaling_port_no

Input Signaling Port Number.
(1024-65535(default=61012)):61012
```

Assign the UDP port number that receives the control signal packets (Default: 61012).

Note: If you set a non-default signaling port number, be careful not to choose the same number set in other port numbers (set by "set sip_rtp_port_no", "set ipx_rtp_port_no", "set sip_media_port_no", "set ipx_media_port_no", "set registration_port_no", "set signaling_port_no", "set pre_negotiation_port_no", "set sip_port_no" commands).
When the same port number is set, a warning message is displayed as follows:

```
************* Warning!! *************
 Port number is duplicated.


[IPX side]
 RTP Port Number for voice  :51000 -
50511
 Media Port Number for video:55000 -
55255
 Media Port Number for T.38 :56000 -
56127
 Registration Port Number   :3456
 Signaling Port Number      :61012
 Pre-negotiation Port Number:61014


[SIP side]
 RTP Port Number for voice  :50000 -
50255
 Media Port Number for video:53000 -
53255
 Media Port Number for T.38 :54000 -
54127
 SIP Port Number:5060
************************************
```

[LAN side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The UDP port number that receives the DRS packets.
The UDP port number that receives the control signal packets.
The UDP port number that receives packets for voice control path.

[SIP side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The port number that receives SIP messages.

Note: Normally this command is not required to be changed.

(55) sip_accfilter

Setting of SIP Access Filter

This command is used to enable the SIP Access Filter which discards SIP packets received from an unauthorized destination.

Also, this command is used to enable the Burst Access Filter which temporarily limits the maximum number of incoming calls that can be received by a Telephony Server when a rush of calls from a SIP network occurs instantaneously.

[Setting Example]

When IP address (=0) is selected by “set sip_server” command:

[IPv6]

```
MG(SIP) > set sip_accfilter

Select the setting of SIP Access
Filter.
 0=disable (default)
 1=enable
Input: 1

Input SIP Access Filter mask.
(default=128)
(SIP server IP Address : 2001:db8::860)
                                  : 128
```

Enable/disable SIP Access Filter.
0: SIP Access Filter is disabled (default).
1: SIP Access Filter is enabled.

When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

Note: The IP address of Register Server is authorized although it is not displayed.

```
Select the setting of Burst Access
Filter.
0 = disable (default)
1 = enable

Input : 1
Input Burst Access limit timer value.
(sec)
(1-60(default=1)) : 30

Input Burst Access limit number value.
(1-1000(default=10)) : 500


Input Burst Access reject response
code.
(400-699(default=488)) : 600




MG(SIP) >
```

Enable/disable Burst Access Filter. **Note 12**
0: Burst Access Filter is disabled (default).
1: Burst Access Filter is enabled.

Assign the period of monitoring incoming calls (sec.).
(1-60, default is 1.)

Assign the limit number of incoming calls (INVITE number) to be received during a monitoring period (sec.). **Note 13**
(1-1000, default is 10.)

Assign the error response code that is sent back to a SIP network when the INVITE number exceeds the limit during a monitoring period (sec.).
(400-699, default is 488.)

[IPv4]

```
MG(SIP) > set sip_accfilter

Select the setting of SIP Access
Filter.
 0=disable (default)
 1=enable
Input: 1

Input SIP Access Filter mask. (default
=255.255.255.255)
(SIP server IP Address:
192.168.100.100)
                    : 255.255.255.255
```

Enable/disable SIP Access Filter.
0: SIP Access Filter is disabled (default).
1: SIP Access Filter is enabled.

When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

Note: The IP address of Register Server is authorized although it is not displayed.

```
Select the setting of Burst Access
Filter.
0 = disable (default)
1 = enable

Input : 1
Input Burst Access limit timer value.
(sec)
(1-60(default=1)) : 30

Input Burst Access limit number value.
(1-1000(default=10)) : 500


Input Burst Access reject response
code.
(400-699(default=488)) : 600




MG(SIP) >
```

Enable/disable Burst Access Filter. **Note 12**
0: Burst Access Filter is disabled (default).
1: Burst Access Filter is enabled.

Assign the period of monitoring incoming calls (sec.).
(1-60, default is 1.)

Assign the limit number of incoming calls (INVITE number) to be received during a monitoring period (sec.). **Note 13**
(1-1000, default is 10.)

Assign the error response code that is sent back to a SIP network when the INVITE number exceeds the limit during a monitoring period (sec.).
(400-699, default is 488.)

When FQDN (=1) is selected by “set sip_server” command:

```
MG(SIP) > set sip_accfilter

Select the setting of SIP Access
Filter.
 0=disable (default)
 1=enable

Input: 1

Input SIP Access Filter mask. (default
=255.255.255.255)
(SIP server FQDN: sipserver.nec.com)
                    : 255.255.255.255
```

Enable/disable SIP Access Filter.
0: SIP Access Filter is disabled (default).
1: SIP Access Filter is enabled.

When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

Note: The IP address of Register Server is authorized although it is not displayed.

```
Select the setting of Burst Access
Filter.
0 = disable (default)
1 = enable

Input : 1
Input Burst Access limit timer value.
(sec)
(1-60(default=1)) : 30

Input Burst Access limit number value.
(1-1000(default=10)) : 500


Input Burst Access reject response
code.
(400-699(default=488)) : 600




MG(SIP) >
```

Enable/disable Burst Access Filter. **Note 12**
0: Burst Access Filter is disabled (default).
1: Burst Access Filter is enabled.

Assign the period of monitoring incoming calls (sec.).
(1-60, default is 1.)

Assign the limit number of incoming calls (INVITE number) to be received during a monitoring period (sec.). **Note 13**
(1-1000, default is 10.)

Assign the error response code that is sent back to a SIP network when the INVITE number exceeds the limit during a monitoring period (sec.).
(400-699, default is 488.)

Note 12: When receiving incoming calls that exceed the assigned limit number while this feature is enabled, an error response code is sent back to a SIP network and further incoming calls are rejected until the next period of monitoring incoming calls.

Note 13: Only Initial-INVITE is counted as an incoming call. In addition, INVITE from an unauthorized destination is also counted as an incoming call when SIP Access Filter feature is disabled. The followings are not counted as an incoming call:

- Outgoing call
- Abandoned or received call
- Re-INVITE
- INVITE from unauthorized destination (when SIP Access Filter feature is enabled)
- INVITE without the following header
  - Via
  - From
  - To
  - CSeq
  - CallID

(56) sip_media_port_no

Setting of the media port number in the SIP network side

Note: Normally this command is not required to be changed.

This command is used to specify base port numbers for media (Video and T.38 Fax) in the SIP side network. For video, the registered number of the port number must be even, odd numbers are not supported (in case of T.38, there is not such limitation).

The following is an example of display.

```
MG(SIP) > set sip_media_port_no
<< Current Setting >>
   SIP side Media Port Number for video
:53000
   SIP side Media Port Number for T.38
:54000

 Input SIP side Media Port Number for video.
  (1024-64000 (default=53000)):53000

 Input SIP side Media Port Number for T.38.
  (1024-64000 (default=54000)):54000

<< Result >>
   SIP side Media Port Number for video
:53000
   SIP side Media Port Number for T.38
:54000

MG(SIP)>
```

Assign the base port number for video in the SIP network side.
(Default : 53000)

Assign the base port number for T.38 Fax relay in the SIP network side.
(Default : 54000)

Note: If you set a non-default SIP side media port number, be careful not to choose the same number set in other port numbers (set by "set sip_rtp_port_no", "set ipx_rtp_port_no", "set sip_media_port_no", "set ipx_media_port_no", "set registration_port_no", "set signaling_port_no", "set pre_negotiation_port_no", "set sip_port_no" commands).
When the same port number is set, a warning message is displayed as follows:

```
************* Warning!! *************
 Port number is duplicated.
```

```
[IPX side]
 RTP Port Number for voice  :51000 -
50511
 Media Port Number for video:55000 -
55255
 Media Port Number for T.38 :56000 -
56127
 Registration Port Number   :3456
 Signaling Port Number      :61012
 Pre-negotiation Port Number:61014


[SIP side]
 RTP Port Number for voice  :50000 -
50255
 Media Port Number for video:53000 -
53255
 Media Port Number for T.38 :54000 -
54127
 SIP Port Number:5060
************************************
```

[LAN side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The UDP port number that receives the DRS packets.
The UDP port number that receives the control signal packets.
The UDP port number that receives packets for voice control path.

[SIP side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The port number that receives SIP messages.

(57) sip_port_no

Setting of the port number that receives SIP messages

This command is used to specify a UDP port number that receives SIP messages.

[Setting Example]

```
MG(SIP) > set sip_port_no

Input SIP Port Number.
(1024-65535(default=5060)):5060
```

Assign the port number that receives SIP messages (Default: 5060).

Note: If you set a non-default SIP port number, be careful not to choose the same number set in other port numbers (set by "set sip_rtp_port_no", "set ipx_rtp_port_no", "set sip_media_port_no", "set ipx_media_port_no", "set signaling_port_no", "set pre_negotiation_port_no", "set registration_port_no", "set sip_port_no" commands).
When the same port number is set, a warning message is displayed as follows:

```
************* Warning!! *************
 Port number is duplicated.
```

```
[IPX side]
 RTP Port Number for voice  :51000 -
50511
 Media Port Number for video:55000 -
55255
 Media Port Number for T.38 :56000 -
56127
 Registration Port Number   :3456
 Signaling Port Number      :61012
 Pre-negotiation Port Number:61014


[SIP side]
 RTP Port Number for voice  :50000 -
50255
 Media Port Number for video:53000 -
53255
 Media Port Number for T.38 :54000 -
54127
 SIP Port Number:5060
************************************
```

[LAN side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The UDP port number that receives the DRS packets.
The UDP port number that receives the control signal packets.
The UDP port number that receives packets for voice control path.

[SIP side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The port number that receives SIP messages.

Note: Normally this command is not required to be changed.

(58) sip_qos

Setting of the ToS value for SIP signaling

This command is used to specify the ToS value of IP packets for SIP signaling.

[Setting Example]

```
MG(SIP) > set sip_qos
```

* See “set drs_qos” command for a display example and the contents of the configuration.

Note: Normally this command is not required to be changed.

(59) sip_register

Setting of the information of SIP registrar

This command is used to assign an IP address or a Fully Qualified Domain Name (FQDN), and port number and expiration time of the SIP registrar.

The following figure shows an example of display.

When IP address (=0) is selected:

[IPv6]

```
MG(SIP) > set sip_register

Select SIP register type.
 0=IPAddress(default)
 1=FQDN
Input:0

Input SIP register IP Address.
(default=::)
                    : 2001:db8::880

Input SIP register Port Number.
(1024-65535(default=5060)):5060

Input SIP register Expires timer value.
(sec)
(1-65535(default=3600)):3600
```

When IP address (=0) is selected.

Assign the IP address of the SIP registrar (Default: ::).

Assign the port number of the SIP registrar (Default: 5060)

Assign the SIP registrar alive time in seconds (Default: 3600)

[IPv4]

```
MG(SIP) > set sip_register

Select SIP register type.
 0=IPAddress(default)
 1=FQDN
Input:0

Input SIP register IP Address.
(default=0.0.0.0)
                    :192.168.100.100

Input SIP register Port Number.
(1024-65535(default=5060)):5060

Input SIP register Expires timer value.
(sec)
(1-65535(default=3600)):3600
```

When IP address (=0) is selected.

Assign the IP address of the SIP registrar (Default: 0.0.0.0).

Assign the port number of the SIP registrar (Default: 5060)

Assign the SIP registrar alive time in seconds (Default: 3600)

When FQDN (=1) is selected:

```
MG(SIP) > set sip_register
```

```
Select SIP register type.
 0=IPAddress(default)
 1=FQDN
Input:1

Input Fully Qualified Domain Name.
(default=0, MAX63(strings))
                              :nec.com

Input SIP register Port Number.
(1024-65535(default=5060)):5060

Input SIP register Expires timer value.
(sec)
(1-65535(default=3600)):3600
```

When FQDN (=1) is selected.

Assign the FQDN of the SIP registrar (Default:0, max 63 characters).

Assign the port number of the registrar (Default: 5060)

Assign the SIP registrar alive time in seconds (Default: 3600)

Note: The conditions of this command are as follows.

- Pressing the Enter key can skip the item, with exceptions of “SIP register type” and “IP address/FQDN”.
- Normally this command is not required to be changed.
- Be sure not to enter a blank character to the end of the FQDN (with the Copy and Paste features of your personal computer), and be careful not to mistype a character. (“0”(zero) or “O” (alphabetical O), for example.)

(60) sip_route

Setting of the route information of SIP network

This command is used to specify route information in the SIP side network.
Use “set sip_route” command.
For details, see “ipx_route”(Setting of the route information in the Telephony Server network).

Note: When IPv6 (=1) is selected by “set ip_version” command, the IP address of the router is assigned to the default gateway automatically. If you attempt to execute this command, the following message appears:
“Sip route data can not be set when IPv6 is enable.”

(61) sip_rtp_port_no

Setting of the RTP base port number of SIP network

This command is used to assign the RTP base port number from SIP network. (Even numbers only.)

[Setting Example]

```
MG(SIP) > set sip_rtp_port_no

Input SIP side RTP Port Number.
(1024-64000(default=50000)):50000
```

Assign the RTP base port number for SIP side (Default: 50000)
(Receiving side of MG-SIP128 [MG-128SIP-MGL-A])

Note: The conditions of this command are as follows.

- Normally this command is not required to be changed.
- RTP ports occupy 256 (128×2) ports (counting from the RTP base port number).
- If you set a non-default SIP side RTP port number, be careful not to choose the same number set in other port numbers (set by "set sip_rtp_port_no", "set ipx_rtp_port_no", "set sip_media_port_no", "set ipx_media_port_no", "set registration_port_no", "set signaling_port_no", "set pre_negotiation_port_no", "set sip_port_no" commands). When the same port number is set, a warning message is displayed as follows:

```
************* Warning!! *************
 Port number is duplicated.


[IPX side]
 RTP Port Number for voice  :51000 -
50511
 Media Port Number for video:55000 -
55255
 Media Port Number for T.38 :56000 -
56127
 Registration Port Number   :3456
 Signaling Port Number      :61012
 Pre-negotiation Port Number:61014


[SIP side]
 RTP Port Number for voice  :50000 -
50255
 Media Port Number for video:53000 -
53255
 Media Port Number for T.38 :54000 -
54127
 SIP Port Number:5060
************************************
```

[LAN side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The UDP port number that receives the DRS packets.
The UDP port number that receives the control signal packets.
The UDP port number that receives packets for voice control path.

[SIP side]
The range for the RTP port number that is used for voice.
The range for the media port number that is used for Video.
The range for the media port number that is used for T.38 Fax relay.
The port number that receives SIP messages.

(62) sip_server

Setting of the information of SIP server

This command is used to assign an IP address or a Fully Qualified Domain Name (FQDN), and port number, type, and SIP domain of the SIP server.

The following figure shows an example of display.

When IP address (=0) is selected:

[IPv6]

```
MG(SIP) > set sip_server

Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:0

Input SIP server IP Address. Input SIP server
IP Address. (default=::)
: 2001:db8::860

Input SIP server Port Number.
(1024-65535(default=5060)):5060

Select SIP server Router type.
 0=Strict(default)
 1=Loose
Input:0


Select the setting of rport(RFC3581)
function.
 0=disable (default)
 1=enable
Input: 0


Input Domain Name.(default=0,
MAX128(strings))
```

When IP address (=0) is selected.
(Default: 0)

Assign the IP address of the proxy server
(Default: ::).

Assign the port number of the proxy server
(Default: 5060)

Select a Strict router or Loose router for the proxy server
(Default: 0)
0: Strict router
1: Loose router
Select “0”.

Enable/disable the rport (RFC3581) function.
(Default: 0)
Note 18

Input a string that specifies the service provider in maximum of 128 characters.

[IPv4]

```
MG(SIP) > set sip_server

Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:0

Input SIP server IP Address.
(default=0.0.0.0)
:192.168.100.100
```

When IP address (=0) is selected.
(Default: 0)

Assign the IP address of the proxy server
(Default: 0.0.0.0).

```
Input SIP server Port Number.
(1024-65535(default=5060)):5060

Select SIP server Router type.
 0=Strict(default)
 1=Loose
Input:0


Select the setting of rport(RFC3581)
function.
 0=disable (default)
 1=enable
Input: 0


Input Domain Name.(default=0,
MAX128(strings))
```

Assign the port number of the proxy server
(Default: 5060)

Select a Strict router or Loose router for the proxy server
(Default: 0)
0: Strict router
1: Loose router
Select "0".

Enable/disable the rport (RFC3581) function.
(Default: 0)

Input a string that specifies the service provider in maximum of 128 characters.

When FQDN (=1) is selected:

```
MG(SIP) > set sip_server
Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:1
Input Fully Qualified Domain Name.(default=0,
MAX63(strings))

Input SIP server Port Number.
(1024-65535(default=5060)):5060

Select SIP server Router type.
 0=Strict(default)
 1=Loose
Input:0


Input Domain Name.(default=0,
MAX128(strings))
```

When FQDN (=1) is selected.

Assign the FQDN of the proxy server in maximum of 63 characters
(default: 0).

Assign the port number of the proxy server
(Default: 5060)

Select a Strict router or Loose router for the proxy server
(Default: 0)
0: Strict router
1: Loose router
Select "0".

Input a string that specifies the service provider in maximum of 128 characters.

Note: The conditions of this command are as follows.

- Pressing the Enter key can skip the item, with exceptions of “SIP server type” and “IPaddress/FQDN”.
- If you have set a character string to specify the service provider, the character string is used as the SIP domain name.
- Be sure not to enter a blank character to the end of the FQDN (with the Copy and Paste features of your personal computer), and be careful not to mistype a character. (“0”(zero) or “O” (alphabetical O), for example.)
- Even though the setting of rport (RFC3581) is disabled, the rport parameter can be received.
- INVITE message defined in RFC3581 cannot be retransmitted.

(63) sip_tel_service

Setting of additional services

The command is used to enable/disable the use of additional service features (Hold/Retrieve/Transfer from the SIP network side terminal).

[Setting Example]

```
MG(SIP) > set sip_tel_service

Select SIP telephony service function.
 0=disable(default)
 1=enable
Input:1
```

0: additional service feature is disabled (Default)
1: additional service feature is enabled
Note 14

Note 14: When using FAX data, assign “1 (enable)” for this parameter.

When enable (=1) is selected, the following screen is displayed. (When disable is selected, no screen is displayed.)

```
Select Replaces function.
 0=enable(default)
 1=disable
Input:0

Select Hold [a=inactive] function.
 0=enable(default)
 1=disable
Input:0

Select Hold [put off hold] function.
 0=disable(default)
 1=enable
Input:1
```

Enable/disable Replaces function.
0: enable (Default)
1: disable

0: a=inactive hold function is enabled (Default)
1: a=inactive hold function is disabled

Enable/disable hold (put off hold) function.
0: disable (Default)
1: enable **Note 15**

```
Select REFER/NOTIFY function.
 0=enable
 1=disable(default)
Input:0

Select 3PCC function.
 0=enable
 1=disable(default)
Input:0
```

Enable/disable REFER/NOTIFY function.
0: enable **Note 16**
1: disable (Default)

Enable/disable 3PCC (3rd Party Call Control) function.
0: enable
1: disable (Default)

When enable (=0) is selected for 3PCC function, the following screen is displayed. (When disable is selected, no screen is displayed.)

```
Select 3PCC function(codec).
 0=PCMU
 1=PCMA
 2=AUTO(default)
Input:0


Select Unhold w/o SDP function.
 0=disable(default)
 1=enable
Input:1
```

Select 3PCC function (codec). **Note 17**
0: Fixed to μ-law
1: Fixed to A-law
2: MGC Control (Telephony Server System Data)* (Default) **Note 18**
*: μ-law is set if no Telephony Server System Data is set.

Enable/disable Unhold w/o SDP function.
0: disable (Default)
1: enable
Note 19

Note: The conditions of this command are as follows.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.
- Music On Hold may not be sent to some remote terminals if this command is not enabled.

Note 15: When this parameter is enabled, answer “Unhold” for Hold Offer (C=0.0.0.0).

Note 16: To use MG-SIP REFER BASED TRANSFER [M-132], assign “0 (enable)” for REFER/NOTIFY function.

Note 17: When INVITE without SDP is received, the following conditions are applied.
- Only G.711 (20ms) μ-law/A-law connection is available.
- AMGVL/AIVCL data assignment cannot give an offer.

Note 18:
- When “2=AUTO (default)” is selected, the codec used for 3PCC function (codec) complies with the A-law/μ-law information which the Telephony Server informs MG-SIP128 [MG-128SIPMGL-A].
- In the Telephony Server side, by the system data assignment (ASYD, SYS1, Index 64, Bit 0), either μ-law or A-law can be specified as the A-law/μ-law information which the Telephony Server informs MG-SIP128 [MG-128SIPMGL-A].
- The Telephony Server informs MG-SIP128 [MG-128SIPMGL-A] the A-law/μ-law

information only when the MG-SIP128 [MG-128SIPMGL-A] performs registration.
- When you change the system data (ASYD, SYS1, Index 64, Bit 0) during operation, the data change will be reflected after rebooting MG-SIP128 [MG-128SIPMGL-A].

Note 19: If a reINVITE without SDP is received while being on hold, the following happens depending on the settings.
- disable: the hold is maintained.
- enable: the hold is released.

(64) sip_transport

Setting of SIP transport protocol

This command is used to select whether SIP requests to be sent with TCP or UDP as the transport protocol.

[Setting Example]

```
MG(SIP) > set sip_transport

Select the setting of SIP Transport
Protocol.
 0=UDP(default)
 1=TCP
Input:1
```

Select the setting of SIP Transport Protocol.
0: UDP (Default)
1: TCP

(65) slipresp

Setting of error response codes used when bypassing a SIP server

This command is used to determine an error response code that is sent in order to prompt a SIP server to bypass when all the resources of MG-SIP128 [MG-128SIPMGL-A] are busy.

[Setting Example]

```
MG(SIP) > set slipresp

Input SIP server slip response code.
(400-699(default=488)):488
```

Set the error response code.
(400 to 699, Default: 488)

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.

(66) softdsp

Setting of A-law /μ-law converting and PAD value

This command is used for the settings of the A-law /μ-law converting feature and for the PAD value settings. The following table shows the operating status of MG (SIP) when the A-law /μ-law converting feature is enabled.

When MG (SIP) receives an incoming call

Station Side (ASYD SYS1 INDEX64 BIT0)	MG (SIP) Codec Convert Mode	Network Side	Operating Status	Conversion
A-law	μ-law	μ-law	Normal Communication	Performed
A-law	μ-law	A-law	Normal Communication	Not performed
A-law	μ-law	G.729	Error Response	Not performed
A-law	A-law	A-law	Normal Communication	Not performed
A-law	A-law	μ-law	Normal Communication	Performed
A-law	A-law	G.729	Error Response	Not performed
μ-law	μ-law	μ-law	Normal Communication	Not performed
μ-law	μ-law	A-law	Normal Communication	Performed
μ-law	μ-law	G.729	Error Response	Not performed
μ-law	A-law	A-law	Normal Communication	Performed
μ-law	A-law	μ-law	Normal Communication	Not performed
μ-law	A-law	G.729	Error Response	Not performed

When MG (SIP) places an outgoing call

Station Side (ASYD SYS1 INDEX64 BIT0)	MG (SIP) Codec Convert Mode	Network Side	Operating Status	Conversion
A-law	μ-law	μ-law	Normal Communication	Performed
A-law	μ-law	A-law	Error Response	Not performed
A-law	μ-law	G.729a	Error Response	Not performed
A-law	A-law	A-law	Normal Communication	Not performed
A-law	A-law	μ-law	Error Response	Not performed
A-law	A-law	G.729a	Error Response	Not performed
μ-law	μ-law	μ-law	Normal Communication	Not performed
μ-law	μ-law	A-law	Error Response	Not performed
μ-law	μ-law	G.729a	Error Response	Not performed
μ-law	A-law	A-law	Normal Communication	Performed
μ-law	A-law	μ-law	Error Response	Not performed
μ-law	A-law	G.729a	Error Response	Not performed

The followings are the setting example:

When enabling/disabling the A-law /μ-law converting feature

Note: Just enabling the A-law/μ-law conversion requires selecting the PAD adjustment option.

```
MG(SIP) > set softdsp
<< Current Setting >>
codec convert mode  : disable
PAD setting         : disable
Select the PCM codec convert mode
according to SIP side.
  0 = disable (default)
  1 = PCMU
  2 = PCMA
Input  : 1
Select the PAD setting for voice/FAX.
  0 = disable (default)
  1 = local setting
  2 = auto
Input  : 0
```

Displays the current setting.

0: Disabled (default)
1: μ-law
2: A-law

Select the PAD adjustment option.
0: Disable PAD value adjusting feature
1: Adjusting PAD value according to the configuration data setting
2: Adjusting PAD value according to the settings on the Telephony Server.

When adjusting PAD value according to the configuration data setting

Note: Just enabling the PAD adjustment option requires the setting of the A-law/μ-law conversion.

```
MG(SIP) > set softdsp
<< Current Setting >>
codec convert mode  : disable
PAD setting         : disable
Select the PCM codec convert mode
according to SIP side.
  0 = disable (default)
  1 = PCMU
  2 = PCMA
Input  : 1
```

Displays the current setting.

0: Disabled (default)
1: μ-law
2: A-law

```
Select the PAD setting for voice/FAX.
  0 = disable (default)
  1 = local setting
  2 = auto
Input  : 1


Input PAD reception setting for voice.
[-20 (dB) - 20 (dB) ]  : -20
Input PAD transmission setting for voice.
[-20 (dB) - 20 (dB ) ] : 20
Input PAD reception setting for FAX.
[-20 (dB) - 20 (dB) ]  : -20
Input PAD transmission setting for FAX.
[-20 (dB) - 20 (dB) ]  : 20
```

Select the PAD adjustment option.
0: Disable PAD value adjusting feature
1: Adjusting PAD value according to the configuration data setting
2: Adjusting PAD value according to the settings on the Telephony Server.

Assign PAD value for each setting.

When adjusting PAD value automatically

Note: Just enabling the PAD adjustment option requires the setting of the A-law/μ-law conversion.

```
MG(SIP) > set softdsp
<< Current Setting >>
codec convert mode  : disable
PAD setting         : disable
Select the PCM codec convert mode
according to SIP side.
  0 = disable (default)
  1 = PCMU
  2 = PCMA
Input  : 1

Select the PAD setting for voice/FAX.
  0 = disable (default)
  1 = local setting
  2 = auto
Input  : 2
```

Displays the current setting.

0: Disabled (default)
1: μ-law
2: A-law

Select the PAD adjustment option.
0: Disable PAD value adjusting feature
1: Adjusting PAD value according to the configuration data setting
2: Adjusting PAD value according to the settings on the Telephony Server.

(67) update

Setting of update method

This command is used to enable/disable the use of update method.

[Setting Example]

```
MG(SIP) > set update

Select the setting of UPDATE method.
 0=disable(default)
 1=enable
Input:0
```

0: Update method is disabled (Default)
1: Update method is enabled

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP128 [MG-128SIPMGL-A] connects.

5.2.2 show Command

(1) arp

Displaying of ARP table

This command is used to show the Address Resolution Protocol (ARP) table of MG-SIP128 [MG-128SIPMGL-A].

[Setting Example]

```
MG(SIP)> show arp
AddressNote 1   HWtype  HWaddressNote 2     Flags MaskNote 3  Iface
192.168.0.250 ether   00:1D:92:9E:2A:E0 C                 eth0
192.168.0.99  ether   00:B0:D0:31:FE:64 C                 eth0
192.168.0.1   ether   00:30:13:76:7B:52 C                 eth0
```

Note: Actual values such as Address or HWaddress may differ from this sample.

Note 1: Address: IP address (IP address or host name of an entry)

Note 2: HWaddress: Physical address /Hardware address (For Ethernet, MAC address of an entry)

Note 3: Flags Mask: Entry type (C: Used for normal entries only.)

(2) config

Displaying of a configuration data list

This command is used to show the configuration that has been currently specified for the MG-SIP128 [MG-128SIPMGL-A].

The following shows a sample display.

[MAC configuration data]

```
MG(SIP)> show config
[2013-10-10 14:49:29]

[SP-4089:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGL-A]

MAC Data=MAC configuration data

DRS Data=Configuration data of the Telephony Server

Common Config Data=Common configuration data

```
3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit

Select a reference number:0

Ether[1]
MAC Address:00-00-00-00-00-00

Ether[2]
MAC Address:00-00-00-00-00-00
```

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select “0”.

MAC addresses of Ether [1] [2] of MG-SIP128 [MG-128SIPMGL-A]

[DRS configuration data]

```
MG(SIP)> show config

[2013-10-10 14:49:29]

[SP-4089:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGL-A]

MAC Data=MAC configuration data

DRSData=Configuration data of the Telephony Server

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

```
Select a reference number:1
Primary DRS IP Address:0. 0. 0. 0:PortNo[3456]
Secondary DRS IP Address:0. 0. 0. 0:PortNo[3456]
Tertiary DRS IP Address:0. 0. 0. 0:PortNo[3456]
Quaternary DRS IP Address:0. 0. 0. 0:PortNo[3456]
```

Select "1".

IP address and port number of the currently configured DRS will be displayed.

[Common configuration data]

```
MG(SIP)> show config
[2013-10-10 14:49:29]

[SP-4089:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit
Select a reference number:2
set signaling_port_no:
 Signaling Port Number        :61012
-------------------------------------------------
set registration_port_no:
 Registration Port Number     :3456
-------------------------------------------------
set pre_negotiation_port_no:
 Pre-negotiation Port Number  :61014
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGL-A]

MAC Data=MAC configuration data

DRSData=Configuration data of the Telephony Server

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select 2

Currently assigned config data will be displayed.

```
-------------------------------------------------

set ipx_rtp_port_no:

 IPX side RTP Port Number     :51000

-------------------------------------------------

set sip_rtp_port_no:

 SIP side RTP Port Number     :50000

-------------------------------------------------

set h245_base_port_no:
 H245 base port number        :40000

-------------------------------------------------

set sip_media_port_no:

 SIP side Media Port Number for video:53000
 SIP side Media Port Number for T.38 :54000

-------------------------------------------------

set ipx_media_port_no:

 IPX side Media Port Number for video:55000
 IPX side Media Port Number for T.38 :56000

-------------------------------------------------

Does it display more? Y/N=y




-------------------------------------------------

set drs_qos:

DRS QoS:0xa0                  :0xa0
 PRECEDENCE                   :5
 DELAY                        :0
 THROUGHPUT                   :0
 RELIABILITY                  :0
 COST                         :0

-------------------------------------------------

set rtp_qos:
```

After displaying about 20 lines of config data, you can select if you want to see more data or not.
To see more config data, enter “y”.
To exit this command, press “n”.

```
RTP QOS                         :0xa0
 PRECEDENCE                     :5
 DELAY                          :0
 THROUGHPUT                     :0
 RELIABILITY                    :0
 COST                           :0
-------------------------------------------------
Does it display more? Y/N=y
-------------------------------------------------
set sip_qos:
SIP QOS                         :0xa0
 PRECEDENCE                     :5
 DELAY                          :0
 THROUGHPUT                     :0
 RELIABILITY                    :0
 COST                           :0
-------------------------------------------------
set domain:
 Domain name                    :0
-------------------------------------------------
set dnsaddress:
 DNS IP address                 :0.0.0.0
-------------------------------------------------
```

```
set hc_alarm:
 H/C Alarm type         :IPX and SIP Side enable
```

H/C Alarm type display varies depending on the type that is assigned by the "set hc_alarm."

- When assigned the Telephony Server network side and SIP network side: "IPX and SIP side enable"
- When assigned the Telephony Server network side: "IPX side enable"
- When assigned SIP network side: "SIP side enable"
- When assigned not to send: "Disable"

```
------------------------------------------------
set hc_timer:
 H/C Timer value              :240sec
------------------------------------------------
set musictype:
 Music Type                   :Type1
```

Display (Type1/Type2/Type3/ Type4) depends on which type you set.

```
------------------------------------------------
set call_hold:
 Call Hold function           :enable
 RTP detect timer value       :3sec
 Response code to reject      :488
```

Displays the current setting of MG Based Call Retention. When "disable" is selected by a SET command "call_hold", "disable" is displayed, but "RTP detect timer value" and "Response code to reject" are not displayed.

```
------------------------------------------------
set name_display :
 Name Display                 : enable
```

Displays the current setting of Name Display service.

```
-----------------------------------------------

set ip_version :
 IP Version                  : IPv4

-----------------------------------------------

set country_code :
 Country Code                : 1 (JP)

-----------------------------------------------

set softdsp:
 codec convert mode          :PCMU
 PAD setting                 :local setting
 PAD reception(voice)        :-20
 PAD transmission(voice)     :20
 PAD reception(FAX)          :-20
 PAD transmission(FAX)       :20

-----------------------------------------------

set enc:
 IPX side RTP encrypting mode :enable

-----------------------------------------------
```

Displays the current setting of the IP version.

Displays the current setting of Country Code.

Displays the current settings of codec conversion and PAD value.

Displays the current settings of the RTP encrypting mode on Telephony Server network. **Note 4**

Note 4: This parameter is displayed since SP-4089 MGSIP(MM) PROG-A Issue 3.

[Port configuration data]

```
MG(SIP)> show config
[2013-10-10 14:49:29]

[SP-4089:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGL-A]

MAC Data=MAC configuration data

DRSData=Configuration data of the Telephony Server

Common Config Data=Common configuration data

```
3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit
Select a reference number:3
Using all port

Ether[1]
 IP address:172.16.253.200
 Subnet    :255.255.255.0
 Interface :Speed/Duplex=Auto/Auto
 Port type :IPX Side Port
Ether[2]
 IP address:192.168.35.200
 Subnet    :255.255.255.0
 Interface :Speed/Duplex=Auto/Auto
 Port type :SIP Side Port
```

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select “3”.

Data that is set to each port number is displayed.

If “one-port only” is selected with the “set ipaddress” command, only Ether [1] is displayed. Also, it is displayed whether Ethernet Port Redundancy function is enabled or disabled.

Example: Ethernet Port Redundancy function: enable

Displays the current setting of the Ether[2] information. When IPv6 (=1) is selected by “set ip_version” command, this IP address will be shown in IPv6 address format.

[SIP configuration data]

```
MG(SIP)> show config
[2013-10-10 14:49:29]

[SP-4089:01.00.00.00]


0=MAC Data

1=DRS Data

2=Common Config Data
```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGL-A]

MAC Data=MAC configuration data

DRSData=DRS configuration data

Common Config Data=Common configuration data

```
3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit
Select a reference number:4
set sip_server:

Server type                     :IP Address
Server IP Address               :0.0.0.0




SIP server Port Number          :5060
SIP server Router type          :Strict
rport(RFC3581) function         :disable
Domain Name                     :0
-------------------------------------------------
set sip_register:
SIP register type               :IP Address
SIP register IP Address         :0.0.0.0




SIP register Port Number        :5060
SIP register Expires time       :3600sec
```

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select “4”.

Currently assigned common config data will be displayed.

When FQDN is set by a SET command “sip_server”, “SIP server FQDN”, not “SIP server IP Address”, is displayed.

Displays the current setting of the Server IP Address.
When IPv6 (=1) is selected by “set ip_version” command, this IP address will be shown in IPv6 address format.

Displays the current setting of the SIP register IP Address.
When IPv6 (=1) is selected by “set ip_version” command, this IP address will be shown in IPv6 address format.

```
-----------------------------------------------
set keynumber:
Keynumber                       :0
-----------------------------------------------
set auth:
User ID                         :0
Password                        :0
-----------------------------------------------
Does it display more? Y/N=y
```

After displaying about 20 lines of config data, you can select if you want to see more data or not.
To see the config data more, enter "y". To exit this command, press "n".

```
-----------------------------------------------
set privacy_pattern:
 Privacy pattern                :DisplayName
```

When "DisplayName" is selected by the SET command "privacy_pattern", "DisplayName" is shown. When RFC3325 Pattern (0) is selected, "RFC3323/3325 (0)" is shown. When Pattern (1) is selected, "RFC3323/3325 (1)" is shown. When Pattern (6) is selected, "RFC3325 (SIP-URI (no privacy))" is shown.

```
-----------------------------------------------
set session_timer:
Session-timer                   :enable
```

When "disable" is selected by the SET command "Session_timer", "disable" is displayed. In this case, "Session-expires" and "Refresher" are not displayed.

```
Session-expires                 :180sec
Refresher                       :UAC
```

When UAS is selected for Refresher, "UAS" is displayed.

```
Invite Refresher                    :disable


Forced mode                         :disable


reInvite Refresher                  :disable


set prack:
Supported 100rel                    :enable


Stop cyclical-send of 18x           :disable


-------------------------------------------------
set cdn_pattern:
 Prior Called Party Number pattern:To[userinfo]









-------------------------------------------------
set sip_port_no:
 SIP Port Number                    :5060
-------------------------------------------------
Does it display more? Y/N=y
-------------------------------------------------
set 184ToPrivacy:
```

When “enable” is selected for “Invite Refresher” by the SET command “session_timer”, “enable” is displayed.

When “enable” is selected for “Forced mode” by the SET command “session_timer”, “enable” is displayed.

When “enable” is selected for “reInvite Refresher” by the SET command “session_timer”, “enable” is displayed.

When “disable” is selected by the SET command “prack”, “disable” is displayed.

“enable” may be displayed according to the setting.
When “set prack” is disabled, nothing is displayed.

When “Request-URI[isub]” is selected by the SET command “cdn_pattern”, “Request-URI[isub]” is displayed, and when “Request-URI[userinfo]” is selected, “Request-URI[userinfo]” is displayed, and “P-Called-Party-ID” is selected, “P-Called-Party-ID” is displayed.

```
 184 to privacy pattern           :disable


-------------------------------------------------
set slipresp:
 SIP server slip response code    :488
-------------------------------------------------
set self_sip_domain:
 Self SIP Domain mode             :disable


-------------------------------------------------
Does it display more? Y/N=y
-------------------------------------------------
set dtmf_mode:
DTMF Mode                  :Negotiation(SIP/SDP)


DTMF Duration                    :120ms
DTMF Pause                       :100ms
Payload type                     :101

-------------------------------------------------
set 183rbt:
 RBT Addition (183w/oSDP)         :enable


-------------------------------------------------
```

When “Pattern 1” is selected by the SET command “184topri-vacy”, “Pattern 1” is displayed, and when “Pattern 2” is selected, “Pattern 2” is displayed.

When “enable” is selected by the SET command “self_sip_do-main”, “enable” is selected as well as the set domain name.
Example) Self SIP Domain string: xxxxxxxx

When “In-Band” is the mode set by a SET command “dtmf_mode”, “IN-Band (G.711) is displayed, and when “Out-Band” is selected, “Out-Band (RFC2833)” is dis-played.

When DTMF Mode is In-Band, Payload type is not displayed.

When “disable” is selected by the SET command “183rbt”, “dis-able” is displayed.

```
set rtp_pathon:
 Path-on 183 after 180            :disable


-------------------------------------------------
set another_keynumber:
Another Keynumber 1               :0
Another Keynumber 2               :0
Another Keynumber 3               :0
-------------------------------------------------
Does it display more? Y/N=y
-------------------------------------------------
set multi_regist:
 Multi-registration mode          :disable
-------------------------------------------------
set sip_tel_service:
 SIP telephony service function   :disable
-------------------------------------------------
set reg_interval:
 REGISTER interval timer          :5min
-------------------------------------------------
set update:
 UPDATE method support function   :disable
```

When “enable” is selected by the SET command “typ-pathon”, “enable is displayed.

When “enable” is selected by SET command “multi-regist”, “enable” is displayed as well as the following:

Transmitting interval timer: 1sec
Standby timer value: 30sec
Contact Header type: Privacy or SIP-URI

When “disable” is set, nothing is displayed.

Note 5

When “enable” is selected by the SET command “update”, “enable” is displayed.

```
------------------------------------------------
set auth_header:
 Auth-Header Cache function       :enable


------------------------------------------------
Does it display more? Y/N=y
------------------------------------------------
set cause_table:
 Cause table                      :normal




------------------------------------------------
set response_table:
 Response table                   :normal




------------------------------------------------
set cpn_pattern:
 Prior Calling Party Number pattern:DisplayName







------------------------------------------------
set cc_convert:
```

When “disable” is selected by the SET command “auth_header”, “disable” is displayed.

When “alternate routing/Route Advance” is selected by the SET command “cause_table”, “alternate routing/Route Advance” is displayed.

When “revised_table” is selected by the SET command “response_table”, “revised_table” is displayed.

When “Userinfo” is selected by the SET command “cpn_pattern”, “Userinfo” is displayed, when “Anonymous” is selected, “Anonymous” is displayed, and when “P-Asserted-ID” is selected, “P-Asserted-ID” is displayed.

```
 Country Code convert              :disable
```

When “Pattern 1” or “Pattern 2” is selected by the SET command “cc_convert”, the following parameters are displayed.
For example, when “Pattern 2” is selected:
Country Code: 81
National Prefix: 0
National Destination Code: 3
International Prefix: 010
Number of Local Number digits: 3

```
-------------------------------------------------
set check_number:
 telephone-number check function   :disable
```

When “enable” is selected by the SET command “check_number”, “enable” is displayed.

```
-------------------------------------------------
set out_of_area_code:
 Response code when out of area    :408(default)
```

The number for a response code set by the SET command “out-_of_area_code” is displayed.

```
-------------------------------------------------
set sdp_style:
 SDP style setting                 :RFC4566
```

When “normal” is selected by the SET command “sdp_style”, “normal” is displayed.

```
 G729 annexb=no                    :enable
```

When “disable” is selected by the SET command “sdp_style”, “disable” is displayed.

```
-------------------------------------------------
set call_id_relay:
 Call-ID relay mode                :disable
```

When “enable” is selected by the SET command “call_id_relay”, “enable” is displayed.

```
-------------------------------------------------
```

```
set sip_accfilter:
 SIP Access Filter                :disable
```

When “enable” is selected for “SIP Access Filter” by the SET command “sip_accfilter”, “enable” and the following settings are displayed:

- When IP address is assigned by the SET command “sip_server”
  (SIP server IP Address: 192.168.100.100)
  SIP Access Filter mask: 255.255.255.255
- When FQDN is assigned by the SET command “sip_server”
  (SIP server FQDN: sipserver.nec.com)
  SIP Access Filter mask: 255.255.255.255

When “disable” is selected for “SIP Access Filter”, the above settings are not shown.

```
 Burst Access Filter              :disable
```

When “enable” is selected for “Burst Access Filter” by the SET command “sip_accfilter”, “enable” and the following settings are displayed:
Burst Access Filter: enable
Burst Access limit timer value: 30
Burst Access limit number value: 500
Burst Access reject response code: 600

When “disable” is selected for “Burst Access Filter”, the above settings are not shown.

```
-----------------------------------------------

set sip_transport:

 SIP transport protocol           :UDP


-----------------------------------------------

set dns_option:

 DNS type                       :Locating SIP
                                 servers function
                                 (RFC3263)
 DNS cache                      :enable




-----------------------------------------------

set codec_change:

 Codec Change function            :enable

 G711 Fax renegotiation           :enable


-----------------------------------------------

set no_media_code:

 Response code(unsupported codec) :415


-----------------------------------------------

set ppi_to_pai:

 PAID transmission function       :enable


-----------------------------------------------

set nataddress:

 NAT IP Address                   :189.10.3.41
```

When “TCP” is selected by the SET command “sip_transport”, “TCP” is displayed.

Locating SIP servers function (RFC3263) data and DNS cache data are displayed. When “A Record resolve (single IP Address)”, “A Record resolve (multi IP Address)” or “A Record resolve (multi IP Address for REGISTER bypass” is selected by the SET command “dns_option”, the selected item is displayed.

When “disable” is selected by the SET command “codec_change”, “disable” is displayed.

The number for a response code specified by “no_media_code” command is displayed.

When “disable” is selected by the SET command “ppi_to_pai”, “disable” is displayed.

Displays the current setting of NAT IP Address.

```
------------------------------------------------

set rfc2833_pass:

 RFC2833 RTP Event Pass           :enable



------------------------------------------------
```

When “disable” is selected by the SET command “rfc2833_pass”, “disable” is displayed.

Note 5: The conditions of “SIP telephony service function” are as follows.

- When “SIP telephony service function” is enabled by the SET command “sip_tel_service”, “enable” is displayed, as well as enablement/disablement of the following settings:
  Replaces function
  Hold [a=inactive] function
  Hold [put off hold] function
  REFER/NOTIFY function
  3PCC function
- When “SIP telephony service function” is disabled by the SET command “sip_tel_service”, the following is displayed:
  “SIP telephony service function: disable”
  Then nothing is displayed below “SIP telephony service function: disable”.
- “3PCC function(codec)” and “Unhold w/o SDP function” are displayed only when 3PCC function is enabled by the SET command “sip_tel_service”.
- The following is an example of display when “SIP telephony service function” is enabled by the SET command “sip_tel_service”.

```
SIP telephony service function   :enable
Replaces function                :enable
Hold [a=inactive] function       :enable
Hold [put off hold] function     :enable
REFER/NOTIFY function            :enable
3PCC function                    :enable
3PCC function(codec)             :PCMU
Unhold w/o SDP function          :enable
```

[Route information configuration data]

```
MG(SIP)> show config

[2013-10-10 14:49:29]


[SP-4089:01.00.00.00]


```

Time when the configuration is acquired.

Software version information of MG-SIP128 [MG-128SIPMGL-A]

```
0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit
Select a reference number : 5
Ether[1]

 Route type:Static
No|Gateway Address|Destination network/Prefix
------------------------------------------------
1 |192.168.0.254  |172.16.0.0        /16
Ether[2]
 Route type:Static
No|Gateway Address|Destination network/Prefix
------------------------------------------------
1 |192.168.0.254  |0.0.0.0           /0
```

MAC Data=MAC configuration data

DRS Data=DRS configuration data

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select “5”.

Data currently configured to each port number will be displayed.

When IPv6 (=1) is selected by “set ip_version” command, Gateway Address and Destination network will be shown in IPv6 address format.

(3) interface

Displaying of Link and Display states of Ether

This command is used to show the link and setting states for Ether ports of MG-SIP128 [MG-128SIPMGL-A].

[Setting Example]

```
MG(SIP)> show interface
Using one-port only
```

The number of ports in use.

```
Ether[1]  Link up
MAC Address  :00-00-00-00-00-00
IP Address   :10.1.0.1
Subnet mask  :255.255.255.0
Interface    :Speed/Duplex=Auto/Auto
```

Link state

MAC address

IP address

Subnet mask

Operation speed and operation mode

(4) version

Displaying of version information

This command is used to display version information of MG-SIP128 [MG-128SIPMGL-A] functions (base system and firmware).

[Setting Example]

```
MG(SIP)> show version
Firmware Information  |SPNo    |Issue
----------------------+--------+-------------
Base System Version   |------- |Ver2.6.18 Mon
Oct 10 16:45:44 JST 2016
SP-4089 MGSIP PROG-A  |SP-4089 |Ver01.00.00.00
```

Version information of the base system.

Software version information of MG-SIP128 [MG-128SIPMGL-A]

(5) route

Displaying of Route table

This command is used to show the Route Table of MG-SIP128 [MG-128SIPMGL-A].

[Setting Example]

```
MG(SIP)> show route
Kernel IP routing table
                                  Note 6 Note 7  Note 8 Note 9      Note 10Note 11  Note 12
Destination Gateway Genmask       Flags Metric Ref   Use  Iface MSS   Window irtt
172.16.0.0  *       255.255.0.0   U     0      0     0    eth1  0     0      0
192.0.0.0   *       255.0.0.0     U     0      0     0    eth0  0     0      0
```

Note: The conditions of this command are as follows.

- Actual values such as Destination or Genmask may differ from this sample.
- It may take time to display the route table information when DNS server IP address has been assigned. (“set dnsaddress”)

- Settings of “Flags”, “Metric”, Ref”, “Use”, “MSS”, “Window” and “irtt” do not affect the operation of MG-SIP128 [MG-128SIPMGL-A] directly.

Note 6: Flags: Indicates a route type. (“U” is usable, “H” is host, “G” is gateway.)

Note 7: Metric: Indicates route metric. (In the range of one to 9999.)

Note 8: Ref: Indicates the number that the route is referred.

Note 9: Use: Indicates the number that the route was actually used (routed).

Note 10: MSS: Indicates the Maximum Segment Size (MSS: Maximum data size of a TCP segment) at a route.

Note 11: Window: Indicates a window size of TCP.

Note 12: irtt: Indicates the initial round-trip time of TCP connections to each route. MG-SIP128 [MG-128SIPMGL-A] regards a TCP connection where no reply lasts for the round-trip time (1 to 12000) as no connection.

(6) status

Displaying status of ports and registration

This command is used to show status of ports and registration on MG-SIP128 [MG-128SIPMGL-A].

[Setting Example]

- If displaying port status

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:0

IPX Port link up(100Base-TX/Full)
SIP Port link up(100Base-TX/Full)
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 13

Note 13: The following describes display of port status.

Port type	Status of port to LAN	Status of port to SIP network
1000M/Full	IPX port link up (1000Base-T/Full)	SIP port link up (1000Base-T/Full)
100M/Half	IPX port link up (100Base-TX/Half)	SIP port link up (100Base-TX/Half)
100M/Full	IPX port link up (100Base-TX/Full)	SIP port link up (100Base-TX/Full)
10M/Half	IPX port link up (10Base-T/Half)	SIP port link up (10Base-T/Half)

Port type	Status of port to LAN	Status of port to SIP network
10M/Full	IPX port link up (10Base-T/Full)	SIP port link up (10Base-T/Full)
Link Down	IPX port link down	SIP port link down

- If displaying status of registration to LAN (Telephony Server side)

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:1

IPX Registration Information
Registration is OK. (DRS IP address
192.168.0.1)
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 14

Note 14: Display changes depending on the registration status:

When MG-SIP128 is trying to register: Now Registrating.

After MG-SIP128 successfully registered: Registration is OK. (DRS IP address 192.168.0.1) (The IP address succeeding in registration appears as well.)

- If displaying status of registration to SIP network (when the registration function per number is disabled)

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:2

SIP Registration Information
Registration is OK.
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 15

Note 15: Display changes depending on the registration status:

When MG-SIP128 is trying to register:	Now Registrating.
After MG-SIP128 successfully registered:	Registration is OK.
After MG-SIP128 fails to register:	Registration is NG. Waiting Re-Registration timer. (MG-SIP128 is trying to register again)
When registration is disabled:	Register Server Configuration data is not set. (No setting data of “set sip_register” command)

- If displaying status of registration to SIP network (when the registration function per number is enabled)

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:2

SIP Registration Information

------Registration NG RegIndex------


[MG-No:1]

9 10 11 12 13 14 15 16

[MG-No:2]

[MG-No:3]

[MG-No:4]

[MG-No:5]

[MG-No:6]

[MG-No:7]

[MG-No:8]

[MG-No:9]

[MG-No:10]

[MG-No:11]

[MG-No:12]
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 16

Information on CNTs (RegIndex) failing in registration

MG-No: 1

CNTs failing in registration

MG-No: 2

MG-No: 3

MG-No: 4

MG-No: 5 **Note 16**

MG-No: 6

MG-No: 7

MG-No: 8

MG-No: 9

MG-No: 10

MG-No: 11

MG-No: 12

[MG-No:13]	MG-No: 13
[MG-No:14]	MG-No: 14
[MG-No:15]	MG-No: 15
------Registration OK RegIndex------	Information on CNTs (RegIndex) succeeding in registration
[MG-No:1]	MG-No: 1
1 2 3 4 5 6 7 8	CNTs succeeding in registration
[MG-No:2]	MG-No: 2
[MG-No:3]	MG-No: 3
[MG-No:4]	MG-No: 4
[MG-No:5]	MG-No: 5
[MG-No:6]	MG-No: 6
[MG-No:7]	MG-No: 7
[MG-No:8]	MG-No: 8
[MG-No:9]	MG-No: 9
[MG-No:10]	MG-No: 10
[MG-No:11]	MG-No: 11
[MG-No:12]	MG-No: 12
[MG-No:13]	MG-No: 13
[MG-No:14]	MG-No: 14
[MG-No:15]	MG-No: 15

Note 16: The example above shows a total of 16 CNTs tried registration, and eight (9 to 16) of them failed.
(Use the ASRIL command to set MG-Nos and a pilot number. CNT is a parameter set with the ASRIL command.)

- If displaying information on channels in use

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH Status
9:Exit

Select a reference number:3

----------------------------------------

|  |    0|   1|  2|  3|  4|  5|  6|  7|

----------------------------------------

|  0|ACT(S)| --| --| --| --| --| --| --|

|  8| --    | --| --| --| --| --| --| --|
| 16| --    | --| --| --| --| --| --| --|
| 24| --    | --| --| --| --| --| --| --|
| 32| --    | --| --| --| --| --| --| --|
| 40| --    | --| --| --| --| --| --| --|
| 48| --    | --| --| --| --| --| --| --|
| 56| --    | --| --| --| --| --| --| --|
| 64| --    | --| --| --| --| --| --| --|
| 72| --    | --| --| --| --| --| --| --|
| 80| --    | --| --| --| --| --| --| --|
| 88| --    | --| --| --| --| --| --| --|
| 96| --    | --| --| --| --| --| --| --|
|104| --    | --| --| --| --| --| --| --|
|112| --    | --| --| --| --| --| --| --|
|120| --    | --| --| --| --| --| --| --|

----------------------------------------

|            |actch=1|                  |

----------------------------------------

Use Session Count=1
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

"ACT(S)"appears for a channel in use; "--" appears for a channel not in use.

Number of channels in use

Number of sessions in use

```
INVITE Client Transaction = 0, max=0

INVITE Server Transaction = 0,  max=0

Other Client Transaction = 0,  max=1

Other Server Transaction = 0,  max=1




The number of Filtered Messages = 0
( Out of Range = 0 , No DNS Cache = 0)



The number of Burst Filtered Messages =
0


MG(SIP)>
```

Number of INVITE client transactions and their maximum number

Number of INVITE server transactions and their maximum number

Number of client transactions other than INVITE and their maximum number

Number of server transactions other than INVITE and their maximum number
(the maximum number represents the maximum number counting up to this time from when MG-SIP128 [MG-128SIPMGL-A] is turned on.)

Number of SIP packets that were discarded by SIP Access Filter
When “disable” is selected for “SIP Access Filter”, this parameter is not shown.

Number of incoming calls that are rejected by Burst Access Filter
When “disable” is selected for “Burst Access Filter”, this parameter is not shown.

5.2.3 download Command

This command is used to download MG-SIP128 [MG-128SIPMGL-A] program and Music/Tone file via Ether1 port (Ether port on the LAN side).

The following figure shows an example of a display.

[When downloading all programs]

```
MG(SIP) > download

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:1
--- IP Address setting of MG(SIP) ---
Select Ether Port [1(Ether1)/2(Ether2)/
Q(quit)]:1




Current IP Address of MG(SIP):10.41.1.100
Do you change IP Address of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.100
Current Subnet mask of MG(SIP):255.0.0.0
Do you change Subnet mask of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
```

Input “download” at the configuration mode.

To download all programs, enter “1”.

Select a port to use.
(With the default setting, select Ether1. If selecting Ether2, using two ports must be set in the “set ipaddress” command.)

Note: When IPv6 function is in service, download is not available on Ether2. So “2(Ether2)” does not appear.

To change the IP address that is used for downloading, enter “y”.

Enter the IP address.

To change the subnet mask of the selected port, enter “y”.

```
If you want to return to the previous step,
please input 'Q'.
Input new Subnet mask:255.255.0.0


--- IP Address setting of TFTP server ---
Current IP Address of TFTP server:10.41.1.250


Do you change IP Address of TFTP server?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.250
IP Address change was completed.
New IP Address of MG(SIP):172.16.253.100
New Subnet mask of MG(SIP):255.255.0.0
New IP Address of TFTP server:172.16.253.250
Are these IP Address correct? [Y(correct)/
N(change)/Q(quit)]
If you enter Y, MG(SIP) ONLINE service will be
stop:y
mgsipmwlist.txt download...
tftpDownload:User file TFTP start.
Received.
SP4089/MAIN/main.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
SP4089/TONE/tone.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
```

Enter a subnet mask.

To change the IP address of a TFTP server, enter “y”.
(Default address: 10.41.1.250)

Enter an IP address.

When the specified IP addresses are correct, enter ‘y’.

```
SP4089/MUSIC/music.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
Download was completed!
Please reboot after a download menu end.

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:q

MG(SIP) >
```

When download is complete, the menu appears again.
Enter ‘q’ to exit download command.

[When downloading one program]

```
MG(SIP) > download

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:2
--- IP Address setting of MG(SIP) ---
Select Ether Port [1(Ether1)/2(Ether2)/
Q(quit)]:1



Current IP Address of MG(SIP):10.41.1.100
Do you change IP Address of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.100
Current Subnet mask of MG(SIP):255.0.0.0
Do you change Subnet mask of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new Subnet mask:255.255.0.0


--- IP Address setting of TFTP server ---
Current IP Address of TFTP server:10.41.1.250


Do you change IP Address of TFTP server?
[Y(change)/N(current)/Q(quit)]:y
```

Enter "download" in configuration mode.

To download one program, enter "2".

Select a port to use.
(With the default setting, select Ether1. If selecting Ether2, using two ports must be set in the "set ipaddress" command.)

To change the IP address that is used for downloading, enter "y".

Enter the IP address.

To change the subnet mask of the selected port, enter "y".

Enter a subnet mask.

To change the TFTP server IP address, enter "y".
(Default address: 10.41.1.250)

```
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.250
IP Address change was completed.
New IP Address of MG(SIP):172.16.253.100
New Subnet mask of MG(SIP):255.255.0.0
New IP Address of TFTP server:172.16.253.250
Are these IP Address correct? [Y(correct)/
N(change)/Q(quit)]
If you enter Y, MG(SIP) ONLINE service will be
stop:y
mgsipmwlist.txt download...
tftpDownload:User file TFTP start.
Received.

--- Program download ---
Main program:0
tone data:1
music data:2
wave file:3
config data:4
Quit:[Q/q]
Input:0
SP4089/MAIN/main.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
Download was completed!

--- Program download ---
Main program:0
```

Enter the IP address.

When the specified IP addresses are correct, enter ‘y’.

Select a file you want to download.

Download starts.

```
tone data:1
music data:2
wave file:3
config data:4
Quit:[Q/q]
Input:q


Please reboot after a download menu end.


--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:q


MG(SIP) >
```

When download is complete, the program download menu appears again. Enter ‘q’ to exit download command.

5.2.3.1 How to download a WAVE file

If you select Type3 (WAVE file) for the music type of "set musictype" command, you can use a WAVE file for music on hold. Note that the payload type of the RTP header sent by MG-SIP128 [MG-128SIPMGL-A] must be G.711.

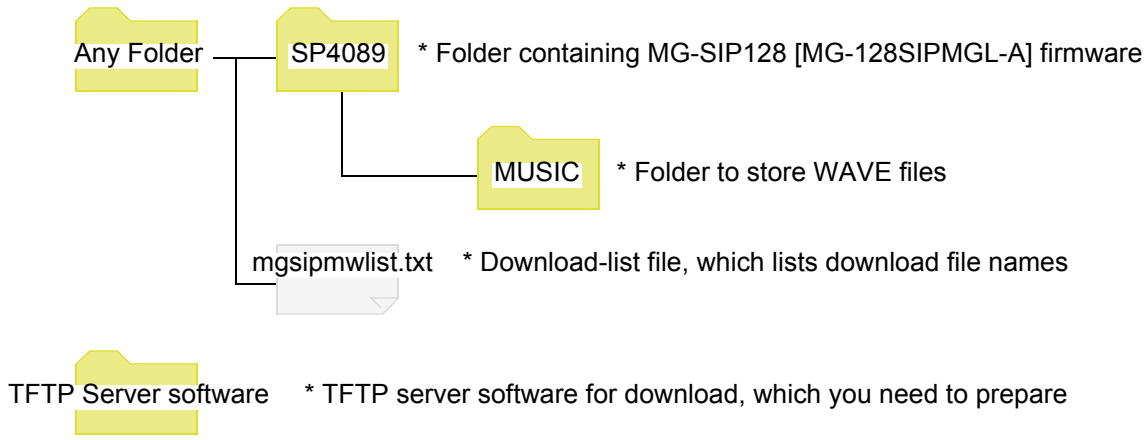
The following explains how to download a WAVE file.

- Place the firmware of MG-SIP128 [MG-128SIPMGL-A] in a folder on a TFTP server. If the firmware is not present, create a folder with the name of the MG-SIP128 firmware ("SP4089" in this case) in a folder on the server, and then create a subfolder named "MUSIC" to store WAVE files. A WAVE file must be named as "music_3.wav".
- Place the WAVE file in the MUSIC folder (a subfolder of the above-mentioned firmware folder).
- Form the download-list file (mgsipmwlist.txt) under the firmware folder as below.

```
# This is Firmware list for SN8178
00,SP4089/MUSIC/music_3.wav,0
```

Note: When adding WAVE files to the download-list (mgsipmwlist.txt), assign sequential numbers (such as 00, 01, 02,...) to all files as shown in the red frame in the image above.

File Structure



5.2.3.2 About WAVE file format

A WAVE file must meet the following specifications as its format:

- Sampling Frequency: 8kHz
- Quantifying Bit Number:8 bit
- Quantifying Format: G.711 μ-law/A-law
- Channel: Monaural
- Capacity: Only a single WAVE file with about 10 MB (about 20 minutes)
  * Note that the actual capacity may be smaller because the capacity of 10 MB includes the management area of the file system.

[Display example of downloading a WAVE file (music_3.wav) individually]

```
MG(SIP) > download

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:2

--- IP Address setting of MG(SIP) ---
Select Ether Port [1(Ether1)/2(Ether2)/
Q(quit)]:1



Current IP Address of MG(SIP):10.41.1.100
Do you change IP Address of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.100
Current Subnet mask of MG(SIP):255.0.0.0
Do you change Subnet mask of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
```

Enter “download” in configuration mode.

Enter “2” to download a program individually.

Select a port to use.
(With the default setting, select Ether1. If selecting Ether2, using two ports must be set in the “set ipaddress” command.)

To change the IP address of the selected port, enter “y”.

Enter an IP address.

To change the subnet mask of the selected port, enter “y”.

```
If you want to return to the previous step,
please input 'Q'.
Input new Subnet mask:255.255.0.0


--- IP Address setting of TFTP server ---
Current IP Address of TFTP server:10.41.1.250


Do you change IP Address of TFTP server?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.250
IP Address change was completed.
New IP Address of MG(SIP):172.16.253.100
New Subnet mask of MG(SIP):255.255.0.0
New IP Address of TFTP server:172.16.253.250
Are these IP Address correct? [Y(correct)/
N(change)/Q(quit)]
If you enter Y, MG(SIP) ONLINE service will be
stop:y
mgsipmwlist.txt download...
tftpDownload:User file TFTP start.
Received.


--- Program download ---
Main program:0
tone data:1
music data:2
wave file:3
config data:4
Quit:[Q/q]
```

Enter a subnet mask.

To change the TFTP server IP address, enter “y”.
(Default address: 10.41.1.250)

Enter an IP address.

Enter “y” after confirming the entered IP address.

```
Input:3
SP4089/MUSIC/music_3.wav download...
tftpDownload:User file TFTP start.
Received.
Checksum No Check. Checksum of SP4089/MUSIC/
music_3.wav is 23915.
Download was completed!

--- Program download ---
Main program:0
tone data:1
music data:2
wave file:3
config data:4
Quit:[Q/q]
Input:q

Please reboot after a download menu end.

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:q

MG(SIP) >
```

Select “3” representing wave file.

Download starts.

After the download is finished, download menu is restored.

Enter “download” in configuration mode.

Note: The conditions of “Display example of downloading a WAVE file (music_3.wav) individually” are as follows.

- Be sure to check the product name of the firmware to download before downloading.
- After downloading, initialize the MG-SIP128 [MG-128SIPMGL-A].

- Make sure of the following to set an IP address for download.
  1. A port to download files needs to have a different network address (or segment) from the other ports.
  2. Do not use a network address set as a static route in the routing table.
- If checksum error occurs during download, an error message similar to the following is displayed.

  Checksum unmatched!
  Checksum of SP4089/MAIN/main.tar.gz is 1234. Not 5678.
  Download failed!

  If an error message is displayed, the display goes back to the download menu. In this case, execute download again.
- If download fails, an error message and an error code are displayed.

  Error code: Cause of error
  Download failed!

The following lists causes and solutions of error codes.

Error Code	Error Display	Cause of Error	Troubleshooting
0	Undefined error	No specified folder (MAIN, TONE, MUSIC) in the TFTP server	Check the name of the TFTP server's folder to download files.
1	File not found	No download-list file	Check the folder setting of the download-list file in the TFTP server.
		Error in specifying the download-list file	Check the contents of the download-list file and the file name of the actually-downloaded file.
2	Access violation	No access permission	Check the TFTP server settings.

Some errors in downloading can be classified into none of the error codes; they are listed below: display, causes, solutions.

Error Display	Cause of Error	Troubleshooting
Hardware type ERROR! allDLoad: ListDLoad Error Download failed!	Hardware type discrepancy (for SN8178)	Check if the downloaded file is compatible with the hardware type (for SN8178).
Checksum unmatched! Checksum of SP4089/MAIN/main.tar.gz is 1234. Not 5678. Download failed!	Checksum discrepancy	Check if the contents of the download-list file correspond to the actually-downloaded file.
Download list unmatched! Download failed!	Request to download a file not written in the download-list file (individual download)	Check if the contents of the download-list file correspond to the actually-downloaded file. Download only files set in the download-list file.

Error Display	Cause of Error	Troubleshooting
ListDLoad : Sub directory error =[sub-folder name] ListDLoad: Download file is not found Download failed!	Incorrect name of the subfolder of the download-list file (only MAIN, TONE, MUSIC, and CONFIG are allowed)	Check the name of the subfolder of the download-list file.
ListDLoad: DataKind = [number] (0-255) is too large	Out of running numbers (0-255)	Check the contents of the download-list file.
ListDLoad: Comment strings too long =[comment strings]	Bad length of comment strings in the download-list file	Check if the download-list file is proper.
ListDLoad: Download file name is too long(91) =[download file name]	Bad length of the downloaded file name (representing 92 characters or more when including the subfolder)	Check if the download-list file is proper.
Transfer timed out. Download failed!	Specifying non-existing IP address	Check the IP address of the TFTP server.
	Specifying incorrect IP address	
	Enabled Windows firewall	Disable Windows firewall.
	Disconnected LAN cable	Make sure of no network problems including disconnection of an LAN cable.
	Inactivated TFTP server	Make sure that the TFTP server is activated.

5.2.4 Other Commands

(1) exit

(2) logout

[Function]

To exit the configuration command menu.

[Setting Example]

```
MG(SIP)> exit

login:
```

Note: After changing the configuration, if you execute this command without saving the running configuration, the system discards the change and exits the configuration command menu.

(3) reboot

[Function]

To reboot MG-SIP128 [MG-128SIPMGL-A]. It is also possible to save the running configuration data to the flash memory.

[Setting Example]

```
MG(SIP)> reboot

  Do you want to save Config data? Y/N=y

  Do you want to reboot MG(SIP)? Y/N=y

Config data flash write start.
Config data flash write end.

MG(SIP)reboot start...
```

Select if you want to save the running configuration data.
y: Saves the configuration data.
Note 1, **Note 2**
n: Do not save the configuration data.
If other than the above is selected, the following message is displayed.
Reboot command was interrupted.

Select if you want to reboot MG-SIP128 [MG-128SIPMGL-A].
y: Reboots MG-SIP128 [MG-128SIPMGL-A].
Note 2
n: Do not reboot MG-SIP128 [MG-128SIP-MGL-A].
If other than the above is selected, the following message is displayed.
Reboot command was interrupted.

Note 1: Before selecting "Y" to save the running configuration data to the Flash memory, be sure to execute the following commands:
- "set ipaddress": Assigns the IP addresses on LAN side, and SIP side.
- "set drsaddress": Assigns the IP address of DRS.
- "set sip_server": Assigns the IP address of SIP proxy server.
- "set keynumber": Assigns a pilot number.

If any of these items have not been assigned when saving the running configuration data, the following message will be displayed to the unassigned item. When these messages are displayed, you can select if you want to set the default configuration data. If you select "Y" here, the default values are applied to the configuration data.

Note 2: The configuration data is not saved until MG-SIP128 [MG-128SIPMGL-A] is rebooted.

```
The following setting commands are not
perfect.

"set ipaddress" command.(IPX side)
```

If IP address for LAN side has not been assigned.

```
"set ipaddress" command.(SIP side)

"set drsaddress" command.
"set sip_server" command.

"set keynumber" command.
So, Config data is made a default
setup.
Is it all right? Y/N=y
```

If IP address for SIP network side has not been assigned.

If IP address of DRS has not been assigned.

If IP address of SIP proxy server has not been assigned.

If a pilot number has not been assigned.

You can select if you want to apply the default values to the configuration data.
y: apply default value
n: do not apply default value
If other than the above is selected, the following message is displayed.
Reboot command was interrupted.

(4) ping

[Function]

To attempt "ping" command five times to the designated IPv4 host on the network.

[Setting Example]

```
MG(SIP)> ping 172.16.253.3



PING 172.16.253.3 (172.16.253.3) 56(84) bytes of data.
64 bytes from 172.16.253.3: icmp_seq=1 ttl=128
time=0.599 ms
64 bytes from 172.16.253.3: icmp_seq=2 ttl=128 time=1.02
ms
64 bytes from 172.16.253.3: icmp_seq=3 ttl=128
time=0.443 ms
64 bytes from 172.16.253.3: icmp_seq=4 ttl=128
time=0.304 ms
64 bytes from 172.16.253.3: icmp_seq=5 ttl=128
time=0.727 ms
---172.16.253.3 ping statistics---
5 packets transmitted, 5 received, 0% packet loss, time
3997ms
```

Enter "ping" command and designate the target IPv4 address.

```
rtt min/avg/max/mdev = 0.304/0.618/1.020/0.247 ms

MG(SIP)>
```

Note: The number of ping attempts (5 times) and packet size (56 bytes) cannot be changed.

(5) ping6

[Function]

To attempt "ping" command five times to the designated IPv6 host on the network.

[Setting Example]

```
MG(SIP)> ping6 2001:db8:1:0:216:97ff:fee7:a8c0



PING 2001:db8:1:0:216:97ff:fee7:a8c0
(2001:db8:1:0:216:97ff:fee7:a8c0) from
2001:db8:1:0:216:97ff:fee7:a8c0 eth1: 56 data bytes

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=1 ttl=64 time=0.015 ms

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=2 ttl=64 time=0.011 ms

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=3 ttl=64 time=0.010 ms

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=4 ttl=64 time=0.013 ms

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=5 ttl=64 time=0.011 ms

--- 2001:db8:1:0:216:97ff:fee7:a8c0 ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time
3997ms

rtt min/avg/max/mdev = 0.010/0.012/0.015/0.002 ms

MG(SIP)>
```

Enter "ping6" command and designate the target IPv6 address.

Note: The number of ping attempts (5 times) and packet size (56 bytes) cannot be changed.

(6) traceroute

[Function]

To inquire network routes. The following figures show display examples.

[On the Telephony Server Side]

```
MG(SIP)> traceroute
  Interface number(0:IPX side/1:SIP side):0



  Target IP Address:172.16.253.3
  traceroute to 172.16.253.3 (172.16.253.3), 3
  hops max, 38 byte packets
1 172.16.253.3 (172.16.253.3) 0.047 ms 0.028
ms 0.010 ms
MG(SIP)>
```

Select if this is on the Telephony Server side or SIP side.
0: Telephony Server side
1: SIP side
"0" is selected.

Designate the IP address of the target.

[SIP Side]

```
MG(SIP)> traceroute
  Interface number(0:IPX side/1:SIP side):1



  Target IP Address:172.17.253.210

  traceroute to 172.17.253.210
  (172.17.253.210), 3 hops max, 38 byte
  packets
1 172.17.253.210 (172.17.253.210) 0.047 ms
0.028 ms 0.010 ms
MG(SIP)>
```

Select if this is on the Telephony Server side or SIP side.
0: Telephony Server side
1: SIP side
"1" is selected.

Designate the IP address of the target.
Note 3

Note: When the response from the network is delayed, it takes time to complete the command.

Note 3: When "IPv6" is selected by "set ip_version", input an IPv6 address for Target IP Address. When "IPv4" is selected by "set ip_version", input an IPv4 address for Target IP Address.

(7) help or ?

[Function]

This command is used to show the brief explanation of the configuration commands that are available on MG-SIP128 [MG-128SIPMGL-A].

[Setting Example]

```
MG(SIP)> help
set       :sets config data of MG(SIP).
show      :shows config data of MG(SIP).
download  :downloads program of MG(SIP).
ping      :Ping command.
traceroute:Traceroute command.
exit      :log-out command of config mode.
logout    :log-out command of config mode.
reboot    :reboots MG(SIP).
help      :shows help information.
?         :shows help information.
```

5.3 Error Messages

When an error occurs while using a configuration command, an error message prompting for re-registration is displayed.

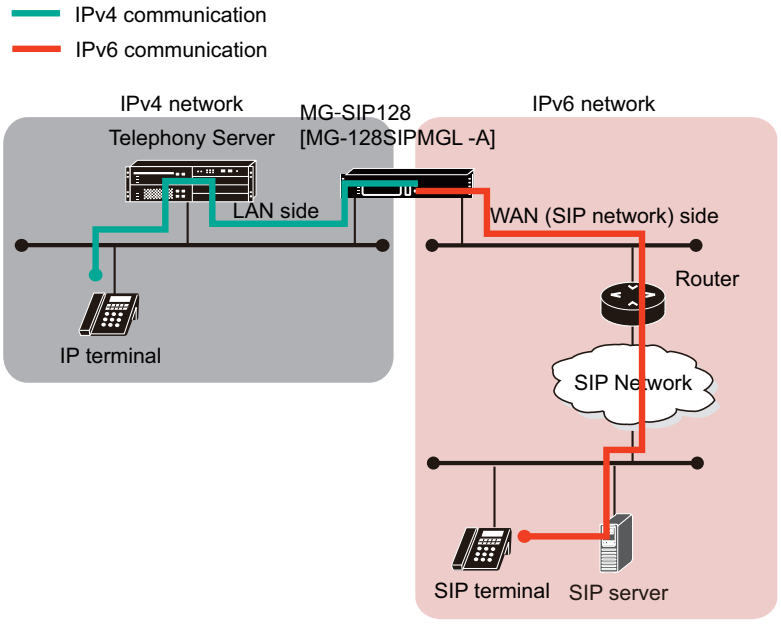
ERROR MESSAGE	TROUBLESHOOTING
Illegal command.	An incorrect command is entered. Enter the command correctly.
Illegal parameters.	An incorrect parameter is entered. Enter the parameter correctly.
Illegal parameters. (Not IPv6 address)	An incorrect parameter is entered. Enter the IPv6 parameter correctly.
Illegal parameters. (Not IPv4 address)	An incorrect parameter is entered. Enter the IPv4 parameter correctly.

Refer to each command for the other error messages.

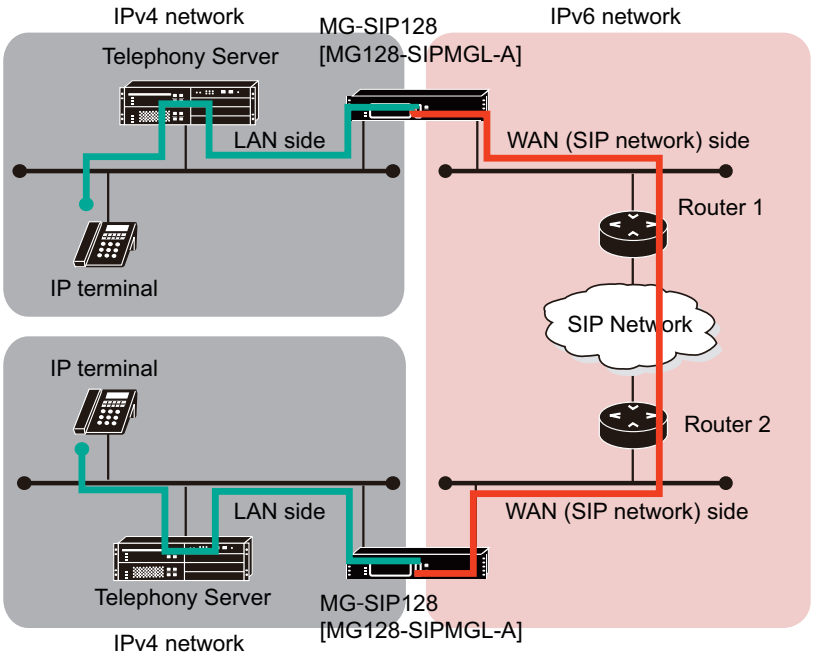
5.4 IPv6 Function

MG-SIP128 [MG-128SIPMGL-A] supports IPv6 function based on RFC2460 in order to communicate with the SIP server having an IPv6 address. When IPv6 mode is enabled, IPv6 packets are sent from/received to WAN side (through the Ether2 port) on MG-SIP128 [MG-128SIPMGL-A]. You can select an IP version to be used on the Ether2 port by a configuration command.

- When SIP server exists



- When SIP server does not exist



[Operating Procedure]

To enable IPv6 function, execute the following commands. For the details of the commands, refer to 5.2. List of Maintenance Console Commands.

STEP 1: Select "IPv6" by "set ip_version" command. **Note 1**

STEP 2: Set SIP server address by "set sip_server" command.

STEP 3: Set the SIP register address by "set sip_register" command if needed.

* This command is required depending on the carrier that MG-SIP128 [MG-128SIPMGL-A] connected.

STEP 4: Set the IP address of the Telephony Server by "set drsaddress" command.

STEP 5: Set Ether1 information by "set ipaddress" command. **Note 2**

STEP 6: Set the key number by "set keynumber" command.

STEP 7: Set the user ID and the password by "set auth" command if needed.

* This command is required depending on the carrier that MG-SIP128 [MG-128SIPMGL-A] connected.

STEP 8: Set other commands if needed.

STEP 9: Execute the "reboot" command to save the configuration and restart the MG-SIP128 [MG-128SIPMGL-A].

Note 1: If you change the IP version by "set ip_version" command, you also need to change the following command settings to activate IPv6 function. After those settings, execute the "reboot" command to save the configuration and restart the MG-SIP128 [MG-128SIPMGL-A].

<table>
<tr><th rowspan="2"></th><th colspan="2">Changing IPv4 to IPv6</th><th colspan="2">Changing IPv6 to IPv4</th></tr>
<tr><th>IPv6 Related Data Settings Exist</th><th>No IPv6 Related Data Settings Exist</th><th>IPv4 Related Data Settings Exist</th><th>No IPv4 Related Data Settings Exist</th></tr>
<tr><td>dnsaddress</td><td rowspan="3">Change the current setting to the last setting.</td><td rowspan="3">Change the current setting to "::".</td><td rowspan="4">Change the current setting to the last setting.</td><td rowspan="4">Change the current setting to "0.0.0.0".</td></tr>
<tr><td>sip_server</td></tr>
<tr><td>sip_register</td></tr>
<tr><td>ipaddress
Note 3</td><td colspan="2">For Ether2 port, an IP address is generated by receiving the Router Advertisement (RA) message.</td></tr>
<tr><td>sip_route</td><td>Change the current setting to the last setting.</td><td>Change the current setting to "::".</td></tr>
<tr><td>sip_accfilter</td><td>Change the current setting of SIP Access Filter mask to the last setting.</td><td>Change the current setting of SIP Access Filter mask to "128".</td><td>Change the current setting of SIP Access Filter mask to the last setting.</td><td>Change the current setting of SIP Access Filter mask to "255.255.255.255".</td></tr>
</table>

Note 2: When IPv6 function is in service, Ether2 IP address can be generated by MG-SIP128 [MG-128SIPMGL-A] after MG-SIP128 [MG-128SIPMGL-A] receives the RA message from the router. So Ether2 IP address setting is unnecessary.

Note 3:

- "set ip_version: IPv6" is executed.
  When the last IP address set for Ether2 port remains, it appears.
  When the last IP address set for Ether2 port does not remain,"::" appears.
  When Ether2 port fails to obtain an IP address,"::" appears.
- "set ip_version: IPv4" is executed.
  When the last IP address set for Ether2 port remains, it appears.
  When the last IP address set for Ether2 port does not remain,"0.0.0.0" appears.

[Conditions Specific to IPv6 Function]

(1) IPv6 and IPv4 cannot be used simultaneously.

(2) IPv6 address can be set only by "stateless address autoconfiguration" in the router. So, this function requires to connect a router supporting IPv6. When two or more routers exist or two or more prefixes used for the router in the WAN side, IP address settings may be overlapped. To avoid it, this function allows only one router to be connected in the WAN side, and one prefix can be used per router. This function does not support allocating fixed IP addresses manually and distributing IP addresses from DHCPv6 server.

(3) When IPv6 function is in service, IPv4 packets are discarded. When a SIP request for IPv6 packet has any IPv4 address in its message body using SDP, MG-SIP128 [MG-128SIPMGL-A] responses to the request with returning 488 Not Acceptable Here. A warning code is not added to 488 Not Acceptable Here.

(4) When IPv6 function is out of service, IPv6 packets are discarded. When a SIP request for IPv4 packet has any IPv6 address in its message body using SDP, MG-SIP128 [MG-128SIPMGL-A] responses to the request with returning 488 Not Acceptable Here. A warning code is not added to 488 Not Acceptable Here.

(5) When IPv6 function is in service, be sure to set an IPv6 address for each configuration command requiring IP address setting.

(6) In this feature, IPv6 addresses can be abbreviated. For example, "2001:db8::850" can be typed. Also, IPv6 addresses can be typed in the general form. For example, "2001:0db8:0000:0000:0000:0000:0000:0850" can be typed.

- Short Form

```
2001:db8::850
```

- General Form

Lowercase letters only	2001:0db8:0000:0000:0000:0000:0000:0850
Uppercase letters only	2001:DB8::850
Mix of Lowercase and Uppercase letters	2001:dB8::850

(7) "One-port only" is not supported by IPv6 function. Do not enable "one-port only" with the set_ipaddress command when IPv6 is selected with the set ip_version command.

(8) When Ether2 port fails to obtain an IPv6 address while IPv6 function is active, it attempts to obtain the address for 30 minutes. If it fails again, MG-SIP128 [MG-128SIPMGL-A] reboots itself.

(9) When Ether2 port fails to obtain an IPv6 address while IPv6 function is active, MG-SIP128 [MG-128SIP-MGL-A] attempts to obtain the address for 30 minutes. If the SC Health Check is performed, MG-SIP128 [MG-128SIPMGL-A] may reboot itself while attempting to obtain the IPv6 address information again. So the Health Check is not performed.

(10) Address information is not deleted by removing and inserting Ether2 cable. IPv6 information is valid if it is obtained before expiring the time limit.

(11) When Ether2 port attempts to obtain an IPv6 address during the system initialization, the system initialization is not completed and ONLINE START/OFFLINE START does not appear until Ether2 port obtains the IPv6 address.

(12) When IPv6 function is in service, download and upload is not available on Ether2 port.

MG-SIP16 [SCA-16SIPMG(US) -B/SCA-16SIPMG(US)]

1 What is MG-SIP16?

MG-SIP16 [SCA-16SIPMG(US) -B/SCA-16SIPMG(US)] is an Media Gateway to provide the system with Session Initiation Protocol (SIP) interface. It enables the system to build multi-service and reliable Voice over IP (VoIP) networks using SIP defined by IETF. SIP is an application-layer control protocol that can initiate call setup, routing, authentication and transferring other feature messages to endpoints.

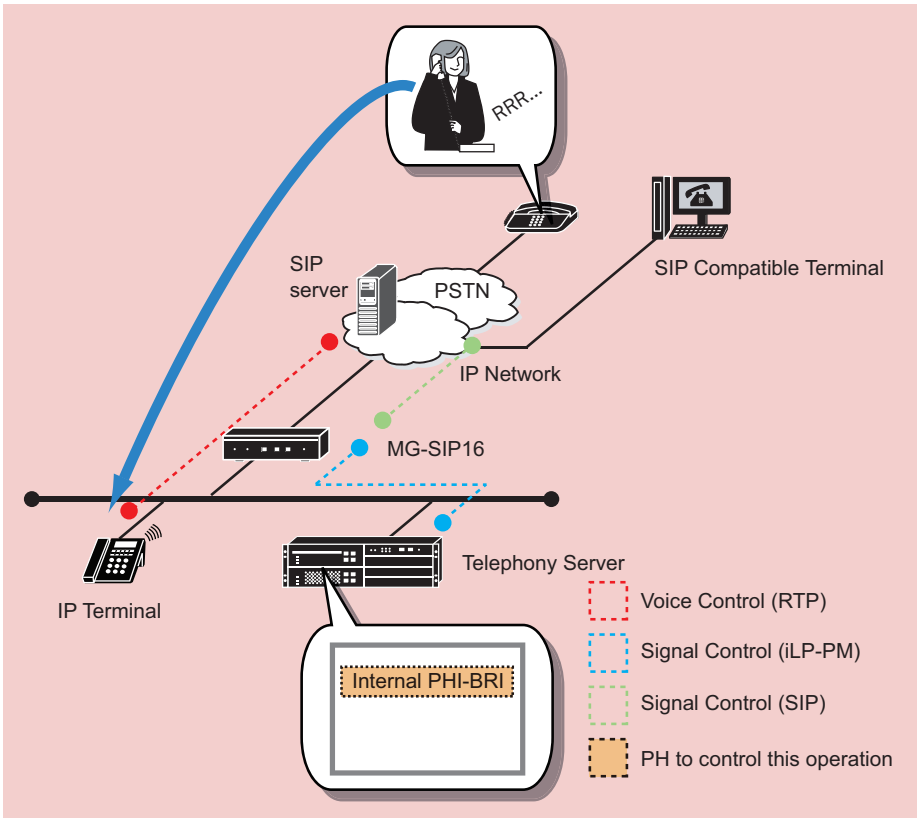
Up to 16 channels of extensions in the network can communicate to the outside SIP network via an MG-SIP16 at the same time. As MG-SIP16 complies with small and middle sized remote offices flexibly, more offices can profit Peer-to-Peer VoIP services using IP telephone.

Equivalent to 96-channel type of MG-SIP, MG-SIP16 supports the SIP standard terminals based on RFC3261. Thereby, MG-SIP16 controlled by Internal PHI-BRI (**Note 1**) of Telephony Server provides a full array of the call routing capabilities to maximize network performance in the packet voice network (SIP network). MG-SIP16 provides the system with a flexible and cost-efficient network environment without wasting the accumulated assets of the Telephony Server services.

SCA-16SIPMG(US) -B/SCA-16SIPMG(US) is MG-SIP16 for card type.

Note 1: Internal PHI-BRI is installed in the Telephony Server to control the signaling between the Telephony Server and MG-SIP via external Ethernet of the Telephony Server.

Note: Available in North America and Australia.



Note: Connection test with common carrier is required.

Note: The following table shows the number of available channels of MG-SIP16.

	10ms	20ms	30ms	40ms	60ms
G.711	-	16ch	16ch	16ch	-
G.729a	-	16ch	16ch	16ch	-
G.723.1	-	-	-	-	-

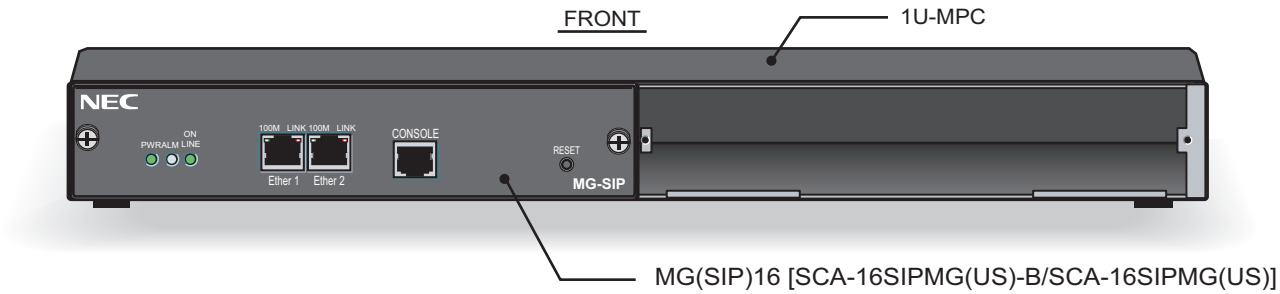
2 Specifications

2.1 Hardware Specifications

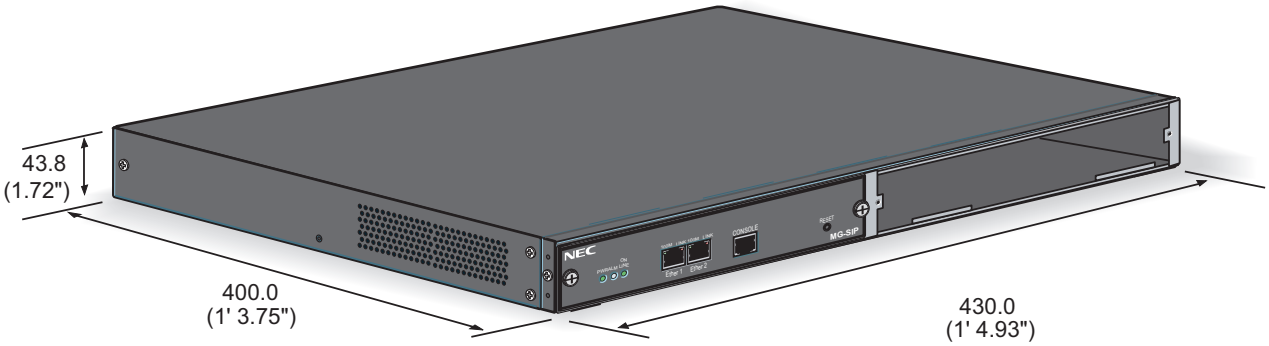
This subsection explains the hardware specifications of SCA-16SIPMG(US) -B/SCA-16SIPMG(US). The figure below shows the outer view of MG-SIP16 [SCA-16SIPMG(US) -B/SCA-16SIPMG(US)].

- Outerview

The following shows the outerview of MG-SIP16.



- Dimension



Unit : mm (inch)

ITEM	SPECIFICATION		REMARKS
External interface	RJ-45 Serial connector × 1		for maintenance
	RJ-45 Ether connector (100BASE-TX/10BASE-T) × 2		Port for connecting to LAN × 1 Port for connecting to SIP network × 1
Setting	Desktop horizontal setting (standard setting)		without any fastening hardware
	19-inch rack mount		SV70 RACK MTG is used
Input power supply	100 VAC (50/60 Hz) ± 10% 120 VAC (50/60 Hz) ± 10% 230 VAC (50/60 Hz) ± 10% 240 VAC (50/60 Hz) ± 10%		
Electric power consumption	15 W / 30 VA		
Weight	1.8 kg		
Environmental requirement	Operational Temperature Range	0°C to 40°C (32°F to 104°F)	
	Operational Humidity Range	20% to 90% (not condensing)	
Cooling	Air-cooling without FANs		

2.2 Software Specifications

The available features are in the following:

ITEM	SPECIFICATION	REMARKS
LAN interface	10Mbps/100Mbps Ethernet	
Communication speed	10Mbps/100Mbps auto negotiation, Half/Full duplex	
Protocol	RFC3261 (SIP)	Only UDP is supported
SIP server conditions	SIP Proxy Server	
Channel capability	Maximum 16 channels/MG-SIP16	
Voice CODEC	G.711, G.729a	
FAX relay	Data transmission as voice data (G.711)	
DTMF	H.245 Alphanumeric (LAN side) RFC2833 (LAN side (**Note 1**)/SIP network side) Data transmission as voice data (G.711)	
Address translation	IP masquerade (NAPT)	
Caller ID notification	Direct-in number, Pilot number	
Download	Firmware download	
Holding tone	Internal Music 1: Minuet Internal Music 2: For Elise	
Maintenance	Maintenance console (PC) via serial connection	Telnet remote maintenance is not supported

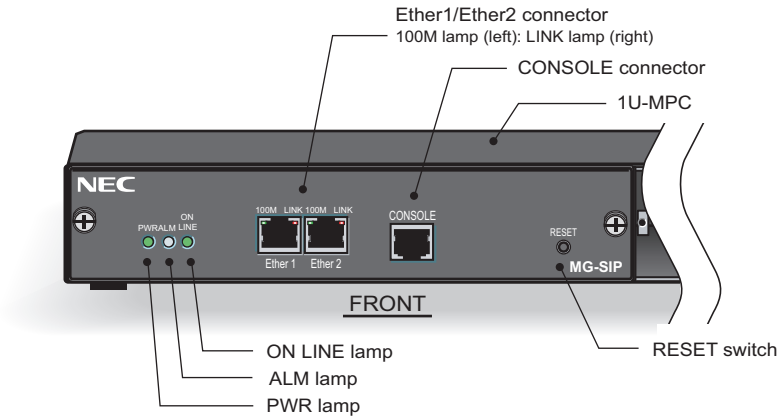
Note: Tone and holding tone to SIP network are generated by MG-SIP. When MGC(PHI-BRI) external holding tone is selected by ASYDL command, the information is provided by the Telephony Server (via IPPAD).

Note 1: When the setting of RFC2833 packet transparency is enabled, RFC2833 packets can be processed in LAN side. For details, see “SETDRFC2833_PASS”.

2.3 Switches, Lamps, and Connectors

- Front

See the figure and table below for the location and description of the parts on the front panel.



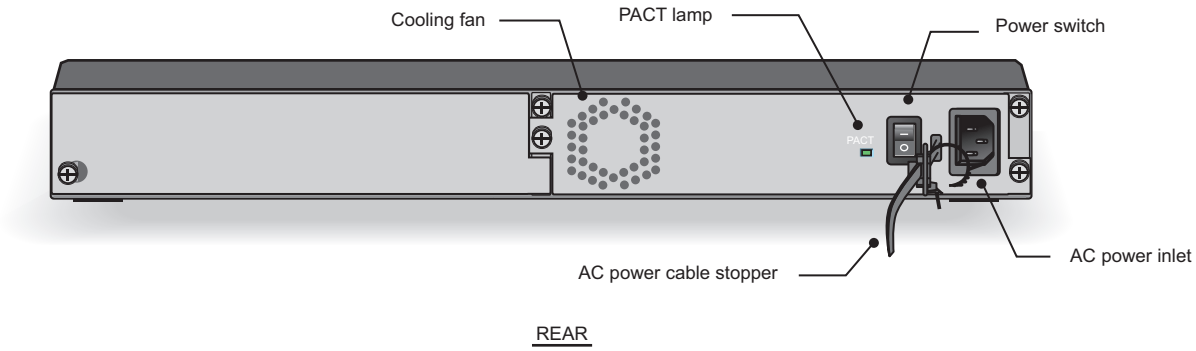
Description of Lamps and Connectors on Front Panel

NAME		COLOR	DESCRIPTION	REMARKS
PWR Lamp		Green	Power ON	
		OFF	Power OFF	
ALM Lamp		Red	Lights when power failure occurs.	
		OFF	Normal operation	
ON LINE Lamp		Green	Lights when registration is established.	
			Flashes in abnormal state during initialization.	**Note 1**
		OFF	Remains OFF when the initial setting is incomplete.	
Ether connector	Ether1	Ether interface for LAN		
	Ether2	Ether interface for WAN (SIP network side)		
100M lamp (Ether1/2)		Green	Transmission speed is 100 Mbps.	
		OFF	Transmission speed is 10 Mbps.	
LINK lamp (Ether1/2)		Green	Lights when Layer 1 link is established.	
			Flashes during IP packets are being sent/received.	
		OFF	Remains OFF when Layer 1 link is not established.	
CONSOLE		Interface for connecting an external maintenance console (PC) with RS-232C cable.		*for maintenance

Note 1: If ON LINE lamp flashes, it is considered that MAIN program/TONE data/MUSIC data has not been found.

- Rear

  See the figure and table below for the location and description of the parts on the rear panel of MG-SIP16.



Description of Switches and Connectors on Rear Panel

NAME	DESCRIPTION	REMARKS
AC power inlet	Plug in an attached grounded AC power cable for main power supply (Cable Length: 3 m [9.8 ft.])	
POWER switch	Power is supplied to MG-SIP16 (Up: ON, Down: OFF)	**Note 2**
PACT lamp	Indicates the state of the power unit.	

Note 2: When turning off the power supply, wait for more than one second to turn on the power switch again.

3 Installation

This section explains how to install the MG-SIP16. Be sure to use anti-static kit.

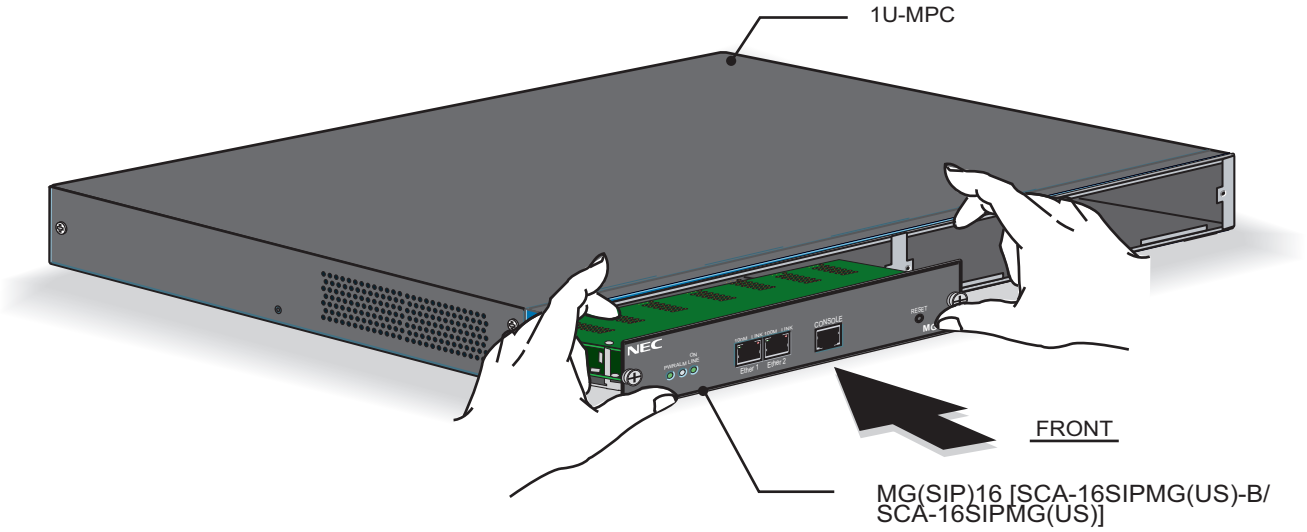
3.1 Installation of MG-SIP16

Installation location should be easily accessible to the following:

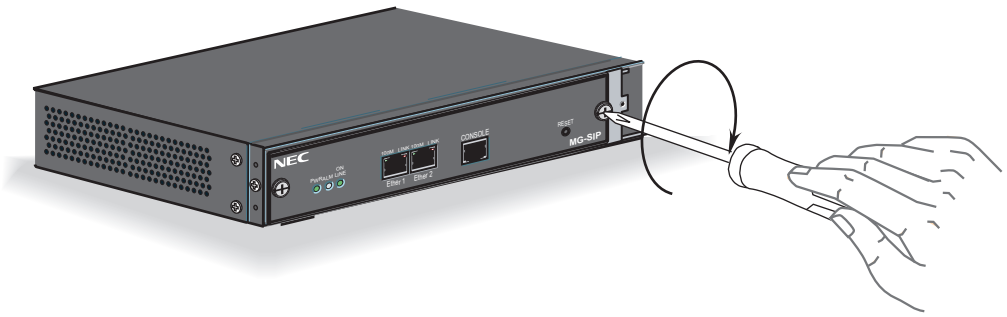
- WAN (SIP network)/LAN
- Power supply
- a PC that runs communication software such as HyperTerminal
- grounding (less than 10 Ω)

STEP 1: Use the anti-static kit.

STEP 2: Insert MG-SIP16 Card into the 1U-MPC module as shown in the figure below, which shows an example where the card is installed into left side of the 1U-MPC.



STEP 3: Secure the inserted card onto the unit firmly using the two screws.

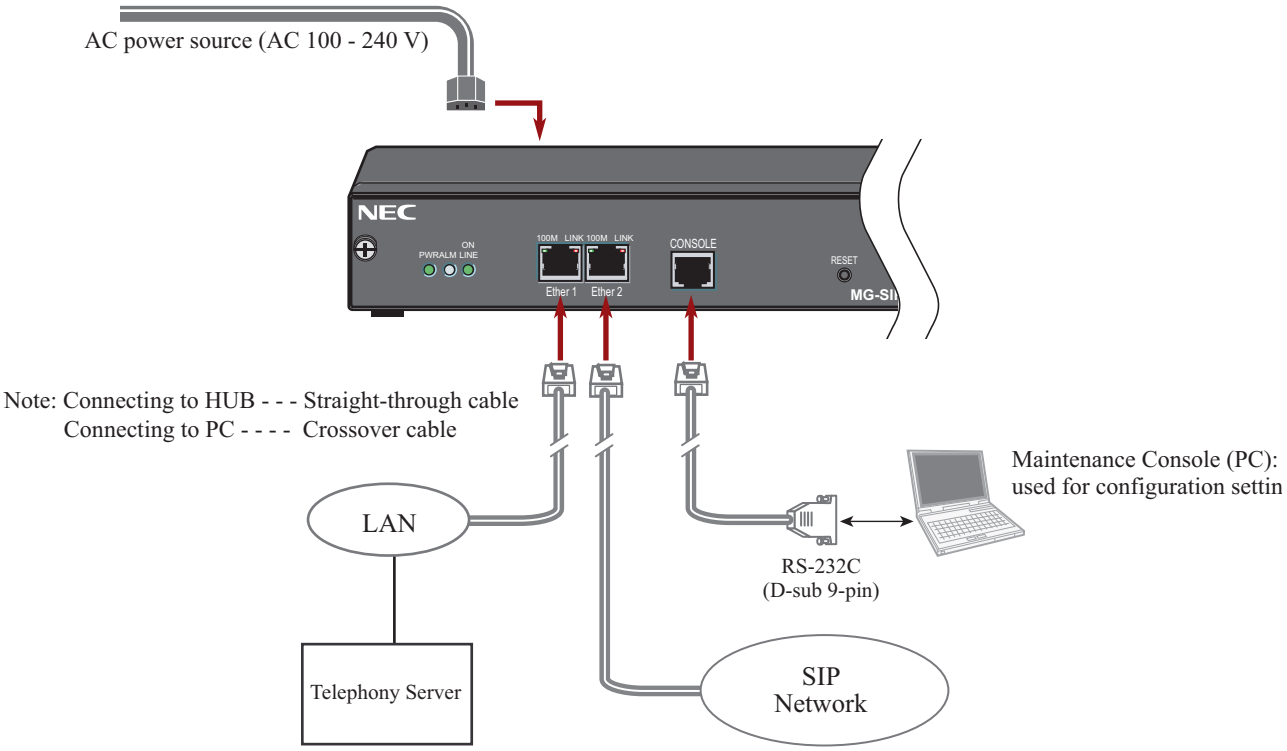


3.2 Cable Connection

MG-SIP16 provides the following types of interfaces:

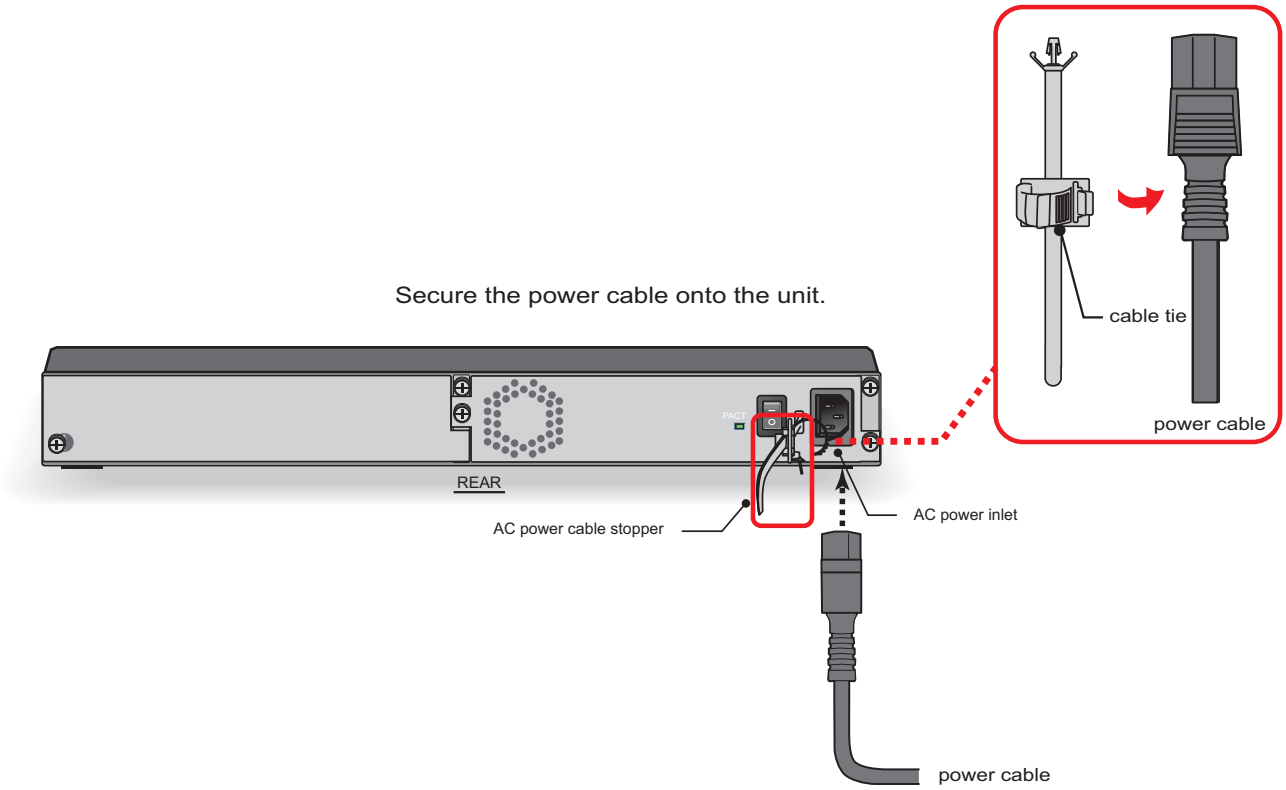
- Ethernet Port to WAN (SIP network)/LAN
- Power Supply
- Serial Port connection to Maintenance Console

Connect the required cables according to your system configuration.



STEP 1: AC power cable connection

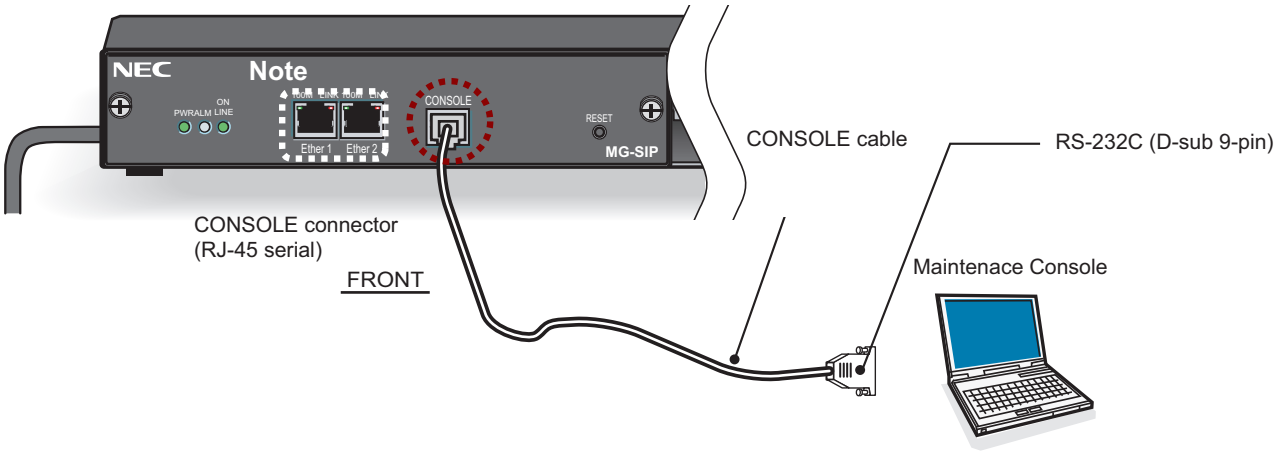
Connect AC power cable to AC Power Inlet on the rear panel of MG-SIP16. Fix the AC power cable with the stopper.



STEP 2: Connect the other end of the power cable to appropriate AC supply.

Note: For the safety measures against static electricity, lightning strike, and other electrical surges, be sure to make proper connection to grounding (less than 10 W).

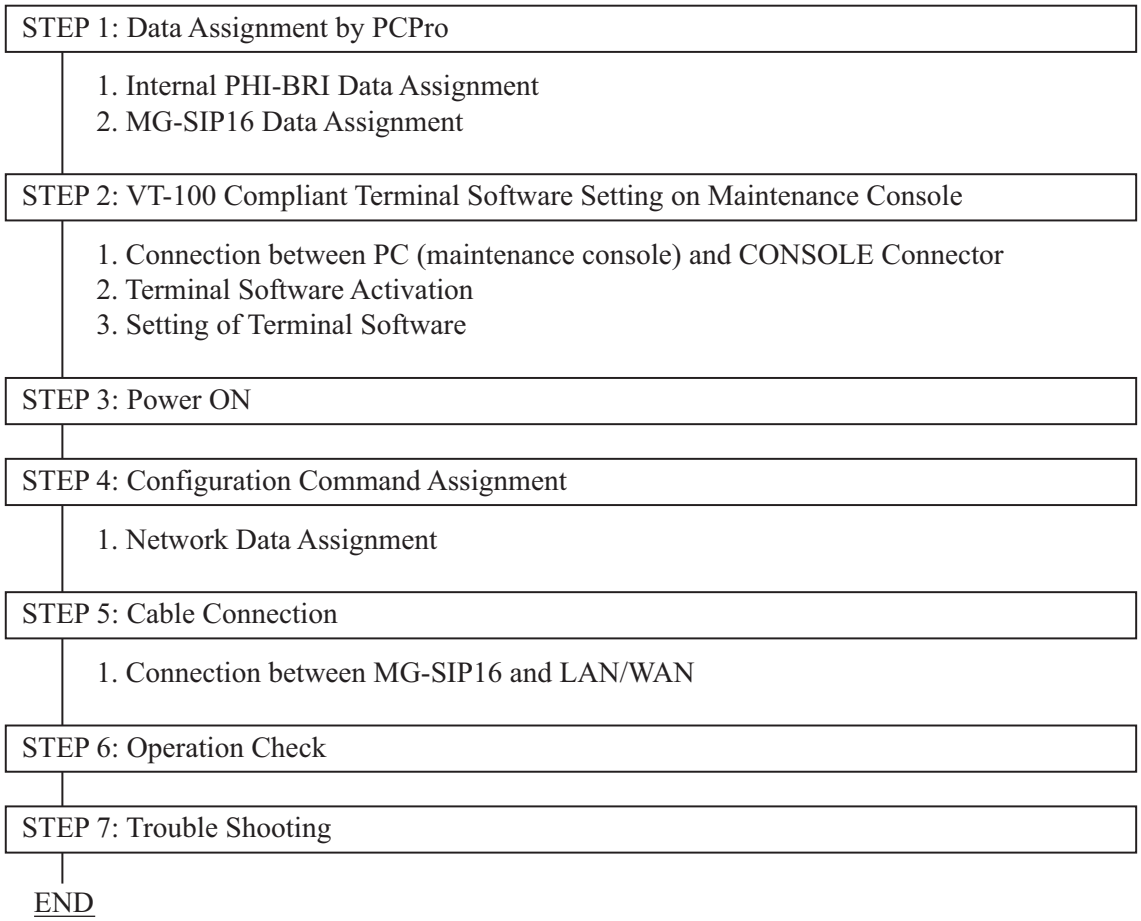
STEP 3 Connect a Maintenance Console (PC) to CONSOLE connector using CONSOLE cable.



Note: LAN cables should not be connected to Ether1 and Ether 2 connectors at this time. Theses will be connected after setting the network data.

4 Startup MG-SIP16 and Basic Tests

This section explains procedures for startup and basic tests. Follow the procedure below. These steps provide the minimum data required only for MG-SIP16 setup. Before taking the following steps, refer to Service Conditions of [M-111] Media Gateway SIP in Data Programming Manual - Business, and make sure the network environment is appropriate for setting MG-SIP16.



4.1 Data Assignment by PCPro

Please refer to [M-111] MG-SIP in Data Programming Manual - Business.

4.2 VT-100 Compliant Terminal Software Setting on Maintenance Console



Note: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data.

STEP 1: Connect a PC (maintenance console) to CONSOLE connector.

STEP 2: Run VT-100 compliant terminal software (e.g. HyperTerminal) on the Maintenance Console.

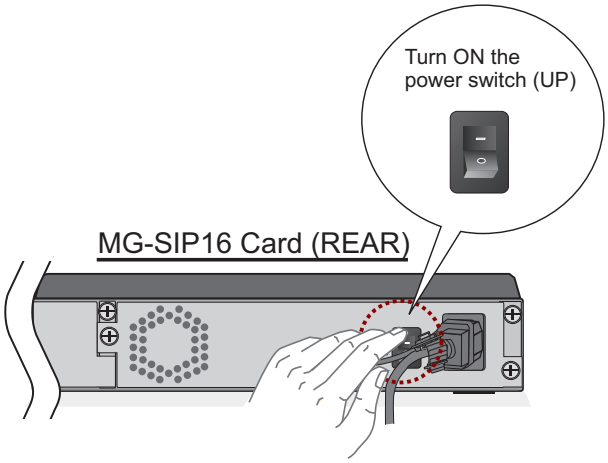
STEP 3: Set the parameter of the terminal software as follows:

- Port: *COM1 (depending on PC setting)*
- Baud Rate: *9600 bps*
- Data: *8 bits*
- Parity: *None*
- Stop Bit: *1*
- Flow Control: *None*

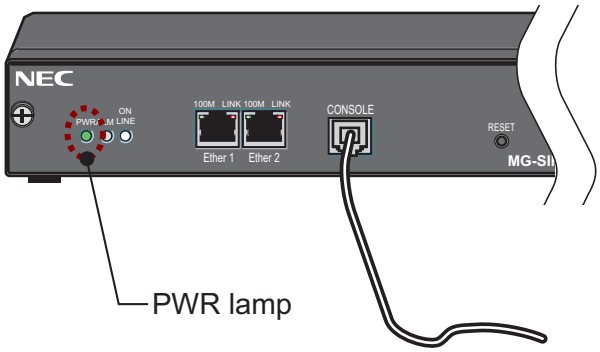
4.3 Power ON



STEP 1: Turn on the MG-SIP16. (Power switch is provided on the rear panel of MG-SIP16).



STEP 2: Make sure the LED indicate normal status.
- PWR lamp lights green (*Boot program automatically starts)



4.4 Configuration Command Assignment

Assign the configuration data by command operation on the maintenance console.

Note: "DRS (Device Registration Server)" used in this section refers to the Telephony Server. The Telephony Server acts as DRS for MG-SIP16 using Proprietary Protocol.

The following message is displayed on the Maintenance Console screen. **Note 1**

```
DP OK [N]

MG-ID: 000064e9a6b1
MG-ID: 000064e9a6b2
Boot program version : SP3839 SH7751R CBOOT-1 PROG-A [04.00.00.00]
Main program version : SP3988 MG SIP(16) PROG-G [01.00.00.00]

H/W PKG information : CA-CC10
DSP information : Not detect information.



Starting Boot program.....

--- Online program Initial start (Wait for a while.) ---

Attaching interface lo0...done

Adding 6009 symbols for standalone.

Main Program Start.....

Press Enter Key.

please setting config data!!
```

MAC address of Ether1 **Note 2**
MAC address of Ether2
BOOT program name/version
MAIN program name/version
Note 3
hardware name/version

Note 4

Note 1: If the CONSOLE cable is connected after starting up the MG-SIP16, "->" prompt will not appear. In this case, press Enter key to display "->" prompt.

Note 2: MAC address that you need to register on "Data Assignment by PCPro".

Note 3: When downloading a firmware, an initialization is required to display the version of the downloaded firmware.

Note 4: To confirm the configuration information:
Press ESC key within five seconds after "Main Program Start..." to display "->" prompt. Then, input "config" to go into the configuration mode. (However, registration to the Telephony Server is not executed.

Note: If the key control is not activated, a communication problem between the console and the MG-SIP16 might occur. Make sure the connector is firmly inserted.

Using Configuration Commands, assign the MG-SIP16 data. The following data is assigned here:

Setting Data	Configuration Command
IP address of MG-SIP16's ether port	`set ipaddress`
IP address of MGC (DRS)	`set drsaddress`
SIP server data	`set sip_server`
Pilot number of MG-SIP16	`set keynumber`

Note: Assign the data depending on the SIP network configuration.

[Enter in config mode]

STEP 1: When a prompt "`->`" is displayed, enter "config" and then press Enter key.

```
-> _
```

STEP 2: A prompt "`MG(SIP)>`" is displayed indicating that you are in config mode.

```
-> config
MG(SIP) > _
```

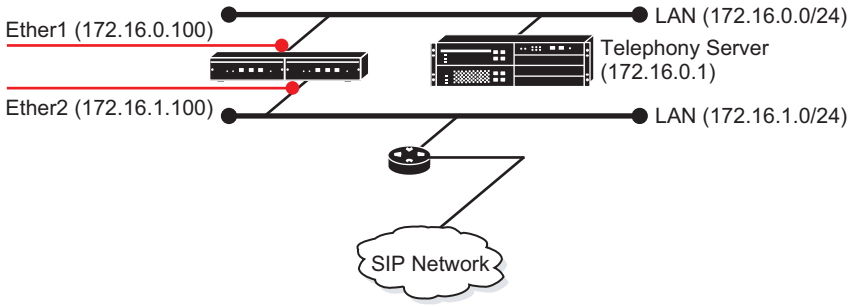
[Set IP Address of MG-SIP16]

MG-SIP16 has two LAN ports (Ether1 and Ether2) on the front panel. Each port is used as follows:

- Ether1: for connecting LAN
- Ether2: for connecting WAN (SIP network)

Note: When IP addresses that belong to the same segment are used for Ether1 and Ether2, set the IP address to Ether1 only. Otherwise, set IP addresses for both Ether1 and Ether2.

STEP 1: Set the IP addresses of MG-SIP16 (Ether1 and Ether2) by using **`set ipaddress`** command. The following shows a sample setting for the network configuration.




```
MG(SIP) > set ipaddress

Use one-port only? Y/N=n

Ether[1]
         IP address: 172.  16.   0. 100
         Subnet:     255. 255. 255.   0

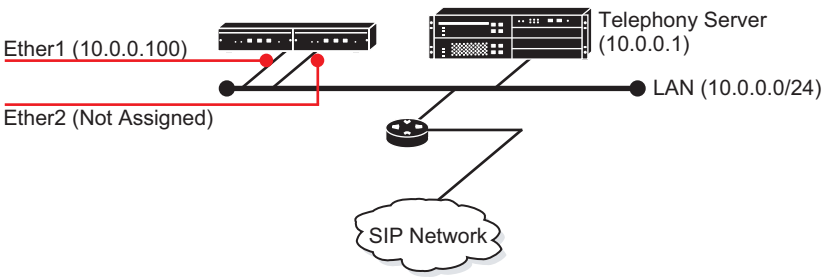

Ether[2]
         IP address: 172.  16.   1. 100
         Subnet:     255. 255. 255.   0
```

- Enter “n” when two ports are used.

Ether [1]: LAN
- Assign the IP address (default: 0.0.0.0) for Ether [1].
- Assign the subnet mask (default: 0.0.0.0) for Ether [1].

Ether [2]: SIP network
- Assign the IP address (default: 0.0.0.0) for Ether [2].
- Assign the subnet mask (default: 0.0.0.0) for Ether [2].

The following shows an example where Ether1 and Ether2 belong to the same segment.



[Set IP Address and Port Number of DRS]

STEP 1: Assign the IP address and port number of DRS by using **`set drsaddress`** command.**Note 5**

`MG(SIP) > set drsaddress`	
`DRS unit(0)`	
`DRS IP address: 172.16.0.1`	• Assign the IP address of DRS.
`DRS port number(1024-65535): 3456`	• Assign the UDP port number DRS (Default: 3456).
`DRS unit(1)`	
`DRS IP address: 0.0.0.0`	• Skip this by pressing Enter key.
`DRS port number(1024-65535): 3456`	• Skip this by pressing Enter key.
`DRS unit(2)`	
`DRS IP address: 0.0.0.0`	• Skip this by pressing Enter key.
`DRS port number(1024-65535): 3456`	• Skip this by pressing Enter key.
`DRS unit(3)`	
`DRS IP address: 0.0.0.0`	• Skip this by pressing Enter key.
`DRS port number(1024-65535): 3456`	• Skip this by pressing Enter key.

Note: unit(0), unit(1), unit(2), and unit(3) represent primary, secondary, tertiary, and fourthly respectively.

Note 5: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

[Set SIP Server Data]

STEP 1: Set SIP Server data by using **`set sipserver`** command. This data can be assigned by using IP address or Full Qualified Domain Name (FQDN).

When **IP address** (=0) is selected:

```
MG(SIP) > set sip_server

SIP server type(0=IP address/1=FQDN):0


SIP server IP address: 192.168.100.100


SIP server port number(1024-65535): 5060


Strict or Loose(0/1): 0


Select the setting of rport(RFC3581) func-
tion.
  0=disable (default)
  1=enable
Input: 1


Domain Name(MAX128):_
```

- When IP address (=0) is selected.
- Assign the IP address of the proxy server (default: 0.0.0.0).
- Assign the port number of the proxy server (default: 5060)
- Select a Strict router or Loose router for the proxy server (default: 0).

  0: Strict route
  1: Loose router
- Enable/disable the rport(RFC3581) function. (default: 0)
- Input a string that specifies the service provider in maximum of 128 characters.

When **FQDN** (=1) is selected:

```
MG(SIP) > set sip_server

SIP server type(0=IP address/1=FQDN):1


Fully Qualified Domain Name(MAX63):nec.com


SIP server port number(1024-65535): 5060


Strict or Loose(0/1): 0









Domain Name(MAX128):_
```

- When FQDN (=1) is selected.
- Assign the FQDN of the proxy server in maximum of 62 characters (default: 0).
- Assign the port number of the proxy server (default: 5060)
- Select a Strict router or Loose router for the proxy server (default: 0).

  0: Strict route
  1: Loose router
- Input a string that specifies the service provider in maximum of 128 characters.

Note: Be sure not to enter a space after FQDN characters.

[Set Key Number Data]

STEP 1: Assign a pilot number, which is used to perform registration to the SIP server.

```
MG(SIP) > set keynumber

Key number(MAX32): 0
```

- Assign the pilot number when register is performed (default: 0). **Note 6**

Note 6: Be sure not to enter a space after the key number.

[Reboot MG-SIP16]

STEP 1: Reboot the MG-SIP16 by using **reboot** command. The assigned config data can also be saved onto the Flash memory by using this command.

`MG(SIP) > reboot`	
`Do you want to save Config data? Y/N=y`	• Config data can be saved before rebooting the MG-SIP16. Enter "y" to save the assigned data onto Flash memory. **Note 7**
`Do you want to reboot MG(SIP) Y/N=y`	• Reboot the MG-SIP16 or not is specified. Enter "y" to reboot the MG-SIP16.

`Config data flash write start.`
`##`
`Complete`
`Config data flash write end.`
	• Config data is saved.

`MG(SIP) reboot start...`	• rebooting the MG-SIP16....

Note 7: Before saving the config data, be sure to assign necessary data by using "set ipaddress", "set drsaddress", "set sip_server", and "set keynumber" that are explained in STEP 1, STEP 1, STEP 1, and STEP 1 respectively. If there is any unassigned item, the following will appear.

`the following setting commands are not perfect.`	
`"set ipaddress" command. (IPX side)`	• Appears if the IP address of Ether [1] (LAN side) has not been assigned.
`"set ipaddress" command. (SIP side)`	• Appears if the IP address of Ether [2] (WAN side) has not been assigned.
`"set drsaddress" command.`	• Appears if the IP address of DRS has not been assigned.
`"set sip_server" command.`	• Appears if the IP address of SIP server has not been assigned.
`"set keynumber" command.`	• Appears if Keynumber (Pilot number) has not been assigned.
`So, Config data is made a default setup.` `Is it all right? Y/N=y`	• By entering "y", default value will be automatically applied to the unassigned items. If other than above is entered "`Reboot command was interrupted`" will be displayed.

STEP 3: After the MG-SIP16 is rebooted, the following message appears on the Maintenance Console.

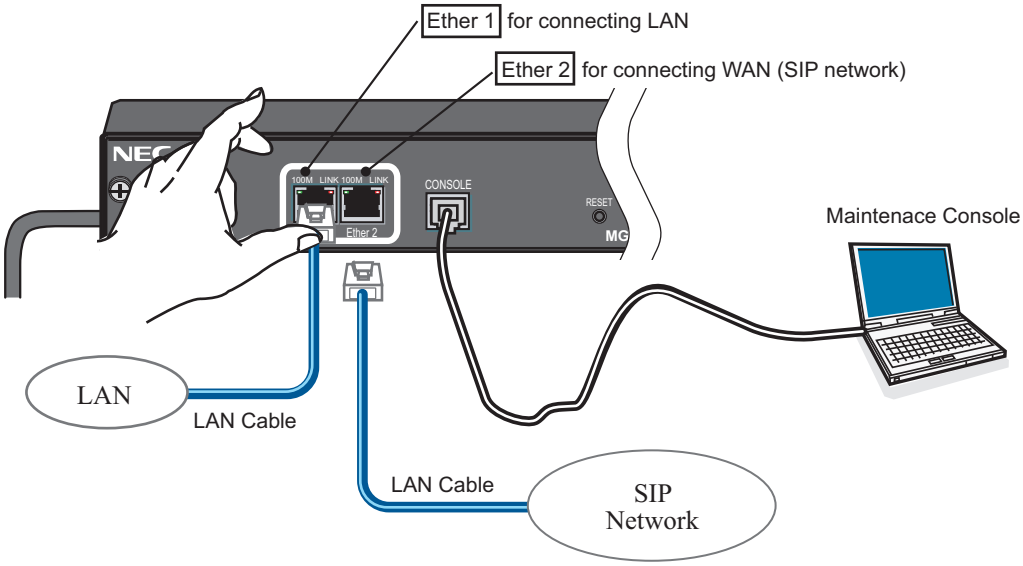
`Press Enter Key.`	

4.5 Cable Connection



STEP 1: Connect the MG-SIP16 to the dedicated network as shown below. In few minutes, LINK lamps will light green, which indicates the connection is OK.

- Ether 1: LINK lamp (LAN side)
- Ether 2: LINK lamp (WAN side - SIP network)

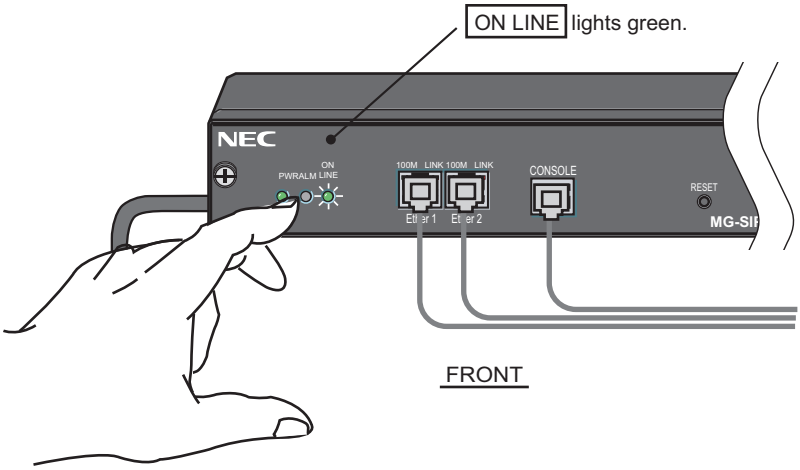


When you have finished, the following message appears on the Maintenance Console.

```
**************************************
*          MG-SIP ONLINE START       *
**************************************
```

Note: Both LAN1 and LAN2 must be connected to make MG-SIP16 online. (For a one-port configuration, only LAN1 connection makes MG-SIP16 online.)

STEP 2: Make sure the ON LINE lamp lights green on the front panel.



4.6 Operation Check

Make sure the MG-SIP16 is in normal operation by the following procedure.

STEP 1: Reboot the MG-SIP16 by using **reboot** command.

STEP 2: Make sure the following message appears on the Maintenance Console.

```
**************************************
*         MG-SIP ONLINE START        *
**************************************
```

STEP 3: Make sure the registration status of the Telephony Server network and SIP network by using **show status** command in the console command mode to confirm the network registration status on the Telephony Server and SIP sides.

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:1

MG(SIP) > IPX Registration Information
Registration Done. (DRS IP address 172.16.253.1)
```

- Select a desired status you want to check.

Note 1

Note 1: For the detailed information, refer to **page 1452.**

STEP 4: When using PCPro, make sure the registration status of MG-SIP16 by using **DIMG** command.

4.7 Trouble Shooting

If the message shown below appears on the console, make sure of the following:

```
**************************************
*         MG-SIP OFFLINE START       *
**************************************
```

- LAN cable is securely inserted to Ether 2?
- Ether 2: LINK lamp (WAN side - SIP network) lights green?

If no message appears within 3 minutes, it seems that no communication has been established between the Telephony Server and the MG-SIP16. Check the LAN cable connecting LAN-Telephony Server and the IP address of DRS.

5 Maintenance Console Commands

5.1 How to Use Maintenance Command

Note: Note the following conditions:

- "DRS (Device Registration Server)" used in this section refers to the Telephony Server. The Telephony Server acts as DRS for MG-SIP16 using Proprietary Protocol.
- If you input "exit" after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

- Connection Settings

  A communication between Maintenance Console and MG-SIP16 is established via communications software.

  Note: For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. This section explains the procedure for setting data by using HyperTerminal as an example. For Windows Vista or later operating systems, prepare a communications/terminal software yourself and assign the configuration data referring to the description for HyperTerminal.

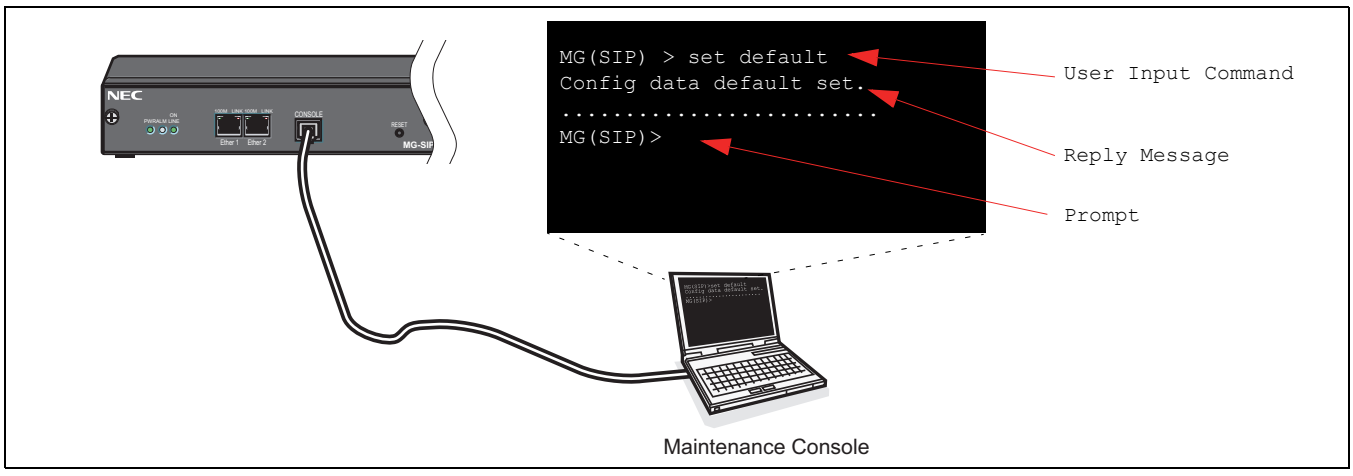
  When the program is activated, messages are displayed. After a prompt "->" is displayed, enter "`config`" after the prompt to login.

```
-> config
```

  The following prompt appears, indicating that the Maintenance Console command entry is ready:

```
MG(SIP) >
```

An example of indication is shown below:



The user input command above consists of several components. The following describes these components using one of the ***set*** commands.

```
MG(SIP) > set drsaddress
          (1)     (2)

MG(SIP) > ping 123.201.18.45
          (1)      (3)
```

(1) Command
(2) Sub Command
(3) Parameter

Input the desired command, sub command and each required parameter after the prompt ("MG-SIP>" as an example here) is indicated. Parameters vary depending on the specified command. When all data (command name, sub command name, parameter) are specified correctly, the command executes the required data processing, and then informs the processed result on the screen. When all the command operation is completed, you may input "exit" after a prompt.

Note: While the maintenance command program is activated, it also provides a help function for referring to available command and sub command. After a prompt is indicated, request to list up all the command help by "help" or "?" after the prompt and press the Enter key. If you know more details about each command, it is also available to list up the target help by "command name Δ ?" after the prompt, and press the Enter key. The example below shows the screen when executing help function regarding "? (help)" and "set address".

```
MG(SIP) > ?
 set                    : Config data set command
 show                   : Config data show command
 download               : MG-SIP program download command
 ping                   : Ping command
 exit                   : Config data exit command
 reboot                 : MG-SIP reboot command
 help                   : Help command
 ?                      : Help command

MG(SIP) > set ?

 drsaddress             : Setting IP address
 signaling_port_no      : Setting signaling port number
```

5.2 How to Read Maintenance Command on This Section

The commands on this section are explained with defined characters. These characters' meanings are in the following:

CHARACTERS	MEANING
Δ	Blank
P	Parameters
[ ]	Parameter Option (indicates optional)

The maintenance console uses the commands listed on the table below.

* If you go out of the configuration mode by using "logout" command without saving the setting information using "reboot" command, the changed settings are discarded. To save the settings, execute "reboot" command, and exit the configuration mode.
* When you input a command, the current setting is displayed. If you change the setting, the changed data is displayed. For "ipx_route" and "sip_route" commands, the changed settings and "Are you sure?" message are displayed.
* Pressing the Enter key can skip each item.

List of Maintenance Command

COMMAND	No.	SUB COMMAND	FUNCTION	PAGE
SET	1	183rbt	Assigns whether to enable/disable local RBT when 183 message without SDP is received.	page 1401
	2	184toprivacy	Setting of switching Caller ID display/blocking to SIP network function when dialing 184/186	page 1401
	3	another_keynumber	Assigns additional three pilot numbers used for registration to SIP server.	page 1401
	4	auth	Assigns authentication information.	page 1402
	5	auth_header	Assigns the cache function of authentication header.	page 1402
	6	call_hold	Assigns whether to enable MG Based Call Retention. **Note 3**	page 1402
	7	call_id_relay	Assigns Call-ID notification function. **Note 3**	page 1403
	8	cause_table	Assigns the error translation table.	page 1403
	9	cc_convert	Assigns calling party's country code display conversion feature.	page 1403
	10	cdn_pattern	Assigns called number pattern.	page 1406
	11	check_number	Assigns limit to number of digits for calling/called party number.	page 1407
	12	codec_change	Assigns Codec Change function and G.711 Fax renegotiation. **Note 3**	page 1407
	13	cpn_pattern	Assigns how to obtain cpn (calling party number).	page 1408
	14	default	Specifies default settings of the configuration.	page 1409
	15	dnsaddress	Assigns the DNS IP address.	page 1409
	16	dns_option	Assigns the Optional Data for DNS server. **Note 3**	page 1409
	17	domain	Specifies the domain of MG-SIP16.	page 1411
	18	drsaddress	Assigns the DRS IP address.	page 1411
	19	drs_qos	Specifies the DRS ToS.	page 1411
	20	dtmf_mode	Assigns a type of DTMF mode.	page 1412
	21	h245_base_port_no	Assigns the H.245 base port in SIP network.	page 1414
	22	hc_alarm	Assigns a type of Health Check pattern.	page 1414
	23	hc_timer	Assigns a type of Health Check pattern.	page 1414
	24	interface	Assigns an interface to the port.	page 1415
	25	ipaddress	Assigns the IP address and the subnet mask to the port.	page 1415
	26	ipx_route	Assigns the route information in the Telephony Server side.	page 1416
	27	ipx_rtp_port_no	Assigns the RTP port in LAN.	page 1421
	28	keynumber	Assigns the pilot number of MG-SIP.	page 1421
	29	multi_regist	Assigns the registration function per number.	page 1421
	30	musictype	Assigns the type of music to be sent from MG-SIP16.	page 1422
	31	nataddress	Assigns the global IP address for NAT. **Note 4**	page 1422
	32	no_media_code	Assigns the SIP Error Response code. **Note 3**	page 1422
	33	ppi_to_pai	Assigns the PAID transmission function. **Note 3**	page 1423
	34	prack	Assigns PRACK information.	page 1423
	35	pre_negotiation_port_no	Assigns the UDP port receiving packets for voice control path.	page 1423
	36	privacy_pattern	Assigns a type of Calling Line Identification.	page 1424
	37	registration_port_no	Assigns the UDP port receiving registration packets.	page 1426
	38	reg_interval	Assigns the waiting time to retry after registration failure.	page 1426
	39	rfc2833_pass	Assigns whether to enable RFC2833 packet transparency feature. **Note 4**	page 1427
	40	rtp_pathon	Assigns Path-on function by 183 Progress after receiving 180 Ringing.	page 1428
	41	rtp_qos	Specifies the RTP ToS.	page 1428
	42	sdp_style	Assigns the SDP receive setting for multiple "m" lines. **Note 3**	page 1428
	43	self_sip_domain	Assigns SIP Domain.	page 1429
	44	session_timer	Specifies information regarding session timer.	page 1430
	45	signaling_port_no	Assigns the UDP port receiving control signal packets	page 1430

COMMAND	No.	SUB COMMAND	FUNCTION	PAGE
SET	46	sip_accfilter	Assigns SIP Access Filter and SIP Access Filter mask. Note 3	page 1431
	47	sip_port_no	Specifies the ToS transmitted to/from SIP network.	page 1433
	48	sip_qos	Specifies the SIP ToS.	page 1433
	49	sip_register	Assigns the IP address or the FQDN to registry server.	page 1433
	50	sip_route	Assigns the route information in the SIP side.	page 1434
	51	sip_rtp_port_no	Assigns the RTP port in SIP network.	page 1434
	52	sip_server	Assigns the IP address or the Fully Qualified Domain Name (FQDN) to SIP server.	page 1434
	53	sip_tel_service	Assigns the setting of additional services.	page 1436
	54	sip_transport	Specifies a SIP transport protocol. Note 3	page 1438
	55	slipresp	Assigns a SLIP response code.	page 1438
	56	update	Assigns the setting of update method.	page 1438
	57	response_table	Assigns the response table pattern.	page 1438
	58	out_of_area_code	Assigns the error response code to inform out-of-area error on LAN side.	page 1438
	59	multisession	Assigns Multi-path Switch. Note 1	page 1438
	60	name_display	Enable/disable Name Display service. Note 2	page 1439
SHOW	1	arp	Displays the ARP.	page 1440
	2	config	Displays the configuration.	page 1440
	3	interface	Displays the link and setting state of Ether connection	page 1451
	4	route	Displays the routes.	page 1452
	5	status	Displays status of the system.	page 1452
	6	version	Displays the firmware version installed in MG-SIP16.	page 1459
DOWNLOAD		-	Downloads data with the IP address and file name.	page 1460
EXIT		-	Exits configuration setting.	page 1466
REBOOT		-	Restarts MG-SIP16.	page 1465
PING		-	Tests whether the destination is reached at Layer 3 level.	page 1464
HELP/?		-	Shows the help display.	page 1466

Note: When using Silent Monitor (Multi-Path Monitor) Connection in ACD system, assign the command “SET MULTISESSION”.

Note 1: Required to set Silent Monitor (Multi-Path Monitor) Connection in the ACD system.

Note 2: Available for SP-3988 MGSIP (16) PROG-G Issue 2 or later.

Note 3: Available for SP-3988 MG SIP(16) PROG-G Issue 3 or later.

Note 4: Available for SP-3988 MG SIP(16) PROG-G Issue 10 or later.

SET COMMAND

1 SET△183RBT

This command is used to enable/disable the connection of local RBT when 183 message without SDP is received.

```
MG(SIP) > set 183rbt

Is RBT added when 183 without SDP is received?
(0:enable/1:disable(default=0) : 0
```

- Enter 0 or 1 (default=0).
  0: Enable (local RBT connection is used)
  1: Disable (local RBT connection is not used)

Assign this command adjusting to the specifications on SIP network.
Normally this command is not required to be changed.

2 SET△184TOPRIVACY

Note: This command is available for Japan only.

This command is used to set the function to delete 184/186 when dialing 184/186. When this setting is enabled, if a user adds 184/186 at the beginning of the dialing numbers, 184 (non-Caller ID) or 186 (Caller ID) are deleted from the dialed numbers, and the message to SIP network is transmitted.

[Setting Example]

```
MG(SIP) > set 184toprivacy

Select privacy function of 184.
 0=disable(default)
 1=Pattern 1
 2=Pattern 2
Input:0
```

0: Switching is disabled (default)
1: Switching is enabled. (Pattern 1)
2: Switching is enabled. (Pattern 2)

When Pattern 1 is set: Performs forced non-Caller ID for 184, forced Caller ID for 186. (The first three digits of the dialed numbers (184/186) are to be deleted.)

When Pattern 2 is set: Performs forced non-Caller ID for 184, forced Caller ID for 186. (The first three digits of the dialed numbers (184/186) are not to be deleted.)

Note: Assign this command adjusting to the specifications on the SIP network where it is connected.

3 SET△ANOTHER_KEYNUMBER

The command is used to assign three pilot numbers (in addition to the pilot number assigned by the "KEYNUMBER" command) for registration to SIP server. Pressing the Enter key can skip this item. In this case, default values are assigned automatically.

```
MG(SIP) > set another_keynumber

Another keynumber 1 (MAX32) : 1000
Another keynumber 2 (MAX32) : 2000
Another keynumber 3 (MAX32) : 0511112222
```

- Enter the pilot number used for registration to SIP server (default = 0).

Note: The conditions for this command are as follows.

- Assign this command adjusting to the specifications on SIP network. Normally this command is not required to be changed. Unique number to be assigned for each of Another keynumber 1/2/3. Assign value=0 (default) for parameter when nothing is to be assigned.
- Do not select “Pattern 2” for “set cc_convert” when assigning an additional pilot number with this command.

4 SET∆AUTH

The command is used to specify a User ID and a password for HTTP Digest Auth. This parameter is used when the SIP server performs authentication.

```
MG(SIP) > set auth

User ID   (MAX32) : 0

Password (MAX32) : 0
```

- Assign the User ID (Default: 0/Maximum: 32 bytes).
- Assign the password (Default: 0/Maximum: 32 bytes).

5 SET∆AUTH_HEADER

The command is used to assign whether to add cache information to authentication header of request message in updating ACK and REGISTER for re-INVITE/200 OK.

```
MG(SIP) > set auth_header

Is Authorization header cache function enable?

(0:enable/1:disable (default=0)) : _
```

- Select whether to use cache function to authentication header.

  0 = Cached authentication information is added (default)
  1 = Cached authentication information is not added.

Note: Assign this setting in accordance with the specifications of connected SIP network.

6 SET∆CALL_HOLD

The command is used to specify whether to enable MG Based Call Retention.

```
MG(SIP) > set call_hold

Select the setting of Call Hold function.

  0=disable(default)
  1=enable
Input:1

Input RTP detect timer value.(sec)
(3-32 (default=3)):3

Input SIP Error Response code to reject new
session.
(400-606 (default=488)):488
```

- Enable/disable MG Based Call Retention.

  0 = MG Based Call Retention is disabled. (default)
  1 = MG Based Call Retention is enabled.

- Input RTP detect timer (seconds)
  Range: 3-32 seconds (default: 3 seconds)

- Set the error response code to reject a session by a new call while the MG based call retention is in progress.
  (400 to 606, default: 488) **Note 5**

Note 5: When an Initial-INVITE is received from the SIP network side while a call is retained, an error response 488 (Not Acceptable Here) is sent in the default setting.

Note: This command is available for SP-3988 MG SIP(16) PROG-G Issue 3 or later.

7 SET∆CALL_ID_RELAY

The command is used to specify whether to send Call-ID Header information of SIP to SV9500.

```
MG(SIP) > set call_id_relay

Select function of Call-ID relay mode.

 0=disable(default)
 1=enable
Input:0
```

- Select whether to send Call-ID Header information of SIP to SV9500.

  0 = Call-ID is not sent (default).
  1 = Call-ID is sent to SV9500.

Note: Assign this setting in accordance with the specifications of connected SIP network.

Note: This command is available for SP-3988 MG SIP(16) PROG-G Issue 3 or later.

8 SET∆CAUSE_TABLE

The command is used to select the translation table of error cause to be sent to LAN received from SIP network as error response.

Earlier than SP-3988 MGSIP (16) PROG-G Issue 2:

```
MG(SIP) > set cause_table

Select cause_table(SIP_Error_response to Error_cause)

           (0:normal/1:alternate routing(default=0)): _
```

- Select the error translation table.
  0 = Normal table (default)
  1 = Alternate routing table

Since SP-3988 MGSIP (16) PROG-G Issue 2:

```
MG(SIP) > set cause_table

 Select cause_table(SIP_Error_response to Error_cause)

   0=normal (default)
   1=alternate routing
   2=customized pattern1
   3=Route Advance

 Input: 3
```

- Select the error translation table.
  0 = Normal table (default)
  1 = Alternate routing table
  2 = This setting is prohibited.
  3 = Route Advance

Note: Assign this setting in accordance with the specifications of connected SIP network.

9 SET∆CC_CONVERT

Setting of calling party' s country code display conversion feature.

The command is used to enable/disable calling party's country code display conversion feature. This feature has two patterns (Pattern 1/Pattern 2) as described below:

- Pattern 1

When this feature is available, conversion will take place as in the following table. (The example is about Japanese Country Code.)

Direction of Call termination/origination	Intended Number	Conversion Feature
Call termination via SIP	Calling party	Convert to "0" if first numbers are "81" or "+81"
Call termination via SIP	Calling party	Add "0" to first number if number is more than 8 digits
Call origination via MG-SIP16	Calling party	Convert to "0" if first number is "81"

It is possible to confirm the previous settings through this command since this command is an extension of the previous version's SETΔ81to0

- Pattern 2 **Note 6**

When MG-SIP16 [SCA-16SIPMG(US) -B/SCA-16SIPMG(US)] is on the calling party side, the command converts the calling party number and the call number contained in the SIP message into E.164 format. When MG-SIP16[SCA-16SIPMG(US) -B/SCA-16SIPMG(US)] is on the called party side, the command converts the calling party number and the call number contained in the SIP message into 0AB to J numbers form and notifies to the Telephony Server.

Terms and meanings

Terms	Meanings
Country Code	A number used in making a call by E.164, determined per country Examples: 81 (for Japan), and 1 (for North America)
National Prefix	Domestic call identification number.
International Prefix	International call identification number specified per country
National Destination Code	A number specified per national region
Number of Local Number digits	A unique number in a certain region or network only

Note 6: The conditions for this command are as follows.

- Do not implement "set another_keynumber" when setting this parameter.
- This feature is available for SP-3988 MGSIP PROG-G Issue 10 or later.
- Even if this feature is enabled, the following number information is to be in 0AB to J numbers format.
  - Dial Number of a terminal
  - Number information to be assigned in the office data of Telephony Server (such as ASRIL/ACDD/ACNN commands)
  - Number information to be assigned with "set keynumber"
- The conditions are as follows depending on the setting status of "set check_number".
  - When "set check_number" is enabled:
    If MG-SIP is on the calling party side and "#" exists at the beginning, in the middle, or at the end of a destination number, delete "#", and convert the rest into E.164.

  - When “set check_number” is disabled:
    If MG-SIP is on the calling party side and “#” exists at the beginning, in the middle, or at the end of a destination number, convert “#” into “%23” without converting the Incoming Number into E.164.
- Even if this feature is enabled, receiving calls of a common number format (such as 0AB to J numbers format) with National Prefix and Local Code (without National Prefix or National Destination Code) is available.
- Making/receiving a call with Local Code requires the setting of National Prefix and National Destination Code.
- For an incoming call from a foreign country, “+Another Country Code” precedes the Calling Party Number. In this case, “+” is removed and then International Prefix of the Receiver’s own country is added to the beginning of the number for transmission to the Telephony Server.
- Since this feature does not distinguish a station-to-station call number from an external call number in converting into E.164 format, do not use a station-to-station call number as a notification number to SIP network such as Calling Party Number or a station-to-station call number to be used for an FMC network.
  (Example) When a Country Code is "81" and you assign "2000" as a station number to be provided to a SIP network, it is converted into “+812000”.
- When “RFC3325 (P-Associated-URI)” is set for “set privacy_pattern”, Calling Party Number in a common format (such as the 0AB to J numbers format) is included in the INVITE sent upon call origination via the MG-SIP.
- Do not use the same number for assignment of the leading digit of Pilot Number and that of International Prefix.
  (Example) Assigning “00” to International Prefix and “00AB to J” to Pilot Number is not available.

[Setting Example]

```
MG(SIP) > set cc_convert

Select Country Code Convert function.
  0=disable(default)
  1=Pattern 1
  2=Pattern 2
Input: 0
```

0: Disable (default)
1: Pattern 1
2: Pattern 2

- When Pattern 2 is selected:

```
MG(SIP) > set cc_convert

Select Country Code Convert function.
  0=disable(default)
  1=Pattern 1
  2=Pattern 2
Input: 2

Input Country Code.(1-99999 (default=81))
  Input : 81
```

0: Disable (default)
1: Pattern 1
2: Pattern 2

Input Self Country Code.

```
Do you set National Prefix and National
Destination Code? Y/N=Y

Input National Prefix.(default=0,MAX4(strings))
  Input : 0

Input National Destination
Code.(default=1,MAX6(strings))
  Input : 3

Input International
Prefix.(default=010,MAX4(strings))
  Input : 010

Input Number of Local Number digits.(1-15
(default=3))
  Input : 3
```

Input "Y" if you intend to assign National Prefix and National Destination Code.

Input National Prefix.

Input National Destination Code.

Input International Prefix.

Input maximum number of Local Number digits.

Display for the firmware version earlier than SP-3988 MGSIP PROG-G Issue 10 is as follows.

```
MG(SIP) > set cc_convert

Is this function enable or disable?

                    (0:disable/1:enable (default=0)): 0
```

- Enter 0 or 1 (default=0).
  0 = Disable (default)
  1 = Enable

Note: Assign this setting in accordance with the specifications of connected SIP network.

10 SET∆CDN_PATTERN

The command is used to assign the way of obtaining information for called number from SIP network. When this command is enabled, a called number is obtained according to the priority order shown in the table below:

Selected Parameter		Order of priority			
		1	2	3	4
0	To	P-N-Dest-Discern	To (userinfo)	Request-URI (userinfo)	-
1	isub	P-N-Dest-Discern	Request-URI (isub)	Request-URI (userinfo)	To (userinfo)
2	Request-URI	P-N-Dest-Discern	Request-URI (userinfo)	To (userinfo)	-
3	P-Called-Party-ID	P-Called-Party-ID (userinfo)	To (userinfo)	Request-URI (userinfo)	P-N-Dest-Discern

```
MG(SIP) > set cdn_pattern

Active called-party-number?

(0:To:userinfo/1:isub/2:Request-URI/3:P-Called-Party-ID(default=0)):0
```

- Select a type to obtain called number information.
  0: userinfo part of the To header is given priority (Default)
  1: isub of Request-URI is given priority
  2: userinfo part of Request-URI is given priority
  3: userinfo part of P-Called-Party-ID is given priority

Note: Assign this command adjusting to the specifications on SIP network.

11 SET∆CHECK_NUMBER

This command is used to assign a limit to number of digits for calling/called party number.
A calling/called party number sent via the Telephony Server network may be limited to numbers only.

```
MG(SIP) > set check_number

Is this function enable or disable?

                              (0:disable/1:enable(default=0)): _
```

- Enter 0 or 1 (default=0).
  0 = Disable (default)
- 1 =Limit to numbers only

Note: Assign this command adjusting to the specifications on SIP network.

12 SET∆CODEC_CHANGE

This command is used to enable Codec Change function and G.711 Fax renegotiation.
Codec Change function enables a call to be retained when a forwarding call is placed to a destination located in the SIP network and the payload type is different between an intermediate station and the destination.
G.711 Fax renegotiation enables a called party to receive a facsimile with Fax Pass Through when communication is changed over to a FAX communication while a call is in progress with G.729a.

```
MG(SIP) > set codec_change

Select the setting of Codec Change function.
  0=disable (default)
  1=enable
Input: 1

Select the setting of G711 Fax renegotiation.
  0=disable (default)
  1=enable
Input: 1
```

- Enable/disable the Codec Change function.
  0 = Disable (default)
  1 = Enable
- Enable/disable the G711 Fax renegotiation.
  0 = Disable (default)
  1 = Enable

Note: The conditions of this command are as follows:
- This command is available for SP-3988 MG SIP(16) PROG-G Issue 3 or later.
- In the Telephony Server side, a system data setting (ASYDL, System Data 1, Index 1144 Bit 6=1 (Codec Change function is in service) is required to enable this function.

- In the Telephony Server side, payload type and payload size need to be assigned by AIVCL/AIVCN, AMGVL/AMGVN, and ARTI/ARTIN commands.
  Also specify G.711 (fixed) as FXPT (Payload Type for IP FAX) and specify the payload size equal to that of voice data as FXPS (Payload Size for IP FAX). Then assign the FXPT and FXPS data to AIVCL/AIVCN and AMGVL/AMGVN commands.
- Payload size cannot be converted in MG-SIP16. When an RTP packet whose payload size is 20 ms is received from the Telephony Server network, the packet is transferred to the SIP network without converting the payload size. Same behavior applies to the RTP packet received from the SIP network.
- To use the following methods, enable commands shown below.
  - [ReINVITE] method: enable “set sip_tel_service” command
  - [UPDATE] method: enable “set sip_tel_service” and “set update” commands

13 SET△CPN_PATTERN

This command is used to assign how to obtain cpn (calling party number). It is possible to change the priority of obtaining calling party number when a call terminates via SIP network. The following shows the method of obtaining cpn when this feature is available.

When this command is enabled, calling party number is obtained according to the priority order shown in the table below:

Selected Parameter		Order of priority		
		1	2	3
0	Displayname	Displayname	Userinfo	-
1	Userinfo	Userinfo	Displayname	-
2	Anonymous	Userinfo (Anonymous)	Userinfo	Displayname
3	P-Asserted-ID	P-Asserted-ID	Displayname	Userinfo

```
MG(SIP) > set cpn_pattern

What calling party number is given priority?

(0:Displayname/1:Userinfo/2:Anonymous/3:P-Asserted-ID(default=0)):
```

- 0: Display name is given priority (default)
- 1: Userinfo is given priority
- 2: When Anonymous is detected in Userinfo, cpn is handled as blocked, disregarding the second priority and later.
- 3: P-Asserted-ID is given priority.

Note: Assign this command adjusting to the specifications on SIP network.

- Select 2 when the caller ID blocking is judged by the userinfo in From header on the SIP network side specification.
  e.g.) From: “01234567” <sip:anonymous@anonymous.invalid>
- Do not select 2 when the caller ID blocking is assigned by Displayname only on the SIP network side.
  e.g.) From: “Anonymous” <sip:01234567@xxx.com> In this case, the cpn is informed when 2 is selected.
- Numbers from 0 to 9, *, or # can only be obtained as a calling party number. When

any other characters are contained in the calling party number, the order of priority will shift to the next precedence.
However, if any characters other than the ones indicated above are detected in Displayname, the next and later priority will be disregarded and the cpn will be handled as blocked.
e.g.) From: “0123ABC” <sip:01234567@xxx.com> In this case, the cpn will be handled as blocked when 0 is selected.

Note: Assign this command adjusting to the specifications on SIP network.

14 SET∆DEFAULT

The command is used to set back to the default setting of MG-SIP16 configuration. Executing this command saves the default setting to the flash memory. Make sure to execute this command when updating firmware to a different firmware name (SP-XXXX).

MG(SIP) > set default Are you sure? Y/N=y Config data default set. MG(SIP) >	• Enter “y” to determine to set the default value

15 SET∆DNSADDRESS

This command is used to specify the DNS IP address.

MG(SIP) > set dnsaddress DNS IP address : 0.0.0.0	• Specify DNS IP address. (Default: 0.0.0.0)

16 SET∆DNS_OPTION

This command is used to enable multiple SIP servers to be supported by a DNS server. When IP addresses of multiple SIP servers are obtained by A record lookup, an alternative route can be used for transmission. REGISTER bypass is also enabled.

Note: Be careful when you set "A Record resolve (single IP Address)" selected with this command and also used the "SIP Access Filter" feature of the sip_accfilter command. If the IP address of the SIP message does not belong to the range defined by the mask of the "SIP Acces Filter", the message will be discarded.
Example: The IP address of the alternative route is 10.10.2.1 and the IP server address is 10.10.3.1. If the SIP access filter mask is set to 255.255.255.0, the message will be discarded. Set the mask to 255.255.0.0 to allow the message to be received.

[Setting Example]

```
MG(SIP) > set dns_option

Select DNS type
  0=A Record resolve(single IP Address)(default)
  1=A Record resolve(multi IP Address)
  2=Locating SIP servers function(RFC3263)
  3=A Record resolve (multi IP Address for REGISTER
bypass)
Input: 0
```

Select DNS type.
0: An alternative route is not used. (Default)
1: An alternative route is used by A record lookup.
2: An alternative route is used by NAPTR record lookup.
3: An alternative route is used by A record lookup. (REGISTER bypass is available.) **Note 7**

When Locating SIP servers function (RFC3263) (=2) is selected

```
MG(SIP) > set dns_option

Select DNS type
  0=A Record resolve(single IP Address)(default)
  1=A Record resolve(multi IP Address)
  2=Locating SIP servers function(RFC3263)
  3=A Record resolve (multi IP Address for REGISTER
bypass)
Input: 2

Select the setting of DNS cache
  0=enable(default)
  1=disable
Input: 1
```

Select DNS type.
0: An alternative route is not used. (Default)
1: An alternative route is used by A record lookup.
2: An alternative route is used by NAPTR record lookup.
3: An alternative route is used by A record lookup. (REGISTER bypass is available.)

Select the setting of DNS cache.
(Default: 0/enable)

Note: The conditions of this command are as follows:

- The cache retention time length is 60 seconds.
- Available transport protocols are TCP and UDP.
- During NAPTR lookup, SIP processing stops.
- This function takes priority over transport protocol (TCP/UDP selection) configured with "set sip_transport" command.
- Up to four servers can be routed in an alternative routing function by A/SRV record.
- You do not have to change this command if you do not use DNS server.
- This command is available for SP-3988 MG SIP(16) PROG-G Issue 3 or later.

Note 7: This parameter is available for SP-3988 MG SIP(16) PROG-G Issue 8 or later. When you select “3=A Record resolve (multi IP Address for REGISTER bypass)”, an alternative route for REGISTER is available. Apart from the initial sending, up to three attempts to access different SIP servers are allowed for each DNS query.

17 SET∆DOMAIN

This command is used to specify the domain of MG-SIP16.

MG(SIP) > set domain Domain name(MAX128) : nec.com	• Specify the domain name. (Default: 0/Maximum: 128 bytes)

18 SET∆DRSADDRESS

This command is used to assign DRS address to MG-SIP16.

MG(SIP) > set drsaddress	
DRS unit(0)	
DRS IP address: 172.16.253.1	• Assign the IP address of unit (0) (Default: 0.0.0.0).
DRS port number(1024-65535): 3456	• Assign the UDP port number for unit(0) (Default: 3456).
DRS unit(1)	
DRS IP address: 172.16.253.2	• Assign the IP address of unit (1) (Default: 0.0.0.0).
DRS port number(1024-65535): 3456	• Assign the UDP port number for unit(0) (Default: 3456).
DRS unit(2)	
DRS IP address: 172.16.253.3	• Assign the IP address of unit (2) (Default: 0.0.0.0).
DRS port number(1024-65535): 3456	• Assign the UDP port number for unit(0) (Default: 3456).
DRS unit(3)	
DRS IP address: 172.16.253.4	• Assign the IP address of unit (3) (Default: 0.0.0.0).
DRS port number(1024-65535): 3456	• Assign the UDP port number for unit(0) (Default: 3456).

Note: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

Note: unit(0), unit(1), unit(2), and unit(3) represent primary, secondary, tertiary, and fourthly respectively.

19 SET∆DRS_QOS

This command is used to specify the Quality of Service (QoS) of DRS.

When IP PRECEDENCE (=1) is selected:

```
MG(SIP) > set drs_qos
Input type: (1=PRECEDENCE/2=DIFFSERV/3=TOS): 1
PRECEDENCE(0-7): 5

DELAY(0/1): 0

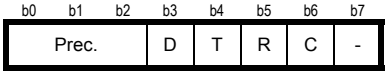
THROUGHPUT (0/1): 0

RELIABILITY(0/1): 0

COST(0/1): 0
```

- When IP PRECEDENCE (=1) is selected:
- Specify the precedence (default: 5). **Note 8**
  0-7 (Low - High)
- Specify the delay (default: 0).
  0/1 = Normal/Delay
- Specify the throughput (default: 0).
  0/1 = Normal/High Throughput
- Specify the reliability (default: 0).
  0/1 = Normal/High Reliability
- Specify the cost (default: 0).
  0/1 = Normal/Cost Precedence

Note 8: IP Precedence - ToS field is allocated as shown below.



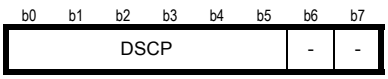
: *Prec. = PRECEDENCE (3 bits), D = Delay, T = Throughput, R = Reliability, C = Cost*

When DIFFSERV (=2) is selected:

```
MG(SIP) > set drs_qos
Input type: (1=PRECEDENCE/2=DIFFSERV/3=TOS): 2
DSCP(0-63): 40
```

- When DIFFSERV (=2) is selected:
- Specify the ToS field of DiffServ (default: 40).
  Note 9

Note 9: DiffServ - ToS field is allocated as shown below.



: *DSCP (Differentiated Service Code Point (6 bits)*

When TOS (=3) is selected:

```
MG(SIP) > set drs_qos
Input type: (1=PRECEDENCE/2=DIFFSERV/3=TOS): 3
DSCP(00-FE): a0
```

- When TOS (=3) is selected:
- Specify the ToS field (default: a0).

20 SET∆DTMF_MODE

This command is used to specify the DTMF relay system in SIP network. MG-SIP16 supports Out-Band (RFC2833) and In-Band (G.711 data transmission as voice data). Negotiation, Out-Band, or In-Band can be assigned.

Note: DTMF relay method on the Telephony Server network side is automatically set according to the one on the MG-SIP network side, as follows:

DTMF relay system on the SIP network side	DTMF relay system on the Telephony Server network side	Remarks
RFC2833 (out-band)	Proprietary (out-band)	Conversions between "RTP (DTMF: RFC2833) packets on SIP network" and "UDP (DTMF: Proprietary) packets on Telephony Server network"
G.711 PassThrough (in-band)	G.711 PassThrough (in-band)	Conversions between "RTP packets on SIP network" and "RTP packets on Telephony Server network"

```
MG(SIP) > set dtmf_mode
DTMF Mode (0=Negotiation,1=Out-Band,2=In-Band)(default=0): _
```

- Select DTMF Mode.
  0: Negotiation
  1: Out-Band (fixed)
  2: In-Band (fixed)

When Negotiation is selected:

```
MG(SIP) > set dtmf_mode
DTMF Mode (0=Negotiation,1=Out-Band,2=In-Band)(default=0): 0
DTMF Duration (50-240(default=120)):
DTMF Pause(30-240(default=100)):
Payload type(RFC2833)(96-127(default=101)):
```

- When Negotiation (=0) is selected:
- Specify DTMF Duration.
- Specify DTMF Pause.
- Specify Payload type.

When Out-Band is selected:

```
MG(SIP) > set dtmf_mode
DTMF Mode (0=Negotiation,1=Out-Band,2=In-Band)(default=0): 1
DTMF Duration (50-240(default=120)):
DTMF Pause(30-240(default=100)):
Payload type(RFC2833)(96-127(default=101)):
```

- When Out-Band (=1) is selected:
- Specify DTMF Duration.
- Specify DTMF Pause.
- Specify Payload type.

When In-Band is selected:

```
MG(SIP) > set dtmf_mode
DTMF Mode (0=Negotiation,1=Out-Band,2=In-Band)(default=0): 2

DTMF Duration (50-240(default=120)):

DTMF Pause(30-240(default=100)):
```

- When In-Band (=2) is selected:
- Specify DTMF Duration.
- Specify DTMF Pause.

Note: Note that the sum of DTMF Duration and DTMF Pause values must be specified more than 120ms. If not, the following error message is displayed.

```
Input parameter error.
      reason [DTMF Duration + DTMF Pause < Min120ms]
```

21 SETΔH245_BASE_PORT_NO

This command is used to specify the H.245 port number to/from the Telephony Server network.

```
MG(SIP) > set h245_base_port_no
H245 base port number(1024-65535): 40000
```

- Assign the negotiation port number (default: 40000).

22 SETΔHC_ALARM

This command is used to set the alarm function which is activated to send a warning tone when a Health Check timeout occurs.

```
MG(SIP) > set hs_alarm
Please select H/C alarm type? (default=0)

       0: IPX and SIP side enable
       1: IPX side enable
       2: SIP side enable
       3: disable
```

- Select a type of Health Check Alarm.

  0: Warning tone is sent to the Telephony Server and SIP sides (default).
  1: Warning tone is sent to the Telephony Server side only.
  2: Warning tone is sent to SIP side only.
  3: disable

23 SETΔHC_TIMER

This command is used to specify the Health Check time-out.

```
MG(SIP) > set hc_timer
H/C timer value(130-65535):
```

- Assign the Health Check timer value (default: 240 seconds).

24 SET∆INTERFACE

This command is used to assign the Ether speed and the duplex type to each port on MG-SIP16.

```
MG(SIP) > set interface

Ether(1) speed (AUTO=0/10M=1/100M=2):0


Ether(2) speed (AUTO=0/10M=1/100M=2): 1


Ether(2) duplex (Half=1/Full=2): 1
```

- Assign an Ether speed type to Ether 1.
  0: Automatic Negotiation (default)
  1: 10 Mbps (fixed)
  2: 100 Mbps (fixed)
- Assign an Ether speed type to Ether 2.
  0: Automatic Negotiation (default)
  1: 10 Mbps (fixed)
  2: 100 Mbps (fixed)
- Assign a duplex type to Ether 1 and Ether 2. **Note 10**
  1: Half Duplex
  2: Full Duplex

Note 10: When “Automatic Negotiation” is selected, “Full Duplex” is automatically applied to the interface. Therefore, this command line will not appear for interface that is specified as “Automatic Negotiation”. When 100M is specified for Ether 1, the duplex type should also be assigned for Ether 1.

25 SET∆IPADDRESS

This command is used to assign an IP address and a subnet mask to each Ether port on MG-SIP16.

- Ether1: LAN (Telephony Server network) side
- Ether2: WAN (SIP network) side

Note: When the IP addresses of both LAN and WAN are assigned in the same segment, use Ether1 port only. Select one port in the number of port setting, and assign Ether1’s IP address only. In this case, Ether2 is not used.

```
MG(SIP) > set ipaddress

Use one-port only? Y/N=n

Ether[1]
         IP address:  10.     1.     0.   1
         Subnet:     255.   255.   255.   0

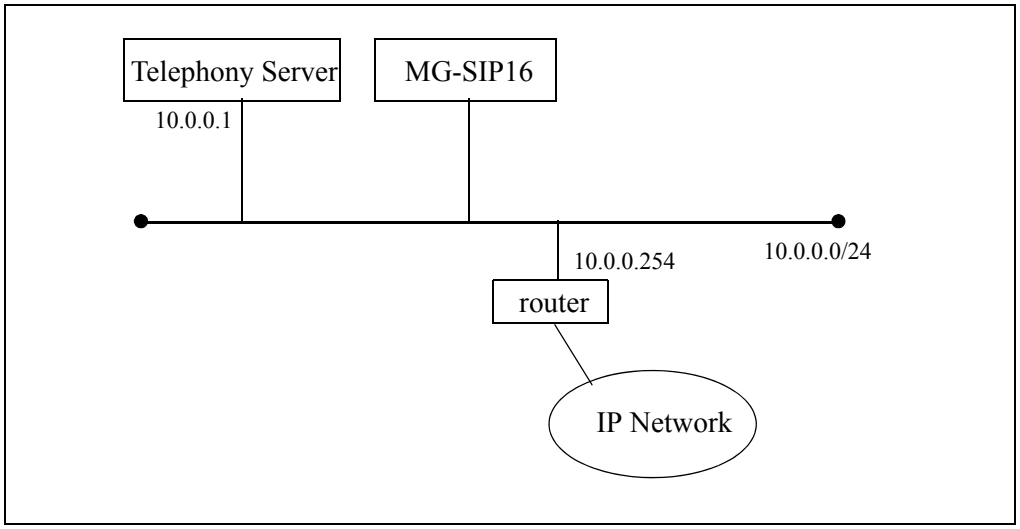

Ether[2]
         IP address: 192. 168.     1.   1
         Subnet:     255. 255.   255.   0
```

- Enter “n” when two ports are used.

Ether [1]: LAN side
- Assign the IP address (default: 0.0.0.0) for Ether [1].
- Assign the subnet mask (default: 0.0.0.0) for Ether [1].

Ether [2]: SIP network side
- Assign the IP address (default: 0.0.0.0) for Ether [2].
- Assign the subnet mask (default: 0.0.0.0) for Ether [2].

Note: When the IP addresses of LAN and SIP network sides are assigned in the same segment, use Ether1 only as shown below.



26 SETΔIPX_ROUTE

This command is used to specify route information in the Telephony Server side network. The registered number of pieces of the route information is up to 10. Pressing the Enter key can skip some of the items. In this case, default values are assigned automatically.

```
MG(SIP) > set set ipx_route
Route type(0: Exit/1: None/2: Static): 0
```

- Specify the Route type.
  0: Exit
  1: None (default)
  2: Static

When **Exit** (Route type = 0) is selected:

```
MG(SIP) > set set ipx_route
Route type(0: Exit/1: None/2: Static): 0

MG(SIP) > _
```

- When Exit (=0) is selected
- This will exit the command.

When **None** (Route type = 1) is selected:

```
MG(SIP) > set set ipx_route
Route type(0: Exit/1: None/2: Static): 1

Route type: None
Are you sure? Y/N=y
MG(SIP) > _
```

- When None (=1) is selected
- Enter “y” to set the data. **Note 11**

Note 11: Pressing any key other than “y” causes the following message.

```
Route setting command was interrupted.
```

When **Static** (Route type = 2) is selected: **Note 12**

[To Assign Destination Network Address and Gateway Address]

Note 12: Usually, gateway data should be set as ‘Static’ at LAN (Telephony Server network) side.

```
MG(SIP) > set ipx_route
Route type(0: Exit/1: None/2: Static): 2

Select command (0: Exit/1: Set/2: Delete): 1

Select gateway type (0: Exit/1: Gateway/2: Default gateway): 1

Destination network address(0.0.0.0): 172.16.0.0

Input subnet mask bit(0-31): 16

Gateway IP address(0.0.0.0): 192.168.0.254

Route type: Static
Gateway address    | Destination network / Prefix
-------------------------------------------------
192. 168.   0. 254 | 172.  16.   0.   0  / 16
Are you sure? Y/N=y
MG(SIP) > _
```

- When Static (=2) is selected
- Select 1 to set the data.
- Select Gateway (=1) as a gateway type.
- Specify the destination network address (default: 0.0.0.0).
- Specify the subnet mask (default: 0).
- Specify the gateway IP address (default: 0.0.0.0).
- Enter “y” to set the data. **Note 13**

Note 13: Pressing any key other than “y” displays the following message.

```
Route setting command was interrupted.
```

[To Assign Gateway Address only]

```
MG(SIP) > set ipx_route

Route type(0: Exit/1: None/2: Static): 2


Select command (0: Exit/1: Set/2: Delete): 1


Select gateway type (0: Exit/1: Gateway/2: Default gateway): 2


Gateway IP address(0.0.0.0): 192.168.0.254


Route type: Static

Gateway address    | Destination network / Prefix
---------------------------------------------------
192. 168.   0. 254 |   0.   0.   0.   0  / 0

Are you sure? Y/N=y

MG(SIP) > _
```

- When Static (=2) is selected
- Select 1 to set the data.
- Select Default gateway (=2) as a gateway type.
- Specify the default gateway IP address (default: 0.0.0.0).
- Enter “y” to set the data. **Note 14**

Note 14: Pressing any key other than “y” displays the following message.

```
Route setting command was interrupted.
```

Note: Two or more Default Gateway cannot be registered.

Note: To set a default gateway, it should be assigned to either LAN side port or SIP network side port.

[To Delete the assigned Routing Information]

```
MG(SIP) > set ipx_route

Route type(0: Exit/1: None/2: Static): 2


Select command (0: Exit/1: Set/2: Delete): 2


No | Gateway address  | Destination network / Prefix
-------------------------------------------------
 1 | 192.168.  0.254  | 172.16. 0. 0        / 16
 2 | 172. 16.  0.254  |  10. 0. 0. 0        / 8


Select Delete No?: 1




No | Gateway address  | Destination network / Prefix
-------------------------------------------------
 1 | 172. 16.  0.254  |  10. 0. 0. 0        / 8

Are you sure? Y/N=y


MG(SIP) > _
```

- Select 2 to delete routing data.
- Select 2 to delete routing data. **Note 15**
- Select No of Static Route Information you want to delete. (In this example, 1 is specified.)
- Enter “y” to delete the data. **Note 16**

Note 15: If there is no route to be deleted, the following will be displayed.

```
There is no static route table to delete.
```

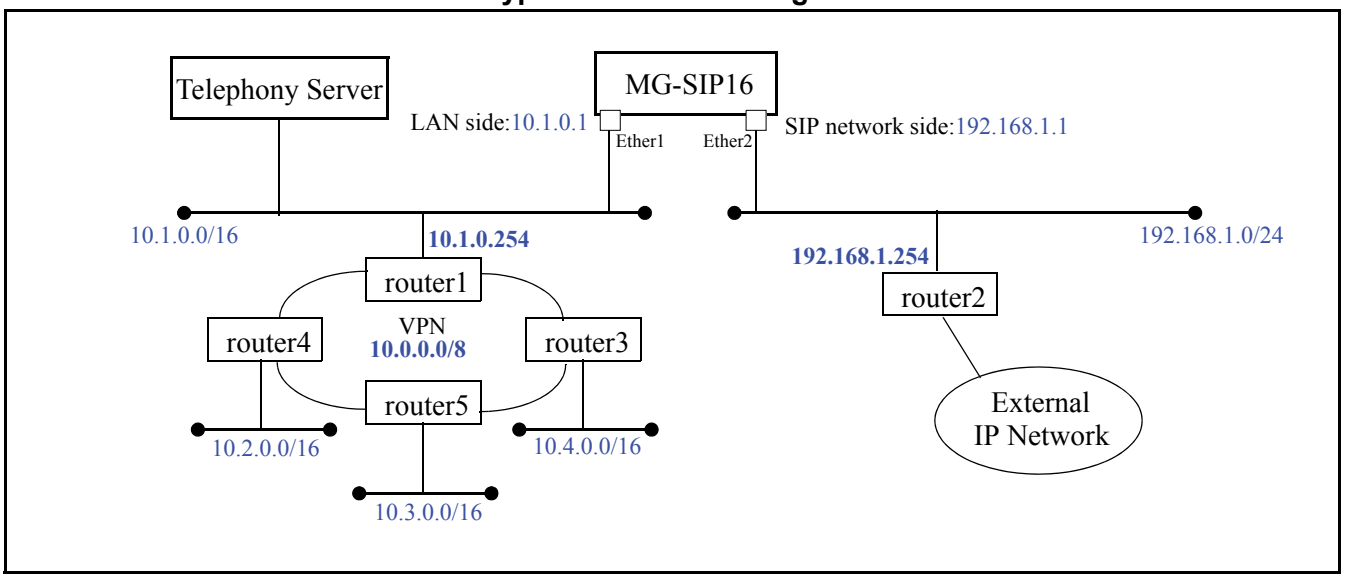
Note 16: Pressing any key other than “y” displays the following message.

```
Route setting command was interrupted.
```

Note: Routing assignment is unnecessary for network segment assigned to Ether (0).

The following shows a typical network configuration and the sample data setting.

Typical Network Configuration



Sample Data Setting for the above network configuration

```
MG(SIP) > set ipx_route

Route type(0: Exit/1: None/2: Static)                        : 2

Select command (0: Exit/1: Set/2: Delete)                    : 1

Select gateway type (0: Exit/1: Gateway/2: Default gateway): 1

Destination network address(0.0.0.0)                        : 10.0.0.0

Input subnet mask bit(0-31)                                  : 8

Gateway IP address(0.0.0.0)                                  : 10.1.0.254

Route type: Static

Gateway address     | Destination network / Prefix
-------------------------------------------------
  10.  1.  0. 254   | 10.   0.   0.    0  / 8

MG(SIP) > set sip_route

Route type(0: Exit/1: None/2: Static)                        : 2

Select command (0: Exit/1: Set/2: Delete)                    : 1

Select gateway type (0: Exit/1: Gateway/2: Default gateway): 2

Gateway IP address(0.0.0.0)                                  : 192.168.1.254

Route type: Static

Gateway address     | Destination network / Prefix
-------------------------------------------------
192. 168.  1. 254   |   0.   0.   0.   0  / 0
```

27 SETΔIPX_RTP_PORT_NO

This command is used to assign the base port number that is used for RTP at LAN side.

```
MG(SIP) > set ipx_rtp_port_no

IPX side RTP port number (1024-65024): 51000
```

- Assign the base port number that is used for RTP at LAN side (default: 51000). **Note 17**

Note 17: The value must be assigned by an even number.

28 SETΔKEYNUMBER

The command is used to assign a pilot number of MG-SIP16 for registration.

```
MG(SIP) > set keynumber

Key number(MAX32): 0
```

- Assign the pilot number when register is performed (default: 0). **Note 18**

Note 18: Be sure not to enter a space after the key number.

29 SETΔMULTI_REGIST

This command is used to enable/disable the setting of registration to SIP server per number.

```
MG(SIP) > set multi_regist

Enable Multi-registration mode?
(0:disable/1:enable(default=0)): 1


The interval of REGISTER message transmitting
(1-10sec(default=1sec)): 1


Standby timer value(10-3600sec(default=30sec)): 30


Contact header type?
(0: Privacy/1: SIP-URI(default=0)): 0
```

- Select disable or enable.
  0: disable (default)
  1: enable
- Assign the time interval to send register (default: 1sec).
- Assign the time value to re-register after fault recovery (default: 30sec).
- Assign the header type.
  0: Privacy (default) **Note 19**
  1: SIP-URI **Note 20**

Note 19: When “Privacy” is selected, assign a random value to the User ID field of SIP message “Contact header”.
When “SIP-URI” is selected, assign the SIP-URI to the User ID field of SIP message “Contact header”. Assign the telephone number if SIP-URI has not been assigned.

Note 20: Use configuration command “setΔsip_register” to assign the SIP server for register destination. The assignment of “setΔsip_register” is necessary when registration is to be done per number.
Assign this command adjusting to the specifications on SIP network.

30 SET△MUSICTYPE

This command is used to select music type that is sent from MG-SIP16.

```
MG(SIP) > set musictype

Please select the music type
(0: Type1/1: Type2(default=Type1)): 0
```

- Select the music type to be sent from the MG-SIP.
  0: Type 1 (Minuet) (default)
  1: Type 2 (For Elise)

31 SET△NATADDRESS

This command is used to assign the global IP address for NAT using MG-SIP16.

```
MG(SIP) > set nataddress

<< Current Setting >>
NAT IP Address:0.0.0.0

Input NAT IP Address.
(default=0.0.0.0):189.10.3.41

<< Result >>
NAT IP Address:189.10.3.41
```

Displays the current setting.

Enter a global IP address for NAT.

Displays the result.

Note: The conditions of this command are as follows.
- When this feature is enabled, disable SIP Access Filter (set sip_accfilter) and IPv6 (set ipversion). Also, the installation of the router which supports NAT on SIP network is required.
- IP masquerade (NAPT) is not supported.
- When the entered value of “Input NAT IP Address” exceeds the global IP address range, or you entered characters other than numeric, the error message “Illegal parameters” will be displayed.

32 SET△NO_MEDIA_CODE

This command is used to set a SIP error response code. When 415 is set as a response code, 415 Unsupported Media Type is sent instead of response code 488 if an unsupported codec is received.

```
MG(SIP) > set no_media_code

Input the SIP Error Response code when the unsupported
codec.
(400-606 (default=488)): 415
```

- Type any number between 400 and 606 (415 is typed in this manual as an example).

Note: This command is available for SP-3988 MG SIP(16) PROG-G Issue 3 or later.

Note: Accept, Accept-Encoding and Accept-Language headers are not added to 415 Unsupported Media Type.

Note: 415 Unsupported Media Type response supports only when the request message is the INVITE or UPDATE message.

33 SET∆PPI_TO_PAI

This command is used to enable/disable P-Asserted-Identity header (PAID) to be transmitted instead of P-Preferred-Identity header (PPID).

```
MG(SIP) > set ppi_to_pai

Select the setting that P-Asserted-Identity is trans-
mitted instead of P-Preferred-Identity.

  0 = disable (default)
  1 = enable

Input:1
```

0: disable (default)
1: enable

Note: This command is available for SP-3988 MG SIP(16) PROG-G Issue 3 or later.

Note: SIP messages can be sent by converting P-Preferred-ID header (PPID) to P-Asserted-ID header (PAID) only when P-Preferred-ID header (PPID) is used for either of the following settings:
- Enable “privacy_pattern” command and specify “2: RFC3323/3325(P-Preferred-ID/Privacy)”.
- Enable “name_display” command.

34 SET∆PRACK

This command is used to enable/disable Provisional Response Acknowledgement (PRA) function. When this is set enabled, the cyclical-send of provisional response function can be specified.

```
MG(SIP) > set prack

Is 100rel enable?
(0: enable/1: disable(default=0)): 0



Function which stop cyclical-send of Provisional Response
(0: disable/1: enable(default=0)): 0
```

- Select enable or disable for PRACK function.

  0: Prack function is enabled (default)
  1: Prack function is disabled

- Select enable or disable for stopping cyclical-send of provisional response. (This line appears when ‘0’ is set in the previous line.)

  0: disable (cyclical 18x send will occur)
  1: enable (cyclical 18x send will not occur)

Note: Assign this command adjusting to the specifications on the SIP network.

35 SET∆PRE_NEGOTIATION_PORT_NO

This command is used to specify the UDP port number that receives packets regarding the voice control path. To make this assignment effective, it is required to execute the “SAVE” command and to restart the MG-SIP16 by using the “REBOOT” command.

```
MG(SIP) > set pre_negotiation_port_no


Pre negotiation port number(1024-65535): 61014
```

- Assign the negotiation port number (default: 61014)

36 SET△PRIVACY_PATTERN

Setting of the privacy pattern

This command is used to specify a type of Calling Line Identification Non-Presentation when calling to SIP network

[Setting Example]

```
MG(SIP) > set privacy_pattern

Select Privacy pattern of Calling Party Number.
  0=DisplayName(default)
  1=Remote-Party-ID
  2=RFC3325
Input:
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

When “1” is selected:

```
MG(SIP) > set privacy_pattern

Select Privacy pattern of Calling Party Number.
  0=DisplayName(default)
  1=Remote-Party-ID
  2=RFC3325
Input: 1

Input a Dummy string. (MAX32 (strings))
                            :anonymous
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

Assign a Dummy string. The string can include at most 32 characters.

When “2” is selected:.

```
MG(SIP) > set privacy_pattern

Select Privacy pattern of Calling Party Number.
  0=DisplayName(default)
  1=Remote-Party-ID
  2=RFC3325
Input:2

Select RFC3325 pattern.
  0=Pattern 1:privacy_only(default)
  1=Pattern 2:TEL-URI
  2=Pattern 3:unused
  3=Pattern 4:SIP-URI
  4=Pattern 5:P-Associated-URI
  5=Pattern 6:SIP-URI(no privacy)
Input:2
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

Select an RFC3325 pattern **Note 21**
0: privacy_only (Default)
1: TEL-URI
2: unused
3: SIP-URI
4: P-Associated-URI
5: SIP-URI (no privacy) **Note 22**

When “2” of RFC3325 Pattern is selected:

Input:2 Input Tel number. (default=0, MAX31(strings))	Input telephone number. 0: Default

Note: The conditions for SET PRIVACY_PATTERN" are as follows ".

- Assign this command adjusting to the specifications on the SIP network where MG-SIP16 [SCA-16SIPMGA/MG-16SIPMGA] connects.
- Be sure not to leave a blank space at the end of the Dummy string characters (with the Copy and Paste features of your personal computer), and be careful not to confuse some letters with numbers or other symbols (for example, the letter O and the number 0).

Note 21: Use of P-Preferred-ID headers of INVITE message differs for each pattern.

- When Pattern 1 is set: P-Preferred-ID header is not attached.
- When Pattern 2 is set: P-Preferred-ID header is attached (tel is used).
- When Pattern 3 is set: Unused.
- When Pattern 4 is set: P-Preferred-ID header is attached (sip is used).
- When Pattern 5 is set: P-Preferred-ID header is attached (P-Associated-URI is used).
- When Pattern 6 is set: P-Preferred-ID header is attached.

Note 22: Regarding this parameter, please note the following:

- This parameter is available for SP-3988 MGSIP PROG-G Issue 5 or later.
- When you select this parameter and call from an anonymous number, Pilot Number assigned with the command "set_keynumber" is provided to a SIP network and converted into Calling Line Identification Non-Presentation number on the SIP network side.
- This parameter cannot be assigned when "set multi_regist" or "set 184toprivacy" is enabled.

Display for the firmware version earlier than SP-3908 MGSIP PROG-G Issue 8 is as follows:

MG(SIP) > set privacy_pattern Please select calling number privacy pattern. (0:DisplayName/1:Remote-Party-ID/2:RFC3325(default=0)):	• Select a pattern of RFC3325. 0: DisplayName (default) 1: Remote-Party-ID 2: RFC3323/3325(P-Preferred-ID/Privacy)

When **DisplayName** (=0) is selected:

MG(SIP) > set privacy_pattern Please select calling number privacy pattern. (0:DisplayName/1:Remote-Party-ID/2:RFC3325(default=0)):0 Privacy pattern: DisplayName	• When DisplayName (=0) is selected:

When **Remote-Party-ID** (=1) is selected:

```
MG(SIP) > set privacy_pattern

Please select calling number privacy pattern.
(0:DisplayName/1:Remote-Party-ID/2:RFC3325(default=0)):1


Please input a dummy string.(MAX32): anonymous


Privacy pattern: Remote-Party-ID


Dummy string anonymous
```

- When Remote-Party-ID (=1) is selected.
- Enter a dummy string in a maximum of 32 characters. **Note 23**

Note 23: Be sure not to enter a blank character to the end of the Dummy string characters (with the Copy and Paste features of your personal computer), and be careful not to mistype a character.

When **RFC3323/3325** (=2) is selected:

```
MG(SIP) > set privacy_pattern

Please select calling number privacy pattern.
(0:DisplayName/1:Remote-Party-ID/2:RFC3325(default=0)):2


Please select RFC3325 pattern.
(0: Pattern 1/1: Pattern 2(default=0)):0


Privacy pattern: RFC3325(0)
```

- When RFC3325 (=2) is selected.
- Select an RFC3325 pattern
  0: Pattern 1
  (P-Preferred-ID Header is not attached)
  1: Pattern 2
  (P-Preferred-ID Header is attached)

37 SET△REGISTRATION_PORT_NO

This command is used to specify the UDP port number that receives the registration packets.

```
MG(SIP) > set registration_port_no

Registration port number (1024-65535): 3456
```

- Assign the port number (default: 3456).

38 SET△REG_INTERVAL

This command is used to assign the retry waiting time when failed to register, due to the error-response or no answer from the server when a Register packet was sent to SIP server from MG(SIP).

```
MG(SIP) > set reg_interval

REGISTER Interval timer (1-255min(default=5min)): 5
```

- Assign the registration retry waiting time.
  Re-register waiting time (min): (default: 5min)

Note: Assign this command adjusting to the specification on SIP network.
When registration per number function is effective, assign by setting MG(SIP) using the largest number within the same MG(SIP) group referring to table below.

Amount of Numbers	Time (minute)
1-300	5
301-600	10
601-900	15
901-1000	20

39 SETΔRFC2833_PASS

This command is used to enable/disable RFC2833 packet transparency. When this is set enabled, DTMF relay method with RFC2833 on the Telephony Server network is available.

```
MG(SIP) > set rfc2833_pass

<< Current Setting >>
RFC2833 RTP Event Pass: disable

Select the setting of RFC2833 RTP Event Pass.
0=disable(default)
1=enable

Input:1

<<Result>>
RFC2833 RTP Event Pass: enable
```

Displays the current setting.

0: disable (Default)
1: enable

Displays the result.

Note: The conditions when enabling this command are as follows.

- To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP16 [SCA-16SIPMGA/MG-16SIPMGA].
- The payload type 103 is used for the FAX as voice data. Therefore, the payload type 103 cannot be used for RFC2833 packet.
- When the MG-SIP receives RFC2833 packet from the Telephony Server side and sends Inband DTMF signals to SIP Server side, “SequenceNum” and “TimeStamp” in the RTP packet of Inband DTMF will not be consecutive to the RTP packet which are sent previously. Then, it may occur a pause of sound.
- The command data, “DTMF Duration” and “DTMF Pause” that are specified by the configuration command “set dtmf_mode” will not be reflected.
- RFC2833 packet is not supported for the PAD adjustment option of the configuration command “set softdsp”.
- The data of RFC2833 packet such as “Event”, “Duration”, “Volume”, “E”, and “R” will be transferred to the network without checking.
- Multiple events and an event coexisting “Tone” and “Event” are not supported per one RFC2833 packet.
- “Telephone Tone” of RFC2833 packet is not supported.

- When RTCP message exchange is not available, RTP packets are not sent. In that case, the detected DTMF signals are processed, but RFC2833 DTMF relay does not work.

40 SET△RTP_PATHON

This command is used to assign Path-on function by 183Progress after receiving 180Ringing.

```
MG(SIP) > set rtp_pathon

Path-on 183 after 180?(0: disable/1: enable(default=0)): 0
```

- Assign Path-on function data.
  0: disable (default)
  1: enable

Note: Assign this command adjusting to the specifications on the SIP network.

41 SET△RTP_QOS

This command is used to specify the QoS of Real-Time Protocol (RTP). The sample data setting is explained in 19 SETDDRS_QOS.

```
MG(SIP) > set rtp_qos
```

See SET DRS_QOS command for more details.

42 SET△SDP_STYLE

This command is used to receive SDP with multiple “m” lines.

When **normal** (=0) style is specified:

```
MG(SIP) > set sdp_style


  Select SDP style setting.
    0=normal(default)
    1=RFC4566
Input:0
```

- Select SDP style setting.
  0: normal (default)
  1: conforms to RFC4566

When **RFC4566** (=1) style is specified:

```
MG(SIP) > set sdp_style


  Select SDP style setting.
    0=normal(default)
    1=RFC4566
Input:1

  Select the setting of G729 annexb=no.
    0=disable (default)
    1=enable
Input:1
```

- Select SDP style setting.
  0: normal (default)
  1: conforms to RFC4566
- Specify the setting of G729 annexb=no.
  0: G729 annexb=no is disabled.
  1: G729 annexb=no is enabled.

Note: The conditions of this command are as follows.
- This command is available for SP-3988 MG SIP(16) PROG-G Issue 2 or later.
- The setting of G729 annexb=no is available for SP-3988 MG SIP(16) PROG-G Issue 3 or later.

43 SETΔSELF_SIP_DOMAIN

This command is used to create a SIP domain.

```
MG(SIP) > set self_sip_domain

Self SIP domain mode is disable?(0: disable/1: enable(default=0)): _
```

When **SIP Domain Mode is Disable** (=0) is selected:

```
MG(SIP) > set self_sip_domain

Self SIP domain mode is disable?(0: disable/1: enable(default=0)): 0
```

- When 0 (=disable) is specified (default)

When **SIP Domain Mode is Enable** (=1) is selected:

```
MG(SIP) > set self_sip_domain

Self SIP domain mode is disable?(0: disable/1: enable(default=0)): 1

Please input a self SIP domain string.(MAX128):
```

- When 1 (=enable) is specified.
- Input the SIP domain name in a maximum of 128 characters.

Note: Assign this command adjusting to the specifications on the SIP network.

Note: This command is required only when SIP domains must be separated between the SIP server and MG-SIP16.

Note: When no data has been assigned by this command, the SIP domain that has been set by “setΔsip_server” command will be used as the SIP domain of MG-SIP16.

44 SET△SESSION_TIMER

This command is used to specify the Session Timer.

```
MG(SIP) > set session_timer

Is a session-timer enable?(0: enable/1: disable(default=0)):_
```

- Enable/disable session timer
  0: Session Timer is enabled
  1: Session Timer is disabled

When **Session-Timer is Enable** (=0) is selected

```
MG(SIP) > set session_timer

Is a session-timer enable?
(0: enable/1: disable(default=0)): 0

Session-expires(0-86400(default=180sec)): 180

Refresher(0: UAC/1: UAS(default=0)): 0

Add "refresher=uac" in INVITE?
(0: disable/1: enable(default=0)): 1

forced mode?(0: disable/1: enable(default=0)): 0

Session-timer is enable.
Session-expires: 180
Refresher: UAC
Invite Refresher: disable
Forced: disable
```

- When Enable(=0) is selected:
- Set the session timer.
- Determine a point to make refresher.
  UAC: User Agent Client
  UAS: User Agent Server
- refresher=uac addition to INVITE message:
  0: refresher=uac is not added
  1: refresher=uac is added
- forced mode:
  0: Session timer will not be activated when Supported/Require header does not exist (default).
  1: Session timer will be activated by using Session-Expires when Supported/Require header does not exit.

When **Session-Timer is Disable** (=1) is selected:

```
MG(SIP) > set session_timer

Is a session-timer enable?(0: enable/1: disable(default=0)): 1

Session-timer is disable.
```

- When Disable(=1) is selected.

45 SET△SIGNALING_PORT_NUMBER

This command is used to specify the UDP port number that receives the control signal packets.

```
MG(SIP) > set signaling_port_no

Signaling port number(1024-65535):61012
```

- Assign the signaling port number (default: 61012).

46 SETΔSIP_ACCFILTER

This command is used to enable the SIP Access Filter which discards SIP packets received from an unauthorized destination.

Also, this command is used to enable the Burst Access Filter which temporarily limits the maximum number of incoming calls that can be received by a Telephony server when a rush of calls from a SIP network occurs instantaneously.

Note: When this feature is enabled, select "0=A Record resolve (single IP Address) (default)" for the setting of DNS Server options.

When IP address (=0) is selected by "set sip_server" command:

```
MG(SIP) > set sip_accfilter


Select the setting of SIP Access Filter.
  0=disable (default)
  1=enable
Input: 1

Input SIP Access Filter mask. (default
=255.255.255.255)
(SIP server IP Address: 192.168.100.100)
                                : 255.255.255.255



Select the setting of Burst Access Filter.
0 = disable (default)
1 = enable

Input : 1
Input Burst Access limit timer value. (sec)
(1-60(default=1)) : 30


Input Burst Access limit number value.
(1-1000(default=10)) : 500



Input Burst Access reject response code.
(400-699(default=488)) : 600









MG(SIP)
```

- Enable/disable SIP Access Filter. **Note 24**
  0: SIP Access Filter is disabled (default).
  1: SIP Access Filter is enabled.

- When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

  Note: The IP address of Register Server is authorized although it is not displayed.

- Enable/disable Burst Access Filter. **Note 25**
  0: Burst Access Filter is disabled (default).
  1: Burst Access Filter is enabled.

- Assign the period of monitoring incoming calls (sec.). (1-60, default is 1.)

- Assign the limit number of incoming calls (INVITE number) to be received during a monitoring period (sec.). **Note 26**
  (1-1000, default is 10.)

- Assign the error response code that is sent back to a SIP network when the INVITE number exceeds the limit during a monitoring period (sec.).
  (400-699, default is 488.)

When FQDN (=1) is selected by “set sip_server” command:

```
MG(SIP) > set sip_accfilter

Select the setting of SIP Access Filter.
  0=disable (default)
  1=enable
Input: 1

Input SIP Access Filter mask. (default
=255.255.255.255)
(SIP server FQDN: sipserver.nec.com)
                                : 255.255.255.255



Select the setting of Burst Access Filter.
0 = disable (default)
1 = enable

Input : 1
Input Burst Access limit timer value. (sec)
(1-60(default=1)) : 30


Input Burst Access limit number value.
(1-1000(default=10)) : 500



Input Burst Access reject response code.
(400-699(default=488)) : 600



MG(SIP)
```

- Enable/disable SIP Access Filter. **Note 24**
  0: SIP Access Filter is disabled (default).
  1: SIP Access Filter is enabled.
- When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

Note: The IP address of Register Server is authorized although it is not displayed.

- Enable/disable Burst Access Filter. **Note 25**
  0: Burst Access Filter is disabled (default).
  1: Burst Access Filter is enabled.
- Assign the period of monitoring incoming calls (sec.). (1-60, default is 1.)
- Assign the limit number of incoming calls (INVITE number) to be received during a monitoring period (sec.). **Note 26**
  (1-1000, default is 10.)
- Assign the error response code that is sent back to a SIP network when the INVITE number exceeds the limit during a monitoring period (sec.).
  (400-699, default is 488.)

Note 24: This feature is available for SP-3988 MG SIP (16) PROG-G Issue 3 or later.

Note 25: This feature is available for SP-3988 MG SIP (16) PROG-G Issue 5 or later.

When receiving incoming calls that exceed the assigned limit number while this feature is enabled, an error response code is sent back to a SIP network and further incoming calls are rejected until the next period of monitoring incoming calls.

Note 26: Only Initial-INVITE is counted as an incoming call. In addition, INVITE from an unauthorized destination is also counted as an incoming call when SIP Access Filter feature is disabled.

The followings are not counted as an incoming call:

- Outgoing call
- Abandoned or received call
- Re-INVITE
- INVITE from unauthorized destination (when SIP Access Filter feature is enabled)
- INVITE without the following header

- Via
- From
- To

- CSeq
- CallID

47 SETΔSIP_PORT_NO

The command is used to specify a port number that receives SIP messages.

MG(SIP) > set sip_port_no SIP port number(1024-65535):5060	• Assign the SIP port number (default: 5060).

48 SETΔSIP_QOS

This command is used to specify the QoS of Session Initiation Protocol (SIP).

MG(SIP) > set sip_qos	See SET DRS_QOS command for more details.

49 SETΔSIP_REGISTER

The command is used to assign an IP address or a Fully Qualified Domain Name (FQDN) of the Registry server.

MG(SIP) > set sip_register SIP register type(0=IP address/1=FQDN):_	• Select the register type. 0: IP address 1: FQDN

When **IP address** (=0) is selected:

MG(SIP) > set sip_register SIP register type(0=IP address/1=FQDN):0 SIP register IP address: 192.168.100.100 SIP register port number(1024-65535): 5060 SIP register expires time(1-65535): 3600	• When IP address (=0) is selected. • Assign the IP address of the register server (default: 0.0.0.0). • Assign the port number of the register server (default: 5060) • Assign the register alive time in seconds (default: 3600).

When **FQDN** (=1) is selected:

MG(SIP) > set sip_register SIP register type(0=IP address/1=FQDN):1 Full Qualified Domain Name(MAX63): nec.com SIP register port number(1024-65535): 5060 SIP register expires time(1-65535): 3600	• When FQDN (=1) is selected. • Assign the FQDN (default:0, max 63 characters). **Note 27** • Assign the port number of the register server (default: 5060) • Assign the register alive time in seconds (default: 3600).

Note 27: Be sure not to enter a space after FQDN characters.

50 SET△SIP_ROUTE

This command is used to specify route information in the SIP side network. The registered number of the route information is up to 10.

`MG(SIP) > set sip_route`	See SET IPX_ROUTE command for more details.

51 SET△SIP_RTP_PORT_NO

This command is used to specify the base RTP port number from SIP network.

`MG(SIP) > set sip_rtp_port_no` `SIP side RTP port number (1024-65024): 50000`	• Assign the base RTP port number for SIP side (default: 50000) **Note 28**

Note 28: The value must be assigned by an even number.

52 SET△SIP_SERVER

The command specifies the IP address or the Fully Qualified Domain Name (FQDN) of a SIP proxy server.

Note 29: Pressing the Enter key can skip the item. “SIP server type” and “IPaddress/FQDN” cannot be skipped.

`MG(SIP) > set sip_server` `SIP server type(0=IP address/1=FQDN):_`	• Select the type of the proxy server. 0: IP address 1: FQDN

When **IP address** (=0) is selected:

`MG(SIP) > set sip_server`	
`SIP server type(0=IP address/1=FQDN):0`	• When IP address (=0) is selected.
`SIP server IP address: 192.168.100.100`	• Assign the IP address of the proxy server (default: 0.0.0.0).
`SIP server port number(1024-65535): 5060`	• Assign the port number of the proxy server (default: 5060)
`Strict or Loose(0/1): 0`	• Select a Strict router or Loose router for the proxy server (default: 0). 0: Strict router 1: Loose router

`Select the setting of rport(RFC3581) function.`
`  0=disable (default)`
`  1=enable`
`Input: 0`
	• Enable/disable the rport(RFC3581) function. (default: 0) **Note 30**

`Domain Name(MAX128):_`	• Input a string that specifies the service provider in a maximum of 128 characters.

When **FQDN** (=1) is selected:

`MG(SIP) > set sip_server`	
`SIP server type(0=IP address/1=FQDN):1`	• When FQDN (=1) is selected.
`Fully Qualified Domain Name(MAX63):nec.com`	• Assign the FQDN of the proxy server in a maximum of 62 characters (default: 0).
`SIP server port number(1024-65535): 5060`	• Assign the port number of the proxy server (default: 5060)
`Strict or Loose(0/1): 0`	• Select a Strict router or Loose router for the proxy server (default: 0). 0: Strict router 1: Loose router
`Domain Name(MAX128):_`	• Input a string that specifies the service provider in a maximum of 128 characters.

Note: Be sure not to enter a space after FQDN characters.

Note 30: The rport(RFC3581) function is available for SP-3988 MG SIP(16) PROG-G Issue 3 or later. The following conditions are applied to this function.

- Even though the setting of rport(RFC3581) is disabled, the rport parameter can be received.
- INVITE message defined in RFC3581 is not retransmitted.

53 SETΔSIP_TEL_SERVICE

The command is used to enable/disable the use of additional service features (Hold/Retrieve/Transfer from the SIP network side terminal).

```
MG(SIP) > set sip_tel_service

  Is SIP telephony service function disable?
          (0: disable/1: enable(default=0)): _
```

- Enable/disable additional service feature.
  0: additional service feature is disabled (default)
  1: additional service feature is enabled

When **enable** (=1) is selected (When disable is selected, no screen is displayed.):

```
MG(SIP) > set sip_tel_service

Is SIP telephony service function disable?
        (0: disable/1: enable(default=0)):1


Is Replaces function enable? (0: enable/1: disable(default=0)):_


Is hold [a=inactive] function enable? (0: enable/1: dis-
able(default=0)):_









Is hold [put off hold] function enable?  (0: disable/1: enable
(default=0)):_



Is REFER/NOTIFY function enable?  (0: enable/1: disable
(default=1)):_



Is 3PCC function enable?  (0: enable/1: disable (default=1)):_
```

- When enable (=1) is selected:
- Enable/disable Replaces function.
  0: enable (default)
  1: disable
- Enable/disable hold [a=inactive] function
  0: a=inactive hold function is enabled (default)
  1: a=inactive hold function is disabled
- Enable/disable hold (put off hold) function.
  0: disable (default)
  1: enable
- Enable/disable REFER/NOTIFY function.
  0: enable
  1: disable (default)
  Note 31
- Enable/disable 3PCC (3rd Party Call Control) function.
  0: enable
  1: disable (default)

When **enable** (=0) is selected for 3PCC function (When disable is selected, no screen is displayed.):

```
Select 3PCC function(codec).
  0=PCMU
  1=PCMA
  2=AUTO(default)
Input:0



Select Unhold w/o SDP function.
  0=disable(default)
  1=enable
Input:1
```

- Select 3PCC function (codec).
  Note 32
  0: Fixed to μ-law
  1: Fixed to A-law
  2: MGC Control (Telephony Server System Data)* (default)
  Note 33

  *: μ-law is set if no Telephony Server System Data is set.

- Enable/disable Unhold w/o SDP function.
  0: disable (Default)
  1: enable
  Note 34

Note: Assign this command adjusting to the specification on SIP network.

Note: The following functions are available for SP-3988 MG SIP(16) PROG-G Issue 3 or later.
- hold [put off hold] function
- REFER/NOTIFY function
- 3PCC function
- 3PCC function(codec)

Note 31: Call Transfer features using REFER/NOTIFY methods are available only when a transferring destination is MG-SIP16.

Note 32: When INVITE without SDP is received since SP-3988 MG SIP(16) PROG-G Issue 3, the following conditions are applied.
- Only G.711 (20ms) μ-law/A-law connection is available.
- AMGVL/AIVCL data assignment cannot give an offer.

Note 33: The conditions of this command are as follows:
- When “2=AUTO (default)” is selected, the codec used for 3PCC function (codec) complies with the A-law/μ-law information which the Telephony Server informs MG-SIP16.
- In the Telephony Server side, by the system data assignment (ASYD, SYS1, Index 64, Bit 0), either μ-law or A-law can be specified as the A-law/μ-law information which the Telephony Server informs MG-SIP16.
- The Telephony Server informs MG-SIP16 the A-law/μ-law information only when the MG-SIP16 performs registration.
- When you change the system data (ASYD, SYS1, Index64, Bit 0) during operation, the data change will be reflected after rebooting MG-SIP16.

Note 34: “Select Unhold w/o SDP function” is available for SP-3988 MGSIP (16) PROG-G Issue 9 or later. If a reINVITE without SDP is received while being on hold, the following happens depending on the settings.
- disable: the hold is maintained.
- enable: the hold is released.

54 SETΔSIP_TRANSPORT

This command is used to select whether SIP requests to be sent with TCP or UDP as the transport protocol.

```
MG(SIP) > set sip_transport

Select the setting of SIP Transport Protocol.

  0=UDP(default)
  1=TCP

Input:1
```

- Select the setting of SIP Transport Protocol.
  0: UDP (default)
  1: TCP

Note: The conditions of this command are as follows.
- This command is available for SP-3988 MG SIP(16) PROG-G Issue 3 or later.
- Regardless of the sip_transport setting in the configuration, TCP/UDP messages can be received.
- Transport protocol is selected in the following priority.

55 SETΔSLIPRESP

This command is used to determine a SLIP response code. This command is used to determine an error response code that is sent in order to prompt a SIP server to bypass when all the resources of MG-SIP16 [SCA-16SIPMG(US) -B/SCA-16SIPMG(US)] are busy.

```
MG(SIP) > set slipresp

SIP Server slip response code?(400-699):_
```

- Set the SLIP response code (default: 488).

56 SETΔUPDATE

This command is used to enable/disable the use of update method.

```
MG(SIP) > set update

        Is the UPDATE method support function disable?
                    (0: disable/1: enable(default=0)):_
```

- Enable/disable update method.
  0: Update method is enabled (default)
  1: Update method is disabled

Note: Assign this command adjusting to the specification on SIP network.

57 SETΔRESPONSE_TABLE

This command is used to set response table.

```
MG(SIP) > set response_table

Select Response_table (Error_cause to SIP_Error_response)
          (0:normal/1:revised_table (default=0)):_
```

- Select the response table pattern
  0: Normal table (default)
  1: Server error is not sent out from MG-SIP16 to SIP network

Note: Generally this command is not required to be changed.

58 SETΔOUT_OF_AREA_CODE

This command is used to set the error response code to inform out-of-area error on the Telephony Server network side.

```
MG(SIP) > set out_of_area_code

Please set up the error response code when the out of
area. (400-606 (default=408)): 408
```

- Enter the error response code (default: 408)

Note: Generally this command is not required to be changed.

59 SET∆MULTISESSION

This command is used to enable/disable the use of Multi-Path Switch in ACD system by using MG-SIP16.

```
MG(SIP) > set multisession

The multi-session setting is disable.

Is the multi-session setting enable? (0:disable/
1:enable (default=0): 1

The multi-session setting is enable.

MG(SIP) >
```

The current setting is displayed.

0: disable (default)
1: enable

The result is displayed.

60 SET∆NAME_DISPLAY

This command is used to enable/disable Name Display service using MG-SIP16.

```
MG(SIP) > set name_display

Select function of Name Display.

  0 = disable (default)
  1 = enable

Input:1

MG(SIP) >
```

0: disable (default)
1: enable

SHOW COMMAND

1 SHOW∆ARP

This command is used to show the Address Resolution Protocol (ARP) table. The following shows a sample display.

```
MG(SIP) > show arp

LINK LEVEL ARP TABLE
Destination     LL Address          Flags     Refcnt    Use    Interface
------------------------------------------------------------------------
90.0.0.63       08:00:3e:23:79:e7   0x405     0         82     lo0
------------------------------------------------------------------------
```

Note: The actual value may differ from this sample.

2 SHOW∆CONFIG

This command is used to show the configuration that has been currently specified for the MG-SIP16.

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:_
```

- Select a desired item (0 - 9) to display.

When MAC Data (=0) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:0


Ether[1] MAC address: 00-00-00-00-00-00


Ether[2] MAC address: 00-00-00-00-00-00
```

- When MAC Data (=0) is selected:
- MAC address of Ether [1] of MG-SIP 16
- MAC address of Ether [2] of MG-SIP 16

When DRS Data (=1) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:1


DRS[0] IP address: 0.0.0.0: PortNo[3456]


DRS[1] IP address: 0.0.0.0: PortNo[3456]


DRS[2] IP address: 0.0.0.0: PortNo[3456]


DRS[3] IP address: 0.0.0.0: PortNo[3456]
```

- When DRS Data (=1) is selected:
- IP address and port number of the currently configured DRS will be displayed.

When Common Config Data (=2) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:2

set signaling_port_no:
 Signal port number           :61012
-------------------------------------

set registration_port_no:
 Registration port number     :3456
-------------------------------------

set pre_negotiation_port_no:
 Voice path port number       :61014
-------------------------------------

set ipx_rtp_port_no:
 IPX side RTP port number     :51000
-------------------------------------

set sip_rtp_port_no:
 SIP side RTP port number     :50000
-------------------------------------

set h245_base_port_no:
 H245 base port number        :40000
-------------------------------------

Does it display more? Y/N=y
```

- When Common Config Data (=2) is selected:
- Currently assigned config data will be displayed.
- To see the config data more, enter “y”. To exit this command, press “n”.

```
set drs_qos:
 DRS QOS                    : 0xa0
     PRECEDENCE             : 5
     DELAY                  : 0
     THROUGHPUT             : 0
     RELIABILITY            : 0
     COST                   : 0
-------------------------------------

set rtp_qos:
 RTP QOS                    : 0xa0
     PRECEDENCE             : 5
     DELAY                  : 0
     THROUGHPUT             : 0
     RELIABILITY            : 0
     COST                   : 0
-------------------------------------

Does it display more? Y/N=y
-------------------------------------

set sip_qos:
 SIP QOS                    : 0xa0
     PRECEDENCE             : 5
     DELAY                  : 0
     THROUGHPUT             : 0
     RELIABILITY            : 0
     COST                   : 0
-------------------------------------

set domain:
 Domain name                : 0
-------------------------------------

set dnsaddress:
 DNS IP address             : 0.0.0.0
-------------------------------------

set hc_alarm:
 H/C Alarm type             : IPX and SIP side enable
-------------------------------------

set hc_timer:
 H/C Timer value            : 240
-------------------------------------

set musictype:
 Music Type                 : Type1
-------------------------------------

set call_hold:
 Call Hold function         : enable
 RTP detect timer value     : 3sec
 Response code to reject    : 488
-------------------------------------

set name_display:
 Name Display               : enable
-------------------------------------
```

Note 35

- When MG Based Call Retention is enabled.

Note 36, **Note 37**

Note 35: H/C Alarm type display varies depending on the type that is assigned by the “set hc_alarm.”

- When assigned as IPX network ⇒ SIP network: “Telephony Server and SIP side enable”
- When assigned as IPX network: “Telephony Server side enable”
- When assigned as SIP network: “SIP side enable”

- When assigned not to send: “Disable”x

Note 36: The display shows “set call_hold” since SP-3988 MG SIP(16) PROG-G Issue 3.

Note 37: When “disable” is selected by the SET command “call_hold”, “disable” is displayed, but “RTP detect timer value” and “Response code to reject” are not displayed.

When Port Config Data (=3) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:3


Ether[1]
      IP address: 0.0.0.0
      Subnet    : 0.0.0.0
      Interface : Speed/Duplex-Auto/Automatic
      Port type : IPX Side Port

Ether[2] MAC address: 00-00-00-00-00-00
    IP address: 0.0.0.0
      Subnet    : 0.0.0.0
      Interface : Speed/Duplex-Auto/Automatic
      Port type : SIP Side Port
```

- When Port Config Data (=3) is selected:
- Information of data that is assigned for ports.

When SIP Config Data (=4) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:4


set sip_server:
 Server type                    :0
 Sever IP address               :0.0.0.0
 Server port number             :5060
 Strict or Loose                :0
 rport(RFC3581) function        :disable
 Domain Name                    :0
-----------------------------------------
set sip_register:
 Register IP address            :0.0.0.0
 Register port number           :5060
 Expires time                   :3060
-----------------------------------------
set keynumber:
 Key number                     :0
-----------------------------------------
set auth:
 User ID                        :0
 Password                       :0
-----------------------------------------

Does it display more?Y/N=y
-----------------------------------------
```

- When SipConfig Data (=4) is selected:
- SIP config data will be displayed.

Note 38

Note 38: The display shows “rport(RFC3581) function” since SP-3988 MG SIP(16) PROG-G Issue 3 or later.

```
set privacy_pattern:
 Privacy pattern                  :Remote-Party-ID
 Dummy string                     :anonymous
-------------------------------------------------
set session_timer:
 Session-timer                    :0
 Session-expires                  :180
 Refresher                        :UAC
 Invite Refresher                 :enable
 Forced                           :disable
-------------------------------------------------
set prack:
 100rel                           :enable
 Stop cyclical-send of 18x        :disable
-------------------------------------------------
set cdn_pattern:
 Called-number pattern            :To:userinfo
-------------------------------------------------
set sip_port_no:
 SIP port number                  :5060
-------------------------------------------------

Does it display more?Y/N=y
-------------------------------------------------
set 184ToPrivacy:
 184->Privacy function            :disable
-------------------------------------------------
set slipresp:
 SIP Server slip response code.   :488
-------------------------------------------------
set self_sip_domain:
 Self SIP domain mode             :disable

Does it display more?Y/N=y
-------------------------------------------------
set dtmf_mode:
 DTMF Mode                        :Negotiation(SIP/SDP)
 DTMF Duration                    :120 ms
 DTMF Pause                       :100 ms
 DTMF Payload type                :101
-------------------------------------------------
set 183rbt:
 RBT add(193 w/o SDP)             :enable
-------------------------------------------------
set pathon:
 Path-on 183 after  180           :disable
-------------------------------------------------
set another_keynumber:
 Another keynumber1               :0
 Another keynumber2               :0
 Another keynumber3               :0

Does it display more?Y/N=y
-------------------------------------------------
```

```
set multi_regist:
 Multi-registration mode                          :disable
-----------------------------------------------------------

Set sip_tel_service:
 SIP telephony service function                   :disable
-----------------------------------------------------------

set reg_interval:
 SIP telephony service function                   :disable
-----------------------------------------------------------

set update:
 UPDATE Method support                            :disable
-----------------------------------------------------------

set auth_header:
 Auth-header cache function                       :enable
-----------------------------------------------------------

set cause_table:
 Cause_table selection                            :normal
-----------------------------------------------------------

set response_table:
 Response_table selection                         :normal

Does it display more? Y/N=y
-----------------------------------------------------------

set cpn_pattern:
 Priority of Calling-number                  :Displayname
-----------------------------------------------------------

set cc_convert:
 Country-code convert                             :disable
-----------------------------------------------------------

set check_number:
 Number check function                            :disable
-----------------------------------------------------------

set out_of_area_code:
 Response code when out of area              :408(default)
-----------------------------------------------------------
```

Note 39

Note 40

Note 41, **Note 43**

Note 42

Note 39: “revised_table” will be displayed when revised_table is selected in “response_table” command.

Note 40: “User info” will be displayed when User info is selected in “cpn_pattern” command.

Note 41: “enable” will be displayed when User info is selected in “cc_convert” command.

Note 42: “enable” will be displayed when User info is selected in “check_number” command.

Note 43: When “Pattern 1” or “Pattern 2” is selected by the setting command “cc_convert”, the following parameters are displayed.
(Example) When Pattern 2 is selected (“Pattern 2” is displayed for SP-3905 MG SIP (16) PROG-A Issue 10 or later):
Country Code: 81
National Prefix: 0
National Destination Code: 3
International Prefix: 010
Number of Local Number digits: 3

```
set sdp_style:                                          Note 44
 SDP style setting                              :RFC4566
 G729 annexb=no                                 :enable
-------------------------------------------------------

set call_id_relay:
 Call-ID relay mode                             :disable
-------------------------------------------------------

set sip_accfilter:
 SIP Access Filter                              :disable  Note 44, Note 45
 Burst Access Filter                            :disable  Note 46
-------------------------------------------------------

set sip_transport:
 SIP transport protocol                        :UDP
-------------------------------------------------------

set dns_option:                                         Note 47
 DNS type                       :Locating SIP servers
                                 function(RFC3263)
 DNS cache                      :enable
-------------------------------------------------------

set codec_change:
 Codec Change function                          :enable
 G711 Fax renegotiation                         :enable
-------------------------------------------------------

set no_media_code:
 Response code(unsupported codec)               :415
-------------------------------------------------------

set ppi_to_pai:
 PAID transmission function                     :enable
-------------------------------------------------------

set nataddress:
 NAT IP Address                          :189.10.3.41  Note 48
-------------------------------------------------------

set rfc2833_pass:
 RFC2833 RTP Event Pass                         :enable  Note 48
-------------------------------------------------------
```

Note 44: The display shows the following since SP-3988 MG SIP(16) PROG-G Issue 3.

- G729 annexb=no function (sdp_style)
- call_id_relay
- sip_accfilter
- sip_transport

- dns_option
- codec_change
- no_media_code
- ppi_to_pai

Note 45: When “enable” is selected for “SIP Access Filter” by the SET command “sip_accfilter”, “enable” and the following settings are displayed:
When IP address is assigned by the SET command “sip_server”
(SIP server IP Address: 192.168.100.100)
SIP Access Filter mask: 255.255.255.255

When FQDN is assigned by the SET command “sip_server”
(SIP server FQDN: sipserver.nec.com)
SIP Access Filter mask: 255.255.255.255

When “disable” is selected for “SIP Access Filter”, the above settings are not shown.

Note 46: For SP-3988 MG SIP(16) PROG-G Issue 5 or later, when “enable” is selected for “Burst Access Filter” by the SET command “sip_accfilter”, “enable” and the following settings are displayed:
Burst Access Filter: enable
Burst Access limit timer value: 30
Burst Access limit number value: 500
Burst Access reject response code: 600

When “disable” is selected for “Burst Access Filter”, the above settings are not shown.

Note 47: Setting for SIP Server’s specified location (RFC3263) feature is displayed. This parameter is displayed for SP-3905 MG SIP (16) PROG-A Issue 10 or later. When “A Record resolve (single IP Address)”, “A Record resolve (multi IP Address)”, or “A Record resolve (multi IP Address for REGISTER bypass)” is selected, the current selection is displayed.

Note 48: Available for SP-3988 MG-SIP(16) PROG-G Issue 10 or later.

Additional Information when SIP Config Data (=4) is selected:

Item	Detail
Server type	“Server IP address” may be displayed as “Server FQDN”, pertaining to the data assigned.
Register IP Address	“Register IP address” may be displayed as “Register FQDN”, pertaining to the data assigned.
Privacy pattern	Displayed as pattern shown below, pertaining to the data assigned. “DisplayName” “Remote-Party-ID” “RFC3323/3325(0)” “RFC3323/3325(1)”
Dummy string	Displayed only when “Remote-Party-ID” is assigned for “Privacy pattern”.
Session-timer	May be displayed “Disabled”, pertaining to the data assigned.

Item	Detail
Session-expires	Not displayed when the value of "Session-timer" is "disable".
Refresher	Not displayed when the value of "Session-timer" is "disable". May be displayed "UAS", pertaining to the data assigned.
Invite Refresher	Not displayed when the value of "Session-timer" is "disable". May be displayed "disabled", pertaining to the data assigned.
Forced	Displayed as "enabled" when Forced section in "session_timer" is assigned as enabled.
100rel	May be displayed "disabled", pertaining to the data assigned.
Stop cyclical-send of 18x	Not displayed when the value of "100rel" is "disable". May be displayed "enabled", pertaining to the data assigned.
Called-number pattern	May be displayed "Request-URI", pertaining to the data assigned.
isub function	May be displayed "enabled", pertaining to the data assigned.
184 → 0 Privacy function	Displayed as pattern shown below, pertaining to the data assigned. "disable" "enable (1)" "enable (2)"
Self SIP domain mode	May be displayed "enabled", pertaining to the data assigned.
Self SIP domain string	Not displayed when the value of "Self SIP domain mode" is "disable". Domain name assigned will be displayed when "enable".
DTMF Mode	Displayed as pattern shown below, pertaining to the data assigned. "Negotiation (SIP/SDP)" "In-Band (G.711)" "Out-Band (RFC2833)"
DTMF Payload type	Not displayed when the value of "DTMF Mode" is "In-Band".
RBT add (183 w/o SDP)	May be displayed "Disabled", pertaining to the data assigned.
Path-on 183 after 180	May be displayed "enabled", pertaining to the data assigned.
Transmitting Interval timer	Not displayed when the value of "Multi-registration mode" is "disable".
Standby timer value	Not displayed when the value of "Multi-registration mode" is "disable".
Contact header type	Not displayed when the value of "Multi-registration mode" is "disable". May be displayed "SIP-URI", pertaining to the data assigned.
Multi_regist	When enable is selected in "**multi_regist**" command, "enable" is displayed and the following are also displayed. Transmitting interval timer: 1sec Standby timer value: 30sec Contact header type: Privacy or SIP-URI **Note:** The settings above are not displayed when "disable" is assigned in "**multi_regist**"

Item	Detail
SIP telephony service function	When "SIP telephony service function" is enabled by the SET command "**sip_tel_service**", "enable" is displayed, as well as enablement/disablement of the following settings: • Replaces function • hold [a=inactive] function • hold [put off hold] function • REFER/NOTIFY function • 3PCC function When "SIP telephony service function" is disabled by the SET command "sip_tel_service", the following is displayed: "SIP telephony service function: disable" Then nothing is displayed below "SIP telephony service function: disable". The following is an example display when "SIP telephony service function" is enabled by the SET command "**sip_tel_service**". [Example] set sip_tel_service: SIP telephony service function: enable Replaces function: enable hold [a=inactive] function: enable hold [put off hold] function: enable **Note 49** REFER/NOTIFY function: enable **Note 49** 3PCC function: enable **Note 49**, **Note 50** 3PCC function (codec): PCMU **Note 49**, **Note 50** Unhold w/o SDP function: enable **Note 50**, **Note 51**
UPDATE Method support function	May be displayed "enable", pertaining to the data assigned.
Auth-header cache function	May be displayed "disable", pertaining to the data assigned.
Cause_table selection	May be displayed "alternate routing", pertaining to the data assigned.

Note 49: Settings for hold [put off hold] function, REFER/NOTIFY function, 3PCC function, 3PCC function(codec) are available for SP-3988 MG SIP(16) PROG-G Issue 3 or later.

Note 50: "3PCC function(codec)" and "Unhold w/o SDP function" are displayed only when 3PCC function is enabled by the SET command "sip_tel_service".

Note 51: This parameter is displayed since SP-3988 PROG-G Issue 9.

When **Route Config Data (=5)** is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:5


Ether[1]
Route type: Static

No | Gateway address  | Destination IP address / Prefix
-------------------------------------------------------
 1 | 192.168.  0.254  | 172.16. 0. 0           / 16

Ether[2]
Route type: Static

No | Gateway address  | Destination IP address / Prefix
-------------------------------------------------------
 1 | 192.168.  0.254  |   0. 0. 0. 0           / 0
```

- When Route Config Data (=5) is selected:

3 SHOW∆INTERFACE

This command is used to show the link and setting state of Ether connection.

```
MG(SIP) > show interface

Use one-port only

Ether[1]:

 MAC Address:00-00-00-00-00-00


 Interface: Speed/Duplex = Auto/Auto


 Link status: Link up
```

- MAC address is indicated.
- Speed and operation mode will be indicated.
- Link status can be monitored.

4 SHOW∆ROUTE

This command is used to show the Route Table.

```
MG(SIP) > show route

ROUTE NET TABLE

Destination     Gateway         Flags    Refcnt    Use   Interface
------------------------------------------------------------------
10.41.205.0     10.41.205.100   0x101    0         0     dp0
10.41.207.0     10.41.207.100   0x101    0         0     dp1
------------------------------------------------------------------

ROUTE HOST TABELE
Destination     Gateway         Flags    Refcnt    Use   Interface
------------------------------------------------------------------
127.0.0.1       127.0.0.1       0x101    0         0     lo0
------------------------------------------------------------------
```

- It may take time to display the route table information when DNS server IP address has been assigned.

Note: The actual value may differ from this sample.

5 SHOW∆STATUS

This command is used to show a status of the system.

[Setting Example]

Earlier than SP-3988 MGSIP (16) PROG-G Issue 2:

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:_
```

0: Port status (default)
1: Telephony Server network registration status
2: SIP network registration status
9: Exit

When **Port status (=0)** is selected:

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:0

IPX port link up (100Base-TX/Half)
SIP port link up (10Base-TX/Half)
```

- When Port Status (=0) is selected:

Note 52

Note 52: Port status is displayed as follows depending on the status.

Port Status	IPX Network	SIP Network
100M/Half	`IPX port link up (100Base-TX/Half)`	`SIP port link up (100Base-TX/Half)`

Port Status	IPX Network	SIP Network
100M/Full	IPX port link up (100Base-TX/Full)	SIP port link up (100Base-TX/Full)
10M/Half	IPX port link up (10Base-TX/Half)	SIP port link up (10Base-TX/Half)
10M/Full	IPX port link up (10Base-TX/Full)	SIP port link up (10Base-TX/Full)
Link Down	IPX port link down	SIP port link down

When **IPX status (=1)** is selected:

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:1

MG(SIP) > IPX Registration Information
Registration Done. (DRS IP address 172.16.253.1)
```

When IPX status (=1) is selected:

Note 53

Note 53: Display pattern is as follows depending on the registration status.
- During Registration: Now Registering
- Registration Succeed: Registration Done.
(The IP address succeeding in registration appears as well.)

When **SIP status (=2)** is selected [Multi Registration Mode is disabled]:

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:2

MG(SIP) > IPX Registration Information
Registration Done. (DRS IP address 172.16.253.1)
```

When SIP status (=2) is selected:

Note 54

Note 54: Displayed message for each registration status is as follows:

Status	Displayed Message	Remarks
During Registration	Now Registering.	
Registration Succeed	Registration Done.	
Registration Failed	Registration NG. Waiting Re-Registration timer.	
Registration Invalid	Registration Server Configuration data is not setting.	No data has been assigned by using *set sip_register* command.

When **SIP status (=2)** is selected [Multi Registration Mode is enabled]:

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:2

MG(SIP) > IPX Registration Information
Registration Done.

MG(SIP) > SIP Registration Information

------Registration NG RegIndex------

[MG-No:1]

9 10 11 12 13 14 15 16

[MG-No:2]

[MG-No:3]

[MG-No:4]

[MG-No:5]

[MG-No:6]

[MG-No:7]

[MG-No:8]

[MG-No:9]

[MG-No:10]

[MG-No:11]

[MG-No:12]

[MG-No:13]

[MG-No:14]

[MG-No:15]

------Registration OK RegIndex------

[MG-No:1]

1 2 3 4 5 6 7 8

[MG-No:2]

[MG-No:3]

[MG-No:4]

[MG-No:5]

[MG-No:6]

[MG-No:7]

[MG-No:8]
```

When SIP status (=2) is selected:

- registration failed CNT (RegIndex) information is displayed here.
- registration failed CNTs
- MG-No:5-15 are displayed for SP-3988 MG SIP (16) PROG-G Issue 4 or later.
- registration OK CNT (RegIndex) information is displayed here.
- registration OK CNTs
- MG-No:5-15 are displayed for SP-3988 MG SIP (16) PROG-G Issue 4 or later.

```
[MG-No:9]
[MG-No:10]
[MG-No:11]
[MG-No:12]
[MG-No:13]
[MG-No:14]
[MG-No:15]
```

Note: In the above example, registration was attempted for 16 numbers toward the SIP server. However, 8 numbers failed. Assign MG-No by using ASRIL command. “CNT” is a parameter of ASRIL command.

Since SP-3988 MGSIP (16) PROG-G Issue 3 or later:

- When **Port status (=0)** is selected:

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit



Please choose a reference number:0

IPX Port link up(100Base-TX/Full)
SIP Port link up(100Base-TX/Full)
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 55

Note 55: Status of each port is displayed as follows:

Port type	Status of port to LAN	Status of port to SIP network
100M/Half	IPX port link up (100Base-TX/Half)	SIP port link up (100Base-TX/Half)
100M/Full	IPX port link up (100Base-TX/Full)	SIP port link up (100Base-TX/Full)
10M/Half	IPX port link up (10Base-T/Half)	SIP port link up (10Base-T/Half)
10M/Full	IPX port link up (10Base-T/Full)	SIP port link up (10Base-T/Full)
Link Down	IPX port link down	SIP port link down

- When **IPX status (=1)** is selected:

```
MG(SIP)> show status
```

```
0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit



Please choose a reference number:1

IPX Registration Information
Registration Done. (DRS IP address
192.168.0.1)
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 56

Note 56: Display changes depending on the registration status:

When MG-SIP16 is trying to register: Now Registrating.
After MG-SIP16 successfully registered: Registration Done. (DRS IP address 192.168.0.1)
(The IP address succeeding in registration appears as well.)

- When **SIP status (=2)** is selected [Multi Registration Mode is disabled]:

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit



Please choose a reference number:2

SIP Registration Information
Registration OK.
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 57

Note 57: Display changes depending on the registration status:
When MG-SIP16 is trying to register: Now Registrating.
After MG-SIP16 successfully registered: Registration OK.
After MG-SIP16 fails to register: Registration is NG. Waiting Re-Registration timer.
(MG-SIP16 is trying to register again)
When registration is disabled: Register Server Configuration data is not set.
(No setting data of “set sip_register” command)

- When **SIP status (=2)** is selected [Multi Registration Mode is enabled]:

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Please choose a reference number:2	
SIP Registration Information	**Note 58**
------Registration NG RegIndex------	Information on CNTs (RegIndex) failing in registration
[MG-No:1]	MG-No: 1
9 10 11 12 13 14 15 16	CNTs failing in registration
[MG-No:2]	MG-No: 2
[MG-No:3]	MG-No: 3
[MG-No:4]	MG-No: 4
[MG-No:5]	MG-No: 5 **Note 59**
[MG-No:6]	MG-No: 6
[MG-No:7]	MG-No: 7
[MG-No:8]	MG-No: 8
[MG-No:9]	MG-No: 9
[MG-No:10]	MG-No: 10
[MG-No:11]	MG-No: 11
[MG-No:12]	MG-No: 12
[MG-No:13]	MG-No: 13
[MG-No:14]	MG-No: 14
[MG-No:15]	MG-No: 15
------Registration OK RegIndex------	Information on CNTs (RegIndex) succeeding in registration
[MG-No:1]	MG-No: 1
1 2 3 4 5 6 7 8	CNTs succeeding in registration
[MG-No:2]	MG-No: 2
[MG-No:3]	MG-No: 3
[MG-No:4]	MG-No: 4
[MG-No:5]	MG-No: 5 **Note 59**
[MG-No:6]	MG-No: 6
[MG-No:7]	MG-No: 7
[MG-No:8]	MG-No: 8
[MG-No:9]	MG-No: 9

```
[MG-No:10]
[MG-No:11]
[MG-No:12]
[MG-No:13]
[MG-No:14]
[MG-No:15]
----------------------------------------
```

MG-No: 10
MG-No: 11
MG-No: 12
MG-No: 13
MG-No: 14
MG-No: 15

Note 58: The example above shows a total of 16 CNTs tried registration, and eight (9 to 16) of them failed.
(Use the ASRIL command to set MG-Nos and a pilot number. CNT is a parameter set with the ASRIL command)

Note 59: MG-No:5-15 are displayed for SP-3988 MGSIP(16) PROG-G Issue 4 or later.

- When **CH status (=3)** is selected:

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH Status
9:Exit



Please choose a reference number:3

----------------------------------------

|  |    0|   1|  2|  3|  4|  5|  6|  7|

----------------------------------------

|0 |ACT(S)| --| --| --| --| --| --| --|


|8 | --    | --| --| --| --| --| --| --|

----------------------------------------

|             |actch=1|                  |

----------------------------------------

Use Session Count=1

INVITE Client Transaction = 0, max=0


INVITE Server Transaction = 0,  max=0

```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

"ACT(S)"appears for a channel in use; "-" appears for a channel not in use.

Number of channels in use

Number of sessions in use

Number of INVITE client transactions and their maximum number

Number of INVITE server transactions and their maximum number

```
Other Client Transaction = 0,  max=1


Other Server Transaction = 0,  max=1




The number of Filtered Messages = 0
( Out of Range = 0 , No DNS Cache = 0)



The number of Burst Filtered Messages = 0




MG(SIP)>
```

Number of client transactions other than INVITE and their maximum number

Number of server transactions other than INVITE and their maximum number (the maximum number represents the maximum number counting up to this time from when MG-SIP16 is turned on.)

Number of SIP packets that were discarded by SIP Access Filter **Note 60**
When "disable" is selected for "SIP Access Filter", this parameter is not shown.

Number of incoming calls that are rejcected by Burst Access Filter **Note 61**
When "disable" is selected for "Burst Access Filter", this parameter is not shown.

Note 60: This parameter is displayed for SP-3988 MG SIP(16) PROG-G Issue 3 or later.

Note 61: This parameter is displayed for SP-3988 MG SIP(16) PROG-G Issue 5 or later.

6 SHOW∆VERSION

This command is used to show a version information installed in MG-SIP16.

```
MG(SIP) > show version

Firmware Information    | SP No |    Issue
-----------------------------------------------------
MG(SIP) BOOT PROG       | 3839  |  01.00.00.00
MG(SIP) MAIN PROG       | 3988  |  01.00.00.00
MG(SIP) AU PROG         |  --   |  01.00.00.00
MG(SIP) HW              |  --   |  CA-CC10-1A
```

- MG(SIP) BOOT PROG: kernel version
- MG(SIP) MAIN PROG: program version
- MG(SIP) AU PROG: Music/Tone/DTMF version
- MG(SIP) HW: hardware version

DOWNLOAD COMMAND

1 DOWNLOAD

This command is used to download Main Program/DTMF/Music data via Ether1 port. The data is downloaded from Trivial File Transfer Protocol (TFTP) server.

[When downloading **all programs**]

```
MG(SIP) > download

Please reboot after the command.

--- Download Menu ---
Download of all programs.(default) --- input: 1
Download of one program.           --- input: 2

Input: 1

--- MG-SIP IP address set ---
Select Ether Port[1(Ether1)/2(Ether2)/Q(quit)]: 1

Current MG-SIP IP address: 10.41.1.100
Change MG-SIP address? [Y(change)/N(current)/Q(quit)]:y

If you want return to the previous step, please input 'Q'.
Input new IP address: 172.16.253.250

--- TFTP IP address set ---
Current TFTP server IP address: 10.41.1.250
Change TFTP server IP address?[Y(change)/N(current)/Q(quit)]:y

If you want to return to the previous step, please input 'Q'.
Input new IP address: 172.16.253.250


 Change IP address complete.
 New MG-SIP IP address: 172.16.253.100
 New TFTP IP address: 172.16.253.250

 Are these IP address correct?[Y(correct)/N(modify)/Q(quit)]
 If you enter Y,MG-SIP ONLINE service will be stop:y


 mgsipmwlist.txt download...
 SP3988/mgsip.bin download...
 Checksum matched!

 ################################
 Complete
 SP3988/tone.dat download...
 Checksum matched!

 ################################
 Complete
 SP3988/holdmusic.dat download...
 Checksum matched!

 ################################
 Complete
```

- To download all programs, enter “1”.
- Select Ether1 that is used for download.
- To change the IP address that is used for downloading, enter “y”.
- Enter a new IP address. **Note 62**, **Note 63**
- default: 10.41.1.250
- To change the TFTP server IP address, enter “y”.
- Enter the IP address of TFTP server that is prepared at your site.
- When the specified IP addresses are correct, enter ‘y’.
- downloading main program
- downloading DTMF Tone file
- downloading music
- Download is complete.

Note 62: The new IP address that is used for downloading and those of other ports should be different network addresses (different segments).

Note 63: Do not use a network address for which static routing has been set.

```
--- Download menu ---

 Download of all programs.(default) --- input:1
 Download of one program.           --- input:2


 input: q

MG(SIP) > _
```

- When download is complete, the menu appears again.

Enter ‘q’ to exit download command.

Note: Be sure to reboot the MG-SIP16 after downloading data.

[When downloading **one program**]

```
MG(SIP) > download

Please reboot after the command.

--- Download Menu ---
Download of all programs.(default) --- input: 1
Download of one program.           --- input: 2

Input: 2

--- MG-SIP IP address set ---
Select Ether Port[1(Ether1)/2(Ether2)/Q(quit)]: 1

Current MG-SIP IP address: 10.41.1.100
Change MG-SIP address? [Y(change)/N(current)/Q(quit)]:y

If you want return to the previous step, please input 'Q'.
Input new IP address: 172.16.253.250

--- TFTP IP address set ---
Current TFTP server IP address: 10.41.1.250
Change TFTP server IP address?[Y(change)/N(current)/Q(quit)]:y

If you want to return to the previous step, please input 'Q'.
Input new IP address: 172.16.253.250


 Change IP address complete.
 New MG-SIP IP address: 172.16.253.100
 New TFTP IP address: 172.16.253.250

 Are these IP address correct?[Y(correct)/N(modify)/Q(quit)]:y

--- Program download ---
Main program  :0
dtmf data     :1
music data    :2
Quit          :[Q/q]

Input:0

 SP3988/mgsip.bin download...
 Checksum matched!

 ################################
 Complete

--- Program download ---
Main program  :0
dtmf data     :1
music data    :2
Quit          :[Q/q]

Input:q

MG(SIP) > _
```

- To download all programs, enter "1".
- Select Ether1 that is used for download.
- To change the IP address that is used for downloading, enter "y".
- Enter a new IP address. **Note 64**, **Note 65**
- default: 10.41.1.250
- To change the TFTP server IP address, enter "y".
- Enter the IP address of the TFTP server that is prepared at your site.
- When the specified IP addresses are correct, enter 'y'.
- Select a file you want to download.
- Main program is selected in this example.
- downloading the Main program...
- Download is complete.
- When download is complete, the program download menu appears again.
- Enter 'q' to exit download command.

Note: Be sure to reboot the MG-SIP16 after downloading data.

Note: Be sure to check the product name of the firmware to download before downloading.

Note 64: If checksum error occurs during download, an error message similar to the following is displayed and the display goes back to the download menu. In this case, execute download again.

```
Checksum unmatched!!
Checksum of Filename is 12345. Not.66666.
```

Note 65: If download fails, an error message similar to the following is displayed. The message includes an error number. Please see the table that shows countermeasures.

```
tftp Download: tftp Copy ERROR errno=0x4b0007
```

Meaning of Error Number

ERROR NUMBER	CAUSE	COUNTERMEASURES
0x4b0007	The MG-SIP16 and the TFTP server are not connected.	Connect MG-SIP16 and TFTP server correctly.
0x4b0008	The specified download file does not exist in the TFTP server.	Check the file name of the download file. Check the TFTP server setting.
0x41	The IP addresses of the MG-SIP16 and the TFTP server are not in the same segment.	Check the IP addresses of the MG-SIP16 and the TFTP server, and reassign the IP address.
0x43	The TFTP server's IP address cannot be found.	
0x0d	The TFTP server's IP address is not correct.	

PING COMMAND

1 PING△*P1*

This command is used to send ping packets to a specified address to confirm network status. Ping is attempted 5 times to the address specified.

Note: The number of ping attempts (5 times) and packet size (56 bytes) cannot be changed.

```
MG(SIP) > ping 172.16.253.3
PING 172.16.253.3(172.16.253.3):56 data bytes
64 bytes from 172.16.253.3: icmp_seq=0 ttl=255 time=9.6ms
64 bytes from 172.16.253.3: icmp_seq=1 ttl=255 time=1.1ms
64 bytes from 172.16.253.3: icmp_seq=2 ttl=255 time=9.6ms
64 bytes from 172.16.253.3: icmp_seq=3 ttl=255 time=9.9ms
64 bytes from 172.16.253.3: icmp_seq=4 ttl=255 time=9.6ms
--- 172.16.253.3 ping statistics ---
5 packets transmitted. 5 packets received. 0% packet loss
Round-trip min/avg/max=1. 1/7. 9/9. 9 ms
MG(SIP) > _
```

- Specify an appropriate IP address.
- 56 bytes cannot be changed.
- ping is attempted 5 times.
- Ping statistics will displayed

REBOOT COMMAND

1 REBOOT

This command is used to reboot the MG-SIP16. Also configuration data can be saved to the Flash memory by using this command.

```
MG(SIP) > reboot

Do you want to save Config data? Y/N=y




Do you want to reboot MG(SIP) Y/N=y



Config data flash write start.

##

Complete

Config data flash write end.

MG(SIP) reboot start...
```

- Config data can be saved before rebooting the MG-SIP16. To save the running config to the Flash memory, enter "y".
  y: save **Note 66**
  n: not save

  If other than above is entered "`Reboot command was interrupted`" will be displayed.
- Reboot the MG-SIP16 or not is specified.
  y: reboot
  n: not reboot

  If other than above is entered "`Reboot command was interrupted`" will be displayed.

Note 66: Before selecting "Y" to save the running configuration data to the Flash memory, be sure to execute the following commands:
- set ipaddress (Assign the IP addresses for LAN side and SIP network side.)
- set drsaddress (Assign the IP address of DRS.)
- set sip_server (Assign the IP address of the SIP server)
- set keynumber (Assign a pilot number.)

If any item has not been assigned when saving the running configuration data, the following message will be displayed.

```
The following setting commands are not perfect.

"set ipaddress" command. (IPX side)

"set ipaddress" command. (SIP side)

"set drsaddress" command.

"set sip_server" command.

"set keynumber" command.

So, Config data is made a default setup.

Is it all right?Y/N=y
```

The following is displayed:

- if the IP address for LAN side has not been assigned
- if the IP address for SIP network side has not been assigned
- if the IP address of DRS has not been assigned
- if the IP address of a SIP server has not been assigned
- if a pilot number has not been assigned

- To apply default value, enter "y".

  If other than above is entered "`Reboot command was interrupted`" will be displayed.

EXIT COMMAND

1 EXIT

This command is used to exit from configuration mode.

```
MG(SIP) > exit

Exit ConfigMode. Bye!


->
```

- Exits from Config mode.

HELP COMMAND

1 HELP/?

This command is used to show the brief explanation of all the commands that are available on the Maintenance Console.

```
MG(SIP) > help

set                 : Config data set command.
show                : Config data show command.
download            : MG(SIP) program download command.
ping                : Ping command.
exit                : Config mode exit command.
reboot              : MG(SIP) reboot command.
help                : Help command.
?                   : Help command.
```

- Brief explanation is displayed.

5.3 Error Messages on Maintenance Console

The following are error messages displayed on the Maintenance Console.

ERROR MESSAGE	TROUBLESHOTTING
`Illegal command.`	An incorrect command is entered. Enter the command correctly.
`Illegal parameters`	An incorrect parameter is entered. Enter the parameter correctly.
`Invalid parameters`	An invalid parameter is entered. Enter the parameter correctly.
`Please set up IPX side IP address`	Assign the LAN side IP address by **set ipaddress** command.
`Please set up SIP side IP address`	Assign the SIP side IP address by **set ipaddress** command.
`Please set up DRS IP address`	Assign the DRS IP address by **set drsaddress** command.
`Please set up SIP server IP address/ FQDN`	Specify a SIP server by **set sip_server** command.
`Please set up keynumber`	Assign a pilot number by **set keynumber** command.
`User program download error 1`	Internal error
`User program download error 2`	Download file cannot be found.
`User program download error 3`	Network connection cannot be established.
`User program download error 4`	TFTP errors other than User program download errors 1 to 3
`User program download error 5`	Flash write error (User Program)
`User program download error 6`	Flash write error (Music/Tone)
`Input parameter total error [DTMF Duration + DTMF Pause < Min 120ms]`	Assign 120ms or more to the total of DTMF Duration and DTMF Pause.
`Registration NG. Waiting Re-Registration timer.`	Registration error. Re-Registration is being performed.
`Register Server Configuration data is not setting.`	There is no Register Configuration Data. Assign the data by **set sip_register** command.

Note: Refer to each command for the other error messages.

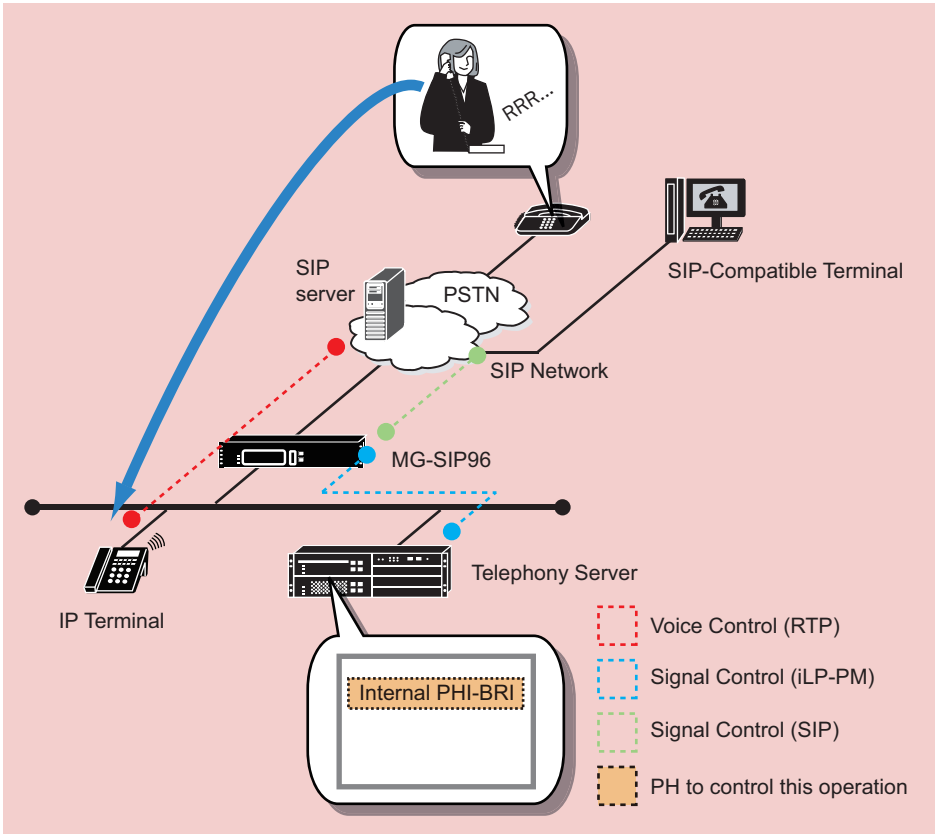
MG-SIP96

The following explains MG-SIP96: function overview, configuration, and installation procedure.

1 General

MG-SIP96 is a SIP-compatible Media Gateway to realize communication with service networks. MG-SIP96 provides VoIP devices supporting SIP (Session Initiation Protocol, based on RFC) with peer-to-peer VoIP services. MG-SIP96 also connects an IP station located on LAN with a SIP terminal (based on RFC3261) located on the WAN-side (SIP network) and maintain voice quality.

For details on service conditions and office data assignment, see MEDIA GATEWAY SIP [M-111] in UNIVERGE SV9500 Data Programming Manual - Business.



The following table shows the number of available channels of MG-SIP96.

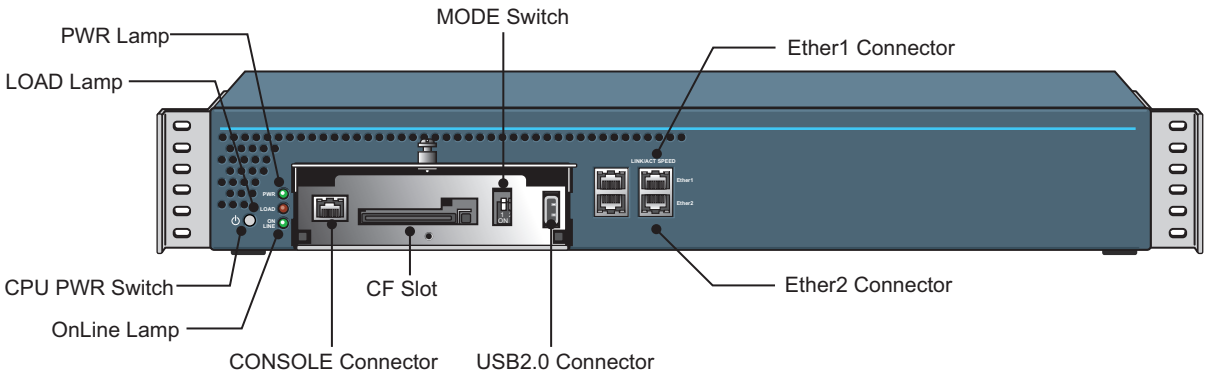
	10ms	20ms	30ms	40ms	60ms
G.711	-	96ch	96ch	96ch	-
G.729a	-	96ch	96ch	96ch	-
G.723.1	-	-	-	-	-

1.1 Specifications

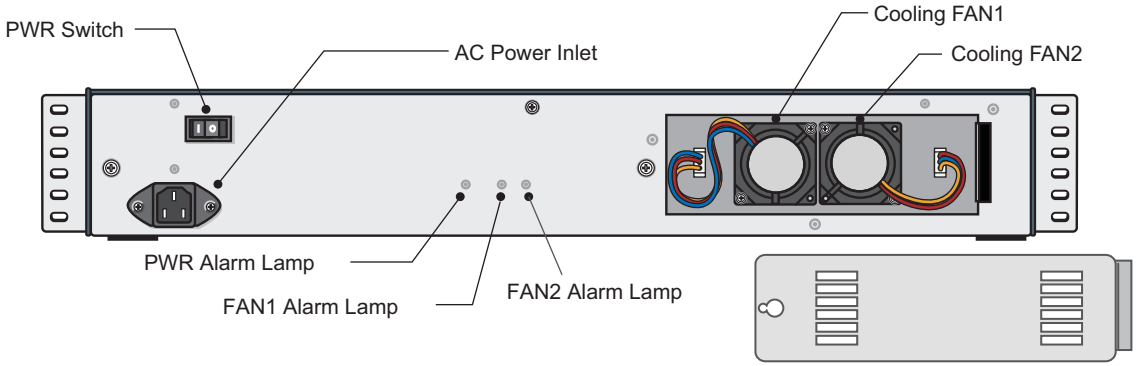
(1) Part Names

The following are the appearances of MG-SIP96.

Front



Rear



Note: After installing a MG-SIP96, fix the AC power cable with the attached AC power cable stopper.

(2) Details

[1] Hardware specifications

Item	Specifications		Remarks
Connection terminal (on front panel)	CONSOLE connector (RJ-45) x 1		For maintenance
	LAN connectors	1000BASE-T 100BASE-TX 10BASE-T x 2	
		100BASE-TX 10BASE-T x 2	Not used.
	CF slot x 1		
	USB2.0 x 1		Not used.
Dimensions	65 (H) x 430 (W) x 297 (D) mm (corresponds to 1.5U when mounting on a 19-inch rack with depth of A4 paper.)		
Weight	3.8 kg		
Input Power Source	100 VAC (50/60 Hz) ± 10% 120 VAC (50/60 Hz) ± 10% 230 VAC (50/60 Hz) ± 10% 240 VAC (50/60 Hz) ± 10%		
Maximum Power Consumption	75 W (for maximum CPU load)		
QoS	IEEE802.1p (ToS field is supported, Diffserv)		
How to set	Flatly on desktop (basic type)		
Environmental requirement	Operational Temperature Range	0°C to 40°C (32°F to 104°F)	
	Operational Humidity Range	20% to 90% (not condensing)	
Cooling system	Forcible air-cooling by FAN		

[2] Functions

(a) Front

Part	Description		Remarks
PWR lamp	ON (green)	Powered ON.	
	OFF	Powered OFF.	
LOAD lamp	Flash (red)	Accessing to a CF card.	
	OFF	Not accessing to a CF card.	

Part	Description		Remarks
ONLINE lamp	ON (green)	Registration is finished.	
	Flash (green)	Abnormal state	No configuration, no Music/Tone file
	OFF	Registration is not finished.	
LAN connectors	Ether1	Port for LAN cable connection at LAN side	
	Ether2	Port for LAN cable connection at WAN side	Not used when using only a single port.
SPEED lamp (Ether1/2)	ON (yellow)	1Gbps connection	
	ON (green)	100Mbps connection	
	OFF	10Mbps	
LINK lamp (Ether1/2)	ON (green)	Layer1 link is established.	
	Flash (green)	Transmitting/receiving packets.	
	OFF	Layer1 link is not established.	
CPU PWR switch	Push to power ON the powered OFF device (**Note 1**); push to execute auto-shutdown the powered ON device (**Note 2**).		
MODE switch	Not used.		Fixed to OFF.
CONSOLE connector	Connected with a maintenance terminal (PC). **Note 3**		CONSOLE CABLE (RJ45 <-> RS-232C serial connection (not included in package)) is used.

Note 1: It works only when CPU PWR switch on the rear panel is ON.

Note 2: To confirm that shutdown is complete, check the PWR lamp. When auto-shutdown does not work, press and hold CPU PWR switch for four seconds to turn off forcibly.

Note 3: When CONSOLE CABLE is used, connect the CONSOLE CABLE with the maintenance terminal (PC) prior to connecting the cable with the CONSOLE connector of MG(SIP).

(b) Rear

Part	Description		Remarks
AC power inlet	Connected with an attached three-polar grounded AC power cable (Cable Length: 3 m [9.8 ft.])		Fix the cable with the stopper to prevent it from falling out.
PWR switch	Power switch **Note 4**		
PWR alarm lamp	ON (red)	Failure on power module.	
	OFF	Power module works normally.	
FAN1 alarm lamp	ON (red)	FAN1 fails.	
	OFF	FAN1 works properly.	
FAN2 alarm lamp	ON (red)	FAN2 fails.	
	OFF	FAN2 works properly.	
Cooling FAN1	-	A FAN for cooling the device.	Replaceable during operation. **Note 5**
Cooling FAN2	-	A FAN for cooling the device.	Replaceable during operation. **Note 5**

Note 4: Auto-shutdown with CPU PWR switch on the front panel before turning OFF PWR switch.

Note 5: Do not replace both of cooling FAN1 and cooling FAN2 at the same time when MG-SIP96 is working.

2 Installation



This section describes installing and cabling procedures for an MG-SIP96. Take anti-static measures to work on it.

(1) Installing Procedure

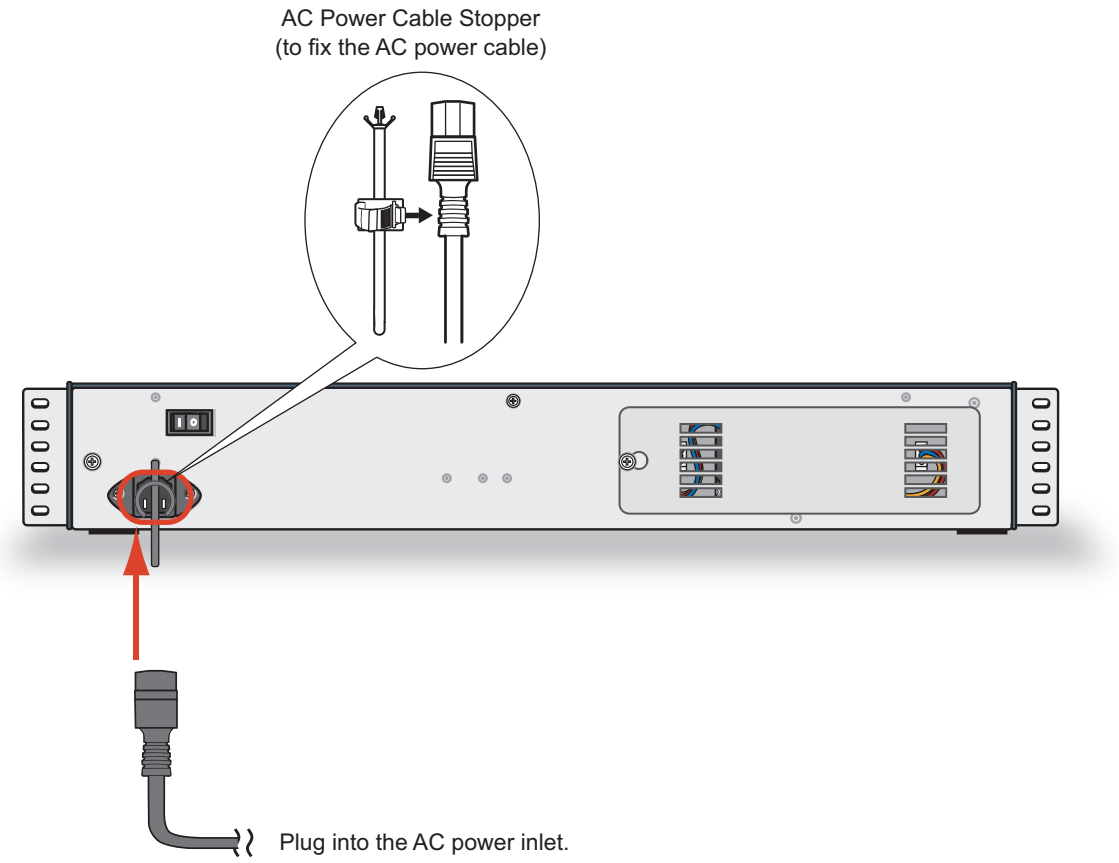
You can mount an MG-SIP96 on a 19-inch rack. The procedure is the same as mounting an SV9500 server on a 19-inch rack; refer to the UNIVERGE SV9500 Appliance Model Installation Manual.

(2) Cabling Procedure

The following describes the cabling procedure. Follow the following to connect cables.

STEP 1:Plug an attached AC power cable into the AC power inlet on the rear panel of an MG-SIP96; fix the AC power cable with the stopper.

Rear Panel

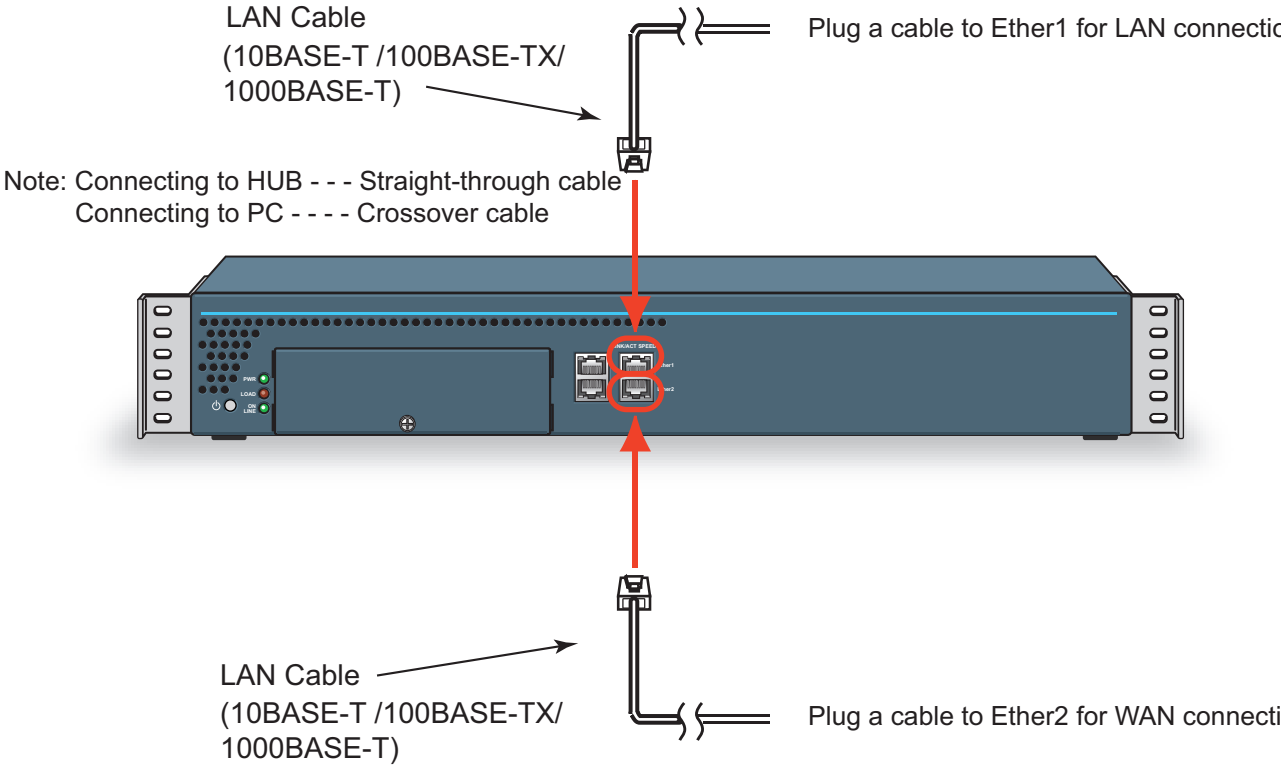


Note: To remove the AC cable, push the hook of the stopper outward, and take off the fixing belt. Push the tab of the stopper, and slide the stopper away from the power inlet.

STEP 2:Connect the other end of the AC power cable with an appropriate AC source.

STEP 3:Plug LAN cables into the Ether1 and Ether2 connectors (RJ-45). **Note 1**

Front Panel



Note 1: If you want to establish IP addresses of LAN and a SIP network in the same segment, connect a LAN cable only to a connector for LAN.

Cable connection is completed. Move on to the next section: Startup and Installation Test.

3 Startup and Installation Test

The following explains procedures for startup and installation test of MG-SIP96.

START
↓
STEP 1 Assigning office data on the Telephony Server
↓
STEP 2 Connecting maintenance terminal (PC) and MG-SIP96
↓
STEP 3 Turning on MG-SIP96
↓
STEP 4 Setting configuration data on MG-SIP96
↓
STEP 5 Connecting MG-SIP96 to LAN and WAN
↓
STEP 6 Checking states of LINK and SPEED lamps on Ether1 and Ether2
↓
END

3.1 Assigning Office Data, Connecting with Console and Turning On MG-SIP96

STEP 1:Assigning office data on the Telephony Server

Refer to [M-111] Media Gateway SIP in Data Programming Manual - Business.

STEP 2:Connecting maintenance terminal (PC) and MG-SIP96

- How to set up MG-SIP96

  Set up an MG-SIP96 by connecting a maintenance terminal (PC) to CONSOLE connector and using configuration commands. Connect CONSOLE connector on the MG-SIP96 and a serial port (RS232C) on the maintenance terminal (PC) with CONSOLE CABLE (serial cable for RJ-45 and RS-232C, which is not included in the package).

  Note: When CONSOLE CABLE is used, connect the CONSOLE CABLE with the maintenance terminal (PC) prior to connecting the cable with the CONSOLE connector of MG(SIP).

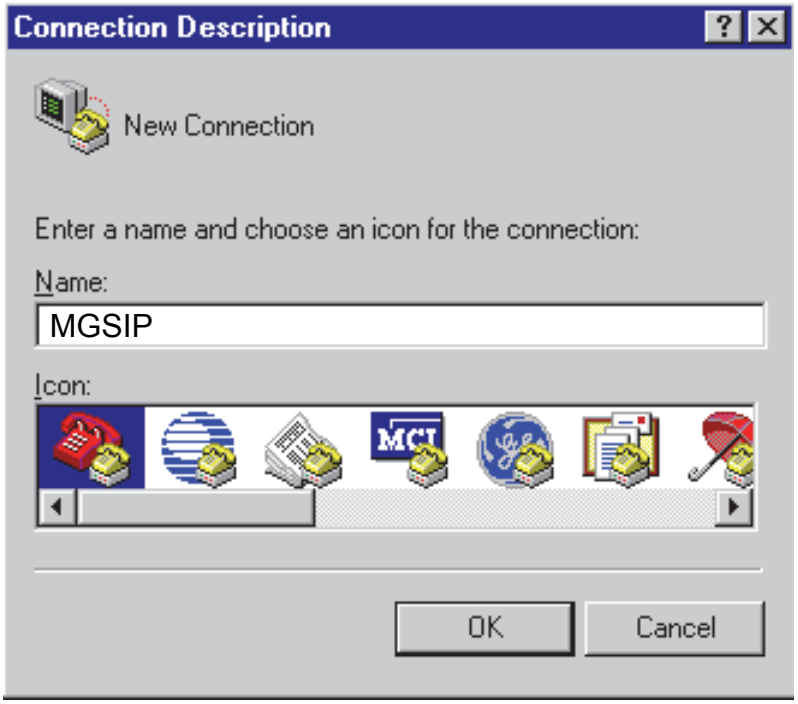
- Activating and connecting maintenance terminal (PC)

  Activate Windows on the maintenance terminal (PC), click Start, point to Programs, point to Accessories, point to Communications, and click HyperTerminal. If your computer does not have HyperTerminal, use another VT-100 compliant software with the same functions. **Note 1**

  “Connection Description” window is opened. Enter a name (whatever you like; here “MGSIP” as an example) in “Name” field. Enter “OK.”

Note 1: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. This section explains the procedure for setting data by using HyperTerminal as an example. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data referring to the description for HyperTerminal.

Note: You can use any icon and name.

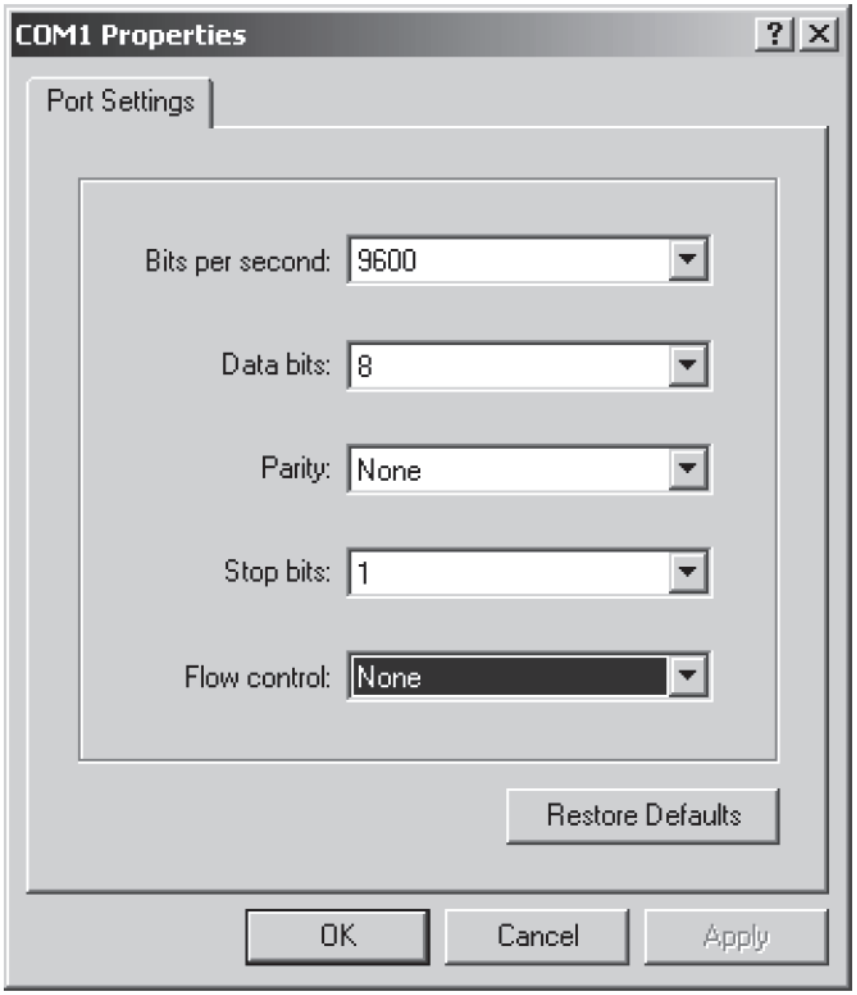


"Connect To" window is opened. Choose a COM port which is connected to MG-SIP96 in "Connect using" box. Enter "OK." **Note 2**

Note 2: It depends on the PC.



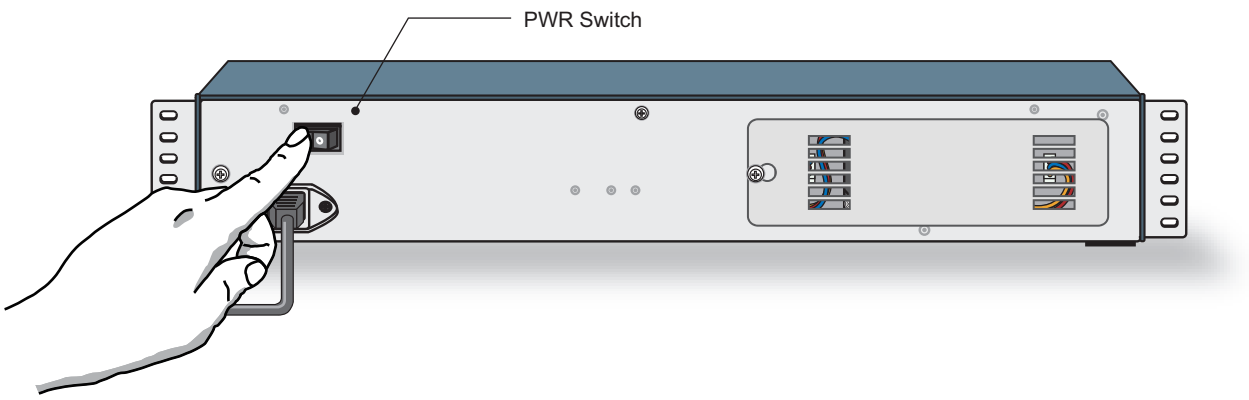
"Port Settings" tab opens. Set the values as the following figure shows.



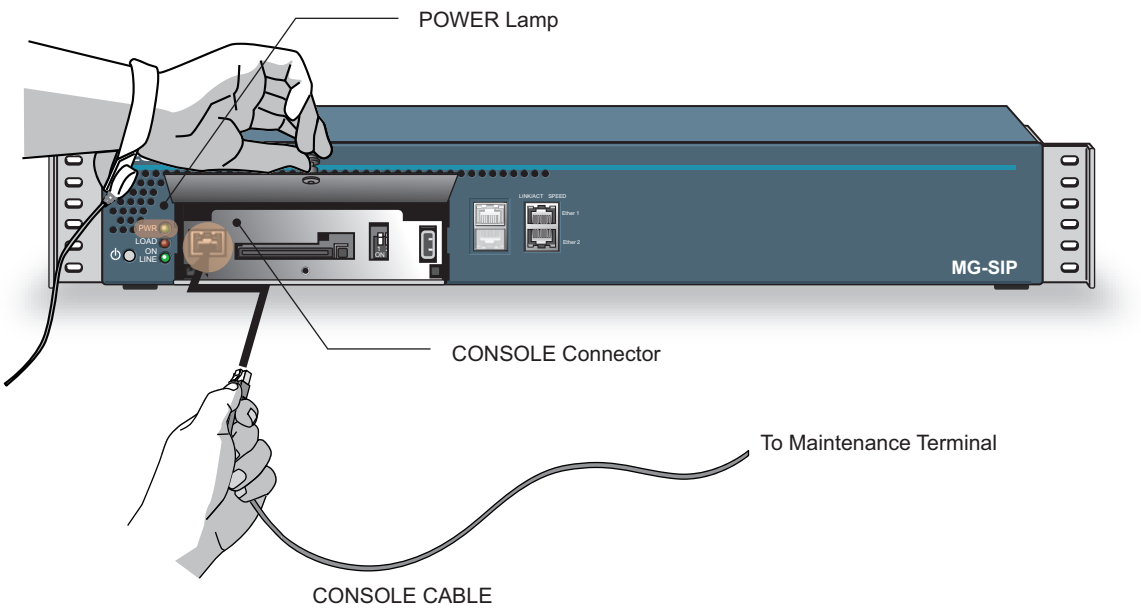
STEP 3:Turning on before MG-SIP96

Make sure of cable connection between the maintenance terminal (PC) and the MG-SIP96 via CONSOLE CABLE before turning on PWR switch. Make sure that PWR lamp on the front panel of MG-SIP96 turns green.

Rear Panel



Front Panel



After MG-SIP96 is activated, the maintenance terminal (PC) displays "`mgsip login:`" on the screen.

```
mgsip login:
```

Note: If an MG-SIP96 is connected with a maintenance terminal (PC) after activated, "`mgsip login:`" does not appear. Press Enter key to display "`mgsip login:`."

Now the MG-SIP96 is activated.

STEP 4:Setting configuration data on MG-SIP96

(1) On the activated MG-SIP96 with "`mgsip login:`" displayed, type "config" as the login name, and press Enter key.

```
mgsip login:
```

(2) Prompt "MG(SIP)>" appears: you are in data setting mode.

```
mgsip login:config
MG(SIP)>
```

(3) Use configuration commands to set data: Follow the following.

3.2 Setting of IP Address

The following explains procedures for setting the number of ports that MG-SIP96 uses, and IP addresses and subnet masks for each port of MG-SIP96.

Each port of MG-SIP96 is used as follows:

- Ether1 LAN: telephony server side
- Ether2 WAN: SIP network side

Note: When the IP addresses of both LAN and WAN are assigned in the same segment, use Ether1 port only. Select one port in the number of port setting, and assign Ether1's IP address only. In this case, Ether2 cannot be used.

[Display example]

```
MG(SIP)> set ipaddress

Do you use one-port only? Y/N= n

Ether[1]

  Input IP Address.(default=0.0.0.0)
            : 172.16.0.1

  Input Subnet mask.(default=0.0.0.0)
            : 255.255.255.0

Ether[2]

  Input IP Address.(default=0.0.0.0)
            : 172.16.1.2

  Input Subnet mask.(default=0.0.0.0)
            : 255.255.255.0
```

Enter "n"when two ports are used.

Ether [1]: LAN

Assign the IP address (Default: 0.0.0.0) for Ether [1].

Assign the subnet mask (Default: 0.0.0.0) for Ether [1].

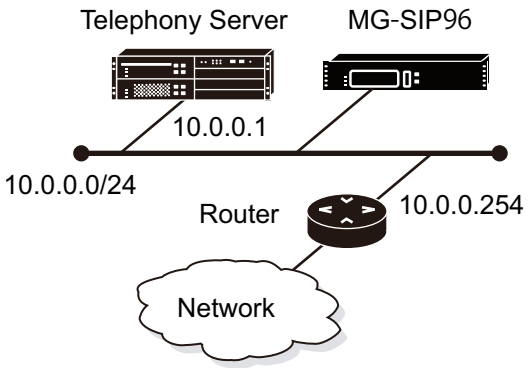
Ether [2]: SIP network

Assign the IP address (Default: 0.0.0.0) for Ether [2].

Assign the subnet mask (Default: 0.0.0.0) for Ether [2].

Note:

- Pressing the Enter key can skip the item.
- To make this assignment effective, it is required to execute the "REBOOT" command to save the configuration and restart the MG-SIP96.
- When the IP addresses of LAN and SIP network sides are assigned in the same segment, use Ether1 only as shown below.



* If you select one port in the number of port setting, Ether2 setting is not necessary.

- If you select one port in the number of port setting, be careful not to use the same RTP

port number when setting the non-default SIP network RTP base port number (by “set sip_rtp_port_no” command) or IPX network RTP base port number (by “set ipx_rtp_port_no” command).

- Set the routing information if required.

3.3 Setting of the Telephony Server Information

Assign the IP address and port number of the Telephony Server. Set the Primary DRS only, and skip for Secondary and later DRS by pressing Enter key.

[Display example]

```
MG(SIP) > set drsaddress
[Primary DRS Setting]
Input IP address.(default=0.0.0.0)
          :172.16.253.1
Input Port Number.(1024-65535(default=3456)
          :3456
[Secondary DRS Setting]
Input IP address.(default=0.0.0.0)
          :0.0.0.0
Input Port Number.(1024-65535(default=3456)
          :3456

[Tertiary DRS Setting]
Input IP address. (default=0.0.0.0)
          :0.0.0.0
Input Port Number. (1024-65535(default=3456)
          :3456

[Quaternary DRS Setting]
Input IP address. (default=0.0.0.0)
          :0.0.0.0
Input Port Nunber. (1024-65535(default=3456)
          :3456
```

Configures Primary DRS.

Assign the IP address of the Telephony Server (Default: 0.0.0.0).

Assign the UDP port number of the Telephony Server (Default: 3456).

Has not been set.

Has not been set.

Has not been set.

Note: To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP96.

3.4 Setting of SIP Server Data

Set the IP address or FQDN, and port number, type, and SIP domain of a SIP proxy server. (FQDN=Fully Qualified Domain Name)

Set SIP proxy server data by using “set sip_server” command. This data can be assigned by using IP address or Fully Qualified Domain Name (FQDN).

The following figure shows an example of display.

When IP address (=0) is selected:

```
MG(SIP) > set sip_server
Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:0
Input SIP server IP Address.(default=0.0.0.0)
                          :192.168.100.100
Input SIP server Port Number.
(1024-65535(default=5060)):5060
Select SIP server Router type.

 0=Strict(default)
 1=Loose
Input:0
Select the setting of rport(RFC3581)
function.
 0=disable (default)
 1=enable
Input: 1
Input Domain Name.(default=0,
MAX128(strings))
```

Select IP address (Default=0).

Assign the IP address of the proxy server (Default: 0.0.0.0).

Assign the port number of the proxy server (Default: 5060)

Select a Strict router or Loose router for the proxy server (Default: 0).

0: Strict router
1: Loose router

Select “0”.

Enable/disable the rport (RFC3581) function.
(Default: 0)

Input a string that specifies the service provider in maximum of 128 characters.

When FQDN (=1) is selected:

```
MG(SIP) > set sip_server
Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:1
```

Select FQDN (=1).

```
Input Fully Qualified Domain Name.(default=0,
MAX63(strings))
                    :
Input SIP server Port Number.
(1024-65535 (default=5060)):5060
Select SIP server Router type.

 0=Strict(default)
 1=Loose
Input:0
Input Domain Name.(default=0,
MAX128(strings))
```

Assign the FQDN of the proxy server in maximum of 63 characters (Default: 0).

Assign the port number of the proxy server (Default: 5060)

Select a Strict router or Loose router for the proxy server (Default: 0).

0: Strict router
1: Loose router

Select “0”.

Input a string that specifies the service provider in maximum of 128 characters.

Note:

- Pressing the Enter key can skip the item. Make sure to input data for “SIP server type” and “IPAddress/FQDN”; these cannot be skipped.
- To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP96.
- If you have set a character string to specify the service provider, the character string is used as the SIP domain name.
- Be sure not to enter a blank character to the end of the FQDN (with the Copy and Paste features of your personal computer), and be careful not to mistype a character. (“0”(zero) or “O” (alphabetical O), for example.)

3.5 Setting of Pilot Number for MG-SIP96

Assign a pilot number of MG-SIP96, which is used to register to the SIP server.

[Display example]

```
MG(SIP)> set keynumber
Input Keynumber.(default=0, MAX32(strings))
               :0
```

Assign the pilot number used by MG-SIP96 to register. (Default: 0).

Note:

- Pressing the Enter key can skip the item.
- To make this assignment effective, it is required to execute the “REBOOT” command to save the configuration and restart the MG-SIP96.

Rebooting of MG-SIP96

Reboot the MG-SIP96 by using “reboot” command. The assigned configuration data can also be saved onto the Flash memory by using this command.

```
MG(SIP)> reboot
 Do you want to save Config data? Y/N=y




 Do you want to reboot MG(SIP)? Y/N=y




Config data File write start.
Config data File write end.
 MG(SIP)reboot start...
```

Select if you want to save the configuration data.
y: save the configuration data.**Note 1**
n: do not save the configuration data.
If other than the above is selected, the following message is displayed.
“Reboot” command was interrupted.

Select if you want to reboot MG-SIP96.
y: reboot MG-SIP96.
n: do not reboot MG-SIP96.
If other than the above is selected, the following message is displayed.
“Reboot” command was interrupted.

Note 1: Before selecting “Y” to save the running configuration data to the Flash memory, be sure to execute the following commands:

- set ipaddress (Assign the IP addresses for LAN network side and SIP network side)
- set drsaddress (Assign the IP address of the Telephony Server)
- set sip_server (Assign the IP address of the SIP proxy server)
- set keynumber (Assign a pilot number.)

If any of these items have not been assigned when saving the running configuration data, the following message will be displayed to the unassigned item. When these messages are displayed, you can select if you want to set the default configuration data or not. If you select “Y” here, the default values are applied to the configuration data.

```
The following setting commands are not
perfect.
“set ipaddress” command.(IPX side)

“set ipaddress” command.(SIP side)

“set drsaddress” command.
“set sip_server” command.
```

The following is displayed:

if IP address for the system side has not been assigned

if IP address for SIP network side has not been assigned

if IP address of DRS has not been assigned

if IP address of SIP proxy server has not been assigned

```
"set keynumber" command.

So, Config data is made a default setup.
Is it all right? Y/N=y
```

if a pilot number has not been assigned

Select if you want to apply the default values to the configuration data.
y: apply the default values
n: do not apply the default values
If other than the above is selected, the following message is displayed.
"Reboot" command was interrupted.

After the MG-SIP96 is rebooted, the following message appears on the Maintenance Console.

```
mgsip login:
```

STEP 1:Connecting MG-SIP96 to LAN and WAN

- Connect MG-SIP96 to LAN and WAN.

  Connect a cable to "LAN" connector (LAN side: Ether1 WAN side: Ether2) that is located on the front panel of MG-SIP96.

Note: Before connecting MG-SIP96 to the network you actually use, make sure of the following by using commands such as "ping".
- Is the IP address set to MG-SIP96 already used in the network to be connected?
- Is the newly set IP address correct?

When you have finished, the following message appears on the Maintenance Console.

```
****************************************
*          MG(SIP) ONLINE START          *
****************************************
```

Note: Both LAN1 and LAN2 must be connected to make MG-SIP96 online. (For a one-port configuration, only LAN1 connection makes MG-SIP96 online.)

STEP 2:Checking the lamp status of LINK and SPEED at Ether1 and Ether2 of MG-SIP96

If the connection is established, the following LINK lamps of MG-SIP96 will light green in a few minutes.

Note: For a one-port configuration, LINK lamp at Ether 2 connector does not light.

- Ether1 connector on LAN side: LINK lamp
- Ether2 connector on WAN side: LINK lamp

[SPEED lamp is lighting in orange]

- The MG-SIP96 connects to a network with transmitting speed of 1Gbps.

[SPEED lamp is lighting in green]

- The MG-SIP96 connects to a network with transmitting speed of 100Mbps.

  If you expected transmitting speed of 1Gbps, check a connected network device and a cable between them.

[SPEED lamp is not lighting]

- The MG-SIP96 connects to a network with transmitting speed of 10Mbps.

  If you expected transmitting speed of 1Gbps or 100Mbps, check a connected network device and a cable between them.

STEP 3:Checking the lighting of ONLINE lamp.

If the settings are correct, ONLINE lamp of MG-SIP96 lights in green.

3.6 Operation Check

Make sure the MG-SIP96 is in normal operation by the following procedure.

STEP 1:When the configuration settings are completed, reboot the MG-SIP96 by using “reboot” command.

STEP 2:Make sure the following message appears on the Maintenance Console after rebooting.

```
****************************************
*          MG(SIP) ONLINE START        *
****************************************
```

STEP 3:Make sure the registration status of the Telephony Server network and SIP network by using “show status” command in the configuration mode. If “Registration is OK.” message appears, MG-SIP96 is in operating state.

```
MG(SIP) > show status
 0:Port status
 1:IPX status
 2:SIP status
 3.CH status
 9:Exit
Please choose reference number:1
MG(SIP) > IPX Registration Information

Registration is OK.(DRS IP address
172.16.253.1)
```

Port status (Default)

Telephony Server network registration status

SIP network registration status

Information on channels in use

Exit

Select a desired status you want to check.

The registration information of MG-SIP96 is displayed.

Note: For the detailed information, refer to “status” of “show” commands of “Configuration Commands” in “Operations and Maintenance”.

Note: When using PCPro, make sure of the registration status of MG-SIP96 by using "DIMG" command.

* If "MG (SIP) OFFLINE START" is displayed on Maintenance Console, make sure of the following.

  - Is the LAN cable securely inserted to Ether 2 (SIP network side)?
  - Is the LINK lamp on the SIP network side lighting?
  - Are the settings for the SIP server correct?

  If no message appears within 3 minutes, it is estimated that no communication has been established between Telephony Server and the MG-SIP96. Check the LAN cable connecting LAN-Telephony Server and the IP address of DRS.

4 Operation and Maintenance

The following explains MG-SIP96: operation and maintenance.

4.1 FAN Replacement



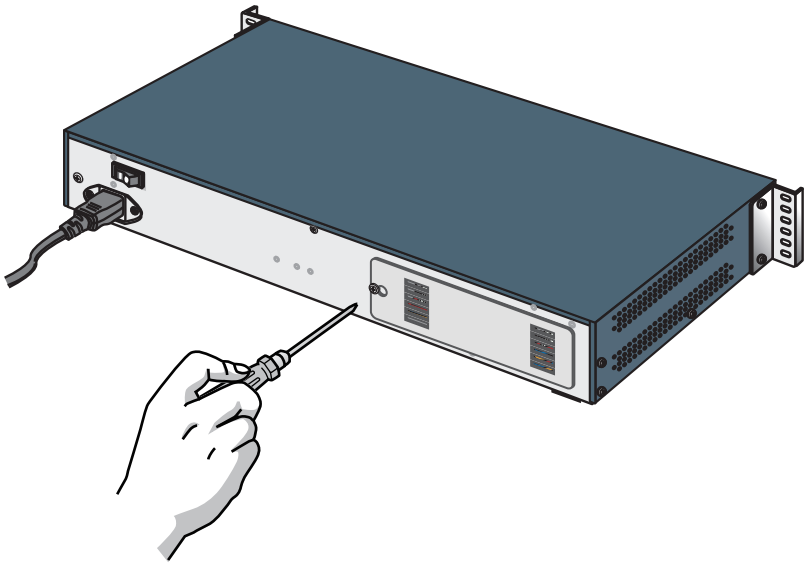
This section describes the procedure to replace FANs inside an MG-SIP96.

* A failure of a cooling FAN raises the temperature inside of an MG-SIP96, which greatly influences the system. Please replace a cooling FAN every five years to avoid it, even though the cooling FAN still works normally.

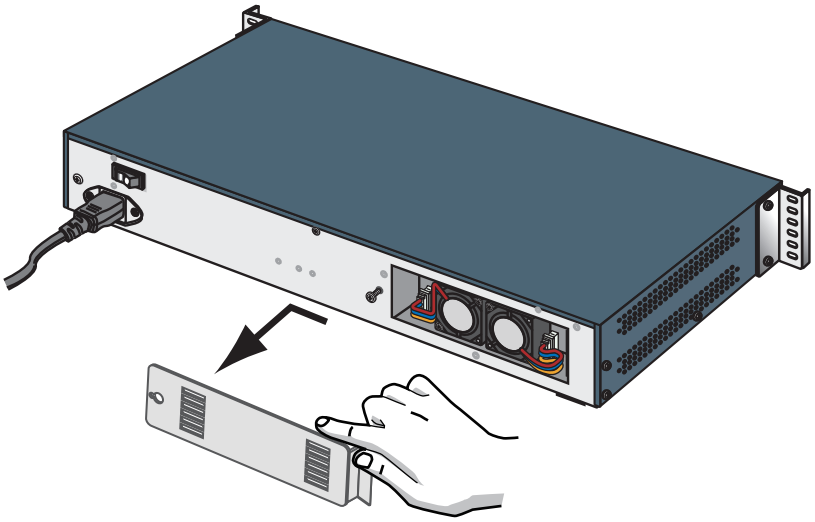
[Replacement Procedure]

Note: You can replace cooling FANs while the MG-SIP96 remains on.

STEP 1:Use a Phillips driver to loosen a screw at the left side of the FAN cover on the rear panel of an MG-SIP96.

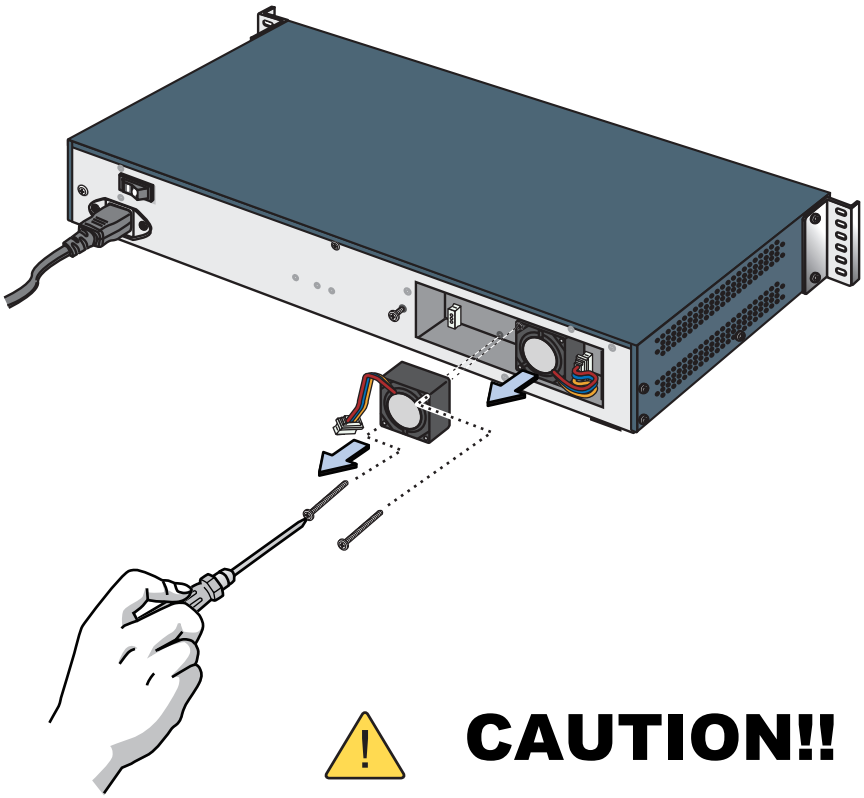


STEP 2:Slide the FAN cover to the left to remove.



STEP 3:Remove the FAN connector; the screw; the FAN.

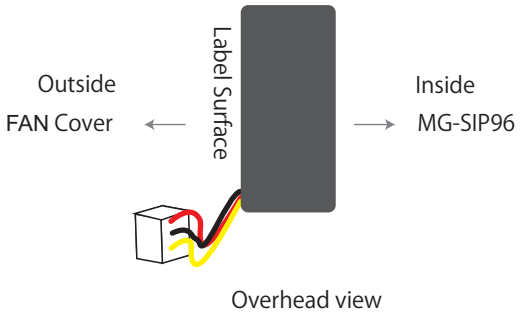
Note: If you are replacing FANs while the MG-SIP96 remains on, removing both FANs may generate heat inside, resulting in system failure. Be sure to replace one by one, but not at the same time.



STEP 4:Attach new FANs: perform the opposite procedure of removing.

Note: When attaching, pay attention to the direction of a FAN. The label on a FAN must face toward the outside of an MG-SIP96. (See the following figure.)

Attach the FAN in the direction as described below.



[Test After Attaching]

Check if the replaced FANs work properly.

- If either of FANs does not work properly, check the cabling.

5 Configuration Commands

5.1 How to Use the Configuration Command

Configuration commands are used to change the default settings. Change the settings only where it is necessary.

Start a communication software such as HyperTerminal (**Note 1**) of Maintenance Console (PC), and turn on MG-SIP96. The boot program starts and the configuration command login screen appears.

```
mgsip login:
```

In the above screen, enter “config” after the prompt to login, and press the Enter key. It moves to the configuration mode.

```
mgsip login: config
MG(SIP)>
```

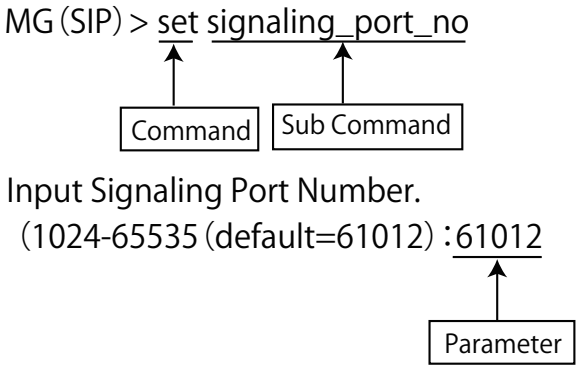
Note 1: Below are the communication conditions.
Speed: 9600bps
Data Length: 8 Bits
Parity Bit: None
Stop Bit: 1
Flow Control: None

Note: Note the following conditions:

- If you input “exit” after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

(1) Commands

A command interface prompt is displayed on a screen waiting for a user input. When a user inputs a character string, the system analyzes the input data, and displays a reply message. Inputting commands and sub commands are necessary, but whether inputting a parameter is necessary or not depends on commands. (Some commands do not have any parameters.) The following figure shows an example of inputting a command, a sub command, and a parameter.



Commands other than "ping" cannot be set within a single line; use interactive mode to input values. The following figure shows an example of data setting using the interactive mode.

[Example of Interactive Mode where Parameter Input is Omitted]

```
MG(SIP)> set drs_qos
Input type:(1=IP Precedence/2=DiffServ/
3=ToS):1
Input following parameters.
Precedence (default=5, 0-7):5

Delay (default=0, 0/1):0



Throughput (default=0, 0/1):0



Reliability (default=0, 0/1):0


Cost (default=0, 0/1):0


```

When "IP PRECEDENCE (=1)" is selected:

Specify the precedence in an IP network (Default: 5). 0-7 (Low - High)

Specify the low delay priority in an IP network.
0: Not specified (Default)
1: Specified

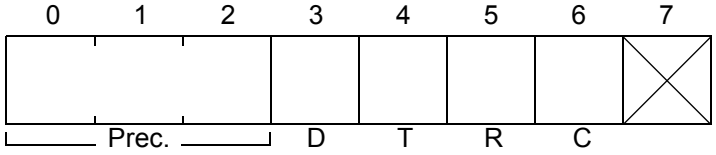
Specify the throughput priority in an IP network.
0: Not specified (Default)
1: Specified

Specify the reliability in an IP network.
0: Not specified (Default)
1: Specified

Specify the low cost priority in an IP network.
0: Not specified (Default)
1: Specified

* The example of the screen below the above example is omitted here.

Note: IP Precedence - ToS field is allocated as shown below.



Prec.=Precedence (3bits)
D=Delay (1bit)
T=Throughput (1bit)
R=Reliability (1bit)
C=Cost (1bit)

5.2 List of Maintenance Console Commands

Note: DRS (Device Registration Server) used in this section refers to a control function of the Telephony Server. Set the IP address of the Telephony Server (TP).

R: Required
C: Not required, but configurable

set: Commands to Set Configuration Data

* If you go out of the configuration mode by using "logout" command without saving the setting information using "reboot" command, the changed settings are discarded. To save the settings, execute "reboot" command, and exit the configuration mode.
* When you input a command, the current setting is displayed. If you change the setting, the changed data is displayed. For "ipx_route" and "sip_route" commands, the changed settings and "Are you sure?" message are displayed.
* Pressing the Enter key can skip each item.

	SUB COMMAND	MUST?	FUNCTION
1	183rbt	C	Assigns whether to enable/disable local RBT when 183 message without SDP is received.
2	184toprivacy	C	Assigns whether to display/block the Caller ID to SIP network when dialing 184/186.
3	another_keynumber	C	Assigns additional three pilot numbers other than the one registered by "set keynumber" command.
4	auth	C	Assigns Digest authentication information.
5	auth_header	C	Assigns whether to enable/disable the cache function of authentication header.
6	call_hold	C	Assigns whether to enable/disable MG Based Call Retention. **Note 1**
7	call_id_relay	C	Assign Call-ID notification function. **Note 1**
8	cause_table	C	Assigns the error translation table.
9	cc_convert	C	Assigns calling party's country code display conversion feature.
10	cdn_pattern	C	Assigns called number pattern.
11	check_number	C	Assigns limit to the number of digits for calling/called party number.
12	codec_change	C	Assigns Codec Change function and G.711 Fax renegotiation. **Note 1**
13	cpn_pattern	C	Assigns how to obtain cpn (calling party number)
14	default	C	Specifies default settings of the configuration.
15	dnsaddress	C	Assigns the DNS IP address.
16	dns_option	C	Assigns the Optional Data for DNS server. **Note 1**
17	domain	C	Specifies the DNS domain name.
18	drsaddress	R	Assigns the IP address and the port number of DNS server.
19	drs_qos	C	Specifies the DRS ToS.
20	dtmf_mode	C	Assigns a type of DTMF relay mode on the SIP network.

	SUB COMMAND	MUST?	FUNCTION
21	h245_base_port_no	C	Assigns the base port number for H.245 TCP server.
22	hc_alarm	C	Specifies the alarm transmission destination.
23	hc_timer	C	Assigns the Health Check timer value.
24	interface	C	Assigns the operation speed and operation mode of an interface.
25	ipaddress	R	Assigns the IP address and the subnet mask to the port.
26	ip_version	C	Assigns the SIP side IP version. **Note 1**
27	ipx_route	C	Assigns the route information in the Telephony Server network.
28	ipx_rtp_port_no	C	Assigns the RTP base port number for Telephony Server network.
29	keynumber	R	Assigns the pilot number of MG-SIP96.
30	multi_regist	C	Assigns the registration function per number.
31	musictype	C	Assigns the type of music to be sent from MG-SIP96.
32	no_media_code	C	Assigns the SIP Error Response code. **Note 1**
33	out_of_area_code	C	Assigns the out-of-area error response.
34	prack	C	Assigns Provisional Response Acknowledgment (PRACK) information (RFC3262).
35	ppi_to_pai	C	Assigns the PAID transmission function. **Note 1**
36	pre_negotia-tion_port_no	C	Assigns the UDP port receiving packets for voice control path.
37	privacy_pattern	C	Assigns the privacy pattern.
38	registration_port_no	C	Assigns the UDP port number that receives DRS packets.
39	reg_interval	C	Assigns the waiting time to retry after registration failure.
40	response_table	C	Assigns response table selection.
41	rtp_pathon	C	Assigns Path-on function by 183 Progress after receiving 180 Ringing.
42	rtp_qos	C	Specifies the RTP (on SIP network) ToS value.
43	sdp_style	C	Assigns the SDP receive setting for multiple “m” lines. **Note 1**
44	self_sip_domain	C	Assigns SIP domain name for MG-SIP96.
45	session_timer	C	Assigns session timer function.
46	signaling_port_no	C	Assigns the UDP port number that receives control signal packets.
47	sip_accfilter	C	Assigns SIP Access Filter and SIP Access Filter mask. **Note 1**
48	sip_port_no	C	Specifies the port number that receives SIP messages.
49	sip_qos	C	Specifies the TOS value for SIP signaling.
50	sip_register	C	Assigns the information of the SIP registrar.
51	sip_route	C	Assigns the route information of SIP network.
52	sip_rtp_port_no	C	Specifies the RTP base port number of SIP network.
53	sip_server	R	Assigns SIP server information.
54	sip_tel_service	C	Assigns the setting of additional services.

	SUB COMMAND	MUST?	FUNCTION
55	sip_transport	C	Specifies a SIP transport protocol. **Note 1**
56	slipresp	C	Assigns error response codes used when bypassing a SIP server.
57	update	C	Assigns the setting of update method.
58	country_code	C	Assigns a country code.
59	multisession	C	Assigns Multi-path Switch. **Note 2**
60	name_display	C	Enable/disable Name Display service.

Note 1: Available since SP-3987 MGSIP PROG-B Issue 3.

Note 2: Required to set Silent Monitor (Multi-Path Monitor) Connection in the ACD system.

show: Commands to Display the Contents of Configuration Data

	SUB COMMAND	MUST?	FUNCTION
1	arp	-	Displays the ARP table.
2	config	-	Displays the configuration data.
3	interface	-	Displays the link and setting state of Ether connection
4	version	-	Displays the firmware version installed in MG-SIP96.
5	route	-	Displays the Route table.
6	status	-	Displays status of the port and the registration.

download: Command to Download

	SUB COMMAND	MUST?	FUNCTION
1	-	-	Downloads data from the specified IP address.

exit or logout: Command to Exit the Configuration Mode

	SUB COMMAND	MUST?	FUNCTION
1	-	-	Exits the configuration mode.

reboot: Command to Reboot MG-SIP96

	SUB COMMAND	MUST?	FUNCTION
1	-	-	Restarts MG-SIP96 and saves the settings.

ping: Command to Use the "ping" for IPv4 address

	SUB COMMAND	MUST?	FUNCTION
1	parameter (enter the ping destination IPv4 address)	-	"ping" command for IPv4 address

ping6: Command to Use the "ping" for IPv6 address

	SUB COMMAND	MUST?	FUNCTION
1	parameter (enter the ping destination IPv6 address)	-	"ping" command for IPv6 address **Note 3**

Note 3: Available since SP-3987 MGSIP PROG-B Issue 3.

traceroute: Command to Use the "traceroute"

	SUB COMMAND	MUST?	FUNCTION
1	-	-	"traceroute" command

help or ?: Command to Use the Command Help

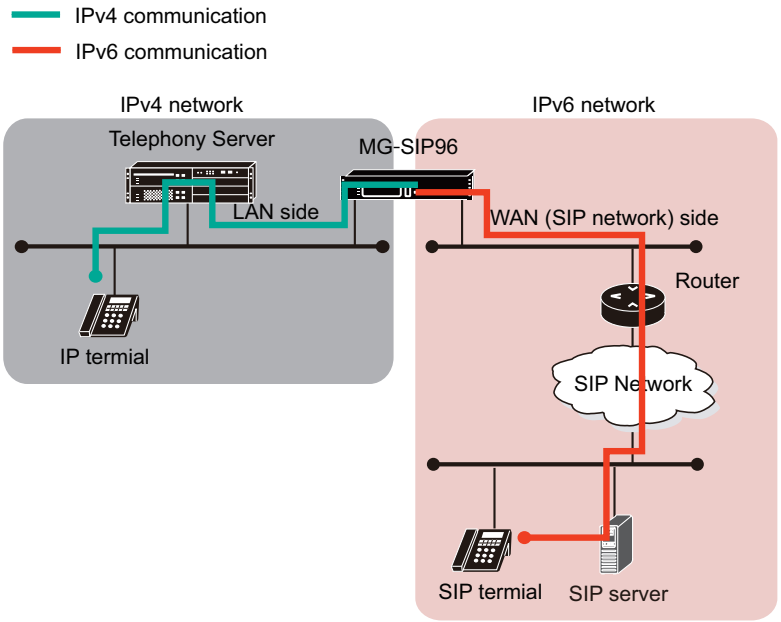
	SUB COMMAND	MUST?	FUNCTION
1	-	-	"help" command

5.3 IPv6 Function

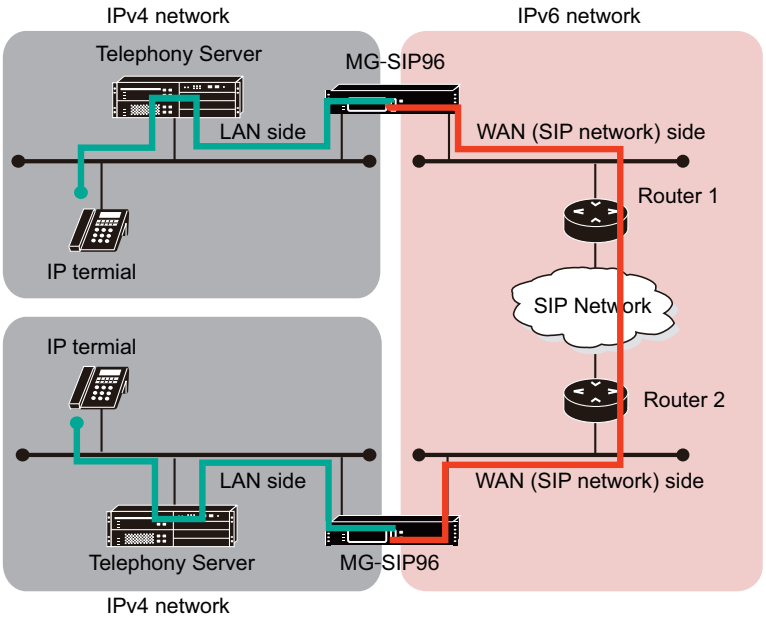
MG-SIP96 supports IPv6 function based on RFC2460 in order to communicate with the SIP server having an IPv6 address. When IPv6 mode is enabled, IPv6 packets are sent from/received to WAN side (through the Ether2 port) on MG-SIP96. You can select an IP version to be used on the Ether2 port by a configuration command.

Note: This function is available for SP-3987 MGSIP PROG-B Issue 3 or later.

- When SIP server exists



- When SIP server does not exist



[Operating Procedure]

To enable IPv6 function, execute the following commands. For the details of the commands, refer to 5.2. List of Maintenance Console Commands.

Step1: Select “IPv6” by “set ip_version” command. **Note 1**

Step2: Set SIP server address by “set sip_server” command.

Step3: Set the SIP register address by “set sip_register” command if needed.

* This command is required depending on the carrier that MG-SIP96 connected.

Step4: Set the IP address of the Telephony Server by “set drsaddress” command.

Step5: Set Ether1 information by “set ipaddress” command. **Note 2**

Step6: Set the key number by “set keynumber” command.

Step7: Set the user ID and the password by “set auth” command if needed.

* This command is required depending on the carrier that MG-SIP96 connected.

Step8: Set other commands if needed.

Step9: Execute the “reboot” command to save the configuration and restart the MG-SIP96.

Note 1: If you change the IP version by “set ip_version” command, you also need to change the following command settings to activate IPv6 function. After those settings, execute the “reboot” command to save the configuration and restart the MG-SIP96.

<table>
<tr><th rowspan="2"></th><th colspan="2">Changing IPv4 to IPv6</th><th colspan="2">Changing IPv6 to IPv4</th></tr>
<tr><th>IPv6 Related Data Settings Exist</th><th>No IPv6 Related Data Settings Exist</th><th>IPv4 Related Data Settings Exist</th><th>No IPv4 Related Data Settings Exist</th></tr>
<tr><td>dnsaddress</td><td rowspan="3">Change the current setting to the last setting.</td><td rowspan="3">Change the current setting to “::”.</td><td rowspan="4">Change the current setting to the last setting.</td><td rowspan="4">Change the current setting to “0.0.0.0”.</td></tr>
<tr><td>sip_server</td></tr>
<tr><td>sip_register</td></tr>
<tr><td>ipaddress
Note 3</td><td colspan="2">For Ether2 port, an IP address is generated by receiving the Router Advertisement (RA) message.</td></tr>
<tr><td>sip_route</td><td>Change the current setting to the last setting.</td><td>Change the current setting to “::”.</td></tr>
<tr><td>sip_accfilter</td><td>Change the current setting of SIP Access Filter mask to the last setting.</td><td>Change the current setting of SIP Access Filter mask to “128”.</td><td>Change the current setting of SIP Access Filter mask to the last setting.</td><td>Change the current setting of SIP Access Filter mask to “255.255.255.255”.</td></tr>
</table>

Note 2: When IPv6 function is in service, Ether2 IP address can be generated by MG-SIP96 after MG-SIP96 receives the RA message from the router. So Ether2 IP address setting is unnecessary.

Note 3:

- "set ip_version: IPv6" is executed.
  When the last IP address set for Ether2 port remains, it appears.
  When the last IP address set for Ether2 port does not remain,"::" appears.
  When Ether2 port fails to obtain an IP address,"::" appears.
- "set ip_version: IPv4" is executed.
  When the last IP address set for Ether2 port remains, it appears.
  When the last IP address set for Ether2 port does not remain,"0.0.0.0" appears.

[Conditions Specific to IPv6 Function]

(1) IPv6 and IPv4 cannot be used simultaneously.

(2) IPv6 address can be set only by "stateless address autoconfiguration" in the router. So, this function requires to connect a router supporting IPv6. When two or more routers exist or two or more prefixes used for the router in the WAN side, IP address settings may be overlapped. To avoid it, this function allows only one router to be connected in the WAN side, and one prefix can be used per router. This function does not support allocating fixed IP addresses manually and distributing IP addresses from DHCPv6 server.

(3) When IPv6 function is in service, IPv4 packets are discarded. When a SIP request for IPv6 packet has any IPv4 address in its message body using SDP, MG-SIP96 responses to the request with returning 488 Not Acceptable Here. A warning code is not added to 488 Not Acceptable Here.

(4) When IPv6 function is out of service, IPv6 packets are discarded. When a SIP request for IPv4 packet has any IPv6 address in its message body using SDP, MG-SIP96 responses to the request with returning 488 Not Acceptable Here. A warning code is not added to 488 Not Acceptable Here.

(5) When IPv6 function is in service, be sure to set an IPv6 address for each configuration command requiring IP address setting.

(6) In this feature, IPv6 addresses can be abbreviated. For example, "2001:db8::850" can be typed. Also, IPv6 addresses can be typed in the general form. For example, "2001:0db8:0000:0000:0000:0000:0000:0850" can be typed.

- Short Form

2001:db8::850

- General Form

Lowercase letters only	2001:0db8:0000:0000:0000:0000:0000:0850
Uppercase letters only	2001:DB8::850
Mix of Lowercase and Uppercase letters	2001:dB8::850

(7) “One-port only” is not supported by IPv6 function. Do not enable “one-port only” with the set_ipaddress command when IPv6 is selected with the set ip_version command.

(8) When Ether2 port fails to obtain an IPv6 address while IPv6 function is active, it attempts to obtain the address for 30 minutes. If it fails again, MG-SIP96 reboots itself.

(9) When Ether2 port fails to obtain an IPv6 address while IPv6 function is active, MG-SIP96 attempts to obtain the address for 30 minutes. If the SC Health Check is performed, MG-SIP96 may reboot itself while attempting to obtain the IPv6 address information again. So the Health Check is not performed.

(10) Address information is not deleted by removing and inserting Ether2 cable. IPv6 information is valid if it is obtained before expiring the time limit.

(11) When Ether2 port attempts to obtain an IPv6 address during the system initialization, the system initialization is not completed and ONLINE START/OFFLINE START does not appear until Ether2 port obtains the IPv6 address.

(12) When IPv6 function is in service, download and upload is not available on Ether2 port.

set Command

(1) 183rbt

Setting of local RBT connection select function when receiving 183 message (w/o SDP)

This command is used to enable/disable the connection of local RBT when 183 message without SDP is received.

[Setting Example]

```
MG(SIP)> set 183rbt

Select mode of RBT Addition when MG(SIP)
receives 183 without SDP.
 0=enable(default)
 1=disable
Input:0
```

Enter 0 or 1 (Default=0).
0: Enable
1: Disable

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.
- Normally this command is not required to be changed.

(2) 184toprivacy

Setting of switching Caller ID display/blocking to SIP network function when dialing 184/186

Note: This command is available for Japan only.

This command is used to set the function to delete 184/186 by MG-SIP96 when dialing 184/186. When this setting is enabled, if a user adds 184/186 at the beginning of the dialing numbers, MG-SIP96 deletes the 184 (non-Caller ID) or 186 (Caller ID) from the dialed numbers, and transmits the message to SIP network.

[Setting Example]

```
MG(SIP)> set 184toprivacy

Select privacy function of 184.
 0=disable(default)
 1=Pattern 1
 2=Pattern 2
Input:0
```

0: Switching is disabled (default)
1: Switching is enabled. (Pattern 1)
2: Switching is enabled. (Pattern 2)

When Pattern 1 is set: Performs forced non-Caller ID for 184, forced Caller ID for 186. (The first three digits of the dialed numbers (184/186) are to be deleted.)

When Pattern 2 is set: Performs forced non-Caller ID for 184, forced Caller ID for 186. (The first three digits of the dialed numbers (184/186) are not to be deleted.)

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP96 is connected.

(3) another_keynumber

Setting of additional pilot numbers

Assigns additional three pilot numbers to the SIP server other than the one registered by "set keynumber" command.

[Setting Example]

```
MG(SIP)> set another_keynumber
Input Another Keynumber 1.(default=0,
MAX32(strings))
                          :1000
Input Another Keynumber 2.(default=0,
MAX32(strings))
                          :2000
Input Another Keynumber 3.(default=0,
MAX32(strings))
                          :05011112222
```

Numbers to be newly added (default: 0)

Note: The conditions of this command are as follows.

- Unique number to be assigned for each of Another keynumber 1/2/3. Assign value=0 (default) for parameter when nothing is to be assigned.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.
- Normally this command is not required to be changed.

(4) auth

Setting of Digest authentication information

Assigns User ID/password for HTTP-Digest authentication.

[Setting Example]

```
MG(SIP)> set auth
Input User ID.(default=0, MAX32(strings))
           :0
Input Password.(default=0, MAX32(strings))
           :0
```

User ID (Max. 32bytes, Default: 0)

Password (Max. 32bytes, Default: 0)

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.

(5) auth_header

Setting to enable/disable cache function of authentication header

The command is used to assign whether to add cache information to authentication header of request message in updating ACK and REGISTER for re-INVITE/200 OK.

[Setting Example]

```
MG(SIP)> set auth_header

Select Authorization Header Cache function.
 0=enable(default)
 1=disable
Input:0
```

0: Cached authentication information is added (default)
1: Cached authentication information is not added.

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.

(6) call_hold

Setting MG Based Call Retention

The command is used to specify whether to enable MG Based Call Retention.

[Setting Example]

```
MG(SIP)> set call_hold

Select the setting of Call Hold function.
 0=disable(default)
 1=enable
Input:1

Input RTP detect timer value.(sec)
(3-32 (default=3)):3

Input SIP Error Response code to reject new
session.
(400-606 (default=488)):488
```

0: MG Based Call Retention is disabled. (Default)
1: MG Based Call Retention is enabled.

RTP detect timer (seconds)
Range: 3-32 seconds (Default: 3 seconds)

Set the error response code to reject a session by a new call while the MG based call retention is in progress.
(400 to 606, Default: 488) **Note 4**

Note: This command is available for SP-3987 MGSIP PROG-B Issue 3 or later.

Note 4: When an Initial-INVITE is received from the SIP network side while a call is retained, an error response 488 (Not Acceptable Here) is sent in the default setting.

(7) call_id_relay

Setting to enable/disable Call-ID Header information of SIP notification function

The command is used to specify whether to send Call-ID Header information of SIP to SV9500.

[Setting Example]

```
MG(SIP)> set call_id_relay

Select function of Call-ID relay mode.
 0=disable(default)
 1=enable
Input:0
```

0: Call-ID is not sent (default).
1: Call-ID is sent to SV9500.

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.
- This command is available for SP-3987 MGSIP PROG-B Issue 3 or later.

(8) cause_table

Setting of error translation table select function

The command is used to select the translation table of error cause to be sent to LAN received from SIP network as error response.

[Setting Example]

Earlier than SP-3987 MGSIP PROG-B Issue 2:

```
MG(SIP)> set cause_table

Select Cause table(SIP Error Response to Error
Cause).
 0=normal(default)
 1=alternate routing
Input:0
```

0 = Normal table (Default)
1 = Alternate routing table

Since SP-3987 MGSIP PROG-B Issue 2 or later:

```
MG(SIP)> set cause_table

 Select Cause table(SIP Error Response to
 Error Cause).

  0=normal(default)
  1=alternate routing
  2=customized pattern1
  3=Route Advance

 Input:3
```

Select the error translation table.
0 = Normal table (Default)
1 = Alternate routing table
2 = This setting is prohibited.
3 = Route Advance

Note: The conditions of this command are as follows.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.
- Normally this command is not required to be changed if there are 255 SIP Trunks or less.

(9) cc_convert

Setting of calling party' s country code display conversion feature.

When this feature is available, conversion will take place as in the following table.

Direction of Call termination/ origination	Intended Number	Conversion Feature
Call termination via SIP	Calling party	Convert to "0" if first numbers are "81" or "+81"
Call termination via SIP	Calling party	Add "0" to first number if number is 8 or more digits
Call origination via MG-SIP96	Calling party	Convert to "0" if first number is "81"

[Setting Example]

```
MG(SIP)> set cc_convert

Select Country Code Convert function.
 0=disable(default)
 1=enable
Input: 0
```

0: Disable (default)
1: Enable

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.

(10) cdn_pattern

Setting of a way of obtaining information for cdn (called number)

The command is used to assign the way of obtaining information for called number from SIP network.

- When this command is enabled, called number is obtained according to the priority order shown in the table below:

(a) If the firmware version is SP-3987 MGSIP PROG-B Issue 2 or later.

Selected Parameter		Order of priority				
		1	2	3	4	5
0	To	P-N-Dest-Discern	To (userinfo)	Request-URI (userinfo)	-	-
1	Request-URI (isub)	P-N-Dest-Discern	Request-URI (isub)	Request-URI (userinfo)	To (userinfo)	-
2	Request-URI	P-N-Dest-Discern	Request-URI (userinfo)	To (userinfo)	-	-
3	P-Called-Party-ID	P-Called-Party-ID (userinfo)	To (userinfo)	Request-URI (userinfo)	P-N-Dest-Discern	-
4	P-Called-Party-ID (isub)	P-Called-Party-ID (isub)	P-Called-Party-ID (userinfo)	To (userinfo)	Request-URI (userinfo)	P-N-Dest-Discern

[Setting Example]

```
MG(SIP)> set cdn_pattern

Select Called Party Number to which you give
priority.
  0=To[userinfo](default)
  1=Request-URI[isub]
  2=Request-URI[userinfo]
  3=P-Called-Party-ID[userinfo]
  4=P-Called-Party-ID[isub]
Input:0
```

0: userinfo part of the To header is given priority (Default)
1: isub of Request-URI is given priority
2: userinfo part of Request-URI is given priority
3: userinfo part of P-Called-Party-ID is given priority
4: isub of P-Called-Party-ID is given priority

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.
- Parameter “4=P-Called-Party-ID[isub]” is available since SP-3987 MGSIP PROG-B Issue 2 or later. For the other parameters, there is no difference among firmware versions.

(b) If the firmware version is earlier than SP-3987 MGSIP PROG-B Issue 2.

Selected Parameter		Order of priority			
		1	2	3	4
0	To	P-N-Dest-Discern	To (userinfo)	Request-URI (userinfo)	-
1	isub	P-N-Dest-Discern	Request-URI (isub)	Request-URI (userinfo)	To (userinfo)
2	Request-URI	P-N-Dest-Discern	Request-URI (userinfo)	To (userinfo)	-
3	P-Called-Party-ID	P-Called-Party-ID (userinfo)	To (userinfo)	Request-URI (userinfo)	P-N-Dest-Discern

[Setting Example]

```
MG(SIP)> set cdn_pattern

Select Called Party Number to which you give
priority.
  0=To[userinfo](default)
  1=Request-URI[isub]
  2=Request-URI[userinfo]
  3=P-Called-Party-ID
Input:0
```

0: userinfo part of the To header is given priority (Default)
1: isub of Request-URI is given priority
2: userinfo part of Request-URI is given priority
3: userinfo part of P-Called-Party-ID is given priority

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.

(11) check_number

Setting a limit to the letters and numerals that can be used for calling/called party number

This command is used to assign a function that permits only numerals for calling/called party number sent via the Telephony Server network.

[Setting Example]

```
MG(SIP)> set check_number

Select the setting of function to delete
[#] in telephone-number.
  0=disable(default)
  1=enable
Input:0
```

0: Disable (default)
1: Limit to numerals only

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.

(12) codec_change

Setting of Codec Change function and G.711 Fax renegotiation

This command is used to enable Codec Change function and G.711 Fax renegotiation.
Codec Change function enables a call to be retained when a forwarding call is placed to a destination located in the SIP network and the payload type is different between an intermediate station and the destination.
G.711 Fax renegotiation enables a called party to receive a facsimile with Fax Pass Through when communication is changed over to a FAX communication while a call is in progress with G.729a.

[Setting Example]

```
MG(SIP)> set codec_change

Select the setting of Codec Change
function.
 0=disable (default)
 1=enable
Input: 1

Select the setting of G711 Fax
renegotiation.
 0=disable (default)
 1=enable
Input: 1
```

Enable/disable the Codec Change function.
0 = Disable (default)
1 = Enable

Enable/disable the G711 Fax renegotiation.
0 = Disable (default)
1 = Enable

Note: The conditions of this command are as follows.

- This command is available for SP-3987 MGSIP PROG-B Issue 3 or later.
- In the Telephony Server side, a system data setting (ASYDL, System Data 1, Index 1144, Bit 6=1 (Codec Change function is in service) is required to enable this function.
- In the Telephony Server side, payload type and payload size need to be assigned by AIVCL/AIVCN, AMGVL/AMGVN, and ARTI/ARTIN commands.
- Also specify G.711 (fixed) as FXPT (Payload Type for IP FAX) and specify the payload size equal to that of voice data as FXPS (Payload Size for IP FAX). Then assign the FXPT and FXPS data to AIVCL/AIVCN and AMGVL/AMGVN commands.
- Payload size cannot be converted in MG-SIP96. When an RTP packet whose payload size is 20 ms is received from the Telephony Server network, the packet is transferred to the SIP network without converting the payload size. Same behavior applies to the RTP packet received from the SIP network.
- To use the following methods, enable commands shown below.
  - [ReINVITE] method: enable “set sip_tel_service” command
  - [UPDATE] method: enable “set sip_tel_service” and “set update” commands

(13) cpn_pattern

Setting of a way of obtaining information for cpn (calling party number)

This command is used to assign how to obtain cpn (calling party number), and to change the priority of obtaining calling party number when a call terminates via SIP network.

When this command is enabled, calling party number is obtained according to the priority order shown in the table below:

- The following shows the method of obtaining cpn when this feature is available.

Selected Parameter		Order of priority		
		1	2	3
0	Displayname	Displayname	Userinfo	-
1	Userinfo	Userinfo	Displayname	-
2	Anonymous	Userinfo (Anony-mous)	Userinfo	Displayname
3	P-Asserted-ID	P-Asserted-ID	Displayname	Userinfo

[Setting Example]

```
MG(SIP)> set cpn_pattern

Select Calling Party Number to which you
give priority.
 0=DisplayName(default)
 1=Userinfo
 2=Anonymous
 3=P-Asserted-ID
Input:0
```

0: Display name is given priority (Default)
1: Userinfo is given priority
2: When Anonymous is detected in Userinfo, cpn is handled as blocked, disregarding the second priority and later.
3: P-Asserted-ID is given priority.

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.
- Select 2 when the caller ID blocking is judged by the userinfo in From header on the SIP network side specification.
  e.g.) From: “01234567” <sip:anonymous@anonymous.invalid>
- Do not select 2 when the caller ID blocking is assigned by Displayname only on the SIP network side.
  e.g.) From: “Anonymous” <sip:01234567@xxx.com> In this case, the cpn is informed when 2 is selected.
- Numbers from 0 to 9, *, or # can only be obtained as a calling party number. When any other characters are contained in the calling party number, the order of priority will shift to the next precedence.
  However, if any characters other than the ones indicated above are detected in Displayname, the next and later priority will be disregarded and the cpn will be handled as blocked.

e.g.) From: “0123ABC” <sip:01234567@xxx.com> In this case, the cpn will be handled as blocked when 0 is selected.

(14) default

Setting the default values to the configuration data

The command is used to set back to the default setting of MG-SIP96 configuration. Make sure to execute this command when updating firmware to a different firmware name (SP-XXXX).

[Setting Example]

```
MG(SIP)> set default

 Are you sure? Y/N=y



 Config data default set.

MG(SIP)>
```

Note: When other than “y” is selected, the following message is displayed.

Default setting command was interrupted.

Note: Normally this command is not required to be used.

(15) dnsaddress

Setting of the IP address of DNS server

This command is used to specify the DNS IP address to resolve an address by DNS server.

[Setting Example]

[IPv6]

```
MG(SIP)> set dnsaddress

Input DNS IP Address.(default=::)
               :2001:db8::820
```

Specify DNS IP address. (Default: ::)

[IPv4]

```
MG(SIP)> set dnsaddress

Input DNS IP Address.(default=0.0.0.0)
               :0.0.0.0
```

Specify DNS IP address. (Default: 0.0.0.0)

Note: You do not have to change this command if you do not use DNS server.

(16) dns_option

Setting of the Optional Data for DNS server

This command is used to enable multiple SIP servers to be supported by DNS server. When IP addresses of multiple SIP servers are obtained by A record lookup, an alternative route can be used for transmission. NAPTR lookup (RFC3263) is also enabled.

[Setting Example]

```
MG(SIP)> set dns_option

Select DNS type
 0=A Record resolve(single IP
Address)(default)
 1=A Record resolve(multi IP Address)
 2=Locating SIP servers function(RFC3263)
Input: 0
```

Select DNS type. (Default: 0/A Record resolve (single IP Address))

When Locating SIP servers function (RFC3263) (=2) is selected

```
MG(SIP)> set dns_option

Select DNS type
 0=A Record resolve(single IP
Address)(default)
 1=A Record resolve(multi IP Address)
 2=Locating SIP servers function(RFC3263)
Input: 2

Select the setting of DNS cache
 0=enable(default)
 1=disable
Input: 1
```

Select DNS type. (Default: 0/A Record resolve (single IP Address))

Select the setting of DNS cache. (Default: 0/ enable)

Note: The conditions of this command are as follows.

- The cache retention time length is 60 seconds.
- Available transport protocols are TCP and UDP.
- During NAPTR lookup, SIP processing stops.
- This function takes priority over transport protocol (TCP/UDP selection) configured with "set sip_transport" command.
- Up to four servers can be routed in an alternate routing function by A/SRV record.
- You do not have to change this command if you do not use DNS server.
- This command is available for SP-3987 MGSIP PROG-B Issue 3 or later.

(17) domain

Setting of DNS domain name

This command is used to specify the domain name of MG-SIP96.

[Setting Example]

```
MG(SIP)> set domain

Input Domain Name.(default=0,
MAX128(strings))
                :nec.com
```

Specify the domain name. (Default: 0/Maximum: 128 bytes)

Note: The conditions of this command are as follows.

- Normally this command is not required to be changed.
- To set SIP domain, change the domain name from the “domain name” parameter of “set sip_server” command or “set_self_sip_domain” command.

(18) drsaddress

Setting of IP address and port number of DRS server

This command is used to assign IP address and port number of DRS server.

[Setting Example]

```
MG(SIP)> set drsaddress

[Primary DRS Setting]

 Input IP Address.(default=0.0.0.0)
           :172.16.253.1

 Input Port Number.(1024-65535
(default=3456))
           :3456

[Secondary DRS Setting]

 Input IP Address.(default=0.0.0.0)
           :172.16.253.2

 Input Port Number.(1024-65535
(default=3456))
           :3456

[Tertiary DRS Setting]

 Input IP Address.(default=0.0.0.0)
           :172.16.253.3
```

Setting Primary DRS;

IP address of DNS server (Default: 0.0.0.0)

UDP Port number of DNS server (Default: 3456)

Setting Secondary DRS;

IP address of DNS server (Default: 0.0.0.0)

UDP Port number of DNS server (Default: 3456)

Setting Tertiary DRS;

IP address of DNS server (Default: 0.0.0.0)

```
 Input Port Number.(1024-65535
(default=3456))
           :3456
[Quaternary DRS Setting]
 Input IP Address.(default=0.0.0.0)
           :172.16.253.4
 Input Port Number.(1024-65535
(default=3456))
           :3456
```

UDP Port number of DNS server
(Default: 3456)

Setting Quaternary DRS;

IP address of DNS server
(Default: 0.0.0.0)

UDP Port number of DNS server
(Default: 3456)

(19) drs_qos

Setting of ToS value of DRS server

This command is used to specify the ToS value of IP packets to be sent to DRS server.

[Setting Example]

```
MG(SIP)> set drs_qos
Input type: (1=IP Precedence/2=DiffServ/
3=ToS):1
Input following parameters.
Precedence(default=5, 0-7):5

Delay(default=0, 0/1):0



Throughput(default=0, 0/1):0



Reliability(default=0, 0/1):0


Cost(default=0, 0/1):0
```

When IP Precedence (=1) is selected:

Specify the precedence in an IP network (Default: 5). 0-7 (Low - High)

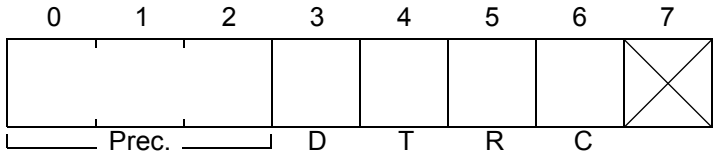
Specify the low delay priority in an IP network.
0: Not specified (Default)
1: Specified

Specify the throughput priority in an IP network.
0: Not specified (Default)
1: Specified

Specify the reliability in an IP network.
0: Not specified (Default)
1: Specified

Specify the low cost priority in an IP network.
0: Not specified (Default)
1: Specified

Note: IP Precedence - ToS field is allocated as shown below.



Prec.=PRECEDENCE(3bits)
D=Delay(1bit)
T=Throughput(1bit)
R=Reliability(1bit)
C=Cost(1bit)

```
MG(SIP)> set drs_qos

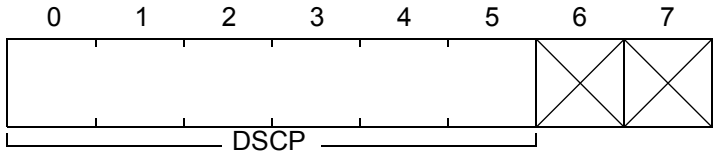
Input type: (1=IP Precedence/2=DiffServ/
3=ToS): 2

Input DSCP value.
(0-63 default=40):40
```

When DiffServ (=2) is selected:

Specify the service code point of DiffServ (default: 40).

Note: DiffServ - ToS field is allocated as shown below.



DSCP=Differentiated Service Code Point(6bits)

```
MG(SIP)> set drs_qos

Input type: (1=IP Precedence/2=DiffServ/
3=ToS): 3

Input ToS value with HEX format.
(00-FE(default=A0)):a0
```

When ToS (=3) is selected:

Specify the ToS field (default: a0).

Note: The conditions of this command are as follows.

- Pressing the Enter key can skip the item, with an exception of “Input type”. Be sure to input a value to “Input type.”
- Normally this command is not required to be changed.
- If you set “1” to the least significant bit, an error message “Please input an even number value.” is displayed.

(20) dtmf_mode

Setting of DTMF relay system (SIP network)

This command is used to specify the DTMF relay system in SIP network. MG-SIP96 supports Out-Band (RFC2833) and In-Band (G.711 data transmission as voice data). Negotiation, Out-Band, or In-Band can be assigned.

Note: DTMF relay method on the Telephony Server network side is automatically set according to the one on the MG-SIP network side, as follows:

DTMF relay system on the SIP network side	DTMF relay system on the Telephony Server network side	Remarks
RFC2833 (out-band)	Proprietary (out-band)	Conversions between "RTP (DTMF: RFC2833) packets on SIP network" and "UDP (DTMF: Proprietary) packets on Telephony Server network"
G.711 PassThrough (in-band)	G.711 PassThrough (in-band)	Conversions between "RTP packets on SIP network" and "RTP packets on Telephony Server network"

[Setting Example]

- When Negotiation is selected:

```
MG(SIP)> set dtmf_mode

Select DTMF Mode.
  0=Negotiation(default)
  1=Out-Band
  2=In-Band
Input:0

Input DTMF Duration value.(ms)
(50-240(default=120)):120

Input DTMF Pause value.(ms)
(30-240(default=100)):100

Input Payload type(RFC2833).
(96-127(default=101)):101
```

0: Negotiation (Default)
1: Out-Band (fixed)
2: In-Band (fixed)

Specify DTMF Duration.
(50 to 240ms/Default: 120ms)

Specify DTMF Pause.
(30 to 240ms/Default: 100ms)

Specify Payload type.
(96 to 127/Default: 101)

- When Out-Band is selected:

```
MG(SIP)> set dtmf_mode

Select DTMF Mode.
 0=Negotiation(default)
 1=Out-Band
 2=In-Band
Input:1

Input DTMF Duration value.(ms)
(50-240(default=120)):120

Input DTMF Pause value.(ms)
(30-240(default=100)):100

Input Payload type(RFC2833).
(96-127(default=101)):101
```

0: Negotiation (Default)
1: Out-Band (fixed)
2: In-Band (fixed)

Specify DTMF Duration.
(50 to 240ms/Default: 120ms)

Specify DTMF Pause.
(30 to 240ms/Default: 100ms)

Specify Payload type.
(96 to 127/Default: 101)

- When In-Band is selected:

```
MG(SIP)> set dtmf_mode

Select DTMF Mode.
 0=Negotiation(default)
 1=Out-Band
 2=In-Band
Input:2

Input DTMF Duration value.(ms)
(50-240(default=120)):120

Input DTMF Pause value.(ms)
(30-240(default=100)):100
```

0: Negotiation (Default)
1: Out-Band (fixed)
2: In-Band (fixed)

Specify DTMF Duration.
(50 to 240ms/Default: 120ms)

Specify DTMF Pause.
(30 to 240ms/Default: 100ms)

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.
- At DTMF Mode Negotiation/Out-Band, the payload type 103 cannot be used.
- Note that the sum of DTMF Duration and DTMF Pause values must be specified more than 120ms. If not, the following error message is displayed.

```
Input parameter error,
 reason [DTMF Duration + DTMF Pause<Min120ms]
```

(21) h245_base_port_no

Setting of the base port number for H.245 TCP server

This command is used to specify the port number for H.245 TCP server.

[Setting Example]

```
MG(SIP)> set h245_base_port_no

Input H245 base Port Number.
(1024-64511(default=40000)):40000
```

Assign the port number for H.245 TCP server.
(Default: 40000)
(receiving side of MG-SIP96)

Note: Normally this command is not required to be changed.

(22) hc_alarm

Setting of the alarm transmission destination

This command is used to set the alarm function which is activated to send a warning tone when a Health Check timeout occurs.

[Setting Example]

```
MG(SIP)> set hc_alarm

Select H/C Alarm type.
 0=IPX and SIP side enable(default)
 1=IPX side enable
 2=SIP side enable
 3=disable
Input:0
```

0: Warning tone is sent to the Telephony Server and SIP sides (Default).
1: Warning tone is sent to the Telephony Server side only.
2: Warning tone is sent to SIP side only.
3: disable

Note: Normally this command is not required to be changed.

(23) hc_timer

Setting of Health Check timer value

This command is used to specify the Health Check time-out value.

[Setting Example]

```
MG(SIP)> set hc_timer

Input H/C timer value.(sec)
(130-65535(default=240)):240
```

Assign the Health Check timer value (Default: 240 seconds).

Note: Normally this command is not required to be changed.

(24) interface

Setting of the operation speed and operation mode of an interface

This command is used to assign the Ether speed and the duplex type to each port on MG-SIP96.

[Setting Example]

```
MG(SIP)> set interface

Select Ether[1] speed.
  0=AUTO(default)
  1=10M
  2=100M
  3=1000M
Input:0

Select Ether[2] speed.
  0=AUTO(default)
  1=10M
  2=100M
  3=1000M
Input:1

Select Ether[2] duplex.
  1=Half
  2=Full
Input:2
```

Assign an Ether speed type to Ether 1.(Example: when AUTO is set.)
0=Automatic Negotiation (Default)
1=10 Mbps (fixed)
2=100Mbps (fixed)
3=1000Mbps (fixed) **Note 6**
Select “0”. **Note 5**

Assign an Ether speed type to Ether 2.(Example: when 100M/Full is set.)
0=Automatic Negotiation (Default)
1=10Mbps (fixed)
2=100Mbps (fixed)
3=1000Mbps (fixed) **Note 6**
Select “1”.

Assign a duplex type to Ether 1 and Ether 2.
1=Half Duplex
2=Full Duplex
Select “2”.

Note 5: When “Automatic Negotiation” is selected, “AUTO” is automatically applied to the interface. Therefore, this command line will not appear for interface that is specified as “Automatic Negotiation”.

Note 6: When100Mbps (fixed) is selected, “Full Duplex” is automatically applied to the interface. Therefore, this command line will not appear for interface that is specified as “100Mbps (fixed)”.

Note: Normally this command is not required to be changed.

(25) ipaddress

Setting of IP address and subnet mask

This command is used to set the number of ports MG-SIP96 uses, and assign an IP Address and a subnet mask to each Ether port on MG-SIP96.

Ports of MG-SIP96 are allocated as follows;

- Ether1: LAN (Telephony Server network) side
- Ether2: WAN (SIP network) side

Note: When “IPv6” is selected by “set ip_version” command, both of Ether1 and Ether2 ports are required because IPv6 packets are sent from/received to Ether2 (available for Since SP-3987 MGSIP PROG-B Issue 3 or later).

Note: When “IPv4” is selected by “set ip_version” command, and the IP addresses of both LAN and WAN are assigned in the same segment, use Ether1 port only. Select one port in the number of port setting, and assign Ether1’s IP address only. In this case, Ether2 is not used. For the MG-SIP96 where Ether2 is already registered, a message of “Ether[2]Port data is erased. Are you sure? Y/N” is displayed. To delete the data of Ether2, enter Y.

[Setting Example]

[IPv6]

```
MG(SIP)> set ipaddress
Do you use one-port only? Y/N=n

Ether[1]
 Input IP Address.(default=0.0.0.0)
          :10.1.0.1
 Input Subnet mask.(default=0.0.0.0)
          :255.255.255.0









<< Result >>
Using all port
Ether[1]
 IP Address : 192.168.100.33
 Subnet mask: 255.255.0.0
Ether[2]
 IP Address : 2001:db8::800(Get by RA)
 Subnet mask: 64(Get by RA)
```

Select “n” to use IPv6 function.
One-port only is not supported by IPv6 function.

Setting Ether1 port:

IP address (Default: 0.0.0.0)

Subnet mask (Default: 0.0.0.0)

Setting Ether2 port:
Inputting Ether[2] setting data is unnecessary.
When IPv6 function is active (“IPv6” is selected by “set ip_version” command), MG-SIP96 can generate the IP address and the Subnet mask for Ether2 by receiving the RA message from the router.

Displays the result.
“(Get by RA)” appears subsequent to the IP address and the Subnet mask generated by the Router Advertisement.

[IPv4]

```
MG(SIP)> set ipaddress
Do you use one-port only? Y/N=n
```

```
Ether[1]
  Input IP Address.(default=0.0.0.0)
            :10.1.0.1
  Input Subnet mask.(default=0.0.0.0)
            :255.255.255.0
Ether[2]
  Input IP Address.(default=0.0.0.0)
            :192.168.1.1
  Input Subnet mask.(default=0.0.0.0)
            :255.255.255.0
```

Setting Ether1 port:

IP address (Default: 0.0.0.0)

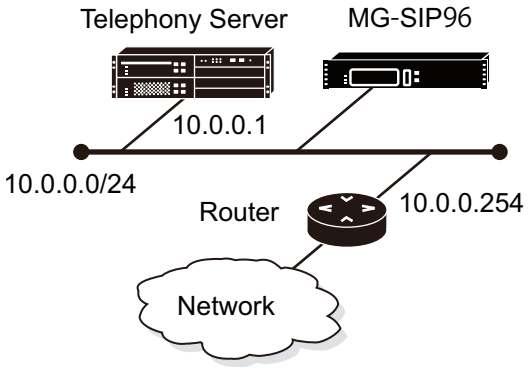
Subnet mask (Default: 0.0.0.0)

Setting Ether2 port:

IP address (Default: 0.0.0.0)

Subnet mask (Default: 0.0.0.0)

Note: When the IP addresses of LAN and SIP network sides are assigned in the same segment, use Ether1 only as shown below.



* If you select one port in the number of port setting, Ether2 setting is not performed.

Note: If you select one port in the number of port setting, be careful not to use the same RTP port number (set by “set sip_rtp_port_no” or “set ipx_rtp_port_no” command) when setting the non-default SIP network RTP base port number.

(26) ip_version

Setting of SIP side IP Version

This command is used to specify the IP version for the SIP side network.

[Setting Example]

```
MG(SIP)> set ip_version

Select the setting of SIP side IP
Version.
 0=IPv4 (default)
 1=IPv6
Input: 1
```

Assign the IP version for the SIP side network.
0: IPv4 (Default)
1: IPv6

Note: The conditions of this command are as follows.

- This command is available for SP-3987 MGSIP PROG-B Issue 3 or later.
- After changing the IP version with this command, you also need to change the IP addresses configured with the following commands before executing the “reboot” command.
  - “DNS IP address” configured with “set dnsaddress”
  - “SIP server IP address” configured with “set sip_server”
  - “SIP register IP address” configured with “set sip_register”

  When you change IPv4 to IPv6, IP address for Ether2 port configured with “set ipaddress” is generated by MG-SIP96 after receiving the RA message.
- When you change the IP version with this command, see also the information in5.3 IPv6 Function.

(27) ipx_route

Setting of the route information in the Telephony Server network

This command is used to specify route information in the Telephony Server side network. The registered number of the route information is up to 10.

The following figure shows an example of display.

When Route type = 0 is selected:

```
MG(SIP)> set ipx_route

Select Route type(0:Exit/1:None/2:Static):0




MG(SIP)>
```

0: Exit
1: None (Default)
2: Static
Select “0”.

Exit the command without executing anything.

When Route type = 1 is selected:

```
MG(SIP)> set ipx_route
Select Route type(0:Exit/1:None/2:Static):1




<< Result >>
Route type: None
Are you sure? Y/N=y



MG(SIP) >
```

0: Exit
1: None (Default)
2: Static
3: Dynamic
Select “1”.

Note: Pressing any key other than “y” causes the following message.

Route setting command was interrupted.

When Route type = 2 is selected:

- [To Assign Destination Network Address and Gateway Address]

  Usually, gateway data should be set as ‘Static’ at LAN (Telephony Server network) side.

```
MG(SIP)> set ipx_route
Select Route type(0:Exit/1:None/2:Static):2




Select command(0:Exit/1:Set/2:Delete):1




Select Gateway type(0:Exit/1:Gateway/
2:Default Gateway):1



Input Destination network
Address:172.16.0.0
```

0: Exit
1: None (Default)
2: Static
Select “2”.

0: Exit (Exit the command without executing anything.)
1: Set route information.
2: Delete route information.
Select “1”.

0: Exit (Exit the command without executing anything.)
1: Specify the gateway.
2: Specify the default gateway.
Select “1”.

Specify the network address. **Note 7**
(Default: 0.0.0.0)

```
Input Subnet mask bit(0-32):16




Input IP Address of Gateway:192.168.0.254

<< Result >>
Route type: Static
Gateway Address|Destination network/Prefix
---------------+-------------------------
---
192.168.0.254  |172.16.0.0        /32
Are you sure? Y/N=y



MG(SIP)>
```

Specify the subnet mask. **Note 7**
(Default: 0)

Note: If an invalid value is set here, the following error message is displayed. Input the valid value.

Input destination network address invalid.

Specify the gateway address.
(Default: 0.0.0.0)

Note: Pressing any key other than "y" displays the following message.

Route setting command was interrupted.

Note 7: Do not set routing in the segment where MG-SIP96 belongs.

- [To Assign Routing Information (Gateway Address only)]

  To set a default gateway, it should be assigned to either LAN side port or SIP network side port. Usually, assign a default gateway to SIP network side port. Two or more Default Gateways cannot be registered.

```
MG(SIP)> set ipx_route
Select Route type(0:Exit/1:None/2:Static):2



Select command(0:Exit/1:Set/2:Delete):1
```

0: Exit
1: None (Default)
2: Static
Select "2.

0: Exit (Exit the command without executing anything.)
1: Set routing information.
2: Delete routing information.
Select "1".

```
Select Gateway type(0:Exit/1:Gateway/
2:Default Gateway):2



Input IP Address of Default
Gateway:192.168.0.254
<< Result >>
Route type:Static
Gateway Address|Destination network/Prefix
---------------+-------------------------
---
192.168.0.254 |0.0.0.0           /32
Are you sure? Y/N=y



MG(SIP)>
```

0: Exit (Exit the command without executing anything.)
1: Specify the gateway.
2: Specify the default gateway.
Select “2”.

Specify the default gateway.
(Default: 0.0.0.0)

Note: Pressing any key other than “y” displays the following message.

Route setting command was interrupted.

- [To Delete the assigned Routing Information]

```
MG(SIP)> set ipx_route
Select Route type(0:Exit/1:None/2:Static):2



Select command(0:Exit/1:Set/2:Delete):2
```

0: Exit
1: None (Default)
2: Static
Select “2.

0: Exit (Exit the command without executing anything.)
1: Set routing information.
2: Delete routing information.
Select “2”.

Note: When there is no information to delete here, the following message is displayed.

There is no static route table to delete.

```
No|Gateway Address|Destination network/
Prefix
--+---------------+------------------------
----
1 |192.168.0.254 |172.16.0.0        /16
2 |192.168.0.254 |10.0.0.0          /8
Select delete No?: 1


No|Gateway Address|Destination network/
Prefix
--+---------------+------------------------
----
1 |192.168.0.254 |10.0.0.0          /8
Are you sure? Y/N=y



MG(SIP)>
```

Select the number (No) of the route information you want to delete.
Select "1.

Note: Pressing any key other than "y" displays the following message.

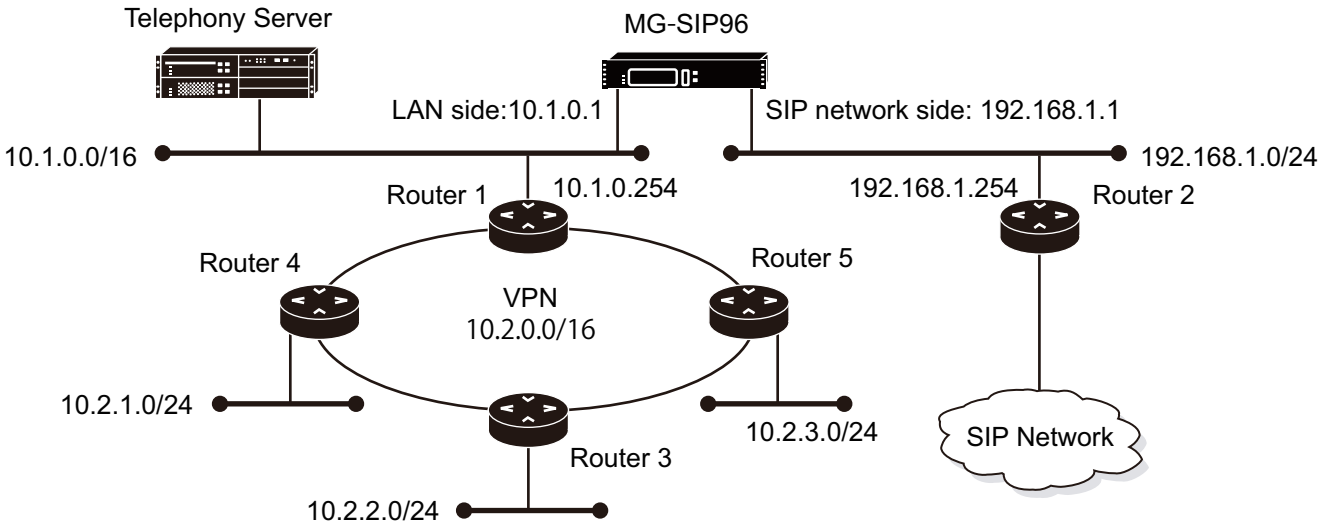
Route setting command was interrupted.

Note: The conditions of this command are as follows.

- To set a default gateway, it should be assigned to either one of the LAN side port or SIP network side port.
- Routing assignment is unnecessary for network segment assigned to Ether (0).

The following shows a typical network configuration and the sample data setting.

[Typical Network Configuration]



Note:

- Summarize the network addresses if possible.
- If you set an invalid gateway address and reboot the system, a message of “Please set correct gateway address!!” stays displayed after rebooting the system.

[Example of setting]

- Router 3/4/5 that are placed downstream of Router 1 on LAN (Telephony Server) side can be summarized to “10.2.0.0/16”. Set the summarized network address statically.
- Downstream of Router 2 on SIP network side cannot be specified; perform the default gateway settings.

[Sample Data Setting for the above network configuration]

```
MG(SIP)> set ipx_route

Select Route type(0: Exit/1: None/2: Static): 2

Select command(0: Exit/1: Set/2: Delete): 1

Select Gateway type(0: Exit/1: Gateway/2: Default
Gateway):1

Input Destination network Address:10.2.0.0

Input Subnet mask bit(0-32): 16

Input IP Address of Gateway:10.1.0.254

<< Result >>
Route type: Static
```

```
|Gateway Address|Destination network/Prefix
-------------------------------------------------
|10.1.0.254    |10.2.0.0          /16
Are you sure? Y/N=y
MG(SIP)> set ipx_route
Select Route type(0: Exit/1: None/2: Static): 2
Select command(0: Exit/1: Set/2: Delete): 1
Select Gateway type(0: Exit/1: Gateway/2: Default
Gateway):2
Input IP Address of Default Gateway:192.168.1.254
<< Result >>
Route type: Static
|Gateway Address|Destination network/Prefix
---------------+---------------------------------
|192.168.1.254 |0.0.0.0           /0
```

(28) ipx_rtp_port_no

Setting of the RTP base port number for LAN (Telephony Server network)

This command is used to assign the base port number that is used for RTP at LAN side. (Even numbers only.)

[Setting Example]

```
MG(SIP)> set ipx_rtp_port_no
Input IPX side RTP Port Number.
(1024-64000(default=51000)):51000
```

Assign the base port number that is used for RTP at LAN side (Default: 51000). (Receiving side of MG-SIP96)

Note: The conditions of this command are as follows.

- Normally this command is not required to be changed.
- The system uses 384 (96 x 4) consecutive port numbers from the RTP base port number.
- If you select one port in the number of port setting (by “set ipaddress” command), be careful not to use the same RTP port number (set by “set sip_rtp_port_no” or “set ipx_rtp_port_no” command) when setting the non-default IPX network RTP base port number.

(29) keynumber

Setting of the pilot number for MG-SIP96

The command is used to assign a pilot number of MG-SIP96 for registration.

[Setting Example]

```
MG(SIP)> set keynumber

Input Keynumber.(default=0, MAX32(strings))
          :0
```

Assign the pilot number when register is performed (Default: 0).

Note: Be sure not to enter a blank character to the end of the pilot number (with the Copy and Paste features of your personal computer), and be careful not to mistype a character. ("0"(zero) or "O" (alphabetical O), for example.)

(30) multi_regist

Setting of the registration function per number

This command is used to enable/disable the setting of registration to SIP server per number.

[When this function is enabled]

Registers to SIP server per SIP-URI (or Telephone number).

```
MG(SIP)>set multi_regist

Select Multi-registration mode.
 0=disable(default)
 1=enable
Input:1

Input the interval of REGISTER message
transmitting. (sec)(1-10(default=1)):1

Input Standby timer value.(sec)(10-
3600(default=30)):30

Select Contact Header type.
 0=Privacy(default)
 1=SIP-URI
Input:0
```

0: disable
1: enable
Select "1".

Assign the time interval to send register (Default: 1sec).

Assign the time value to re-register after fault recovery (Default 30sec).

0: Random value
1: SIP-URI **Note 8**

[When this function is disabled]

Only the pilot number that is set in the configuration of MG-SIP96 by “set keynumber” command registers to SIP server.

```
MG(SIP)>set multi_regist

Select Multi-registration mode.
  0=disable(default)
  1=enable
Input:0
```

0: disable
1: enable
Select “0”.

Note 8:

When “Privacy” is selected: Assign a random value to the User ID field of SIP message “Contact header”.
When “SIP-URI” is selected: Assign the SIP-URI to the User ID field of SIP message “Contact header”. Assign the telephone number if SIP-URI has not been assigned.

Note: The conditions of this command are as follows.

- Use configuration command “set sip_register” to assign the SIP server for register destination.
- The assignment of “set sip_register” is necessary when registration is to be done per number.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.

(31) musictype

Setting of the type of music to be sent from MG-SIP96

This command is used to select music type that is sent from MG-SIP96.

[Setting Example]

```
MG(SIP)>set musictype

Select Music Type.
  0=Type1(default)
  1=Type2
  2=Type3
  3=Type4
Input:0
```

0: Type1: Minuet
1: Type2: For Elise
2: Type3: WAVE file
3: Type4: No sound

(32) no_media_code

Setting of the SIP Error Response code

This command is used to set a SIP error response code. When 415 is set as a response code, 415 Unsupported Media Type is sent instead of response code 488 if an unsupported codec is received.

[Setting Example]

```
MG(SIP)>set no_media_code

Input the SIP Error Response code when
the unsupported codec.
(400-606 (default=488)): 415
```

Type any number between 400 and 606 (415 is typed in this manual as an example).

Note: The conditions of this command are as follows.
- This command is available for SP-3987 MGSIP PROG-B Issue 3 or later.
- Accept, Accept-Encoding and Accept-Language headers are not added to 415 Unsupported Media Type.
- 415 Unsupported Media Type response supports only when the request message is the INVITE or UPDATE message.

(33) out_of_area_code

Setting of the out-of-area error response

This command is used to set the out-of-area (IPX network) error response.

[Setting Example]

```
MG(SIP) > set out_of_area_code

Input the SIP Error Response code when the out
of area.
(400-606(default=408)):408
```

Set the error response code.
(Default: 408)

Note: Normally this command is not required to be changed.

(34) prack

Setting of PRACK (Provisional Response Acknowledgment) function (RFC3262)

This command is used to enable/disable Provisional Response Acknowledgement (PRA) function (RFC3262). When this is set enabled, the 18x cyclical-send of provisional response function can be specified.

[Setting Example]

```
MG(SIP)> set prack

Select function to add 100rel to Supported
Header.
 0=enable(default)
 1=disable
Input:0
```

0: enable (Default)
1: disable

```
Select function to stop cyclical-send of
Provisional Response.
 0=disable(default)
 1=enable
Input:0
```

0: enable 18x cyclical-send
1: disable 18x cyclical-send

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.

(35) ppi_to_pai

Setting of PAID transmission function

This command is used to enable/disable P-Asserted-Identity header (PAID) to be transmitted instead of P-Preferred-Identity header (PPID).

[Setting Example]

```
MG(SIP)>set ppi_to_pai
Select the setting that P-Asserted-
Identity is transmitted instead of P-
Preferred-Identity.
  0 = disable (default)
  1 = enable
Input:1
```

0: disable (Default)
1: enable

Note: SIP messages can be sent by converting P-Preferred-ID header (PPID) to P-Asserted-ID header (PAID) only when P-Preferred-ID header (PPID) is used for either of the following settings:
- Enable “privacy_pattern” command and specify “2: RFC3323/3325(P-Preferred-ID/Privacy)”.
- Enable “name_display” command.

(36) pre_negotiation_port_no

Setting of the UDP port receiving packets for voice control path

This command is used to specify the UDP port number that receives packets regarding the voice control path.

[Setting Example]

```
MG(SIP)> set pre_negotiation_port_no
Input Pre-negotiation Port Number.
(1024-65535(default=61014)):61014
```

Assign the UDP port receiving packets for voice control path (Default: 61014)

Note: Normally this command is not required to be changed.

(37) privacy_pattern

Setting of the privacy pattern

This command is used to specify a type of Calling Line Identification Non-Presentation when calling to SIP network.

[Setting Example]

```
MG(SIP)> set privacy_pattern

Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

When “0” is selected:

```
MG(SIP)> set privacy_pattern

Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
Input: 0
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

When “1” is selected:

```
MG(SIP)> set privacy_pattern

Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
Input:1

Input a Dummy string.(MAX32(strings))
                    :anonymous
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

Enter a dummy string (specified by provider) in maximum of 32 characters.

When "2" is selected:

(a) If the firmware version is SP-3987 MGSIP PROG-B Issue 2 or later.

```
MG(SIP)>set privacy_pattern

Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
Input:2

Select RFC3325 pattern.
 0=Pattern 1:privacy_only(default)
 1=Pattern 2:TEL-URI
 2=Pattern 3:unused
 3=Pattern 4:SIP-URI
 4=Pattern 5:P-Associated-URI
Input:0
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

Select an RFC3325 pattern **Note 9**
0: privacy_only (Default)
1: TEL-URI
2: unused
3: SIP-URI
4: P-Associated-URI

Note 9: Use of P-Preferred-ID headers of INVITE message differs for each pattern.
When Pattern 1 is set: P-Preferred-ID header is not attached.
When Pattern 2 is set: P-Preferred-ID header is attached. (tel: is used)
When Pattern 3 is set: Not used.
When Pattern 4 is set: P-Preferred-ID header is attached.
When Pattern 5 is set: P-Preferred-ID header is attached. (P-Associated-URI is used)

Note: The conditions of this command are as follows.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.
- Pattern 3~5 can be selected since SP-3987 MGSIP PROG-B Issue 2 or later. For Pattern 1 or 2, there is no difference among firmware versions.

(b) If the firmware version is earlier than SP-3987 MGSIP PROG-B Issue 2.

```
MG(SIP)>set privacy_pattern

Select Privacy pattern of Calling Party
Number.
 0=DisplayName(default)
 1=Remote-Party-ID
 2=RFC3325
Input:2
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

```
Select RFC3325 pattern.
 0=Pattern 1(default)
 1=Pattern 2
Input:0
```

Select an RFC3325 pattern **Note 10**
0: Pattern 1
1: Pattern 2

Note 10: Use of P-Preferred-ID headers of INVITE message differs for each pattern.
When Pattern 1 is set: P-Preferred-ID header is not attached.
When Pattern 2 is set: P-Preferred-ID header is attached. (tel: is used)

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.

(38) registration_port_no

Setting of the UDP port number that receives DRS packets

This command is used to specify the UDP port number that receives the registration packets.

[Setting Example]

```
MG(SIP)> set registration_port_no

Input Registration Port Number.
(1024-65535(default=3456)):3456
```

Assign the UDP port number that receives the DRS packets. (Default: 3456).

Note: Normally this command is not required to be changed.

(39) reg_interval

Setting of the waiting time to retry after registration failure

This command is used to assign the retry waiting time when failed to register, due to the error-response or no answer from the server when Register packet was sent to SIP server from MG-SIP96.

[Setting Example]

```
MG(SIP)>set reg_interval

Input REGISTER interval timer value.(min)
(1-255(default=5)):5
```

Re-register waiting time (min):
(Default: 5min)

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.
- When registration per number function is effective, assign by setting MG-SIP96 using the largest number within the same MG-SIP96 group referring to table below.

Amount of Numbers	Time (minute)
1 to 300	5
301 to 600	10

Amount of Numbers	Time (minute)
601 to 900	15
901 to 1000	20

(40) response_table

Setting of response table selection

This command is used to set the response table.

[Setting Example]

```
MG(SIP) > set response_table

Select Response table(Error Cause to
SIP Error Response).
 0=normal(default)
 1=revised
Input:0
```

0: normal table selection (Default)
1: Select not to send a server error from MG-SIP96 to SIP network.

Note: Normally this command is not required to be changed.

(41) rtp_pathon

Setting of Path-on function by 183 Progress after receiving 180 Ringing

This command is used to assign Path-on function by 183Progress after receiving 180Ringing.

[Setting Example]

```
MG(SIP)> set rtp_pathon

Select Path-on 183 after 180.
 0=disable(default)
 1=enable
Input:0
```

0: disable (Default)
1: enable

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.
- Normally this command is not required to be changed.

(42) rtp_qos

This command is used to specify the ToS value of Real-Time Protocol (RTP) packets on SIP network side.

[Setting Example]

```
MG(SIP)> set rtp_qos
```

* See "drs_qos" command for a display example and the contents of the configuration.

Note: Normally this command is not required to be changed.

(43) sdp_style

This command is used to receive SDP with multiple "m" lines.

- When normal style is specified:

```
MG(SIP) > set sdp_style

Select SDP style setting.
 0=normal(default)
 1=RFC4566
Input:0
```

0: normal (default)
1: conforms to RFC4566

- When RFC4566 style is specified:

```
MG(SIP) > set sdp_style

Select SDP style setting.
 0=normal(default)
 1=RFC4566
Input:1

Select the setting of G729 annexb=no.
 0=disable (default)
 1=enable
Input:1
```

0: normal (default)
1: conforms to RFC4566

Specify the setting of G729 annexb=no.
0: G729 annexb=no is disabled.
1: G729 annexb=no is enabled.

Note: The conditions of this command are as follows.

- This command is available for SP-3987 MGSIP PROG-B Issue 2 or later.
- The setting of G729 annexb=no is available for SP-3987 MGSIP PROG-B Issue 3 or later.

(44) self_sip_domain

Setting of SIP domain name for MG-SIP96

This command is used to set the SIP domain name for MG-SIP96.

[Setting Example]

- When this command is enabled:

```
MG(SIP)> set self_sip_domain

Select Self SIP Domain mode.
 0=disable(default)
 1=enable
Input:1

Input a Self SIP Domain
string.(MAX128(strings))
                      :
```

0: without domain name (Default)
1: with domain name

Input the SIP domain name in maximum of 128 characters.

- disable

```
MG(SIP)> set self_sip_domain

Select Self SIP Domain mode.
 0=disable(default)
 1=enable
Input:0
```

0: without domain name (Default)
1: with domain name

Note: The conditions of this command are as follows.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.
- This command is required only when SIP domain must be separated between the SIP server and MG-SIP96.
- If this command is not set, the SIP domain set by “set sip_server” command is used for the SIP domain of MG-SIP96.

(45) session_timer

Setting of session timer

This command is used to specify the Session Timer.

[Setting Example]

```
MG(SIP)> set session_timer

Select the setting of Session-timer.
 0=enable(default)
 1=disable
```

0: Session Timer is enabled (Default)
1: Session Timer is disabled

When Session-Timer is Enable (=0) is selected:

```
MG(SIP)> set session_timer

Select the setting of Session-timer.
 0=enable(default)
 1=disable
Input:0

Input Session-expires timer value.(sec)
(0-86400(default=180)):180

Select Refresher type.
 0=UAC(default)
 1=UAS
Input:0

Select "refresher=uac" ini-INVITE.
 0=disable(default)
 1=enable
Input:0

Select Forced mode.
 0=disable(default)
 1=enable
Input:0
```

Set the session timer.
(Default: 180sec)

Determine a point to make refresher.
UAC: User Agent Client
UAS: User Agent Server

refresher=uac addition to INVITE message:
0: refresher=uac is not added
1: refresher=uac is added

0: Session timer will not be activated when Supported/Require header does not exist (default).
1: Session timer will be activated by using Session-Expires when Supported/Require header does not exit.

When Session-Timer is Disable (=1) is selected:

```
MG(SIP)> set session_timer

Select the setting of Session-timer.
 0=enable(default)
 1=disable
Input:1
```

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.

(46) signaling_port_no

Setting of the UDP port number that receives control signal packets

This command is used to specify the UDP port number that receives the control signal packets.

[Setting Example]

```
MG(SIP)> set signaling_port_no

Input Signaling Port Number.
(1024-65535(default=61012)):61012
```

Assign the UDP port number that receives the control signal packets (Default: 61012).

Note: Normally this command is not required to be changed.

(47) sip_accfilter

Setting of SIP Access Filter

This command is used to enable the SIP Access Filter which discards SIP packets received from an unauthorized destination.

[Setting Example]

When IP address (=0) is selected by "set sip_server" command:

[IPv6]

```
MG(SIP)> set sip_accfilter

Select the setting of SIP Access
Filter.
 0=disable (default)
 1=enable
Input: 1

Input SIP Access Filter mask.
(default=128)
(SIP server IP Address : 2001:db8::860)
                                 : 128

<< Result >>
SIP Access Filter     : enable
(SIP server Address   : 2001:db8::860)
SIP Access Filter mask: 128
```

Enable/disable SIP Access Filter.
0: SIP Access Filter is disabled (default).
1: SIP Access Filter is enabled.

When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

Displays the result.

When SIP Access Filter is enabled and SIP Access Filter mask is set, the SIP register IP address assigned by "set sip_register" is also authorized though it is not shown in the setting result of this command.

[IPv4]

```
MG(SIP)> set sip_accfilter

Select the setting of SIP Access
Filter.
 0=disable (default)
 1=enable
Input: 1

Input SIP Access Filter mask. (default
=255.255.255.255)
(SIP server IP Address:
192.168.100.100)
                    : 255.255.255.255

<< Result >>
SIP Access Filter: enable
(SIP server IP Address:
192.168.100.100)
SIP Access Filter: 255.255.255.255
```

Enable/disable SIP Access Filter.
0: SIP Access Filter is disabled (default).
1: SIP Access Filter is enabled.

When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

Displays the result.

When SIP Access Filter is enabled and SIP Access Filter mask is set, the SIP register IP address assigned by "set sip_register" is also authorized though it is not shown in the setting result of this command.

When FQDN (=1) is selected by "set sip_server" command:

```
MG(SIP)> set sip_accfilter

Select the setting of SIP Access
Filter.
 0=disable (default)
 1=enable
Input: 1

Input SIP Access Filter mask. (default
=255.255.255.255)
(SIP server FQDN: sipserver.nec.com)
                    : 255.255.255.255

<< Result >>
SIP Access Filter: enable
(SIP server FQDN: sipserver.nec.com)
SIP Access Filter: 255.255.255.255
```

Enable/disable SIP Access Filter.
0: SIP Access Filter is disabled (default).
1: SIP Access Filter is enabled.

When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

Displays the result.

When SIP Access Filter is enabled and SIP Access Filter mask is set, the SIP register IP address assigned by "set sip_register" is also authorized though it is not shown in the setting result of this command.

Note: This command is available for SP-3987 MGSIP PROG-B Issue 3 or later.

(48) sip_port_no

Setting of the port number that receives SIP messages

This command is used to specify a UDP port number that receives SIP messages.

[Setting Example]

```
MG(SIP)> set sip_port_no

Input SIP Port Number.
(1024-65535(default=5060)):5060
```

Assign the port number that receives SIP messages (Default: 5060).

Note: Normally this command is not required to be changed.

(49) sip_qos

Setting of the ToS value for SIP signaling

This command is used to specify the ToS value of IP packets for SIP signaling.

[Setting Example]

```
MG(SIP)> set sip_qos
```

* See "set drs_qos" command for a display example and the contents of the configuration.

Note: Normally this command is not required to be changed.

(50) sip_register

Setting of the information of SIP registrar

This command is used to assign an IP address or a Fully Qualified Domain Name (FQDN), and port number and expiration time of the SIP registrar.

The following figure shows an example of display.

When IP address (=0) is selected:

[IPv6]

```
MG(SIP)> set sip_register

Select SIP register type.
 0=IPAddress(default)
 1=FQDN
Input:0

Input SIP register IP Address.
(default=::)
                    : 2001:db8::880

Input SIP register Port Number.
(1024-65535(default=5060)):5060
```

When IP address (=0) is selected.

Assign the IP address of the SIP registrar (Default: ::).

Assign the port number of the SIP registrar (Default: 5060)

```
Input SIP register Expires timer value.
(sec)
(1-65535(default=3600)):3600
```

Assign the SIP registrar alive time in seconds (Default: 3600)

[IPv4]

```
MG(SIP)> set sip_register
Select SIP register type.
 0=IPAddress(default)
 1=FQDN
Input:0
Input SIP register IP Address.
(default=0.0.0.0)
                    :192.168.100.100
Input SIP register Port Number.
(1024-65535(default=5060)):5060
Input SIP register Expires timer value.
(sec)
(1-65535(default=3600)):3600
```

When IP address (=0) is selected.

Assign the IP address of the SIP registrar (Default: 0.0.0.0).

Assign the port number of the SIP registrar (Default: 5060)

Assign the SIP registrar alive time in seconds (Default: 3600)

When FQDN (=1) is selected:

```
MG(SIP)> set sip_register
Select SIP register type.
 0=IPAddress(default)
 1=FQDN
Input:1
Input Fully Qualified Domain Name.
(default=0, MAX63(strings))
                              :nec.com
Input SIP register Port Number.
(1024-65535(default=5060)):5060
Input SIP register Expires timer value.
(sec)
(1-65535(default=3600)):3600
```

When FQDN (=1) is selected.

Assign the FQDN of the SIP registrar (Default:0, max 63 characters).

Assign the port number of the registrar (Default: 5060)

Assign the SIP registrar alive time in seconds (Default: 3600)

Note: The conditions of this command are as follows.
- Pressing the Enter key can skip the item, with exceptions of “SIP register type” and “IP address/FQDN”.
- Normally this command is not required to be changed.
- Be sure not to enter a blank character to the end of the FQDN (with the Copy and Paste features of your personal computer), and be careful not to mistype a character. (“0”(zero) or “O” (alphabetical O), for example.)

(51) sip_route

Setting of the route information of SIP network

This command is used to specify route information in the SIP side network.
Use “set sip_route” command.
For details, see “ipx_route”(Setting of the route information in the Telephony Server network).

Note: When IPv6 (=1) is selected by “set ip_version” command since SP-3987 MGSIP PROG-B Issue 3, the IP address of the router is assigned to the default gateway automatically. If you attempt to execute this command, the following message appears: “Sip route data can not be set when IPv6 is enable.”

(52) sip_rtp_port_no

Setting of the RTP base port number of SIP network

This command is used to specify the RTP base port number from SIP network. (Even numbers only.)

[Setting Example]

```
MG(SIP)> set sip_rtp_port_no

Input SIP side RTP Port Number.
(1024-64000(default=50000)):50000
```

Assign the RTP base port number for SIP side
(Default: 50000)
(Receiving side of MG-SIP96)

Note: The conditions of this command are as follows.
- Normally this command is not required to be changed.
- The system uses 192 (96×2) consecutive port numbers from the RTP base port number.
- If you select one port in the number of port setting, be careful not to use the same RTP port number (set by “set sip_rtp_port_no” or “set ipx_rtp_port_no” command) when setting the non-default SIP network RTP base port number.

(53) sip_server

Setting of the information of SIP server

This command is used to assign an IP address or a Fully Qualified Domain Name (FQDN), and port number, type, and SIP domain of the SIP server.

The following figure shows an example of display.

When IP address (=0) is selected:

[IPv6]

```
MG(SIP)> set sip_server

Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:0

Input SIP server IP Address. Input SIP server
IP Address. (default=::)
: 2001:db8::860

Input SIP server Port Number.
(1024-65535(default=5060)):5060

Select SIP server Router type.
 0=Strict(default)
 1=Loose
Input:0


Select the setting of rport(RFC3581)
function.
 0=disable (default)
 1=enable
Input: 0


Input Domain Name.(default=0,
MAX128(strings))
```

When IP address (=0) is selected.
(Default: 0)

Assign the IP address of the proxy server
(Default: ::).

Assign the port number of the proxy server
(Default: 5060)

Select a Strict router or Loose router for the proxy server
(Default: 0)
0: Strict router
1: Loose router
Select “0”.

Enable/disable the rport (RFC3581) function.
(Default: 0)
Note 11, **Note 8**, **Note 9**

Input a string that specifies the service provider in maximum of 128 characters.

[IPv4]

```
MG(SIP)> set sip_server

Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:0

Input SIP server IP Address.
(default=0.0.0.0)
:192.168.100.100
```

When IP address (=0) is selected.
(Default: 0)

Assign the IP address of the proxy server
(Default: 0.0.0.0).

```
Input SIP server Port Number.
(1024-65535(default=5060)):5060

Select SIP server Router type.
 0=Strict(default)
 1=Loose
Input:0


Select the setting of rport(RFC3581)
function.
 0=disable (default)
 1=enable
Input: 0


Input Domain Name.(default=0,
MAX128(strings))
```

Assign the port number of the proxy server
(Default: 5060)

Select a Strict router or Loose router for the proxy server
(Default: 0)
0: Strict router
1: Loose router
Select "0".

Enable/disable the rport (RFC3581) function.
(Default: 0)
Note 11

Input a string that specifies the service provider in maximum of 128 characters.

When FQDN (=1) is selected:

```
MG(SIP)> set sip_server
Select SIP server type.
 0=IPAddress(default)
 1=FQDN
Input:1
Input Fully Qualified Domain Name.(default=0,
MAX63(strings))

Input SIP server Port Number.
(1024-65535(default=5060)):5060

Select SIP server Router type.
 0=Strict(default)
 1=Loose
Input:0


Input Domain Name.(default=0,
MAX128(strings))
```

When FQDN (=1) is selected.

Assign the FQDN of the proxy server in maximum of 63 characters
(default: 0).

Assign the port number of the proxy server
(Default: 5060)

Select a Strict router or Loose router for the proxy server
(Default: 0)
0: Strict router
1: Loose router
Select "0".

Input a string that specifies the service provider in maximum of 128 characters.

Note: The conditions of this command are as follows.
- Pressing the Enter key can skip the item, with exceptions of “SIP server type” and “IPaddress/FQDN”.
- If you have set a character string to specify the service provider, the character string is used as the SIP domain name.
- Be sure not to enter a blank character to the end of the FQDN (with the Copy and Paste features of your personal computer), and be careful not to mistype a character. (“0”(zero) or “O” (alphabetical O), for example.)

Note 11: The rport(RFC3581) function is available for SP-3987 MGSIP PROG-B Issue 3 or later. The following conditions are applied to this function.
- Even though the setting of rport(RFC3581) is disabled, the rport parameter can be received.
- INVITE message defined in RFC3581 cannot be retransmitted.

(54) sip_tel_service

Setting of additional services

The command is used to enable/disable the use of additional service features (Hold/Retrieve/Transfer from the SIP network side terminal)

[Setting Example].

```
MG(SIP)>set sip_tel_service

Select SIP telephony service function.
 0=disable(default)
 1=enable
Input:1
```

0: additional service feature is disabled (Default)
1: additional service feature is enabled

When enable (=1) is selected, the following screen is displayed. (When disable is selected, no screen is displayed.)

```
Select Replaces function.
 0=enable(default)
 1=disable
Input:0

Select Hold [a=inactive] function.
 0=enable(default)
 1=disable
Input:0

Select Hold [put off hold] function.
 0=disable(default)
 1=enable
Input:1
```

Enable/disable Replaces function.
0: enable (Default)
1: disable

0: a=inactive hold function is enabled (Default)
1: a=inactive hold function is disabled

Enable/disable hold (put off hold) function.
0: disable (Default)
1: enable

```
Select REFER/NOTIFY function.
 0=enable
 1=disable(default)
Input:0

Select 3PCC function.
 0=enable
 1=disable(default)
Input:0
```

Enable/disable REFER/NOTIFY function.
0: enable
1: disable (Default)
Note 12

Enable/disable 3PCC (3rd Party Call Control) function.
0: enable
1: disable (Default)

When enable (=0) is selected for 3PCC function, the following screen is displayed. (When disable is selected, no screen is displayed.)

```
Select 3PCC function(codec).
 0=PCMU
 1=PCMA
 2=AUTO(default)
Input:0
```

Select 3PCC function (codec). **Note 13**
0: Fixed to μ-law
1: Fixed to A-law
2: MGC Control (Telephony Server System Data)* (Default) **Note 14**
*: μ-law is set if no Telephony Server System Data is set.

Note: The conditions of this command are as follows.

- Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.
- The following functions are available for SP-3987 MGSIP PROG-B Issue 3 or later.
  -Hold [put off hold] function
  -REFER/NOTIFY function
  -3PCC function
  -3PCC function(codec)
- Music On Hold may not be sent to some remote terminals if this command is not enabled.

Note 12: Call Transfer features using REFER/NOTIFY methods are available only when a transferring destination is MG-SIP96.

Note 13: When INVITE without SDP is received, the following conditions are applied.
- Only G.711 (20ms) μ-law/A-law connection is available.
- AMGVL/AIVCL data assignment cannot give an offer.

Note 14:

- When “2=AUTO(default)” is selected, the codec used for 3PCC function (codec) complies with the A-law/μ-law information which the Telephony Server informs MG-SIP96.
- In the Telephony Server side, by the system data assignment (ASYD, System Data 1, Index 64, Bit 0), either μ-law or A-law can be specified as the A-law/μ-law information which the Telephony Server informs MG-SIP96.
- The Telephony Server informs MG-SIP96 the A-law/μ-law information only when the MG-SIP96 performs registration.

- When you change the system data (ASYD, System Data 1, Index 64, Bit 0) during operation, the data change will be reflected after rebooting MG-SIP96.

(55) sip_transport

Setting of SIP transport protocol

This command is used to select whether SIP requests to be sent with TCP or UDP as the transport protocol.

[Setting Example]

```
MG(SIP)>set sip_transport

Select the setting of SIP Transport
Protocol.
 0=UDP(default)
 1=TCP
Input:1
```

Select the setting of SIP Transport Protocol.
0: UDP (Default)
1: TCP

Note: This command is available for SP-3987 MGSIP PROG-B Issue 3 or later.

(56) slipresp

Setting of error response codes used when bypassing a SIP server

This command is used to determine an error response code that is sent in order to prompt a SIP server to bypass when all the resources of MG-SIP96 are busy.

[Setting Example]

```
MG(SIP)> set slipresp

Input SIP server slip response code.
(400-699(default=488)):488
```

Set the error response code.
(400 to 699, Default: 488)

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.

(57) update

Setting of update method

This command is used to enable/disable the use of update method.

[Setting Example]

```
MG(SIP)>set update

Select the setting of UPDATE method.
 0=disable(default)
 1=enable
Input:0
```

0: Update method is disabled (Default)
1: Update method is enabled

Note: Assign this command adjusting to the specifications on the SIP network where MG-SIP96 connects.

(58) country_code

Setting of a country code

This command is used to set a country code on MG-SIP96.

[Setting Example]

```
MG(SIP)>set country_code

Input Country Code.
  (1-255 (default=1)):2
```

Set a country code.
1 = JP (Japan (Default))
2 = US (North America)
3 = AU (Australia)

11 = NZ (New Zealand) **Note 15**

Note 15: Country code 11 (New Zealand) is available for SP-3987 MGSIP PROG-B Issue 2 or later.

(59) multisession

Setting of Silent Monitor (Multi-Path Monitor) Connection

This command is used to set Silent Monitor (Multi-Path Monitor) Connection using MG-SIP96 in the ACD system.

[Setting Example]

```
MG(SIP)>set multisession

<< Current Setting >>
    Multi-Session setting:disable

Select Multi-Session setting.
  0 = disable (default)
  1 = enable
Input:1

<< Result >>
  Multi-Session setting:enable
```

Displays the current setting.

0: Disabled (default)
1: Enabled

Displays the result.

(60) name_display

Setting of Name Display service

This command is used to enable/disable Name Display service using MG-SIP96.

[Setting Example]

```
MG(SIP)>set name_display
Select function of Name Display.
  0 = disable (default)
  1 = enable
Input:1
```

0: Disabled (default)
1: Enabled

show

(1) arp

Displaying of ARP table

This command is used to show the Address Resolution Protocol (ARP) table of MG-SIP96.

[Setting Example]

```
MG(SIP)> show arp
AddressNote 16  HWtype  HWaddressNote 17    Flags MaskNote 18 Iface
192.168.0.250 ether   00:1D:92:9E:2A:E0 C                 eth0
192.168.0.99  ether   00:B0:D0:31:FE:64 C                 eth0
192.168.0.1   ether   00:30:13:76:7B:52 C                 eth0
```

Note: Actual values such as Address or HWaddress may differ from this sample.

Note 16: Address: IP address (IP address or host name of an entry)

Note 17: HWaddress: Physical address /Hardware address (For Ethernet, MAC address of an entry)

Note 18: Flags Mask: Entry type (C: Used for normal entries only.)

(2) config

Displaying of a configuration data list

This command is used to show the configuration that has been currently specified for the MG-SIP96.

The following shows a sample display.

[MAC configuration data]

```
MG(SIP)> show config
[2009-03-05 14:49:29]
```

Time when the configuration is acquired.

```
[SP-3987:01.00.00.00]

0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit

Select a reference number:0

Ether[1]
MAC Address:00-00-00-00-00-00

Ether[2]
MAC Address:00-00-00-00-00-00
```

Software version information of MG-SIP96

MAC Data=MAC configuration data

DRS Data=Configuration data of the Telephony Server

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select “0”.

MAC addresses of Ether [1] [2] of MG-SIP96

[DRS configuration data]

```
MG(SIP)> show config

[2009-03-05 14:49:29]

[SP-3987:01.00.00.00]

0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data
```

Time when the configuration is acquired.

Software version information of MG-SIP96

MAC Data=MAC configuration data

DRSData=Configuration data of the Telephony Server

Common Config Data=Common configuration data

Port Config Data=Port configuration data

```
4=SIP Config Data

5=Route Config Data

9=Exit
Select a reference number:1
Primary DRS IP Address:0. 0. 0. 0:PortNo[3456]
Secondary DRS IP Address:0. 0. 0. 0:PortNo[3456]
Tertiary DRS IP Address:0. 0. 0. 0:PortNo[3456]
Quaternary DRS IP Address:0. 0. 0. 0:PortNo[3456]
```

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select “1”.

IP address and port number of the currently configured DRS will be displayed.

[Common configuration data]

```
MG(SIP)> show config
[2009-03-05 14:49:29]

[SP-3987:01.00.00.00]

0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit
Select a reference number:2
set signaling_port_no:
 Signaling Port Number        :61012
-------------------------------------------------
set registration_port_no:
```

Time when the configuration is acquired.

Software version information of MG-SIP96

MAC Data=MAC configuration data

DRSData=Configuration data of the Telephony Server

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select 2

Currently assigned config data will be displayed.

```
 Registration Port Number     :3456
-----------------------------------------------
set pre_negotiation_port_no:
 Pre-negotiation Port Number  :61014
-----------------------------------------------
set ipx_rtp_port_no:
 IPX side RTP port number     :51000
-----------------------------------------------
set sip_rtp_port_no:
 SIP side RTP port number     :50000
-----------------------------------------------
set h245_base_port_no:
 H245 base port number        :40000
-----------------------------------------------
Does it display more? Y/N=y




-----------------------------------------------
set drs_qos:
DRS QoS:0xa0                  :0xa0
 PRECEDENCE                   :5
 DELAY                        :0
 THROUGHPUT                   :0
 RELIABILITY                  :0
 COST                         :0
-----------------------------------------------
set rtp_qos:
```

After displaying about 20 lines of config data, you can select if you want to see more data or not.
To see the config data more, enter “y”. To exit this command, press “n”.

```
RTP QOS                         :0xa0
 PRECEDENCE                     :5
 DELAY                          :0
 THROUGHPUT                     :0
 RELIABILITY                    :0
 COST                           :0
-------------------------------------------------
Does it display more? Y/N=y
-------------------------------------------------
set sip_qos:
SIP QOS                         :0xa0
 PRECEDENCE                     :5
 DELAY                          :0
 THROUGHPUT                     :0
 RELIABILITY                    :0
 COST                           :0
-------------------------------------------------
set domain:
 Domain name                    :0
-------------------------------------------------
set dnsaddress:
 DNS IP address                 :0.0.0.0
-------------------------------------------------
```

```
set hc_alarm:
 H/C Alarm type          :IPX and SIP Side enable
```

H/C Alarm type display varies depending on the type that is assigned by the "set hc_alarm."

- When assigned the Telephony Server network side and SIP network side: "IPX and SIP side enable"
- When assigned the Telephony Server network side: "IPX side enable"
- When assigned SIP network side: "SIP side enable"
- When assigned not to send: "Disable"

```
-------------------------------------------------
set hc_timer:
 H/C Timer value               :240sec
-------------------------------------------------
set musictype:
 Music Type                    :Type1
```

Display (Type1/Type2/Type3/ Type4) depends on which type you set.

```
-------------------------------------------------
set call_hold:
 Call Hold function            :enable
 RTP detect timer value        :3sec
 Response code to reject       :488
```

Note 19

Displays the current setting of MG Based Call Retention. When "disable" is selected by a SET command "call_hold", "disable" is displayed, but "RTP detect timer value" and "Response code to reject" are not displayed.

```
-------------------------------------------------
set country_code :
 Country Code                  : 1 (JP)
```

Displays the current setting of Country Code.

```
-----------------------------------------------
set name_display :
 Name Display                 : enable
-----------------------------------------------
set ip_version :
 IP Version                   : IPv4
```

Displays the current setting of Name Display service.

Displays the current setting of the IP version. **Note 19**

[Port configuration data]

```
MG(SIP)> show config
[2009-03-05 14:49:29]

[SP-3987:01.00.00.00]

0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit
Select a reference number:3
Using all port

Ether[1]
 IP address:172.16.253.200
 Subnet    :255.255.255.0
 Interface :Speed/Duplex=Auto/Auto
 Port type :IPX Side Port
```

Time when the configuration is acquired.

Software version information of MG-SIP96

MAC Data=MAC configuration data

DRSData=Configuration data of the Telephony Server

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select “3”.

Data that is set to each port number is displayed.

```
Ether[2]
 IP address:192.168.35.200
 Subnet    :255.255.255.0
 Interface :Speed/Duplex=Auto/Auto
 Port type :SIP Side Port
```

Displays the current setting of the Ether[2] information.
When IPv6 (=1) is selected by "set ip_version" command, this IP address will be shown in IPv6 address format. **Note 19**

[SIP configuration data]

```
MG(SIP)> show config
[2009-03-05 14:49:29]

[SP-3987:01.00.00.00]

0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit
Select a reference number:4
set sip_server:

Server type                        :IP Address
```

Time when the configuration is acquired.

Software version information of MG-SIP96

MAC Data=MAC configuration data

DRSData=DRS configuration data

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select "4".

Currently assigned common config data will be displayed.

```
Server IP Address                    :0.0.0.0
SIP server Port Number               :5060
SIP server Router type               :Strict
rport(RFC3581) function              :disable
Domain Name                          :0
-------------------------------------------------
set sip_register:
SIP register type                    :IP Address
SIP register IP Address              :0.0.0.0
SIP register Port Number             :5060
SIP register Expires time            :3600sec
-------------------------------------------------
set keynumber:
Keynumber                            :0
-------------------------------------------------
set auth:
User ID                              :0
Password                             :0
-------------------------------------------------
```

When FQDN is set by a SET command “sip_server”, “SIP server FQDN”, not “SIP server IP Address”, is displayed.

Displays the current setting of the Server IP Address.
When IPv6 (=1) is selected by “set ip_version” command, this IP address will be shown in IPv6 address format. **Note 19**

Note 19

Displays the current setting of the SIP register IP Address.
When IPv6 (=1) is selected by “set ip_version” command, this IP address will be shown in IPv6 address format. **Note 19**

```
Does it display more? Y/N=y

-------------------------------------------------
set privacy_pattern:
 Privacy pattern                    :DisplayName

-------------------------------------------------
set session_timer:
Session-timer                       :enable

Session-expires                     :180sec
Refresher                           :UAC
Invite Refresher                    :disable

Forced mode                         :disable

set prack:
Supported 100rel                    :enable
```

After displaying about 20 lines of config data, you can select if you want to see more data or not. To see the config data more, enter “y”. To exit this command, press “n”.

When “DisplayName” is selected by the SET command “privacy_pattern”, “DisplayName” is displayed. When RFC3325 Pattern (0) is selected, “RFC3323/3325 (0)” is displayed. When Pattern (1) is displayed, “RFC3323/3325 (1)” is displayed.

When “disable” is selected by the SET command “Session_timer”, “disable” is displayed. In this case, “Session-expires” and “Refresher” are not displayed.

When UAS is selected for Refresher, “UAS” is displayed.

When “enable” is selected for “Invite Refresher” by the SET command “session_timer”, “enable” is displayed.

When “enable” is selected for “Forced mode” by the SET command “session_timer”, “enable” is displayed.

When “disable” is selected by the SET command “prack”, “disable” is displayed.

```
Stop cyclical-send of 18x          :disable
```

"enable" may be displayed according to the setting.
When "set prack" is disabled, nothing is displayed.

```
------------------------------------------------
set cdn_pattern:
 Prior Called Party Number pattern:To[userinfo]
```

When "Request-URI[isub]" is selected by the SET command "cdn_pattern", "Request-URI[isub]" is displayed, and when "Request-URI[userinfo]" is selected, "Request-URI[userinfo]" is displayed, and "P-Called-Party-ID" is selected, "P-Called-Party-ID" is displayed.

```
------------------------------------------------
set sip_port_no:
 SIP Port Number                   :5060
------------------------------------------------
Does it display more? Y/N=y
------------------------------------------------
set 184ToPrivacy:
 184 to privacy pattern            :disable
```

When "Pattern 1" is selected by the SET command "184toprivacy", "Pattern 1" is displayed, and when "Pattern 2" is selected, "Pattern 2" is displayed.

```
------------------------------------------------
set slipresp:
 SIP server slip response code     :488
------------------------------------------------
set self_sip_domain:
```

```
 Self SIP Domain mode              :disable
```

When “enable” is selected by the SET command “self_sip_domain”, “enable” is selected as well as the set domain name.
Example) Self SIP Domain string: xxxxxxxx

```
------------------------------------------------
Does it display more? Y/N=y
------------------------------------------------
set dtmf_mode:
DTMF Mode                   :Negotiation(SIP/SDP)
```

When “In-Band” is the mode set by a SET command “dtmf_mode”, “IN-Band (G.711) is displayed, and when “Out-Band” is selected, “Out-Band (RFC2833)” is displayed.

```
DTMF Duration                     :120ms
DTMF Pause                        :100ms
Payload type                      :101
```

When DTMF Mode is In-Band, Payload type is not displayed.

```
------------------------------------------------
set 183rbt:
 RBT Addition (183w/oSDP)         :enable
```

When “disable” is selected by the SET command “183rbt”, “disable” is displayed.

```
------------------------------------------------
set rtp_pathon:
 Path-on 183 after 180            :disable
```

When “enable” is selected by the SET command “typ-pathon”, “enable is displayed.

```
------------------------------------------------
set another_keynumber:
Another Keynumber 1               :0
Another Keynumber 2               :0
Another Keynumber 3               :0
------------------------------------------------
```

```
Does it display more? Y/N=y
-------------------------------------------------
set multi_regist:
 Multi-registration mode          :disable
-------------------------------------------------
set sip_tel_service:
 SIP telephony service function   :disable
-------------------------------------------------
set reg_interval:
 REGISTER interval timer          :5min
-------------------------------------------------
set update:
 UPDATE method support function   :disable
-------------------------------------------------
set auth_header:
 Auth-Header Cache function       :enable
-------------------------------------------------
Does it display more? Y/N=y
-------------------------------------------------
set cause_table:
```

When “enable” is selected by SET command “multi-regist”, “enable” is displayed as well as the following:
Transmitting interval timer: 1sec
Standby timer value: 30sec
Contact Header type: Privacy or SIP-URI
When “disable” is set, nothing is displayed.

Note 20

When “enable” is selected by the SET command “update”, “enable” is displayed.

When “disable” is selected by the SET command “auth_header”, “disable” is displayed.

```
 Cause table                          :normal


-------------------------------------------------
set response_table:
 Response table                       :normal


-------------------------------------------------
set cpn_pattern:
 Prior Calling Party Number pattern:DisplayName


-------------------------------------------------
set cc_convert:
 Country Code convert                 :disable


-------------------------------------------------
set check_number:
 telephone-number check function      :disable


-------------------------------------------------
set out_of_area_code:
 Response code when out of area       :408(default)


-------------------------------------------------
set sdp_style:
```

When “alternate routing/Route Advance” is selected by the SET command “cause_table”, “alternate routing/Route Advance” is displayed.

When “revised_table” is selected by the SET command “response_table”, “revised_table” is displayed.

When “Userinfo” is selected by the SET command “cpn_pattern”, “Userinfo” is displayed, when “Anonymous” is selected, “Anonymous” is displayed, and when “P-Asserted-ID” is selected, “P-Asserted-ID” is displayed.

When “enable” is selected by the SET command “cc_convert”, “enable” is displayed.

When “enable” is selected by the SET command “check_number”, “enable” is displayed.

The number for a response code set by the SET command “out_of_area_code” is displayed.

```
 SDP style setting                :RFC4566


 G729 annexb=no                   :enable


-------------------------------------------------
set call_id_relay:
 Call-ID relay mode               :disable


-------------------------------------------------
set sip_accfilter:
 SIP Access Filter                :disable


-------------------------------------------------
set sip_transport:
 SIP transport protocol           :UDP


-------------------------------------------------
set dns_option:
 DNS type                      :Locating SIP
                                servers function
                                (RFC3263)
 DNS cache                     :enable
-------------------------------------------------
set codec_change:
 Codec Change function            :enable
 G711 Fax renegotiation           :enable


-------------------------------------------------
set no_media_code:
```

When “normal” is selected by the SET command “sdp_style”, “normal” is displayed.

When “disable” is selected by the SET command “sdp_style”, “disable” is displayed. **Note 19**

When “enable” is selected by the SET command “call_id_relay”, “enable” is displayed. **Note 19**

Note 19

When “enable” is selected by the SET command “sip_accfilter”, “enable” is displayed.

Note 19

When “TCP” is selected by the SET command “sip_transport”, “TCP” is displayed.

Note 19

Locating SIP servers function (RFC3263) data and DNS cache data are displayed.

Note 19

When “disable” is selected by the SET command “codec_change”, “disable” is displayed.

Note 19

```
 Response code(unsupported codec) :415


-------------------------------------------------
set ppi_to_pai:
 PAID transmission function       :enable


-------------------------------------------------
```

The number for a response code specified by “no_media_code” command is displayed.

Note 19

When “disable” is selected by the SET command “ppi_to_pai”, “disable” is displayed.

[Route information configuration data]

```
MG(SIP)> show config
[2009-03-05 14:49:29]

[SP-3987:01.00.00.00]

0=MAC Data

1=DRS Data

2=Common Config Data

3=Port Config Data

4=SIP Config Data

5=Route Config Data

9=Exit
Select a reference number : 5
Ether[1]

 Route type:Static
No|Gateway Address|Destination network/Prefix
-------------------------------------------------
1 |192.168.0.254 |172.16.0.0        /16
```

Time when the configuration is acquired.

Software version information of MG-SIP96

MAC Data=MAC configuration data

DRS Data=DRS configuration data

Common Config Data=Common configuration data

Port Config Data=Port configuration data

SIP Config Data=SIP configuration data

Route Config Data=Route information configuration data

End of show command

Select “5”.

Data currently configured to each port number will be displayed.

```
Ether[2]

 Route type:Static

No|Gateway Address|Destination network/Prefix
------------------------------------------------
1 |192.168.0.254  |0.0.0.0           /0
```

When IPv6 (=1) is selected by "set ip_version" command, Gateway Address and Destination network will be shown in IPv6 address format. **Note 19**

Note 19: Available for SP-3987 MGSIP PROG-B Issue 3 or later.

Note 20:

- When "SIP telephony service function" is enabled by the SET command "sip_tel_service", "enable" is displayed, as well as enablement/disablement of the following settings:
  Replaces function
  Hold [a=inactive] function
  Hold [put off hold] function
  REFER/NOTIFY function
  3PCC function
- For "3PCC function(codec)", the selected data by the SET command "sip_tel_service" is displayed.
- When "SIP telephony service function" is disabled by the SET command "sip_tel_service", the following is displayed:
  "SIP telephony service function: disable"
  Then nothing is displayed below "SIP telephony service function: disable".
- "3PCC function" and "3PCC function(codec)" are displayed only when 3PCC function is enabled by the SET command "sip_tel_service".
- Settings for Hold [put off hold] function, REFER/NOTIFY function, 3PCC function, 3PCC function(codec) are available for SP-3987 MGSIP PROG-B Issue 3 or later.
- The following is an example of display when "SIP telephony service function" is enabled by the SET command "sip_tel_service".

```
 SIP telephony service function   :enable
 Replaces function                :enable
 Hold [a=inactive] function       :enable
 Hold [put off hold] function     :enable
 REFER/NOTIFY function            :enable
 3PCC function                    :enable
 3PCC function(codec)             :PCMU
```

(3) interface

Displaying of Link and Display states of Ether

This command is used to show the link and setting states for Ether ports of MG-SIP96.

[Setting Example]

```
MG(SIP)> show interface
Using one-port only
Ether[1]  Link up
MAC Address  :00-00-00-00-00-00
IP Address   :10.1.0.1
Subnet mask  :255.255.255.0
Interface    :Speed/Duplex=Auto/Auto
```

The number of ports in use.

Link state

MAC address

IP address

Subnet mask

Operation speed and operation mode

(4) version

Displaying of version information

This command is used to display version information of MG-SIP96 functions (base system and firmware).

[Setting Example]

```
MG(SIP)> show version
Firmware Information  |SPNo    |Issue
----------------------+--------+--------------
Base System Version   |------- |Ver2.6.18 Fri Mar
6 16:45:44 JST 2009
SP-3987 MGSIP PROG-B  |SP-3987 |Ver01.00.00.00
```

Version information of the base system.

Software version information of MG-SIP96

(5) route

Displaying of Route table

This command is used to show the Route Table of MG-SIP96.

[Setting Example]

```
MG(SIP)> show route

Kernel IP routing table

                                    Note 21Note 22 Note 23 Note 24      Note 25Note 26  Note 27
Destination Gateway Genmask     Flags Metric Ref    Use  Iface MSS    Window irtt
172.16.0.0  *       255.255.0.0 U     0      0      0    eth1  0      0      0
192.0.0.0   *       255.0.0.0   U     0      0      0    eth0  0      0      0
```

Note:

- Actual values such as Destination or Genmask may differ from this sample.
- It may take time to display the route table information when DNS server IP address has been assigned. (“set dnsaddress”)
- Settings of “Flags”, “Metric”, Ref”, “Use”, “MSS”, “Window” and “irtt” do not affect the operation of MG-SIP96 directly.

Note 21: Flags: Indicates a route type. (“U” is usable, “H” is host, “G” is gateway.)

Note 22: Metric: Indicates route metric. (In the range of one to 9999.)

Note 23: Ref: Indicates the number that the route is referred.

Note 24: Use: Indicates the number that the route was actually used (routed).

Note 25: MSS: Indicates the Maximum Segment Size (MSS: Maximum data size of a TCP segment) at a route.

Note 26: Window: Indicates a window size of TCP.

Note 27: irtt: Indicates the initial round-trip time of TCP connections to each route. MG-SIP96 regards a TCP connection where no reply lasts for the round-trip time (1 to 12000) as no connection.

(6) status

Displaying status of ports and registration

This command is used to show status of ports and registration on MG-SIP96.

[Setting Example]

- If displaying port status

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:0

IPX Port link up(100Base-TX/Full)
SIP Port link up(100Base-TX/Full)
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 28

Note 28: The following describes display of port status.

Port type	Status of port to LAN	Status of port to SIP network
1000M/Full	IPX port link up (1000Base-T/Full)	SIP port link up (1000Base-T/Full)
100M/Half	IPX port link up (100Base-TX/Half)	SIP port link up (100Base-TX/Half)
100M/Full	IPX port link up (100Base-TX/Full)	SIP port link up (100Base-TX/Full)
10M/Half	IPX port link up (10Base-T/Half)	SIP port link up (10Base-T/Half)
10M/Full	IPX port link up (10Base-T/Full)	SIP port link up (10Base-T/Full)
Link Down	IPX port link down	SIP port link down

- If displaying status of registration to LAN (Telephony Server side)

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:1

IPX Registration Information
Registration is OK. (DRS IP address
192.168.0.1)
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 29

Note 29: Display changes depending on the registration status:
When MG-SIP96 is trying to register: Now Registrating.
After MG-SIP96 successfully registered: Registration is OK. (DRS IP address 192.168.0.1)
(The IP address succeeding in registration appears as well.)

- If displaying status of registration to SIP network (when the registration function per number is disabled)

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:2

SIP Registration Information
Registration is OK.
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 30

Note 30: Display changes depending on the registration status:
When MG-SIP96 is trying to register: Now Registrating.
After MG-SIP96 successfully registered: Registration is OK.
After MG-SIP96 fails to register: Registration is NG. Waiting Re-Registration timer.
(MG-SIP96 is trying to register again)
When registration is disabled: Register Server Configuration data is not set.
(No setting data of “set sip_register” command)

- If displaying status of registration to SIP network (when the registration function per number is enabled)

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit

Select a reference number:2

SIP Registration Information

------Registration NG RegIndex------


[MG-No:1]

9 10 11 12 13 14 15

[MG-No:2]
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 31

Information on CNTs (RegIndex) failing in registration

MG-No: 1

CNTs failing in registration

MG-No: 2

```
[MG-No:3]
[MG-No:4]
------Registration OK RegIndex------

[MG-No:1]
1 2 3 4 5 6 7 8
[MG-No:2]
[MG-No:3]
[MG-No:4]
-----------------------------------
```

MG-No: 3

MG-No: 4

Information on CNTs (RegIndex) succeeding in registration

MG-No: 1

CNTs succeeding in registration

MG-No: 2

MG-No: 3

MG-No: 4

Note 31: The example above shows a total of 16 CNTs tried registration, and eight (9 to 16) of them failed. (Use the ASRIL command to set MG-Nos and a pilot number. CNT is a parameter set with the ASRIL command)

- If displaying information on channels in use

```
MG(SIP)> show status
0:Port status
1:IPX status
2:SIP status
3:CH Status
9:Exit
Select a reference number:3
---------------------------------------
|  |    0|   1|  2|  3|  4|  5|  6|  7|
---------------------------------------
|0 |ACT(S)| --| --| --| --| --| --| --|

|8 | --    | --| --| --| --| --| --| --|
|16| --    | --| --| --| --| --| --| --|
|24| --    | --| --|-- | --| --| --| --|
|32| --    | --| --| --| --| --| --| --|
|40| --    | --| --| --| --| --| --| --|
|48| --    | --| --| --| --| --| --| --|
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

"ACT(S)"appears for a channel in use; "-" appears for a channel not in use.

```
|56| --    | --| --| --| --| --| --| --|
|64| --    | --| --| --| --| --| --| --|
|72| --    | --| --| --| --| --| --| --|
|80| --    | --| --| --| --| --| --| --|
|88| --    | --| --| --| --| --| --| --|
---------------------------------------
|            |actch=1|                  |
---------------------------------------
Use Session Count=1
INVITE Client Transaction = 0, max=0

INVITE Server Transaction = 0,  max=0

Other Client Transaction = 0,  max=1

Other Server Transaction = 0,  max=1




MG(SIP)>
```

Number of channels in use

Number of sessions in use

Number of INVITE client transactions and their maximum number

Number of INVITE server transactions and their maximum number

Number of client transactions other than INVITE and their maximum number

Number of server transactions other than INVITE and their maximum number
(the maximum number represents the maximum number counting up to this time from when MG-SIP96 is turned on.)

download

This command is used to download MG-SIP96 program and Music/Tone file via Ether1 port (Ether port on the LAN side).

The following figure shows an example of a display.

[When downloading all programs]

```
MG(SIP) > download

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
```

Input “download” at the configuration mode.

```
Input:1
--- IP Address setting of MG(SIP) ---
Select Ether Port [1(Ether1)/2(Ether2)/
Q(quit)]:1
Current IP Address of MG(SIP):10.41.1.100
Do you change IP Address of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.100
Current Subnet mask of MG(SIP):255.0.0.0
Do you change Subnet mask of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new Subnet mask:255.255.0.0
--- IP Address setting of TFTP server ---
Current IP Address of TFTP server:10.41.1.250
Do you change IP Address of TFTP server?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.250
```

To download all programs, enter “1”.

Select a port to use.
(With the default setting, select Ether1. If selecting Ether2, using two ports must be set in the “set ipaddress” command.)

Note: When IPv6 function is in service, download is not available on Ether2. So “2(Ether2)” does not appear.

To change the IP address that is used for downloading, enter “y”.

Enter the IP address.

To change the subnet mask of the selected port, enter “y”.

Enter a subnet mask.

To change the IP address of a TFTP server, enter “y”.
(Default address: 10.41.1.250)

Enter an IP address.

```
IP Address change was completed.
New IP Address of MG(SIP):172.16.253.100
New Subnet mask of MG(SIP):255.255.0.0
New IP Address of TFTP server:172.16.253.250
Are these IP Address correct? [Y(correct)/
N(change)/Q(quit)]
If you enter Y, MG(SIP) ONLINE service will be
stop:y
mgsipmwlist.txt download...
tftpDownload:User file TFTP start.
Received.
SP3987/MAIN/main.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
SP3987/TONE/tone.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
SP3987/MUSIC/music.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
Download was completed!
Please reboot after a download menu end.

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
```

When the specified IP addresses are correct, enter ‘y’.

```
Input:q


MG(SIP) >
```

When download is complete, the menu appears again.
Enter ‘q’ to exit download command.

[When downloading one program]

```
MG(SIP) > download

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:2
--- IP Address setting of MG(SIP) ---
Select Ether Port [1(Ether1)/2(Ether2)/
Q(quit)]:1



Current IP Address of MG(SIP):10.41.1.100
Do you change IP Address of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.100
Current Subnet mask of MG(SIP):255.0.0.0
Do you change Subnet mask of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new Subnet mask:255.255.0.0


--- IP Address setting of TFTP server ---
```

Enter “download” in configuration mode.

To download one program, enter “2”.

Select a port to use.
(With the default setting, select Ether1. If selecting Ether2, using two ports must be set in the “set ipaddress” command.)

To change the IP address that is used for downloading, enter “y”.

Enter the IP address.

To change the subnet mask of the selected port, enter “y”.

Enter a subnet mask.

```
Current IP Address of TFTP server:10.41.1.250


Do you change IP Address of TFTP server?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.250
IP Address change was completed.
New IP Address of MG(SIP):172.16.253.100
New Subnet mask of MG(SIP):255.255.0.0
New IP Address of TFTP server:172.16.253.250
Are these IP Address correct? [Y(correct)/
N(change)/Q(quit)]
If you enter Y, MG(SIP) ONLINE service will be
stop:y
mgsipmwlist.txt download...
tftpDownload:User file TFTP start.
Received.


--- Program download ---
Main program:0
tone data:1
music data:2
wave file:3
config data:4
Quit:[Q/q]
Input:0
SP3987/MAIN/main.tar.gz download...
tftpDownload:User file TFTP start.
Received.
Checksum matched!
```

To change the TFTP server IP address, enter “y”.
(Default address: 10.41.1.250)

Enter the IP address.

When the specified IP addresses are correct, enter ‘y’.

Select a file you want to download.

Download starts.

```
Download was completed!


--- Program download ---
Main program:0
tone data:1
music data:2
wave file:3
config data:4
Quit:[Q/q]
Input:q


Please reboot after a download menu end.


--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:q


MG(SIP) >
```

When download is complete, the program download menu appears again. Enter ‘q’ to exit download command.

How to download a WAVE file

If you select Type3 (WAVE file) for the music type of "set musictype" command, you can use any WAVE file for music on hold. Note that the payload type of the RTP header sent by MG-SIP96 must be G.711.

The following explains how to download a WAVE file.

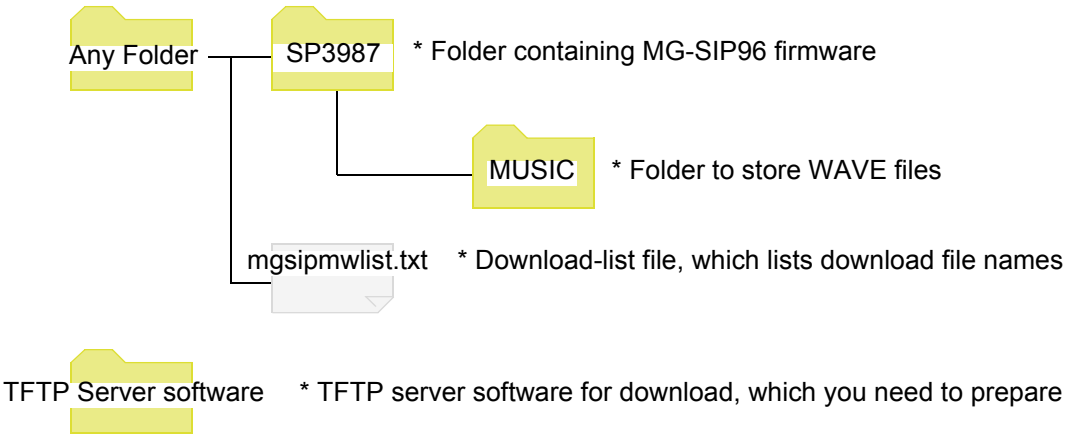
- Place the firmware of MG-SIP96 in a folder on a TFTP server. If the firmware is not present, create a folder with the name of the MG-SIP96 firmware ("SP3987") in a folder on the server, and then create a subfolder named "MUSIC" to store WAVE files.
- Place a WAVE file in the MUSIC folder (a subfolder of the above-mentioned firmware folder).
- Form the download-list file (mgsipmwlist.txt) in a folder as shown below.

[Example]

```
# This is Firmware list for SN8165
00,SP3987/MUSIC/music_3.wav,0
```

Note: When adding WAVE files to the download-list (mgsipmwlist.txt), assign sequential numbers (such as 00, 01, 02,...) to all files as shown in the red frame in the image above.

File Structure



About WAVE file format

A WAVE file must meet the following specifications as its format:

- Sampling Frequency: 8kHz
- Quantifying Bit Number:8 bit
- Quantifying Format: G.711 μ-law/A-law
- Channel: Monaural
- Capacity: Only a single WAVE file with about 1Mbyte (about 120 seconds)
  * Note that the actual capacity may be smaller because the capacity of 1Mbyte includes the management area of the file system.

[Display example of downloading a WAVE file (music_3.wav) individually].

```
MG(SIP) > download

--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:2

--- IP Address setting of MG(SIP) ---
Select Ether Port [1(Ether1)/2(Ether2)/
Q(quit)]:1



Current IP Address of MG(SIP):10.41.1.100
Do you change IP Address of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.100
Current Subnet mask of MG(SIP):255.0.0.0
Do you change Subnet mask of MG(SIP)?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
```

Enter “download” in configuration mode.

Enter “2” to download a program individually.

Select a port to use.
(With the default setting, select Ether1. If selecting Ether2, using two ports must be set in the “set ipaddress” command.)

To change the IP address of the selected port, enter “y”.

Enter an IP address.

To change the subnet mask of the selected port, enter “y”.

```
Input new Subnet mask:255.255.0.0


--- IP Address setting of TFTP server ---
Current IP Address of TFTP server:10.41.1.250


Do you change IP Address of TFTP server?
[Y(change)/N(current)/Q(quit)]:y
If you want to return to the previous step,
please input 'Q'.
Input new IP Address:172.16.253.250
IP Address change was completed.
New IP Address of MG(SIP):172.16.253.100
New Subnet mask of MG(SIP):255.255.0.0
New IP Address of TFTP server:172.16.253.250
Are these IP Address correct? [Y(correct)/
N(change)/Q(quit)]
If you enter Y, MG(SIP) ONLINE service will be
stop:y
mgsipmwlist.txt download...
tftpDownload:User file TFTP start.
Received.


--- Program download ---
Main program:0
tone data:1
music data:2
wave file:3
config data:4
Quit:[Q/q]
Input:3
SP3987/MUSIC/music_3.wav download...
```

Enter a subnet mask.

To change the TFTP server IP address, enter “y”.
(Default address: 10.41.1.250)

Enter an IP address.

Enter “y” after confirming the entered IP address.

Select “3” representing wave file.

Download starts.

```
tftpDownload:User file TFTP start.
Received.
Checksum No Check. Checksum of SP3987/MUSIC/
music_3.wav is 23915.
Download was completed!


--- Program download ---
Main program:0
tone data:1
music data:2
wave file:3
config data:4
Quit:[Q/q]
Input:q

Please reboot after a download menu end.


--- Download menu ---
Download of all programs. (default) ---
input:1
Download of one program. --- input:2
Quit --- [Q/q]
Input:q


MG(SIP) >
```

After the download is finished, download menu is restored.

Enter “download” in configuration mode.

Note:

- Be sure to check the product name of the firmware to download before downloading.
- After downloading, initialize the MG-SIP96.
- Make sure of the following to set an IP address for download.
  1.A port to download files needs to have a different network address (or segment) from the other ports.
  2.Do not use a network address set as a static route in the routing table.

- If checksum error occurs during download, an error message similar to the following is displayed.
  Checksum unmatched!
  Checksum of SP3987/MAIN/main.tar.gz is 1234. Not 5678.
  Download failed!
  If an error message is displayed, the display goes back to the download menu. In this case, execute download again.
- If download fails, an error message and an error code are displayed.
  Error code: Cause of error
  Download failed!

The following lists causes and solutions of error codes.

Error Code	Error Display	Cause of Error	Troubleshooting
0	Undefined error	No specified folder (MAIN, TONE, MUSIC) in the TFTP server	Check the name of the TFTP server's folder to download files.
1	File not found	No download-list file	Check the folder setting of the download-list file in the TFTP server.
		Error in specifying the download-list file	Check the contents of the download-list file and the file name of the actually-downloaded file.
2	Access violation	No access permission	Check the TFTP server settings.

Some errors in downloading can be classified into none of the error codes; they are listed below: display, causes, solutions.

Error Display	Cause of Error	Troubleshooting
Hardware type ERROR! allDLoad: ListDLoad Error Download failed!	Hardware type discrepancy (for SN8165)	Check if the downloaded file is compatible with the hardware type (for SN8165).
Checksum unmatched! Checksum of SP3987/MAIN/main.tar.gz is 1234. Not 5678. Download failed!	Checksum discrepancy	Check if the contents of the download-list file correspond to the actually-downloaded file.
Download list unmatched! Download failed!	Request to download a file not written in the download-list file (individual download)	Check if the contents of the download-list file correspond to the actually-downloaded file. Download only files set in the download-list file.
ListDLoad: Sub directory error =[subfolder name] ListDLoad: Download file is not found Download failed!	Incorrect name of the subfolder of the download-list file (only MAIN, TONE, MUSIC, and CONFIG are allowed)	Check the name of the subfolder of the download-list file.

Error Display	Cause of Error	Troubleshooting
ListDLoad: DataKind = [number] (0-255) is too large	Out of running numbers (0-255)	Check the contents of the download-list file.
ListDLoad: Comment strings too long =[comment strings]	Bad length of comment strings in the download-list file	Check if the download-list file is proper.
ListDLoad: Download file name is too long(91) =[download file name]	Bad length of the downloaded file name (representing 92 characters or more when including the subfolder)	Check if the download-list file is proper.
Transfer timed out. Download failed!	Specifying non-existing IP address	Check the IP address of the TFTP server.
	Specifying incorrect IP address	
	Enabled Windows firewall	Disable Windows firewall.
	Disconnected LAN cable	Make sure of no network problems including disconnection of a LAN cable.
	Inactivated TFTP server	Make sure that the TFTP server is activated.

Other Commands

1. exit

2. logout

[Function]

To exit the configuration command menu.

[Setting Example]

```
MG(SIP)> exit

login:
```

Note: After changing the configuration, if you execute this command without saving the running configuration, the system discards the change and exits the configuration command menu.

3. reboot

[Function]

To reboot MG-SIP96. It is also possible to save the running configuration data to the flash memory.

[Setting Example]

```
MG(SIP)> reboot
  Do you want to save Config data? Y/N=y

  Do you want to reboot MG(SIP)? Y/N=y

Config data flash write start.
Config data flash write end.
MG(SIP)reboot start...
```

Select if you want to save the running configuration data.
y: Saves the configuration data. **Note 32 Note 33**
n: Do not save the configuration data.
If other than the above is selected, the following message is displayed.
Reboot command was interrupted.

Select if you want to reboot MG-SIP96.
y: Reboots MG-SIP96. **Note 33**
n: Do not reboot MG-SIP96.
If other than the above is selected, the following message is displayed.
Reboot command was interrupted.

Note 32: Before selecting "Y" to save the running configuration data to the Flash memory, be sure to execute the following commands:
- "set ipaddress": Assigns the IP addresses on LAN side, and SIP side.
- "set drsaddress": Assigns the IP address of DRS.
- "set sip_server": Assigns the IP address of SIP proxy server.
- "set keynumber": Assigns a pilot number.

If any of these items have not been assigned when saving the running configuration data, the following message will be displayed to the unassigned item. When these messages are displayed, you can select if you want to set the default configuration data. If you select "Y" here, the default values are applied to the configuration data.

Note 33: The configuration data is not saved until MG-SIP96 is rebooted.

```
The following setting commands are not
perfect.
"set ipaddress" command.(IPX side)
"set ipaddress" command.(SIP side)

"set drsaddress" command.
```

If IP address for LAN side has not been assigned.

If IP address for SIP network side has not been assigned.

If IP address of DRS has not been assigned.

```
"set sip_server" command.

"set keynumber" command.
So, Config data is made a default
setup.
Is it all right? Y/N=y
```

If IP address of SIP proxy server has not been assigned.

If a pilot number has not been assigned.

You can select if you want to apply the default values to the configuration data.
y: apply default value
n: do not apply default value
If other than the above is selected, the following message is displayed.
Reboot command was interrupted.

4. ping

[Function]

To attempt "ping" command five times to the designated IPv4 host on the network.

[Setting Example]

```
MG(SIP)> ping 172.16.253.3



PING 172.16.253.3 (172.16.253.3) 56(84) bytes of data.
64 bytes from 172.16.253.3: icmp_seq=1 ttl=128
time=0.599 ms
64 bytes from 172.16.253.3: icmp_seq=2 ttl=128 time=1.02
ms
64 bytes from 172.16.253.3: icmp_seq=3 ttl=128
time=0.443 ms
64 bytes from 172.16.253.3: icmp_seq=4 ttl=128
time=0.304 ms
64 bytes from 172.16.253.3: icmp_seq=5 ttl=128
time=0.727 ms
---172.16.253.3 ping statistics---
5 packets transmitted, 5 received, 0% packet loss, time
3997ms
rtt min/avg/max/mdev = 0.304/0.618/1.020/0.247 ms
MG(SIP)>
```

Enter "ping" command and designate the target IPv4 address.

Note: The number of ping attempts (5 times) and packet size (56 bytes) cannot be changed.

5. ping6

[Function]

To attempt “ping” command five times to the designated IPv6 host on the network.

[Setting Example]

```
MG(SIP)> ping6 2001:db8:1:0:216:97ff:fee7:a8c0



PING 2001:db8:1:0:216:97ff:fee7:a8c0
(2001:db8:1:0:216:97ff:fee7:a8c0) from
2001:db8:1:0:216:97ff:fee7:a8c0 eth1: 56 data bytes

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=1 ttl=64 time=0.015 ms

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=2 ttl=64 time=0.011 ms

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=3 ttl=64 time=0.010 ms

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=4 ttl=64 time=0.013 ms

64 bytes from 2001:db8:1:0:216:97ff:fee7:a8c0:
icmp_seq=5 ttl=64 time=0.011 ms

--- 2001:db8:1:0:216:97ff:fee7:a8c0 ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time
3997ms

rtt min/avg/max/mdev = 0.010/0.012/0.015/0.002 ms

MG(SIP)>
```

Enter “ping6” command and designate the target IPv6 address.

Note:

- This command is available for SP-3987 MGSIP PROG-B Issue 3 or later.
- The number of ping attempts (5 times) and packet size (56 bytes) cannot be changed.

6. traceroute

[Function]

To inquire network routes. The following figures show display examples.

[On the Telephony Server Side]

```
MG(SIP)> traceroute
  Interface number(0:IPX side/1:SIP side):0




  Target IP Address:172.16.253.3
  traceroute to 172.16.253.3 (172.16.253.3), 3
  hops max, 38 byte packets
1 172.16.253.3 (172.16.253.3) 0.047 ms 0.028
ms 0.010 ms
MG(SIP)>
```

Select if this is on the Telephony Server side or SIP side.
0: Telephony Server side
1: SIP side
"0" is selected.

Designate the IP address of the target.

[SIP Side]

```
MG(SIP)> traceroute
  Interface number(0:IPX side/1:SIP side):1




  Target IP Address:172.17.253.210

  traceroute to 172.17.253.210
  (172.17.253.210), 3 hops max, 38 byte
  packets
1 172.17.253.210 (172.17.253.210) 0.047 ms
0.028 ms 0.010 ms
MG(SIP)>
```

Select if this is on the Telephony Server side or SIP side.
0: Telephony Server side
1: SIP side
"1" is selected.

Designate the IP address of the target.
Note 34

Note: When the response from the network is delayed, it takes time to complete the command.

Note 34: When "IPv6" is selected by "set ip_version", input an IPv6 address for Target IP Address. When "IPv4" is selected by "set ip_version", input an IPv4 address for Target IP Address.

7. help or ?

[Function]

This command is used to show the brief explanation of the configuration commands that are available on MG-SIP96.

[Setting Example]

```
MG(SIP)> help
set       :sets config data of MG(SIP).
show      :shows config data of MG(SIP).
download  :downloads program of MG(SIP).
ping      :Ping command.
traceroute:Traceroute command.
exit      :log-out command of config mode.
logout    :log-out command of config mode.
reboot    :reboots MG(SIP).
help      :shows help information.
?         :shows help information.
```

5.4 Error Messages

When an error occurs while using a configuration command, an error message prompting for re-registration is displayed.

ERROR MESSAGE	TROUBLESHOOTING
Illegal command.	An incorrect command is entered. Enter the command correctly.
Illegal parameters.	An incorrect parameter is entered. Enter the parameter correctly.
Illegal parameters. (Not IPv6 address)	An incorrect parameter is entered. Enter the IPv6 parameter correctly. (Available since SP-3987 MGSIP PROG-B Issue 3)
Illegal parameters. (Not IPv4 address)	An incorrect parameter is entered. Enter the IPv4 parameter correctly. (Available since SP-3987 MGSIP PROG-B Issue 3)

Refer to each command for the other error messages.

MG-SIP16 [SCA-16SIPMGA/MG-16SIPMGA]

1 What is MG-SIP16?

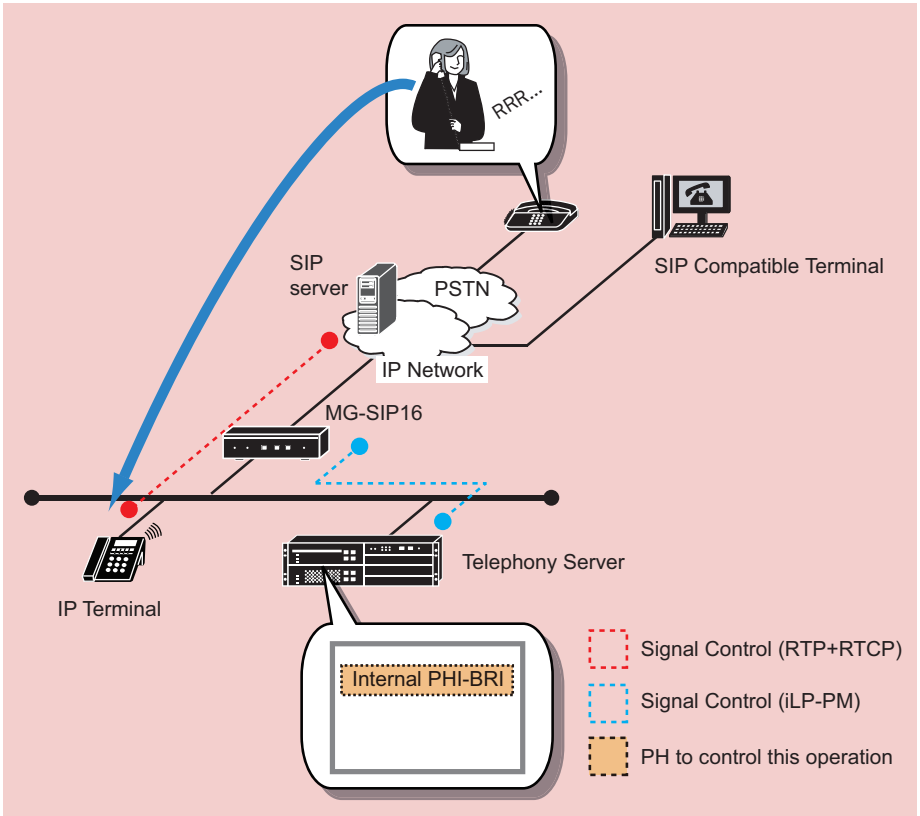
MG-SIP16 [SCA-16SIPMGA/MG-16SIPMGA] is an Media Gateway to provide the system with Session Initiation Protocol (SIP) interface. It enables the system to build multi-service and reliable Voice over IP (VoIP) networks using SIP defined by IETF. SIP is an application-layer control protocol that can initiate call setup, routing, authentication and transferring other feature messages to endpoints.

Up to 16 channels of extensions in the network can communicate to the outside SIP network via an MG-SIP16 at the same time. As MG-SIP16 complies with small and middle sized remote offices flexibly, more offices can profit Peer-to-Peer VoIP services using IP telephone.

Equivalent to 96-channel type of MG-SIP, MG-SIP16 supports the SIP standard terminals based on RFC3261. Thereby, MG-SIP16 controlled by Internal PHI-BRI (**Note 1**) of the Telephony Server provides a full array of the call routing capabilities to maximize network performance in the packet voice network (SIP network). MG-SIP16 provides the system with a flexible and cost-efficient network environment without wasting the accumulated assets of the Telephony Server services.

SCA-16SIPMGA is MG-SIP16 for card type and MG-16SIPMGA is for box type.

Note 1: Internal PHI-BRI is installed in the Telephony Server to control the signaling between the Telephony Server and MG-SIP via external Ethernet of the Telephony Server.



Note: Connection test with common carrier is required.

Note: The following table shows the number of available channels of MG-SIP16.

	10ms	20ms	30ms	40ms	60ms
G.711	-	16ch	16ch	16ch	-
G.729a	-	16ch	16ch	16ch	-
G.723.1	-	-	-	-	-

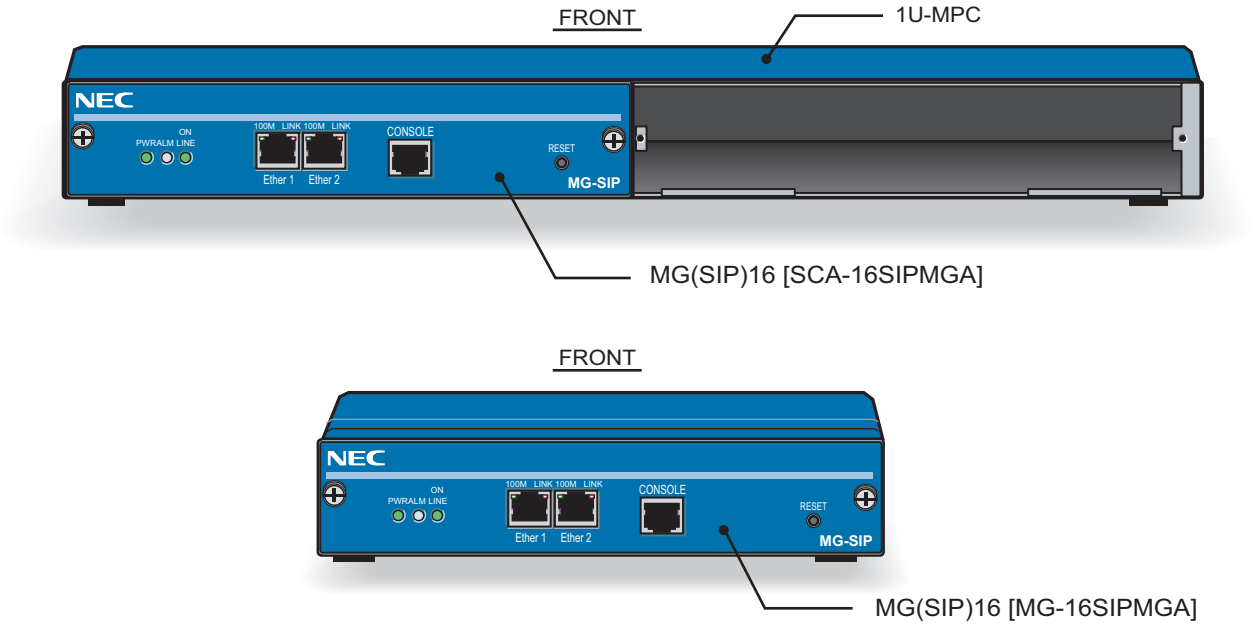
2 Specifications

2.1 Hardware Specifications

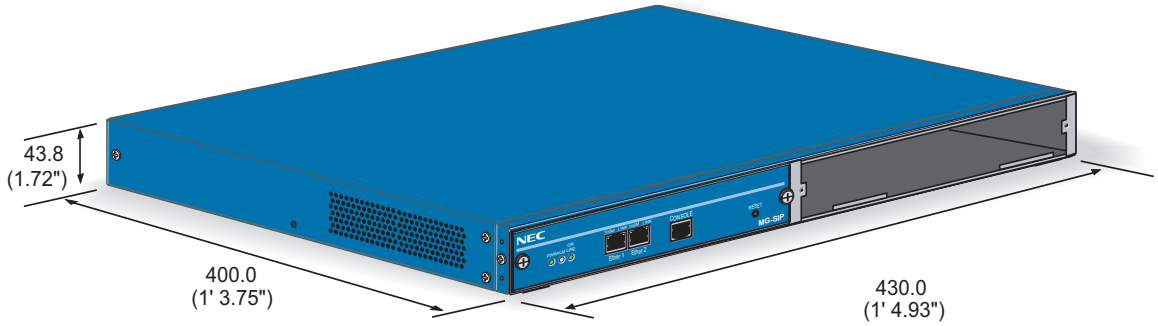
This subsection explains the hardware specifications of SCA-16SIPMGA and MG-16SIPMGA. The figure below shows the outer view of MG-SIP16 [SCA-16SIPMGA] and MG-SIP16 [MG-16SIPMGA].

- Outerview

The following shows the outerview of MG-SIP16.

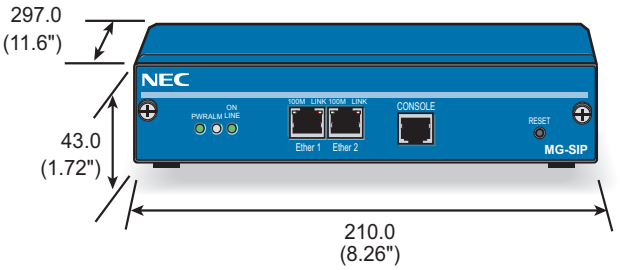


- Dimension



MG-16SIPMGA

Unit : mm (inch)



ITEM	SPECIFICATION	REMARKS
External interface	RJ-45 Serial connector × 1	for maintenance
	RJ-45 Ether connector (100BASE-TX/10BASE-T) × 2	Port for connecting to LAN × 1 Port for connecting to SIP network × 1
Setting	Desktop horizontal setting (standard setting)	without any fastening hardware
	19-inch rack mount	SV70 RACK MTG is used
Input power supply	100 VAC (50/60 Hz) ± 10% 120 VAC (50/60 Hz) ± 10% 230 VAC (50/60 Hz) ± 10% 240 VAC (50/60 Hz) ± 10%	
Electric power consumption	15 W / 30 VA	
Weight	1.8 kg	

ITEM	SPECIFICATION		REMARKS
Environmental requirement	Operational Temperature Range	0°C to 40°C (32°F to 104°F)	
	Operational Humidity Range	20% to 90% (not condensing)	
Cooling	Air-cooling without FANs		

2.2 Software Specifications

The available features are in the following:

ITEM	SPECIFICATION	REMARKS
LAN interface	10Mbps/100Mbps Ethernet	
Communication speed	10Mbps/100Mbps auto negotiation, Half/Full duplex	
Protocol	RFC3261 (SIP)	Only UDP is supported
SIP server conditions	SIP Proxy Server	
Channel capability	Maximum 16 channels/MG-SIP16	
Voice CODEC	G.711, G.729a	
FAX relay	Data transmission as voice data (G.711)	
DTMF	H.245 Alphanumeric (LAN side) RFC2833 (SIP network side) Data transmission as voice data (G.711)	
Address translation	IP masquerade (NAPT)	
Caller ID notification	Direct-in number, Pilot number	
Download	Firmware download	
Holding tone	Internal Music 1: Minuet Internal Music 2: For Elise	
Maintenance	Maintenance console (PC) via serial connection	Telnet remote maintenance is not supported

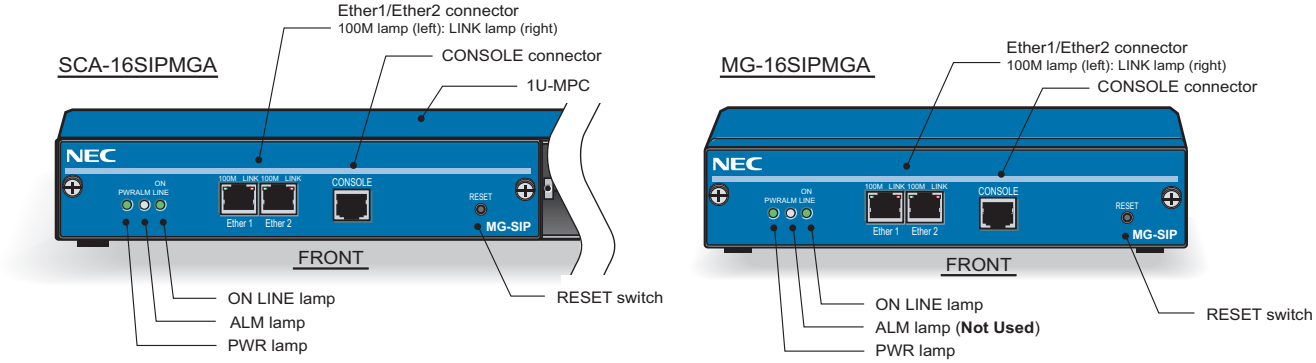
Note: Additional services (such as REFER) on the SIP procedure are not provided in this system.

Note: Tone and holding tone to SIP network are generated by MG-SIP. When MGC(Internal PHI-BRI) external holding tone is selected by ASYDL command, the information is provided by the Telephony Server (via IPPAD).

2.3 Switches, Lamps, and Connectors

- Front

See the figure and table below for the location and description of the parts on the front panel.



Description of Lamps and Connectors on Front Panel

NAME		COLOR	DESCRIPTION	REMARKS
PWR Lamp		Green	Power ON	
		OFF	Power OFF	
ALM Lamp		Red	Lights when power failure occurs.	Note 1
		OFF	Normal operation	
ON LINE Lamp		Green	Lights when registration is established.	
			Flashes in abnormal state during initialization.	Note 2
		OFF	Remains OFF when the initial setting is incomplete.	
Ether connector	Ether1	Ether interface for LAN		
	Ether2	Ether interface for WAN (SIP network side)		
100M lamp (Ether1/2)		Green	Transmission speed is 100 Mbps.	
		OFF	Transmission speed is 10 Mbps.	
LINK lamp (Ether1/2)		Green	Lights when Layer 1 link is established.	
			Flashes during IP packets are being sent/received.	
		OFF	Remains OFF when Layer 1 link is not established.	
CONSOLE		Interface for connecting an external maintenance console (PC) with RS-232C cable.		For maintenance

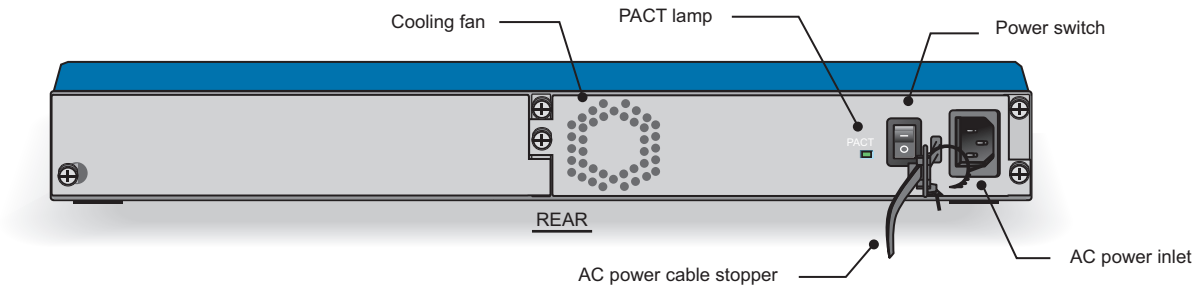
Note 1: ALM Lamp is used for SCA-16SIPMGA only.

Note 2: If ON LINE lamp flashes, it is considered that MAIN program/TONE data/MUSIC data has not been found.

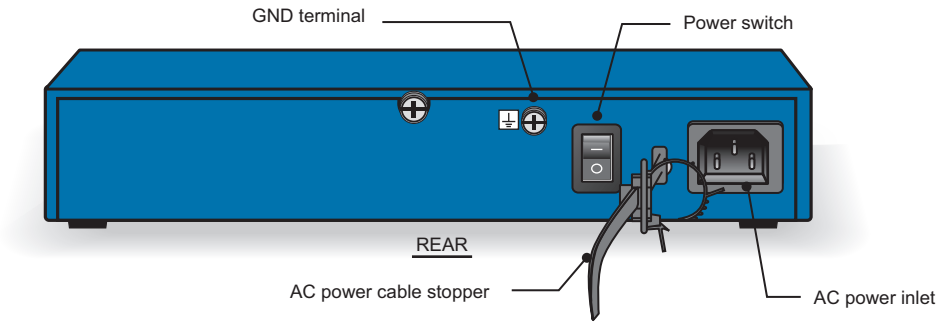
- Rear

  See the figure and table below for the location and description of the parts on the rear panel of MG-SIP16.

SCA-16SIPMGA



MG-16SIPMGA



Description of Switches and Connectors on Rear Panel

NAME	DESCRIPTION	REMARKS
AC power inlet	Plug in an attached three-polar grounded AC power cable for main power supply (Cable Length: 3 m [9.8 ft.])	
POWER switch	Power is supplied to MG-SIP16 (Up: ON, Down: OFF)	**Note 3**
PACT lamp	Indicates the state of the power unit.	**Note 4**

Note 3: When turning off the power supply, wait for more than one second to turn on the power switch again.

Note 4: This lamp is equipped with SCA-16SIPMGA only.

3 Installation

This section explains how to install the MG-SIP16. Be sure to use anti-static kit.

3.1 Installation of MG-SIP16

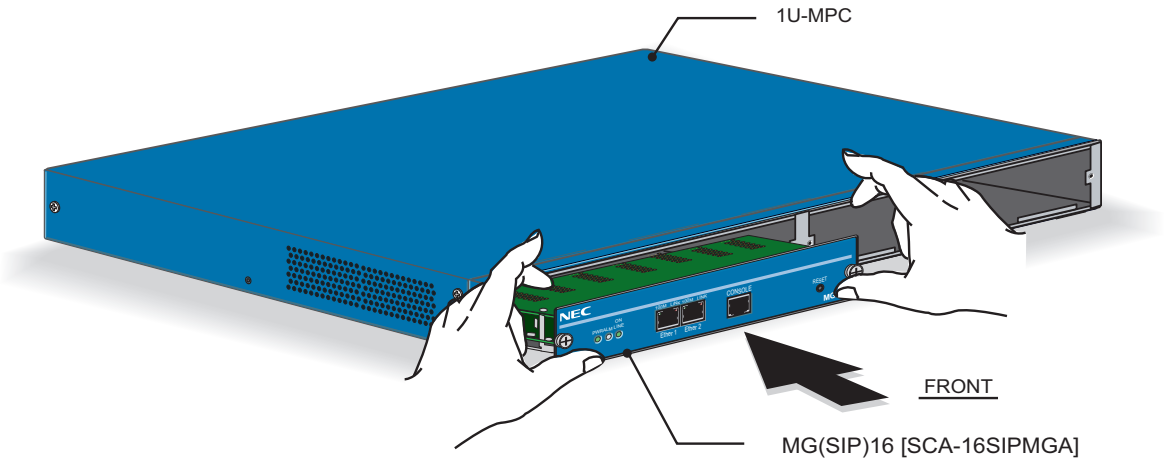
Installation location should be easily accessible to the following:

- WAN (SIP network)/LAN
- Power supply
- a PC that runs communication software such as HyperTerminal
- grounding (less than 10 Ω)

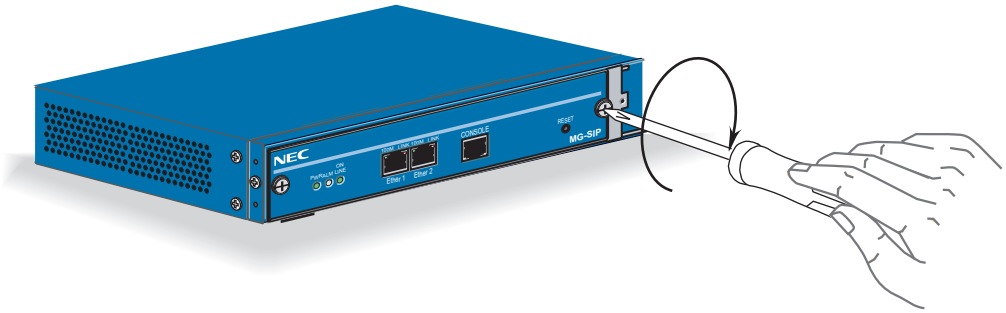
MG-SIP Card [SCA-16SIPMGA]

STEP 1: Use the anti-static kit.

STEP 2: Insert MG-SIP16 Card into the 1U-MPC module as shown in the figure below, which shows an example where the card is installed into left side of the 1U-MPC.

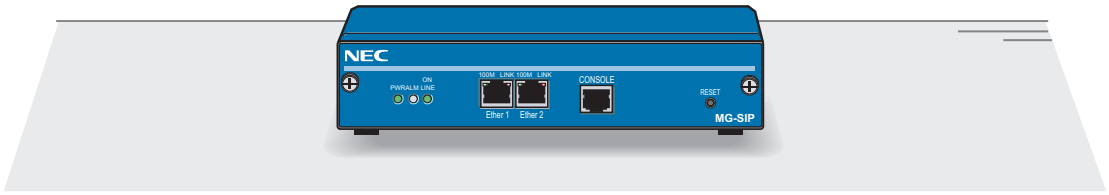


STEP 3: Secure the inserted card onto the unit firmly using the two screws.



MG-SIP Box [MG-16SIPMGA]

Install the unit on a flat and stable surface.



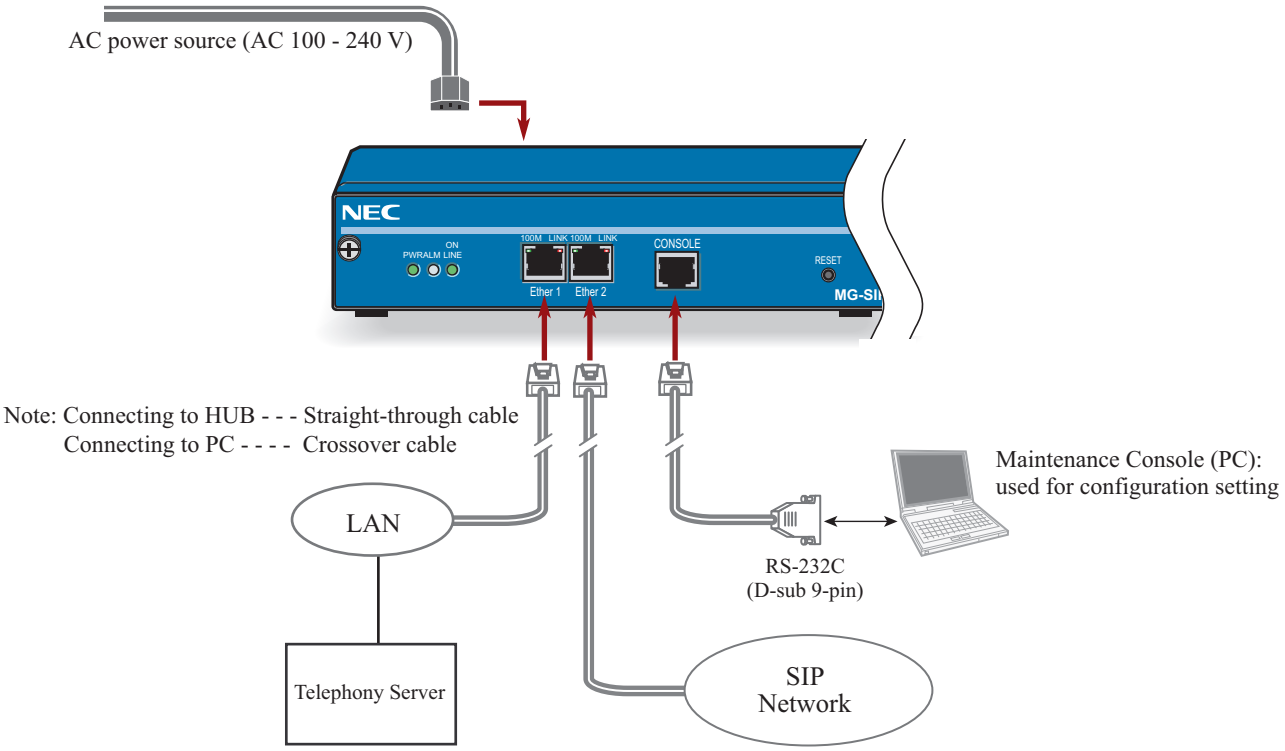
FRONT

3.2 Cable Connection

MG-SIP16 provides the following types of interfaces:

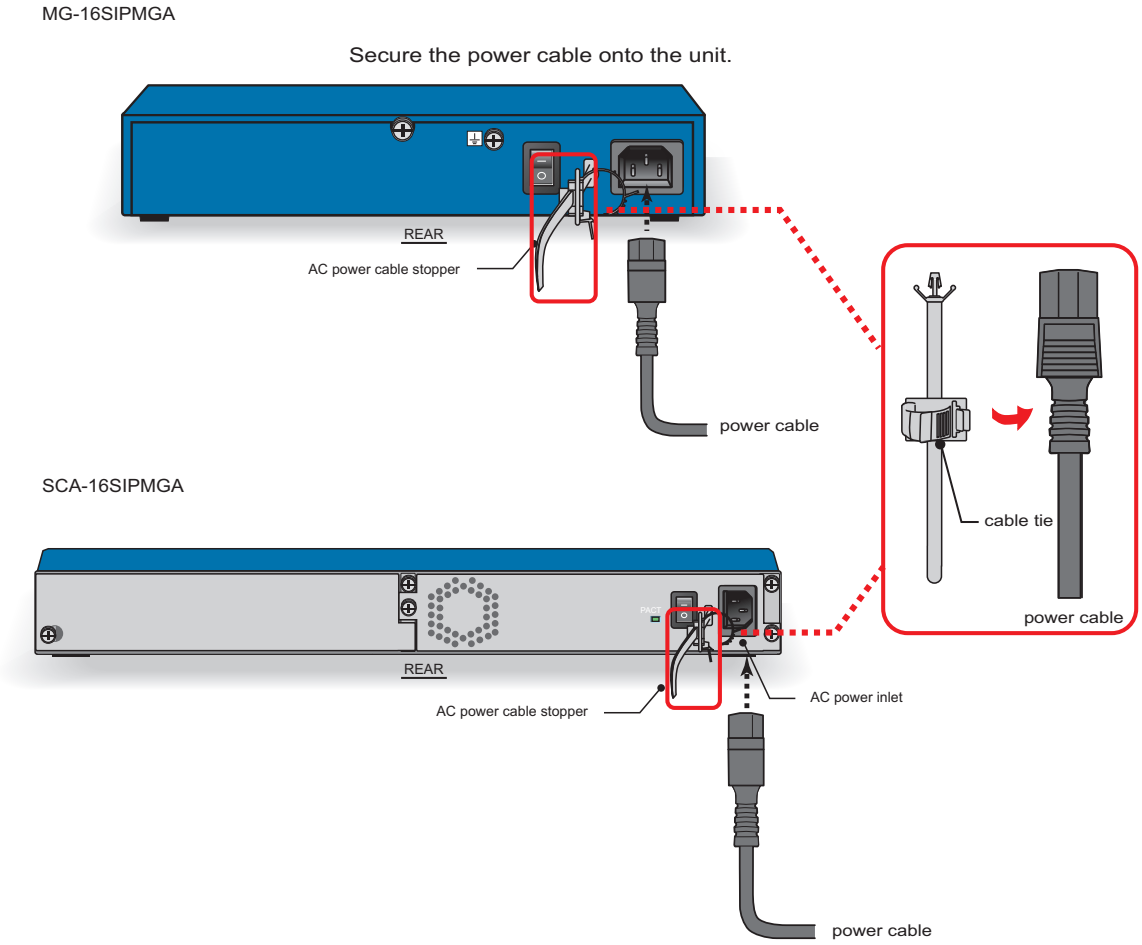
- Ethernet Port to WAN (SIP network)/LAN
- Power Supply
- Serial Port connection to Maintenance Console

Connect the required cables according to your system configuration.



STEP 1: AC power cable connection

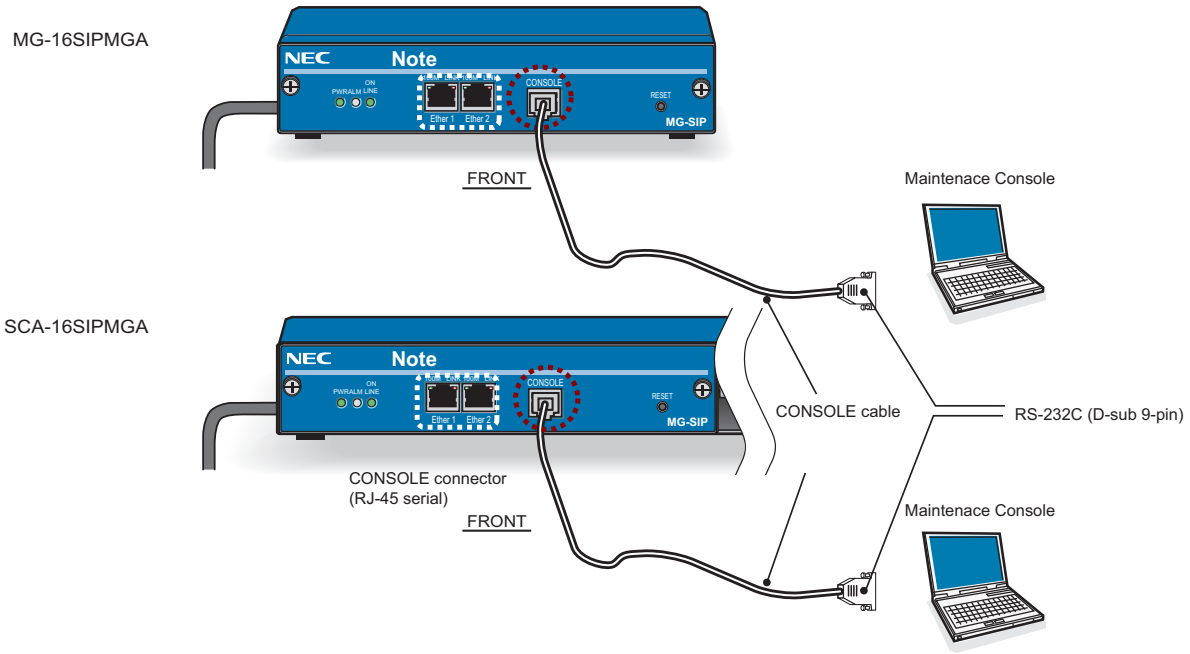
Connect AC power cable to AC Power Inlet on the rear panel of MG-SIP16. Fix the AC power cable with the stopper.



STEP 2: Connect the other end of the power cable to appropriate AC supply.

Note: For the safety measures against static electricity, lightning strike, and other electrical surges, be sure to make proper connection to grounding (less than 10 W).

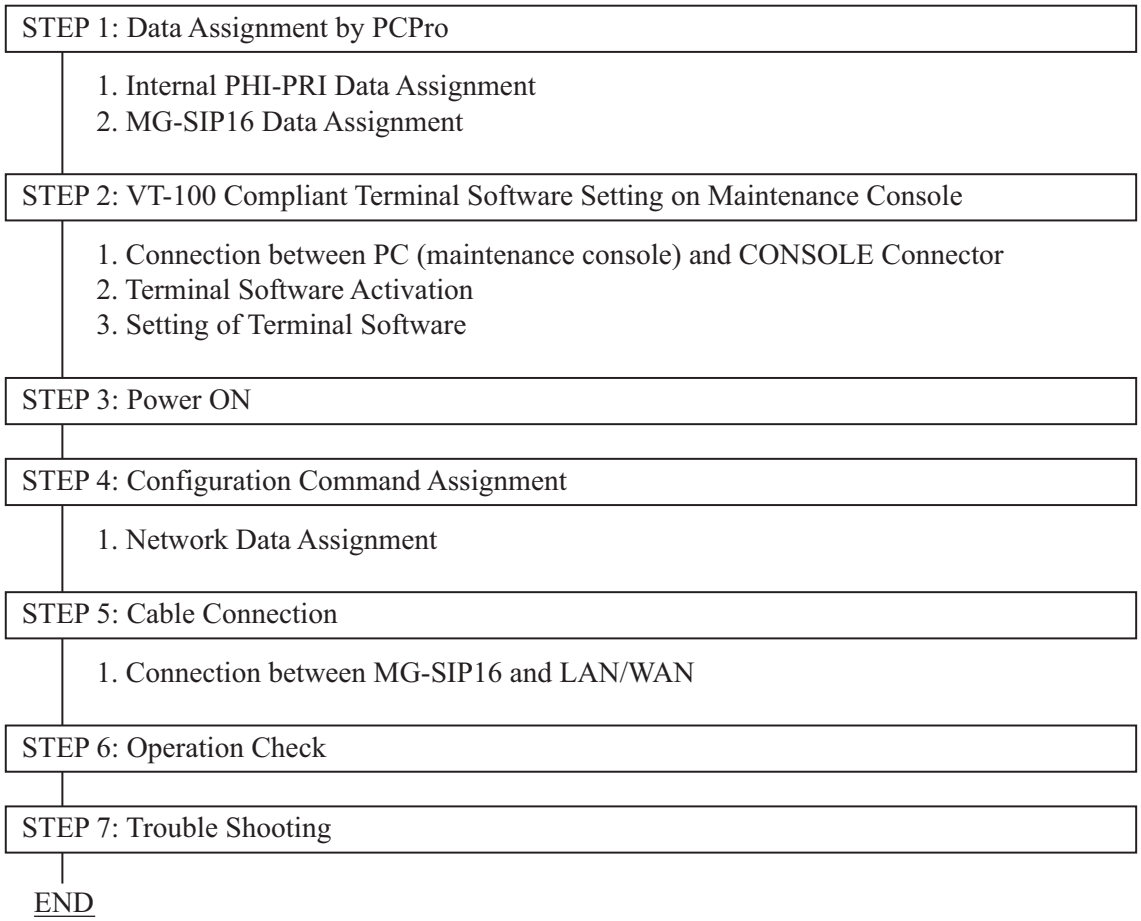
STEP 3: Connect a Maintenance Console (PC) to CONSOLE connector using CONSOLE cable.



Note: LAN cables should not be connected to Ether1 and Ether 2 connectors at this time. Theses will be connected after setting the network data.

4 Startup MG-SIP16 and Basic Tests

This section explains procedures for startup and basic tests. Follow the procedure below. These steps provide the minimum data required only for MG-SIP16 setup. Before taking the following steps, refer to Service Conditions of [M-111] Media Gateway SIP in Data Programming Manual - Business, and make sure the network environment is appropriate for setting MG-SIP16.



4.1 Data Assignment by PCPro

Please refer to [M-111] MG-SIP in Data Programming Manual - Business.

4.2 VT-100 Compliant Terminal Software Setting on Maintenance Console



Note: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data.

STEP 1: Connect a PC (maintenance console) to CONSOLE connector.

STEP 2: Run VT-100 compliant terminal software (e.g. HyperTerminal) on the Maintenance Console.

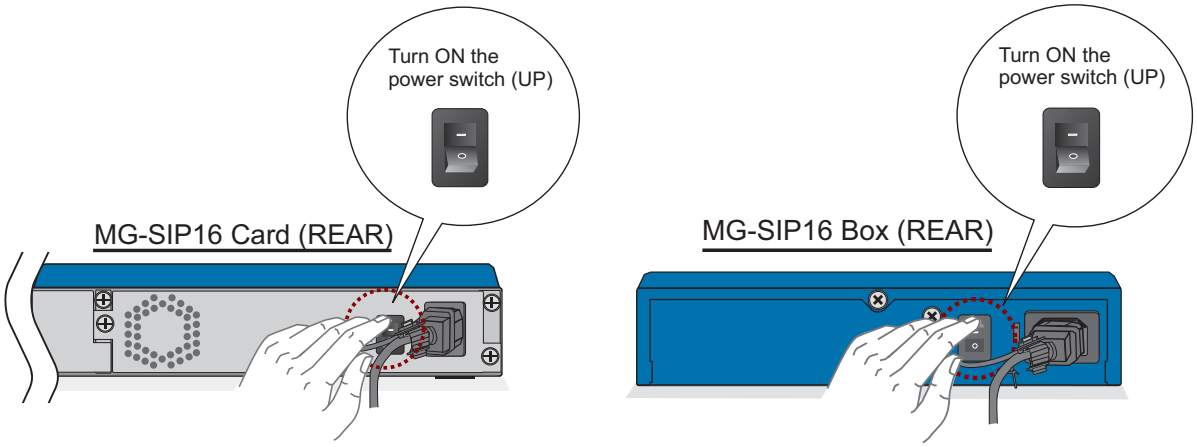
STEP 3: Set the parameter of the terminal software as follows:

- Port: *COM1 (depending on PC setting)*
- Baud Rate: *9600 bps*
- Data: *8 bits*
- Parity: *None*
- Stop Bit: *1*
- Flow Control: *None*

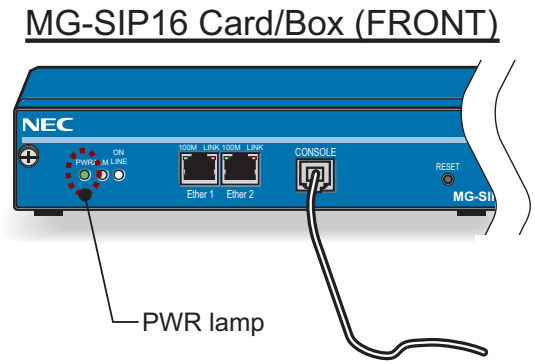
4.3 Power ON



STEP 1: Turn on the MG-SIP16. (Power switch is provided on the rear panel of MG-SIP16).



STEP 2: Make sure the LED indicate normal status.
- PWR lamp lights green (*Boot program automatically starts)



4.4 Configuration Command Assignment

Assign the configuration data by command operation on the maintenance console.

Note: "DRS (Device Registration Server)" used in this section refers to the Telephony Server. The Telephony Server acts as DRS for MG-SIP16 using Proprietary Protocol.

The following message is displayed on the Maintenance Console screen. **Note 1**

```
DP OK [N]

MG-ID: 000064e9a6b1
MG-ID: 000064e9a6b2
Boot program version : SP3839 SH7751R CBOOT-1 PROG-A [04.00.00.00]
Main program version : SP3905 SIP MG(16) PROG-A [01.00.00.00]

H/W PKG information : CA-CC10
DSP information : Not detect information.



Starting Boot program.....

--- Online program Initial start (Wait for a while.) ---

Attaching interface lo0...done

Adding 6009 symbols for standalone.

Main Program Start.....

Press Enter Key.

please setting config data!!
```

MAC address of Ether1 **Note 2**
MAC address of Ether2
BOOT program name/version
MAIN program name/version
Note 3
hardware name/version

Note 4

Note 1: If the CONSOLE cable is connected after starting up the MG-SIP16, "->" prompt will not appear. In this case, press Enter key to display "->" prompt.

Note 2: MAC address that you need to register on "Data Assignment by PCPro".

Note 3: When downloading a firmware, an initialization is required to display the version of the downloaded firmware.

Note 4: To confirm the configuration information:
Press ESC key within five seconds after "Main Program Start..." to display "->" prompt. Then, input "config" to go into the configuration mode. (However, registration to the Telephony Server is not executed.

Note: If the key control is not activated, a communication problem between the console and the MG-SIP16 might occur. Make sure the connector is firmly inserted.

Using Configuration Commands, assign the MG-SIP16 data. The following data is assigned here:

Setting Data	Configuration Command
IP address of MG-SIP16's ether port	`set ipaddress`
IP address of MGC (DRS)	`set drsaddress`
SIP server data	`set sip_server`
Pilot number of MG-SIP16	`set keynumber`

Note: Assign the data depending on the SIP network configuration.

[Enter in config mode]

STEP 1: When a prompt "`->`" is displayed, enter "config" and then press Enter key.

```
-> _
```

STEP 2: A prompt "`MG(SIP)>`" is displayed indicating that you are in config mode.

```
-> config
MG(SIP) > _
```

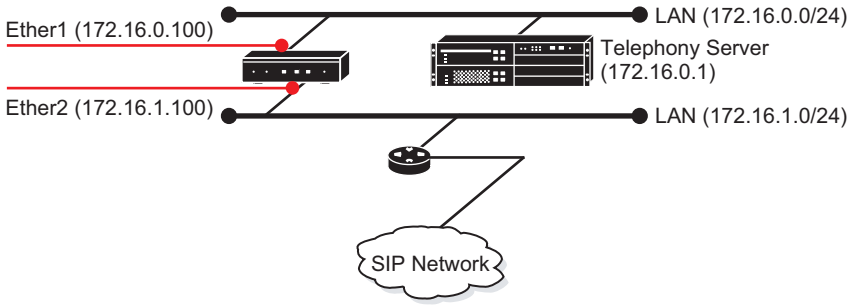
[Set IP Address of MG-SIP16]

MG-SIP16 has two LAN ports (Ether1 and Ether2) on the front panel. Each port is used as follows:

- Ether1: for connecting LAN
- Ether2: for connecting WAN (SIP network)

Note: When IP addresses that belong to the same segment are used for Ether1 and Ether2, set the IP address to Ether1 only. Otherwise, set IP addresses for both Ether1 and Ether2.

STEP 1: Set the IP addresses of MG-SIP16 (Ether1 and Ether2) by using **`set ipaddress`** command. The following shows a sample setting for the network configuration.




```
MG(SIP) > set ipaddress

Use one-port only? Y/N=n

Ether[1]
         IP address: 172.  16.   0. 100
         Subnet:     255. 255. 255.   0

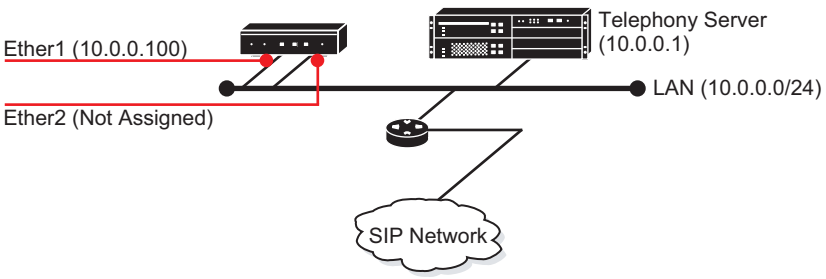

Ether[2]
         IP address: 172.  16.   1. 100
         Subnet:     255. 255. 255.   0
```

- Enter “n” when two ports are used.

Ether [1]: LAN
- Assign the IP address (default: 0.0.0.0) for Ether [1].
- Assign the subnet mask (default: 0.0.0.0) for Ether [1].

Ether [2]: SIP network
- Assign the IP address (default: 0.0.0.0) for Ether [2].
- Assign the subnet mask (default: 0.0.0.0) for Ether [2].

The following shows an example where Ether1 and Ether2 belong to the same segment.



[Set IP Address and Port Number of DRS]

STEP 1: Assign the IP address and port number of DRS by using **`set drsaddress`** command.**Note 5**

`MG(SIP) > set drsaddress`	
`DRS unit(0)`	
`DRS IP address: 172.16.0.1`	• Assign the IP address of DRS.
`DRS port number(1024-65535): 3456`	• Assign the UDP port number DRS (Default: 3456).
`DRS unit(1)`	
`DRS IP address: 0.0.0.0`	• Skip this by pressing Enter key.
`DRS port number(1024-65535): 3456`	• Skip this by pressing Enter key.
`DRS unit(2)`	
`DRS IP address: 0.0.0.0`	• Skip this by pressing Enter key.
`DRS port number(1024-65535): 3456`	• Skip this by pressing Enter key.
`DRS unit(3)`	
`DRS IP address: 0.0.0.0`	• Skip this by pressing Enter key.
`DRS port number(1024-65535): 3456`	• Skip this by pressing Enter key.

Note: unit(0), unit(1), unit(2), and unit(3) represent primary, secondary, tertiary, and fourthly respectively.

Note 5: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

[Set SIP Server Data]

STEP 1: Set SIP Server data by using **`set sipserver`** command. This data can be assigned by using IP address or Full Qualified Domain Name (FQDN).

When **IP address** (=0) is selected:

```
MG(SIP) > set sip_server
SIP server type(0=IP address/1=FQDN):0

SIP server IP address: 192.168.100.100

SIP server port number(1024-65535): 5060


Strict or Loose(0/1): 0




Domain Name(MAX128):_
```

- When IP address (=0) is selected.
- Assign the IP address of the proxy server (default: 0.0.0.0).
- Assign the port number of the proxy server (default: 5060)
- Select a Strict router or Loose router for the proxy server (default: 0).

  0: Strict route
  1: Loose router
- Input a string that specifies the service provider in maximum of 128 characters.

When **FQDN** (=1) is selected:

```
MG(SIP) > set sip_server
SIP server type(0=IP address/1=FQDN):1

Fully Qualified Domain Name(MAX63):nec.com

SIP server port number(1024-65535): 5060


Strict or Loose(0/1): 0




Domain Name(MAX128):_
```

- When FQDN (=1) is selected.
- Assign the FQDN of the proxy server in maximum of 62 characters (default: 0).
- Assign the port number of the proxy server (default: 5060)
- Select a Strict router or Loose router for the proxy server (default: 0).

  0: Strict route
  1: Loose router
- Input a string that specifies the service provider in maximum of 128 characters.

Note: Be sure not to enter a space after FQDN characters.

[Set Key Number Data]

STEP 1: Assign a pilot number, which is used to perform registration to the SIP server.

```
MG(SIP) > set keynumber
Key number(MAX32): 0
```

- Assign the pilot number when register is performed (default: 0). **Note 6**

Note 6: Be sure not to enter a space after the key number.

[Reboot MG-SIP16]

STEP 1: Reboot the MG-SIP16 by using **reboot** command. The assigned config data can also be saved onto the Flash memory by using this command.

`MG(SIP) > reboot`	
`Do you want to save Config data? Y/N=y`	• Config data can be saved before rebooting the MG-SIP16. Enter "y" to save the assigned data onto Flash memory. **Note 7**
`Do you want to reboot MG(SIP) Y/N=y`	• Reboot the MG-SIP16 or not is specified. Enter "y" to reboot the MG-SIP16.

`Config data flash write start.`
`##`
`Complete`
`Config data flash write end.`
	• Config data is saved.

`MG(SIP) reboot start...`	• rebooting the MG-SIP16....

Note 7: Before saving the config data, be sure to assign necessary data by using "set ipaddress", "set drsaddress", "set sip_server", and "set keynumber" that are explained in STEP 1, STEP 1, STEP 1, and STEP 1 respectively. If there is any unassigned item, the following will appear.

`the following setting commands are not perfect.`	
`"set ipaddress" command. (IPX side)`	• Appears if the IP address of Ether [1] (LAN side) has not been assigned.
`"set ipaddress" command. (SIP side)`	• Appears if the IP address of Ether [2] (WAN side) has not been assigned.
`"set drsaddress" command.`	• Appears if the IP address of DRS has not been assigned.
`"set sip_server" command.`	• Appears if the IP address of SIP server has not been assigned.
`"set keynumber" command.`	• Appears if Keynumber (Pilot number) has not been assigned.
`So, Config data is made a default setup.` `Is it all right? Y/N=y`	• By entering "y", default value will be automatically applied to the unassigned items. If other than above is entered "`Reboot command was interrupted`" will be displayed.

STEP 2: After the MG-SIP16 is rebooted, the following message appears on the Maintenance Console.

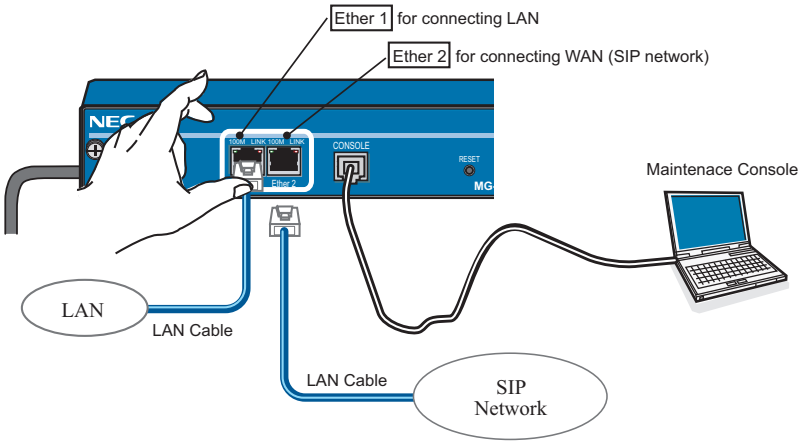
`Press Enter Key.`	

4.5 Cable Connection

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

STEP 1: Connect the MG-SIP16 to the dedicated network as shown below. In few minutes, LINK lamps will light green, which indicates the connection is OK.

- Ether 1: LINK lamp (LAN side)
- Ether 2: LINK lamp (WAN side - SIP network)

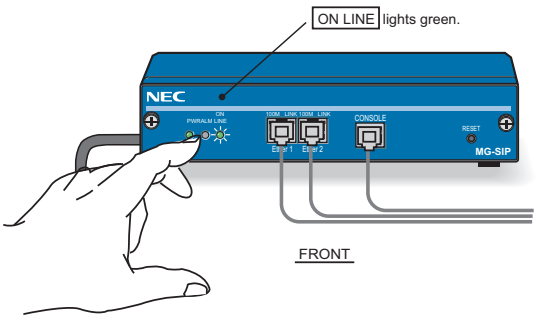


When you have finished, the following message appears on the Maintenance Console.

```
**************************************
*          MG-SIP ONLINE START       *
**************************************
```

Note: Both LAN1 and LAN2 must be connected to make MG-SIP16 online. (For a one-port configuration, only LAN1 connection makes MG-SIP16 online.)

STEP 2: Make sure the ON LINE lamp lights green on the front panel.



4.6 Operation Check

Make sure the MG-SIP16 is in normal operation by the following procedure.

STEP 1: Reboot the MG-SIP16 by using **reboot** command.

STEP 2: Make sure the following message appears on the Maintenance Console.

```
**************************************
*          MG-SIP ONLINE START       *
**************************************
```

STEP 3: Make sure the registration status of the Telephony Server network and SIP network by using **show status** command in the console command mode to confirm the network registration status on the Telephony Server and SIP sides.

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:1

MG(SIP) > IPX Registration Information
Registration Done. (DRS IP address 172.16.253.1)
```

- Select a desired status you want to check.

Note 1

Note 1: For the detailed information, refer to **page 1667.**

STEP 4: When using PCPro, make sure the registration status of MG-SIP16 by using **DIMG** command.

4.7 Trouble Shooting

If the message shown below appears on the console, make sure of the following:

```
**************************************
*          MG-SIP OFFLINE START      *
**************************************
```

- LAN cable is securely inserted to Ether 2?
- Ether 2: LINK lamp (WAN side - SIP network) lights green?

If no message appears within 3 minutes, it seems that no communication has been established between the Telephony Server and the MG-SIP16. Check the LAN cable connecting LAN-Telephony Server and the IP address of DRS.

5 Maintenance Console Commands

5.1 How to Use Maintenance Command

Note: Note the following conditions:

- "DRS (Device Registration Server)" used in this section refers to the Telephony Server. The Telephony Server acts as DRS for MG-SIP16 using Proprietary Protocol.
- If you input "exit" after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

- Connection Settings

  A communication between Maintenance Console and MG-SIP16 is established via communications software.

  Note: For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. This section explains the procedure for setting data by using HyperTerminal as an example. For Windows Vista or later operating systems, prepare a communications/terminal software yourself and assign the configuration data referring to the description for HyperTerminal.

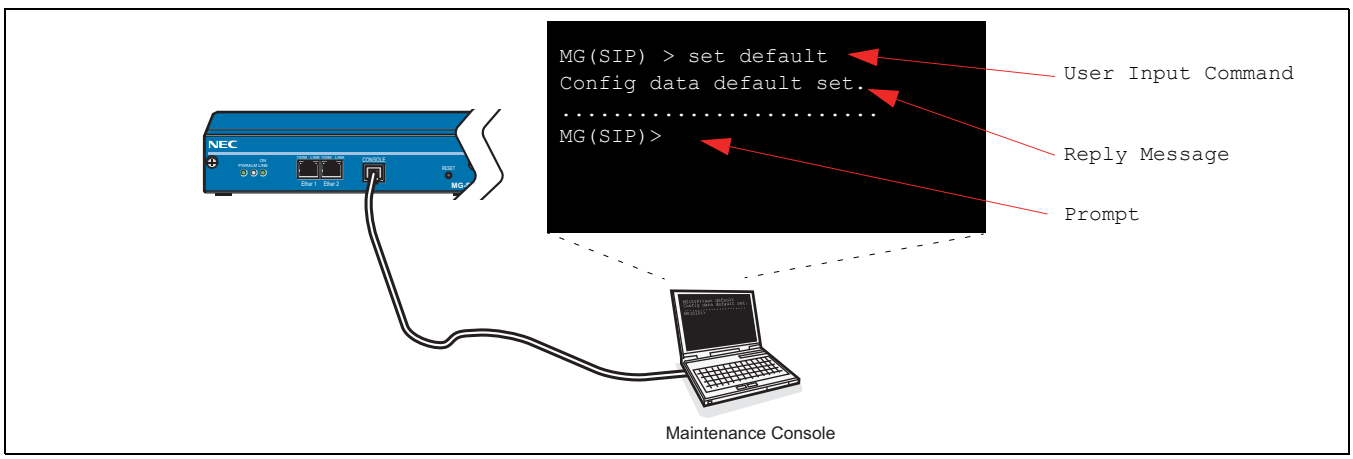
  When the program is activated, messages are displayed. After a prompt "->" is displayed, enter "`config`" after the prompt to login.

```
-> config
```

  The following prompt appears, indicating that the Maintenance Console command entry is ready:

```
MG(SIP) >
```

An example of indication is shown below:



The user input command above consists of several components. The following describes these components using one of the ***set*** commands.

```
MG(SIP) > set drsaddress
          (1)     (2)

MG(SIP) > ping 123.201.18.45
          (1)      (3)
```

(1) Command
(2) Sub Command
(3) Parameter

Input the desired command, sub command and each required parameter after the prompt ("MG-SIP>" as an example here) is indicated. Parameters vary depending on the specified command. When all data (command name, sub command name, parameter) are specified correctly, the command executes the required data processing, and then informs the processed result on the screen. When all the command operation is completed, you may input "exit" after a prompt.

Note: While the maintenance command program is activated, it also provides a help function for referring to available command and sub command. After a prompt is indicated, request to list up all the command help by "help" or "?" after the prompt and press the Enter key. If you know more details about each command, it is also available to list up the target help by "command name Δ ?" after the prompt, and press the Enter key. The example below shows the screen when executing help function regarding "? (help)" and "set address".

```
MG(SIP) > ?
 set                    : Config data set command
 show                   : Config data show command
 download               : MG-SIP program download command
 ping                   : Ping command
 exit                   : Config data exit command
 reboot                 : MG-SIP reboot command
 help                   : Help command
 ?                      : Help command

MG(SIP) > set ?

 drsaddress             : Setting IP address
 signaling_port_no      : Setting signaling port number
```

5.2 How to Read Maintenance Command on This Section

The commands on this section are explained with defined characters. These characters' meanings are in the following:

CHARACTERS	MEANING
Δ	Blank
P	Parameters
[ ]	Parameter Option (indicates optional)

The maintenance console uses the commands listed on the table below.

* If you go out of the configuration mode by using "logout" command without saving the setting information using "reboot" command, the changed settings are discarded. To save the settings, execute "reboot" command, and exit the configuration mode.
* When you input a command, the current setting is displayed. If you change the setting, the changed data is displayed. For "ipx_route" and "sip_route" commands, the changed settings and "Are you sure?" message are displayed.
* Pressing the Enter key can skip each item.

List of Maintenance Command

COMMAND	No.	SUB COMMAND	FUNCTION	PAGE
SET	1	183rbt	Assigns whether to enable/disable local RBT when 183 message without SDP is received.	page 1620
	2	184toprivacy	Setting of switching Caller ID display/blocking to SIP network function when dialing 184/186	page 1620
	3	another_keynumber	Assigns additional three pilot numbers used for registration to SIP server.	page 1621
	4	auth	Assigns authentication information.	page 1621
	5	auth_header	Assigns the cache function of authentication header.	page 1622
	6	call_hold	Assigns whether to enable MG Based Call Retention. Note 3	page 1622
	7	call_id_relay	Assign Call-ID notification function. Note 3	page 1622
	8	cause_table	Assigns the error translation table.	page 1623
	9	cc_convert	Assigns calling party's country code display conversion feature. Note 1	page 1623
	10	cdn_pattern	Assigns called number pattern.	page 1626
	11	check_number	Assigns limit to number of digits for calling/called party number.	page 1626
	12	cpn_pattern	Assigns how to obtain cpn (calling party number).	page 1627
	13	default	Specifies default settings of the configuration.	page 1628
	14	dnsaddress	Assigns the DNS IP address.	page 1628
	15	dns_option	Assigns the Optional Data for DNS server. Note 4	page 1629
	16	domain	Specifies the domain of MG-SIP16.	page 1630
	17	drsaddress	Assigns the DRS IP address.	page 1631
	18	drs_qos	Specifies the DRS ToS.	page 1631
	19	dtmf_mode	Assigns a type of DTMF mode.	page 1632
	20	h245_base_port_no	Assigns the H.245 base port in SIP network.	page 1634
	21	hc_alarm	Assigns a type of Health Check pattern.	page 1634

COMMAND	No.	SUB COMMAND	FUNCTION	PAGE
SET	22	hc_timer	Assigns a type of Health Check pattern.	page 1634
	23	interface	Assigns an interface to the port.	page 1634
	24	ipaddress	Assigns the IP address and the subnet mask to the port.	page 1635
	25	ipx_route	Assigns the route information in the Telephony Server side.	page 1635
	26	ipx_rtp_port_no	Assigns the RTP port in LAN.	page 1641
	27	keynumber	Assigns the pilot number of MG-SIP.	page 1641
	28	multi_regist	Assigns the registration function per number.	page 1641
	29	musictype	Assigns the type of music to be sent from MG-SIP16.	page 1642
	30	prack	Assigns PRACK information.	page 1642
	31	pre_negotiation_port_no	Assigns the UDP port receiving packets for voice control path.	page 1642
	32	privacy_pattern	Assigns a type of Calling Line Identification.	page 1643
	33	registration_port_no	Assigns the UDP port receiving registration packets.	page 1645
	34	reg_interval	Assigns the waiting time to retry after registration failure.	page 1645
	35	rtp_pathon	Assigns Path-on function by 183 Progress after receiving 180 Ringing.	page 1646
	36	rtp_qos	Specifies the RTP ToS.	page 1647
	37	sdp_style	Assigns the SDP receive setting for multiple “m” lines.	page 1647
	38	self_sip_domain	Assigns SIP Domain.	page 1647
	39	session_timer	Specifies information regarding session timer.	page 1648
	40	signaling_port_no	Assigns the UDP port receiving control signal packets	page 1649
	41	sip_accfilter	Assigns SIP Access Filter and SIP Access Filter mask. **Note 3**	page 1649
	42	sip_port_no	Specifies the ToS transmitted to/from SIP network.	page 1652
	43	sip_qos	Specifies the SIP ToS.	page 1652
	44	sip_register	Assigns the IP address or the FQDN to registry server.	page 1652
	45	sip_route	Assigns the route information in the SIP side.	page 1653
	46	sip_rtp_port_no	Assigns the RTP port in SIP network.	page 1653
	47	sip_server	Assigns the IP address or the Fully Qualified Domain Name (FQDN) to SIP server.	page 1653
	48	sip_tel_service	Assigns the setting of additional services.	page 1654
	49	slipresp	Assigns a SLIP response code.	page 1655
	50	update	Assigns the setting of update method.	page 1655
	51	response_table	Assigns the response table pattern.	page 1655
	52	out_of_area_code	Assigns the error response code to inform out-of-area error on LAN side.	page 1655
	53	multisession	Assigns Multi-path Switch. **Note 2**	page 1655
SHOW	1	arp	Displays the ARP.	page 1657
	2	config	Displays the configuration.	page 1657
	3	interface	Displays the link and setting state of Ether connection	page 1667
	4	route	Displays the routes.	page 1667
	5	status	Displays status of the system.	page 1667
	6	version	Displays the firmware version installed in MG-SIP16.	page 1675
DOWNLOAD		-	Downloads data with the IP address and file name.	page 1676
EXIT		-	Exits configuration setting.	page 1682
REBOOT		-	Restarts MG-SIP16.	page 1681
PING		-	Tests whether the destination is reached at Layer 3 level.	page 1680
HELP/?		-	Shows the help display.	page 1682

Note: When using Silent Monitor (Multi-Path Monitor) Connection in ACD system, assign the command “SETDMULTISESSION”. (Available for SP-3905 MG SIP (16) PROG-A Ver02.01.00.00 or later)

Note 1: For versions prior to below, assign by command “SET△81to0.”

SP-3796/SP-3816	Ver08. 00. 02. 00
SP-3843	Ver04. 00. 02. 00
SP-3905	Ver01. 00. 03. 00

Note 2: Required to set Silent Monitor (Multi-Path Monitor) Connection in the ACD system.

Note 3: Available since SP-3905 MG SIP (16) PROG-A Issue 5.

Note 4: Available since SP-3905 MG SIP (16) PROG-A Issue 10.

SET COMMAND

1 SET△183RBT

This command is used to enable/disable the connection of local RBT when 183 message without SDP is received.

```
MG(SIP) > set 183rbt

Is RBT added when 183 without SDP is received?
(0:enable/1:disable(default=0) : 0
```

- Enter 0 or 1 (default=0).
  0: Enable (local RBT connection is used)
  1: Disable (local RBT connection is not used)

Assign this command adjusting to the specifications on SIP network.
Normally this command is not required to be changed.

2 SET△184TOPRIVACY

Note: This command is available for Japan only.

This command is used to set the function to delete 184/186 when dialing 184/186. When this setting is enabled, if a user adds 184/186 at the beginning of the dialing numbers, 184 (non-Caller ID) or 186 (Caller ID) are deleted from the dialed numbers, and the message to SIP network is transmitted.

[Setting Example]

```
MG(SIP) > set 184toprivacy

Select privacy function of 184.
 0=disable(default)
 1=Pattern 1
 2=Pattern 2
Input:0
```

0: Switching is disabled (default)
1: Switching is enabled. (Pattern 1)
2: Switching is enabled. (Pattern 2)

When Pattern 1 is set:
Performs forced non-Caller ID for 184, forced Caller ID for 186. (The first three digits of the dialed numbers (184/186) are to be deleted.)

When Pattern 2 is set:
Performs forced non-Caller ID for 184, forced Caller ID for 186. (The first three digits of the dialed numbers (184/186) are not to be deleted.)

Note: Assign this command adjusting to the specifications on the SIP network where it is connected.

3 SET∆ANOTHER_KEYNUMBER

The command is used to assign three pilot numbers (in addition to the pilot number assigned by the "KEY-NUMBER" command) for registration to SIP server.

```
MG(SIP) > set another_keynumber

Another keynumber 1 (MAX32) : 1000
Another keynumber 2 (MAX32) : 2000
Another keynumber 3 (MAX32) : 0511112222
```

- Enter the pilot number used for registration to SIP server (default = 0).

Note: The conditions for this command are as follows.

- Assign this command adjusting to the specifications on SIP network. Normally this command is not required to be changed. Unique number to be assigned for each of Another keynumber 1/2/3. Assign value=0 (default) for parameter when nothing is to be assigned.
- Do not select "Pattern 2" for "set cc_convert" when assigning an additional number with this command.

4 SET∆AUTH

The command is used to specify a User ID and a password for HTTP Digest Auth. This parameter is used when the SIP server performs authentication.

```
MG(SIP) > set auth

User ID  (MAX32) : 0

Password (MAX32) : 0
```

- Assign the User ID (Default: 0/Maximum: 32 bytes).
- Assign the password (Default: 0/Maximum: 32 bytes).

5 SET∆AUTH_HEADER

The command is used to assign whether to add cache information to authentication header of request message in updating ACK and REGISTER for re-INVITE/200 OK.

```
MG(SIP) > set auth_header

Is Authorization header cache function enable?

(0:enable/1:disable (default=0)) : _
```

- Select whether to use cache function to authentication header.

  0 = Cached authentication information is added (default).
  1 = Cached authentication information is not added.

Note: Assign this setting in accordance with the specifications of connected SIP network.

6 SET∆CALL_HOLD

The command is used to specify whether to enable MG Based Call Retention.

```
MG(SIP) > set call_hold

Select the setting of Call Hold function.

  0=disable(default)
  1=enable
Input:1

Input RTP detect timer value.(sec)
(3-32 (default=3)):3

Input SIP Error Response code to reject new
session.
(400-606 (default=488)):488
```

- Enable/disable MG Based Call Retention.

  0 = MG Based Call Retention is disabled. (default)
  1 = MG Based Call Retention is enabled.

- Input RTP detect timer (seconds)
  Range: 3-32 seconds (default: 3 seconds)

- Set the error response code to reject a session by a new call while the MG based call retention is in progress.
  (400 to 606, default: 488) **Note 5**

Note 5: When an Initial-INVITE is received from the SIP network side while a call is retained, an error response 488 (Not Acceptable Here) is sent in the default setting.

Note: Available for SP-3905 MG SIP (16) PROG-A Issue 5 or later.

7 SET∆CALL_ID_RELAY

The command is used to specify whether to send Call-ID Header information of SIP to SV9500.

```
MG(SIP) > set call_id_relay

Select function of Call-ID relay mode.

 0=disable(default)
 1=enable
Input:0
```

- Select whether to send Call-ID Header information of SIP to SV9500.

  0 = Call-ID is not sent (default).
  1 = Call-ID is sent to SV9500.

Note: Assign this setting in accordance with the specifications of connected SIP network.

Note: Available for SP-3905 MG SIP (16) PROG-A Issue 5 or later.

8 SETΔCAUSE_TABLE

The command is used to select the translation table of error cause to be sent to LAN received from SIP network as error response.

```
MG(SIP) > set cause_table

Select cause_table(SIP_Error_response to Error_cause)

          (0:normal/1:alternate routing(default=0)): _
```

- Select the error translation table.
  0 = Normal table (default)
  1 = Alternate routing table

Note: Assign this setting in accordance with the specifications of connected SIP network.

9 SETΔCC_CONVERT

Setting of calling party' s country code display conversion feature.

The command is used to enable/disable calling party's country code display conversion feature. This feature has two patterns (Pattern 1/Pattern 2) as described below:

- Pattern 1

When this feature is available, conversion will take place as in the following table. (The example is about Japanese Country Code.)

Direction of Call termination/ origination	Intended Number	Conversion Feature
Call termination via SIP	Calling party	Convert to "0" if first numbers are "81" or "+81"
Call termination via SIP	Calling party	Add "0" to first number if number is more than 8 digits
Call origination via MG-SIP16	Calling party	Convert to "0" if first number is "81"

It is possible to confirm the previous settings through this command since this command is an extension of the previous version's SETΔ81to0.

- Pattern 2 **Note 6**

When MG-SIP16 [SCA-16SIPMGA/MG-16SIPMGA] is the a calling party side, the command converts the calling party number and the call number contained in the SIP message into E.164 format. When MG-SIP16 [SCA-16SIPMGA/MG-16SIPMGA] is the called party side, the command converts the calling party number and the call number contained in the SIP message into 0AB to J numbers form and notifies to the Telephony Server.

Terms and meanings

Terms	Meanings
Country Code	A number used in making a call by E.164, determined per country Examples: 81 (for Japan), and 1 (for North America)
National Prefix	Domestic call identification number
International Prefix	International call identification number specified per country
National Destination Code	A number specified per national region

Terms	Meanings
Number of Local Number digits	A unique number in a certain region or network only

Note 6: The conditions of this command are as follows.

- Do not implement “set another_keynumber” when setting this parameter.
- This feature is available for SP-3988 MGSIP PROG-G Issue 10 or later.
- Even if this feature is enabled, the following number information is to be in 0AB to J numbers format.
  - Dial Number of a terminal
  - Number information to be assigned in the office data of Telephony Server (such as ASRIL/ACDD/ACNN commands)
  - Number information to be assigned with “set keynumber”
- The conditions are as follows depending on the setting status of “set check_number”.
  - When “set check_number” is enabled:
    If MG-SIP is on the calling party side and “#” exists at the beginning, in the middle, or at the end of a destination number, delete “#”, and convert the rest into E.164.
  - When “set check_number” is disabled:
    If MG-SIP is on the calling party side and “#” exists at the beginning, in the middle, or at the end of a destination number, convert “#” into “%23” without converting the Incoming Number into E.164.
- Even if this feature is enabled, receiving calls of a common number format (such as 0AB to J numbers format) with National Prefix and Local Code (without National Prefix or National Destination Code) is available.
- Making/receiving a call with Local Code requires the setting of National Prefix and National Destination Code.
- For an incoming call from a foreign country, “+Another Country Code” precedes the Calling Party Number. In this case, “+” is removed and then International Prefix of the Receiver’s own country is added to the beginning of the number for transmission to the Telephony Server.
- Since this feature does not distinguish a station-to-station call number from an external call number in converting into E.164 format, do not use a station-to-station call number as a notification number to SIP network such as Calling Party Number or a station-to-station call number to be used for an FMC network.
  (Example) When a Country Code is "81" and you assign "2000" as a station number to be provided to a SIP network, it is converted into “+812000”.
- When “RFC3325 (P-Associated-URI)” is set for “set privacy_pattern”, Calling Party Number in a common format (such as the 0AB to J numbers format) is included in the INVITE sent upon call origination via the MG-SIP.
- Do not use the same number for assignment of the leading digit of Pilot Number and that of International Prefix.
  (Example) Assigning “00” to International Prefix and “00AB to J” to Pilot Number is not available.

[Setting Example]

```
MG(SIP) > set cc_convert

Select Country Code Convert function.
  0=disable(default)
  1=Pattern 1
  2=Pattern 2
Input: 0
```

0: Disable (default)
1: Pattern 1
2: Pattern 2

- When Pattern 2 is selected:

```
MG(SIP) > set cc_convert

Select Country Code Convert function.
  0=disable(default)
  1=Pattern 1
  2=Pattern 2
Input: 2

Input Country Code.(1-99999 (default=81))
  Input : 81

Do you set National Prefix and National
Destination Code? Y/N=Y

Input National Prefix.(default=0,MAX4(strings))
  Input : 0

Input National Destination
Code.(default=1,MAX6(strings))
  Input : 3

Input International
Prefix.(default=010,MAX4(strings))
  Input : 010

Input Number of Local Number digits.(1-15
(default=3))
  Input : 3
```

0: Disable (default)
1: Pattern 1
2: Pattern 2

Input Self Country Code.

Input "Y" if you intend to assign National Prefix and National Destination Code.

Input National Prefix.

Input National Destination Code.

Input International Prefix.

Input maximum number of Local Number digits.

Display for the firmware version earlier than SP-3905 MGSIP PROG-A Issue 10 is as follows:

```
MG(SIP) > set cc_convert

Is this function enable or disable?

                    (0:disable/1:enable (default=0)): 0
```

- Enter 0 or 1 (default=0).
  0 = Disable (default)
  1 = Enable

Note: Assign this setting in accordance with the specifications of connected SIP network.

10 SET△CDN_PATTERN

The command is used to assign the way of obtaining information for called number from SIP network. When this command is enabled, a called number is obtained according to the priority order shown in the table below:

Selected Parameter		Order of priority			
		1	2	3	4
0	To	P-N-Dest-Discern	To (userinfo)	Request-URI (userinfo)	-
1	isub	P-N-Dest-Discern	Request-URI (isub)	Request-URI (userinfo)	To (userinfo)
2	Request-URI	P-N-Dest-Discern	Request-URI (userinfo)	To (userinfo)	-
3	P-Called-Party-ID	P-Called-Party-ID (userinfo)	To (userinfo)	Request-URI (userinfo)	P-N-Dest-Discern

```
MG(SIP) > set cdn_pattern

Active called-party-number?

(0:To:userinfo/1:isub/2:Request-URI/3:P-Called-Party-ID(default=0)):0
```

- Select a type to obtain called number information.
  0: userinfo part of the To header is given priority (Default)
  1: isub of Request-URI is given priority
  2: userinfo part of Request-URI is given priority
  3: userinfo part of P-Called-Party-ID is given priority

Note: Assign this command adjusting to the specifications on SIP network.
- This command is available for SP-3905 MG SIP (16) PROG-A Issue 3 or later.
- For the earlier versions of firmware, the command displays as follows. P-Called-Party is not available.
  When isub parameter is enable, the called number is obtained from isub of URI-PARAM in Request-URI. If the called number cannot be obtained from isub, it will be obtained from TO header or Request-URI that has been set in Config.

```
MG(SIP) > set cdn_pattern

Active called-party-number?(0:To:userinfo/1:Request-URI(default=0)):0

isub function (0:disable/1:enable(default=0)): _
```

- Select a type to obtain called number information.
- Priority is selected for the isub parameter of URI-PARAMS.

11 SET△CHECK_NUMBER

This command is used to assign a limit to number of digits for calling/called party number (since version 09.00.00.00).
A calling/called party number sent via the Telephony Server network may be limited to numbers only.

```
MG(SIP) > set check_number

Is this function enable or disable?

                                  (0:disable/1:enable(default=0)): _
```

- Enter 0 or 1 (default=0).
  0 = Disable (default)
- 1 =Limit to numbers only

Note: Assign this command adjusting to the specifications on SIP network.

12 SET∆CPN_PATTERN

This command is used to assign how to obtain cpn (calling party number). It is possible to change the priority of obtaining calling party number when a call terminates via SIP network. The following shows the method of obtaining cpn when this feature is available.

When this command is enabled, calling party number is obtained according to the priority order shown in the table below:

Selected Parameter		Order of priority		
		1	2	3
0	Displayname	Displayname	Userinfo	-
1	Userinfo	Userinfo	Displayname	-
2	Anonymous	Userinfo (Anonymous)	Userinfo	Displayname
3	P-Asserted-ID	P-Asserted-ID	Displayname	Userinfo

```
MG(SIP) > set cpn_pattern

What calling party number is given priority?

(0:Displayname/1:Userinfo/2:Anonymous/3:P-Asserted-ID(default=0)):
```

- 0: Display name is given priority (default)
- 1: Userinfo is given priority
- 2: When Anonymous is detected in Userinfo, cpn is handled as blocked, disregarding the second priority and later.
- 3: P-Asserted-ID is given priority.

Note: Assign this command adjusting to the specifications on SIP network.

- Select 2 when the caller ID blocking is judged by the userinfo in From header on the SIP network side specification.
  e.g.) From: “01234567” <sip:anonymous@anonymous.invalid>
- Do not select 2 when the caller ID blocking is assigned by Displayname only on the SIP network side.
  e.g.) From: “Anonymous” <sip:01234567@xxx.com> In this case, the cpn is informed when 2 is selected.
- Numbers from 0 to 9, *, or # can only be obtained as a calling party number. When any other characters are contained in the calling party number, the order of priority will shift to the next precedence.

However, if any characters other than the ones indicated above are detected in Displayname, the next and later priority will be disregarded and the cpn will be handled as blocked.
e.g.) From: “0123ABC” <sip:01234567@xxx.com> In this case, the cpn will be handled as blocked when 0 is selected.

- This command is available for SP-3905 MG SIP (16) PROG-A Issue 3 or later.
- For the earlier versions of firmware, the command works as follows. Anonymous and P-Asserted-ID are not available.

When this feature is unavailable, calling party number is obtained in the following order

Order of priority	Obtaining pattern
1	Obtain from Remote-Name (Display Name section)
2	Obtain from Remote-URL (user Info section)

When this feature is available, calling party number is obtained in the following order

Order of priority	Obtaining pattern
1	Obtain from Remote-URL (user Info section)
2	Obtain from Remote-Name (Display Name section)

```
MG(SIP) > set cpn_pattern
What calling party number is given priority?
                              (0:displayname/1:Userinfo(default=0)): _
```

- 0: Display name is given priority (default)
- 1: User infois given priority

Note: Assign this command adjusting to the specifications on SIP network.

13 SETΔDEFAULT

The command is used to set back to the default setting of MG-SIP16 configuration. Executing this command saves the default setting to the flash memory.

```
MG(SIP) > set default
Are you sure? Y/N=y
Config data default set.
MG(SIP) >
```

- Enter “y” to determine to set the default value

14 SETΔDNSADDRESS

This command is used to specify the DNS IP address.

```
MG(SIP) > set dnsaddress
DNS IP address :    0.0.0.0
```

- Specify DNS IP address. (Default: 0.0.0.0)

15 SET∆DNS_OPTION

Setting of the Optional Data for DNS server

This command is used to enable multiple SIP servers to be supported by a DNS server. When IP addresses of multiple SIP servers are obtained by A record lookup, an alternative route can be used for transmission. REGISTER bypass is also enabled.

Note: Be careful when you set "A Record resolve (single IP Address)" selected with this command and also used the "SIP Access Filter" feature of the sip_accfilter command. If the IP address of the SIP message does not belong to the range defined by the mask of the "SIP Acces Filter", the message will be discarded.
Example: The IP address of the alternative route is 10.10.2.1 and the IP server address is 10.10.3.1. If the SIP access filter mask is set to 255.255.255.0, the message will be discarded. Set the mask to 255.255.0.0 to allow the message to be received.

[Setting Example]

```
MG(SIP) > set dns_option

Select DNS type
  0=A Record resolve(single IP Address)(default)
  1=A Record resolve(multi IP Address)
  2=Locating SIP servers function(RFC3263)
  3=A Record resolve (multi IP Address for REGISTER
bypass)
Input: 0
```

Select DNS type.
0: An alternative route is not used. (Default)
1: An alternative route is used by A record lookup.
2: An alternative route is used by NAPTR record lookup.
3: An alternative route is used by A record lookup. (REGISTER bypass is available.) **Note 7**

When Locating SIP servers function (RFC3263) (=2) is selected

```
MG(SIP) > set dns_option

Select DNS type
  0=A Record resolve(single IP Address)(default)
  1=A Record resolve(multi IP Address)
  2=Locating SIP servers function(RFC3263)
  3=A Record resolve (multi IP Address for REGISTER
bypass)
Input: 2

Select the setting of DNS cache
  0=enable(default)
  1=disable
Input: 1
```

Select DNS type.
0: An alternative route is not used. (Default)
1: An alternative route is used by A record lookup.
2: An alternative route is used by NAPTR record lookup.
3: An alternative route is used by A record lookup. (REGISTER bypass is available.) **Note 7**

Select the setting of DNS cache.
(Default: 0/enable)

Note: The conditions for this command are as follows.

- This command is available for SP-3905 MG SIP (16) PROG-A Issue 10 or later.
- The cache retention time length is 60 seconds.
- Available transport protocols are TCP and UDP.
- During NAPTR lookup, SIP processing stops.
- This function takes priority over transport protocol (TCP/UDP selection) configured with

"set sip_transport" command.
- Up to four servers can be routed in an alternate routing function by A/SRV record.
- You do not have to change this command setting if you do not use DNS server.

Note 7: When you select “3=A Record resolve (multi IP Address for REGISTER bypass)”, an alternative route for REGISTER is available. Apart from the original sending, up to three attempts to access different SIP servers are allowed for each DNS query.

16 SET△DOMAIN

This command is used to specify the domain of MG-SIP16.

`MG(SIP) > set domain`
 	
`Domain name(MAX128) : nec.com`
	• Specify the domain name. (Default: 0/Maximum: 128 bytes)

17 SET∆DRSADDRESS

This command is used to assign DRS address to MG-SIP16.

```
MG(SIP) > set drsaddress
DRS unit(0)
     DRS IP address: 172.16.253.1
     DRS port number(1024-65535): 3456
DRS unit(1)
     DRS IP address: 172.16.253.2
     DRS port number(1024-65535): 3456
DRS unit(2)
     DRS IP address: 172.16.253.3
     DRS port number(1024-65535): 3456
DRS unit(3)
     DRS IP address: 172.16.253.4
     DRS port number(1024-65535): 3456
```

- Assign the IP address of unit (0) (Default: 0.0.0.0).
- Assign the UDP port number for unit(0) (Default: 3456).
- Assign the IP address of unit (1) (Default: 0.0.0.0).
- Assign the UDP port number for unit(0) (Default: 3456).
- Assign the IP address of unit (2) (Default: 0.0.0.0).
- Assign the UDP port number for unit(0) (Default: 3456).
- Assign the IP address of unit (3) (Default: 0.0.0.0).
- Assign the UDP port number for unit(0) (Default: 3456).

Note: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

Note: unit(0), unit(1), unit(2), and unit(3) represent primary, secondary, tertiary, and fourthly respectively.

18 SET∆DRS_QOS

This command specifies the value of Type of Service (ToS) field on packets from MG-SIP16 to DRS.

When IP PRECEDENCE (=1) is selected:

```
MG(SIP) > set drs_qos
Input type: (1=PRECEDENCE/2=DIFFSERV/3=TOS): 1
PRECEDENCE(0-7): 5

DELAY(0/1): 0

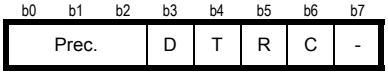
THROUGHPUT (0/1): 0

RELIABILITY(0/1): 0

COST(0/1): 0
```

- When IP PRECEDENCE (=1) is selected:
- Specify the precedence (default: 5). **Note 8**
  0-7 (Low - High)
- Specify the delay (default: 0).
  0/1 = Normal/Delay
- Specify the throughput (default: 0).
  0/1 = Normal/High Throughput
- Specify the reliability (default: 0).
  0/1 = Normal/High Reliability
- Specify the cost (default: 0).
  0/1 = Normal/Cost Precedence

Note 8: IP Precedence - ToS field is allocated as shown below.



: *Prec. = PRECEDENCE (3 bits), D = Delay, T = Throughput, R = Reliability, C = Cost*

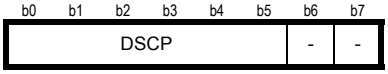
When DIFFSERV (=2) is selected:

```
MG(SIP) > set drs_qos
Input type: (1=PRECEDENCE/2=DIFFSERV/3=TOS): 2
DSCP(0-63): 40
```

- When DIFFSERV (=2) is selected:
- Specify the ToS field of DiffServ (default: 40).

Note 9

Note 9: DiffServ - ToS field is allocated as shown below.



: *DSCP (Differentiated Service Code Point (6 bits)*

When TOS (=3) is selected:

```
MG(SIP) > set drs_qos
Input type: (1=PRECEDENCE/2=DIFFSERV/3=TOS): 3
DSCP(00-FE): a0
```

- When TOS (=3) is selected:
- Specify the ToS field (default: a0).

19 SET∆DTMF_MODE

This command is used to specify the DTMF relay system in SIP network. MG-SIP16 supports Out-Band (RFC2833) and In-Band (G.711 data transmission as voice data). Negotiation, Out-Band, or In-Band can be assigned.

Note: DTMF relay method on the Telephony Server network side is automatically set according to the one on the MG-SIP network side, as follows:

DTMF relay system on the SIP network side	DTMF relay system on the Telephony Server network side	Remarks
RFC2833 (out-band)	Proprietary (out-band)	Conversions between "RTP (DTMF: RFC2833) packets on SIP network" and "UDP (DTMF: Proprietary) packets on Telephony Server network"
G.711 PassThrough (in-band)	G.711 PassThrough (in-band)	Conversions between "RTP packets on SIP network" and "RTP packets on Telephony Server network"

```
MG(SIP) > set dtmf_mode
DTMF Mode (0=Negotiation,1=Out-Band,2=In-Band)(default=0): _
```

- Select DTMF Mode.
  0: Negotiation
  1: Out-Band (fixed)
  2: In-Band (fixed)

When Negotiation is selected:

```
MG(SIP) > set dtmf_mode
DTMF Mode (0=Negotiation,1=Out-Band,2=In-Band)(default=0): 0
DTMF Duration (50-240(default=120)):
DTMF Pause(30-240(default=100)):
Payload type(RFC2833)(96-127(default=101)):
```

- When Negotiation (=0) is selected:
- Specify DTMF Duration.
- Specify DTMF Pause.
- Specify Payload type.

When Out-Band is selected:

```
MG(SIP) > set dtmf_mode
DTMF Mode (0=Negotiation,1=Out-Band,2=In-Band)(default=0): 1
DTMF Duration (50-240(default=120)):
DTMF Pause(30-240(default=100)):
Payload type(RFC2833)(96-127(default=101)):
```

- When Out-Band (=1) is selected:
- Specify DTMF Duration.
- Specify DTMF Pause.
- Specify Payload type.

When In-Band is selected:

```
MG(SIP) > set dtmf_mode
DTMF Mode (0=Negotiation,1=Out-Band,2=In-Band)(default=0): 2
DTMF Duration (50-240(default=120)):
DTMF Pause(30-240(default=100)):
```

- When In-Band (=2) is selected:
- Specify DTMF Duration.
- Specify DTMF Pause.

Note: Note that the sum of DTMF Duration and DTMF Pause values must be specified more than 120ms. If not, the following error message is displayed.

```
Input parameter error.
      reason [DTMF Duration + DTMF Pause < Min120ms]
```

20 SETΔH245_BASE_PORT_NO

This command is used to specify the H.245 port number to/from the Telephony Server network.

```
MG(SIP) > set h245_base_port_no

H245 base port number(1024-65535): 40000
```

- Assign the negotiation port number (default: 40000).

21 SETΔHC_ALARM

This command is used to set the alarm function which is activated to send a warning tone when a Health Check timeout occurs.

```
MG(SIP) > set hs_alarm

Please select H/C alarm type? (default=0)

       0: IPX and SIP side enable
       1: IPX side enable
       2: SIP side enable
       3: disable
```

- Select a type of Health Check Alarm.

  0: Warning tone is sent to the Telephony Server and SIP sides (default).
  1: Warning tone is sent to the Telephony Server side only.
  2: Warning tone is sent to SIP side only.
  3: disable

22 SETΔHC_TIMER

This command is used to specify the Health Check time-out.

```
MG(SIP) > set hc_timer

H/C timer value(130-65535):
```

- Assign the Health Check timer value (default: 240 seconds).

23 SETΔINTERFACE

This command is used to assign the Ether speed and the duplex type to each port on MG-SIP16.

```
MG(SIP) > set interface

Ether(1) speed (AUTO=0/10M=1/100M=2):0

Ether(2) speed (AUTO=0/10M=1/100M=2): 1

Ether(2) duplex (Half=1/Full=2): 1
```

- Assign an Ether speed type to Ether 1.
  0: Automatic Negotiation (default)
  1: 10 Mbps (fixed)
  2: 100 Mbps (fixed)
- Assign an Ether speed type to Ether 2.
  0: Automatic Negotiation (default)
  1: 10 Mbps (fixed)
  2: 100 Mbps (fixed)
- Assign a duplex type to Ether 1 and Ether 2. **Note 10**
  1: Half Duplex
  2: Full Duplex

Note 10: When “Automatic Negotiation” is selected, “Full Duplex” is automatically applied to the interface. Therefore, this command line will not appear for interface that is specified as “Automatic Negotiation”. When 100M is specified for Ether 1, the duplex type should also be assigned for Ether 1.

24 SET∆IPADDRESS

This command is used to assign an IP address and a subnet mask to each Ether port on MG-SIP16.

- Ether1: LAN (Telephony Server network) side
- Ether2: WAN (SIP network) side

Note: When the IP addresses of both LAN and WAN are assigned in the same segment, use Ether1 port only. Select one port in the number of port setting, and assign Ether1's IP address only. In this case, Ether2 is not used.

```
MG(SIP) > set ipaddress

Use one-port only? Y/N=n

Ether[1]
         IP address:  10.      1.      0.    1
         Subnet:     255.    255.    255.    0

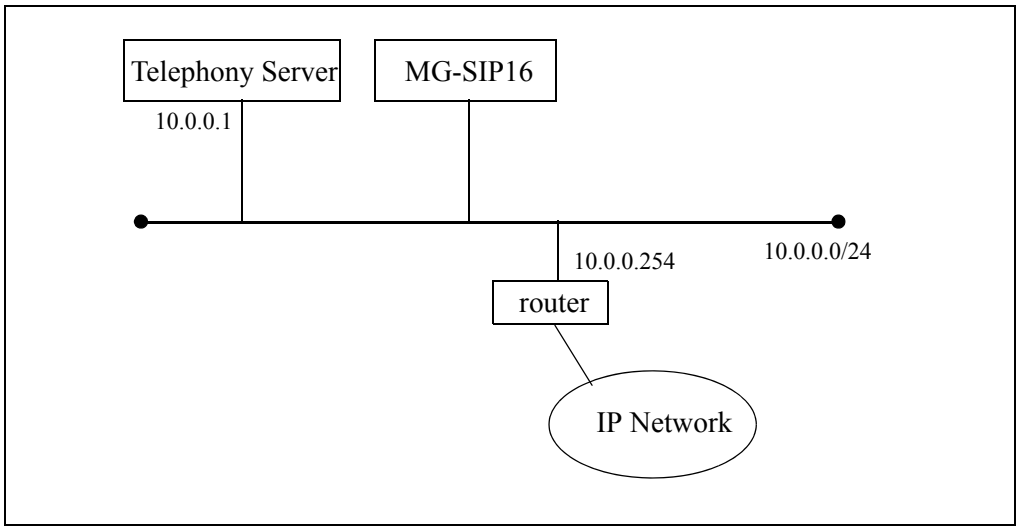

Ether[2]
         IP address: 192. 168.      1.    1
         Subnet:     255. 255.    255.    0
```

- Enter "n" when two ports are used.

Ether [1]: LAN side
- Assign the IP address (default: 0.0.0.0) for Ether [1].
- Assign the subnet mask (default: 0.0.0.0) for Ether [1].

Ether [2]: SIP network side
- Assign the IP address (default: 0.0.0.0) for Ether [2].
- Assign the subnet mask (default: 0.0.0.0) for Ether [2].

Note: When the IP addresses of LAN and SIP network sides are assigned in the same segment, use Ether1 only as shown below.



25 SET∆IPX_ROUTE

This command is used to specify route information in the Telephony Server side network. The registered number of pieces of the route information is up to 10. Pressing the Enter key can skip some of the items. In this case, default values are assigned automatically.

```
MG(SIP) > set set ipx_route

Route type(0: Exit/1: None/2: Static): 0
```

- Specify the Route type.
  0: Exit
  1: None (default)
  2: Static

When **Exit** (Route type = 0) is selected:

```
MG(SIP) > set set ipx_route

Route type(0: Exit/1: None/2: Static): 0


MG(SIP) > _
```

- When Exit (=0) is selected
- This will exit the command.

When **None** (Route type = 1) is selected:

```
MG(SIP) > set set ipx_route

Route type(0: Exit/1: None/2: Static): 1


Route type: None

Are you sure? Y/N=y

MG(SIP) > _
```

- When None (=1) is selected
- Enter “y” to set the data. **Note 11**

Note 11: Pressing any key other than “y” causes the following message.

```
Route setting command was interrupted.
```

When **Static** (Route type = 2) is selected: **Note 12**

[To Assign Destination Network Address and Gateway Address]

Note 12: Usually, gateway data should be set as 'Static' at LAN (Telephony Server network) side.

```
MG(SIP) > set ipx_route

Route type(0: Exit/1: None/2: Static): 2

Select command (0: Exit/1: Set/2: Delete): 1

Select gateway type (0: Exit/1: Gateway/2: Default gateway): 1

Destination network address(0.0.0.0): 172.16.0.0

Input subnet mask bit(0-31): 16

Gateway IP address(0.0.0.0): 192.168.0.254

Route type: Static

Gateway address    | Destination network / Prefix
-------------------------------------------------
192. 168.   0. 254 | 172.  16.   0.   0  / 16

Are you sure? Y/N=y

MG(SIP) > _
```

- When Static (=2) is selected
- Select 1 to set the data.
- Select Gateway (=1) as a gateway type.
- Specify the destination network address (default: 0.0.0.0).
- Specify the subnet mask (default: 0).
- Specify the gateway IP address (default: 0.0.0.0).
- Enter "y" to set the data. **Note 13**

Note 13: Pressing any key other than "y" displays the following message.

```
Route setting command was interrupted.
```

[To Assign Gateway Address only]

```
MG(SIP) > set ipx_route

Route type(0: Exit/1: None/2: Static): 2


Select command (0: Exit/1: Set/2: Delete): 1


Select gateway type (0: Exit/1: Gateway/2: Default gateway): 2


Gateway IP address(0.0.0.0): 192.168.0.254


Route type: Static

Gateway address    | Destination network / Prefix
-------------------------------------------------
192. 168.   0. 254 |   0.   0.   0.   0  / 0

Are you sure? Y/N=y

MG(SIP) > _
```

- When Static (=2) is selected
- Select 1 to set the data.
- Select Default gateway (=2) as a gateway type.
- Specify the default gateway IP address (default: 0.0.0.0).
- Enter “y” to set the data. **Note 14**

Note 14: Pressing any key other than “y” displays the following message.

```
Route setting command was interrupted.
```

Note: Two or more Default Gateway cannot be registered.

Note: To set a default gateway, it should be assigned to either LAN side port or SIP network side port.

[To Delete the assigned Routing Information]

```
MG(SIP) > set ipx_route

Route type(0: Exit/1: None/2: Static): 2


Select command (0: Exit/1: Set/2: Delete): 2


No | Gateway address  | Destination network / Prefix
-------------------------------------------------
 1 | 192.168.  0.254  | 172.16. 0. 0        / 16
 2 | 172. 16.  0.254  |  10. 0. 0. 0        / 8


Select Delete No?: 1




No | Gateway address  | Destination network / Prefix
-------------------------------------------------
 1 | 172. 16.  0.254  |  10. 0. 0. 0        / 8

Are you sure? Y/N=y


MG(SIP) > _
```

- Select 2 to delete routing data.
- Select 2 to delete routing data. **Note 15**
- Select No of Static Route Information you want to delete. (In this example, 1 is specified.)
- Enter “y” to delete the data. **Note 16**

Note 15: If there is no route to be deleted, the following will be displayed.

```
There is no static route table to delete.
```

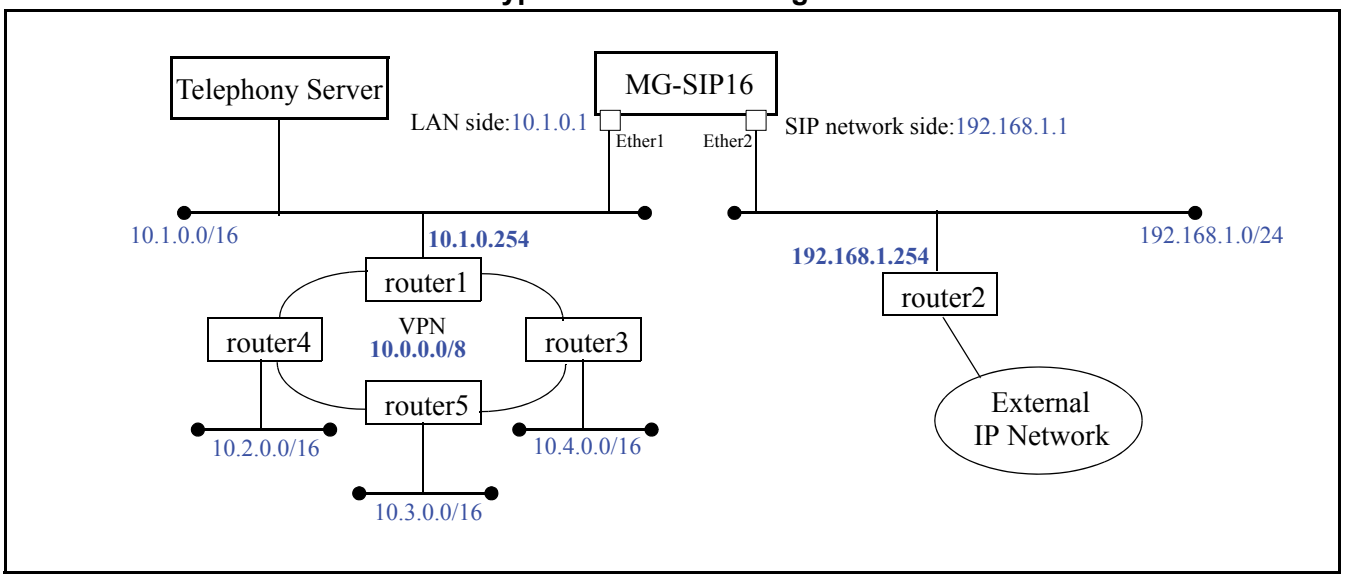
Note 16: Pressing any key other than “y” displays the following message.

```
Route setting command was interrupted.
```

Note: Routing assignment is unnecessary for network segment assigned to Ether (0).

The following shows a typical network configuration and the sample data setting.

Typical Network Configuration



Sample Data Setting for the above network configuration

```
MG(SIP) > set ipx_route

Route type(0: Exit/1: None/2: Static)                        : 2

Select command (0: Exit/1: Set/2: Delete)                    : 1

Select gateway type (0: Exit/1: Gateway/2: Default gateway): 1

Destination network address(0.0.0.0)                        : 10.0.0.0

Input subnet mask bit(0-31)                                  : 8

Gateway IP address(0.0.0.0)                                  : 10.1.0.254

Route type: Static

Gateway address     | Destination network / Prefix
-------------------------------------------------
  10.  1.  0. 254   | 10.   0.   0.    0  / 8

MG(SIP) > set sip_route

Route type(0: Exit/1: None/2: Static)                        : 2

Select command (0: Exit/1: Set/2: Delete)                    : 1

Select gateway type (0: Exit/1: Gateway/2: Default gateway): 2

Gateway IP address(0.0.0.0)                                  : 192.168.1.254

Route type: Static

Gateway address     | Destination network / Prefix
-------------------------------------------------
192. 168.  1. 254   |   0.   0.   0.   0  / 0
```

26 SETΔIPX_RTP_PORT_NO

This command is used to assign the base port number that is used for RTP at LAN side.

```
MG(SIP) > set ipx_rtp_port_no

IPX side RTP port number (1024-65024): 51000
```

- Assign the base port number that is used for RTP at LAN side (default: 51000). **Note 17**

Note 17: The value must be assigned by an even number.

27 SETΔKEYNUMBER

The command is used to assign a pilot number of MG-SIP16 for registration.

```
MG(SIP) > set keynumber

Key number(MAX32): 0
```

- Assign the pilot number when register is performed (default: 0). **Note 18**

Note 18: Be sure not to enter a space after the key number.

28 SETΔMULTI_REGIST

This command is used to enable/disable the setting of registration to SIP server per number.

```
MG(SIP) > set multi_regist

Enable Multi-registration mode?
(0:disable/1:enable(default=0)): 1


The interval of REGISTER message transmitting
(1-10sec(default=1sec)): 1


Standby timer value(10-3600sec(default=30sec)): 30


Contact header type?
(0: Privacy/1: SIP-URI(default=0)): 0
```

- .Select disable or enable.
  0: disable (default)
  1: enable
- Assign the time interval to send register (default: 1sec).
- Assign the time value to re-register after fault recovery (default: 30sec).
- Assign the header type.
  0: Privacy (default) **Note 19**
  1: SIP-URI **Note 20**

Note 19: When “Privacy” is selected, assign a random value to the User ID field of SIP message “Contact header”.
When “SIP-URI” is selected, assign the SIP-URI to the User ID field of SIP message “Contact header”. Assign the telephone number if SIP-URI has not been assigned.

Note 20: Use configuration command “setΔsip_register” to assign the SIP server for register destination. The assignment of “setΔsip_register” is necessary when registration is to be done per number.
Assign this command adjusting to the specifications on SIP network.

29 SET△MUSICTYPE

This command is used to select music type that is sent from MG-SIP16.

```
MG(SIP) > set musictype

Please select the music type
(0: Type1/1: Type2(default=Type1)): 0
```

- Select the music type to be sent from the MG-SIP.
  0: Type 1 (Minuet) (default)
  1: Type 2 (For Elise)

30 SET△PRACK

This command is used to enable/disable Provisional Response Acknowledgement (PRA) function. When this is set enabled, the cyclical-send of provisional response function can be specified. Pressing the Enter key can skip this item. In this case, default values are assigned automatically.

```
MG(SIP) > set prack

Is 100rel enable?
(0: enable/1: disable(default=0)): 0



Function which stop cyclical-send of Provisional Response
(0: disable/1: enable(default=0)): 0
```

- Select enable or disable for PRACK function.

  0: Prack function is enabled (default)
  1: Prack function is disabled

- Select enable or disable for stopping cyclical-send of provisional response. (This line appears when '0' is set in the previous line.)

  0: disable (cyclical 18x send will occur)
  1: enable (cyclical 18x send will not occur)

Note: Assign this command adjusting to the specifications on the SIP network.

31 SET△PRE_NEGOTIATION_PORT_NO

This command is used to specify the UDP port number that receives packets regarding the voice control path. Pressing the Enter key can skip the item. In this case, default values are assigned automatically. To make this assignment effective, it is required to execute the "SAVE" command and to restart the MG-SIP16 by using the "REBOOT" command.

```
MG(SIP) > set pre_negotiation_port_no

Pre negotiation port number(1024-65535): 61014
```

- Assign the negotiation port number (default: 61014)

32 SET△PRIVACY_PATTERN

Setting of the privacy pattern

This command is used to specify a type of Calling Line Identification Non-Presentation when calling to SIP network.

[Setting Example]

```
MG(SIP) > set privacy_pattern

Select Privacy pattern of Calling Party Number.
  0=DisplayName(default)
  1=Remote-Party-ID
  2=RFC3325
Input:
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

When "1" is selected:

```
MG(SIP) > set privacy_pattern

Select Privacy pattern of Calling Party Number.
  0=DisplayName(default)
  1=Remote-Party-ID
  2=RFC3325
Input: 1

Input a Dummy string. (MAX32 (strings))
                            :anonymous
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

Assign a Dummy string. The string can include at most 32 characters.

When "2" is selected:.

```
MG(SIP) > set privacy_pattern

Select Privacy pattern of Calling Party Number.
  0=DisplayName(default)
  1=Remote-Party-ID
  2=RFC3325
Input:2

Select RFC3325 pattern.
  0=Pattern 1:privacy_only(default)
  1=Pattern 2:TEL-URI
  2=Pattern 3:isub
  3=Pattern 4:SIP-URI
  4=Pattern 5:P-Associated-URI
  5=Pattern 6:SIP-URI(no privacy header)
Input:2
```

0: DisplayName (Default)
1: Remote-Party-ID
2: RFC3323/3325(P-Preferred-ID/Privacy)

Select an RFC3325 pattern **Note 21**
0: privacy_only (Default)
1: TEL-URI
2: isub
3: SIP-URI
4: P-Associated-URI
5: SIP-URI (no privacy header) **Note 22**

When "2" of RFC3325 Pattern is selected:

Input:2 Input Tel number. (default=0, MAX31(strings))	Input telephone number. 0: Default

Note: The conditions of “SET PRIVACY_PATTERN” are as follows.
- Assign this command adjusting to the specifications on the SIP network where MG-SIP16 [SCA-16SIPMGA/MG-16SIPMGA] connects.
- Be sure not to leave a blank space at the end of the Dummy string characters (with the Copy and Paste features of your personal computer), and be careful not to confuse some letters with numbers or other symbols (for example, the letter O and the number 0).

Note 21: Use of P-Preferred-ID headers of INVITE message differs for each pattern.
- When Pattern 1 is set: P-Preferred-ID header is not attached.
- When Pattern 2 is set: P-Preferred-ID header is attached (tel is used).
- When Pattern 3 is set: P-Preferred-ID header is attached (isub is used).
- When Pattern 4 is set: P-Preferred-ID header is attached (sip is used).
- When Pattern 5 is set: P-Preferred-ID header is attached (P-Associated-URI is used).
- When Pattern 6 is set: P-Preferred-ID header is attached (sip is used, and privacy header is not used).

Note 22: This parameter is available for SP-3905 MGSIP PROG-A Issue 10 or later. When you select this parameter and call from an anonymous number, Pilot Number assigned with the command “set_keynumber” is provided to a SIP network and converted into Calling Line Identification Non-Presentation number on the SIP network side.

Display for the firmware version earlier than SP-3905 MGSIP PROG-A Issue 10 is as follows:

MG(SIP) > set privacy_pattern Please select calling number privacy pattern. (0:DisplayName/1:Remote-Party-ID/2:RFC3325(default=0)):	• Select a pattern of RFC3325. 0: DisplayName (default) 1: Remote-Party-ID 2: RFC3323/3325(P-Preferred-ID/Privacy)

When **DisplayName** (=0) is selected:

MG(SIP) > set privacy_pattern Please select calling number privacy pattern. (0:DisplayName/1:Remote-Party-ID/2:RFC3325(default=0)):0 Privacy pattern: DisplayName	• When DisplayName (=0) is selected:

When **Remote-Party-ID** (=1) is selected:

```
MG(SIP) > set privacy_pattern

Please select calling number privacy pattern.
(0:DisplayName/1:Remote-Party-ID/2:RFC3325(default=0)):1


Please input a dummy string.(MAX32): anonymous


Privacy pattern: Remote-Party-ID


Dummy string anonymous
```

- When Remote-Party-ID (=1) is selected.
- Enter a dummy string in a maximum of 32 characters. **Note 23**

Note 23: Be sure not to enter a blank character to the end of the Dummy string characters (with the Copy and Paste features of your personal computer), and be careful not to mistype a character.

When **RFC3323/3325** (=2) is selected:

```
MG(SIP) > set privacy_pattern

Please select calling number privacy pattern.
(0:DisplayName/1:Remote-Party-ID/2:RFC3325(default=0)):2


Please select RFC3325 pattern.
(0: Pattern 1/1: Pattern 2(default=0)):0


Privacy pattern: RFC3325(0)
```

- When RFC3325 (=2) is selected.
- Select an RFC3325 pattern
  0: Pattern 1
  (P-Preferred-ID Header is not attached)
  1: Pattern 2
  (P-Preferred-ID Header is attached)

33 SET△REGISTRATION_PORT_NO

This command is used to specify the UDP port number that receives the registration packets.

```
MG(SIP) > set registration_port_no

Registration port number (1024-65535): 3456
```

- Assign the port number (default: 3456).

34 SET△REG_INTERVAL

This command is used to assign the retry waiting time when failed to register, due to the error-response or no answer from the server when a Register packet was sent to SIP server from MG(SIP).

```
MG(SIP) > set reg_interval

REGISTER Interval timer (1-255min(default=5min)): 5
```

- Assign the registration retry waiting time.
  Re-register waiting time (min): (default: 5min)

Note: Assign this command adjusting to the specification on SIP network.
When registration per number function is effective, assign by setting MG(SIP) using the largest number within the same MG(SIP) group referring to table below.

Amount of Numbers	Time (minute)
1-300	5
301-600	10
601-900	15
901-1000	20

35 SET△RTP_PATHON

This command is used to assign Path-on function by 183Progress after receiving 180Ringing.

```
MG(SIP) > set rtp_pathon

Path-on 183 after 180?(0: disable/1: enable(default=0)): 0
```

- Assign Path-on function data.
  0: disable (default)
  1: enable

Note: Assign this command adjusting to the specifications on the SIP network.

36 SETΔRTP_QOS

This command is used to specify the QoS of Real-Time Protocol (RTP). The sample data setting is explained in 18 SETDDRS_QOS.

```
MG(SIP) > set rtp_qos
```

See SET DRS_QOS command for more details.

37 SETΔSDP_STYLE

This command is used to receive SDP with multiple “m” lines.

[Setting Example]

```
MG(SIP) > set sdp_style

Select SDP style setting.
  0=normal(default)
  1=RFC4566
Input:1

Select RFC4566 setting.
  0=no Warning Code (default)
  1=additional Warning Code
Input:1
```

0: normal (default)
1: conforms to RFC4566

RFC4566 (Warning Code) **Note 24**
0: Add no Warning Code (default)
1: Add Warning Code

Note 24: This parameter is available for SP-3905 MG SIP(16) PROG-A Issue 10 or later.

38 SETΔSELF_SIP_DOMAIN

This command is used to create a SIP domain.

```
MG(SIP) > set self_sip_domain

Self SIP domain mode is disable?(0: disable/1: enable(default=0)): _
```

When **SIP Domain Mode is Disable** (=0) is selected:

```
MG(SIP) > set self_sip_domain

Self SIP domain mode is disable?(0: disable/1: enable(default=0)): 0
```

- When 0 (=disable) is specified (default)

When **SIP Domain Mode is Enable** (=1) is selected:

```
MG(SIP) > set self_sip_domain

Self SIP domain mode is disable?(0: disable/1: enable(default=0)): 1

Please input a self SIP domain string.(MAX128):
```

- When 1 (=enable) is specified.
- Input the SIP domain name in a maximum of 128 characters.

Note: Assign this command adjusting to the specifications on the SIP network.

Note: This command is required only when SIP domains must be separated between the SIP server and MG-SIP16.

Note: When no data has been assigned by this command, the SIP domain that has been set by "setΔsip_server" command will be used as the SIP domain of MG-SIP16.

39 SETΔSESSION_TIMER

This command is used to specify the Session Timer.

```
MG(SIP) > set session_timer

Is a session-timer enable?(0: enable/1: disable(default=0)):_
```

- Enable/Disable session timer
  0: Session Timer is enabled
  1: Session Timer is disabled

When **Session-Timer is Enable** (=0) is selected:

```
MG(SIP) > set session_timer

Is a session-timer enable?
(0: enable/1: disable(default=0)): 0

Session-expires(0-86400(default=180sec)): 180

Refresher(0: UAC/1: UAS(default=0)): 0

Add "refresher=uac" in INVITE?
(0: disable/1: enable(default=0)): 1

forced mode?(0: disable/1: enable(default=0)): 0

Session-timer is enable.
Session-expires: 180
Refresher: UAC
Invite Refresher: disable
Forced: disable
```

- When Enable(=0) is selected:
- Set the session timer.
- Determine a point to make refresher.
  UAC: User Agent Client
  UAS: User Agent Server
- refresher=uac addition to INVITE message:
  0: refresher=uac is not added
  1: refresher=uac is added
- forced mode:
  0: Session timer will not be activated when Supported/Require header does not exist (default).
  1: Session timer will be activated by using Session-Expires when Supported/Require header does not exit.

When **Session-Timer is Disable** (=1) is selected:

```
MG(SIP) > set session_timer

Is a session-timer enable?(0: enable/1: disable(default=0)): 1

Session-timer is disable.
```

- When Disable(=1) is selected.

40 SET∆SIGNALING_PORT_NUMBER

This command is used to specify the UDP port number that receives the control signal packets.

`MG(SIP) > set signaling_port_no`
 	
`Signaling port number(1024-65535):61012`
	• Assign the signaling port number (default: 61012).

41 SET∆SIP_ACCFILTER

This command is used to enable the SIP Access Filter which discards SIP packets received from an unauthorized destination.

Also, this command is used to enable the Burst Access Filter which temporarily limits the maximum number of incoming calls that can be received by a Telephony server when a rush of calls from a SIP network occurs instantaneously.

Note: Be careful when you set "SIP Access Filter" and at the same time is set "A record resolve (single IP Address)" of the dns_option command. If the IP address of the SIP messages does not belong to the range defined by the mask of the "SIP Acces Filter", the messages will be discarded.
Example: The IP address of the alternative route is 10.10.2.1 and the IP server address is 10.10.3.1. If the SIP access filter mask is set to 255.255.255.0, the message will be discarded. Set the mask to 255.255.0.0 to allow the message to be received.

When IP address (=0) is selected by “set sip_server” command:

```
MG(SIP) > set sip_accfilter

Select the setting of SIP Access Filter.
  0=disable (default)
  1=enable
Input: 1

Input SIP Access Filter mask. (default
=255.255.255.255)
(SIP server IP Address: 192.168.100.100)
                                : 255.255.255.255



Select the setting of Burst Access Filter.
0 = disable (default)
1 = enable

Input : 1
Input Burst Access limit timer value. (sec)
(1-60(default=1)) : 30


Input Burst Access limit number value.
(1-1000(default=10)) : 500



Input Burst Access reject response code.
(400-699(default=488)) : 600









MG(SIP)
```

- Enable/disable SIP Access Filter. **Note 25**
  0: SIP Access Filter is disabled (default).
  1: SIP Access Filter is enabled.

- When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

Note: The IP address of Register Server is authorized although it is not displayed.

- Enable/disable Burst Access Filter. **Note 26**
  0: Burst Access Filter is disabled (default).
  1: Burst Access Filter is enabled.

- Assign the period of monitoring incoming calls (sec.). (1-60, default is 1.)

- Assign the limit number of incoming calls (INVITE number) to be received during a monitoring period (sec.). **Note 27**
  (1-1000, default is 10.)

- Assign the error response code that is sent back to a SIP network when the INVITE number exceeds the limit during a monitoring period (sec.).
  (400-699, default is 488.).

When FQDN (=1) is selected by "set sip_server" command:

```
MG(SIP) > set sip_accfilter

Select the setting of SIP Access Filter.
  0=disable (default)
  1=enable
Input: 1

Input SIP Access Filter mask. (default
=255.255.255.255)
(SIP server FQDN: sipserver.nec.com)
                                : 255.255.255.255



Select the setting of Burst Access Filter.
0 = disable (default)
1 = enable

Input : 1
Input Burst Access limit timer value. (sec)
(1-60(default=1)) : 30


Input Burst Access limit number value.
(1-1000(default=10)) : 500



Input Burst Access reject response code.
(400-699(default=488)) : 600



MG(SIP)
```

- Enable/disable SIP Access Filter. **Note 25**
  0: SIP Access Filter is disabled (default).
  1: SIP Access Filter is enabled.
- When SIP Access Filter is enabled, set SIP Access Filter mask. (Default: perfect matching which means only SIP server address is authorized)

Note: The IP address of Register Server is authorized although it is not displayed.

- Enable/disable Burst Access Filter. **Note 26**
  0: Burst Access Filter is disabled (default).
  1: Burst Access Filter is enabled.
- Assign the period of monitoring incoming calls (sec.). (1-60, default is 1.)
- Assign the limit number of incoming calls (INVITE number) to be received during a monitoring period (sec.). **Note 27**
  (1-1000, default is 10.)
- Assign the error response code that is sent back to a SIP network when the INVITE number exceeds the limit during a monitoring period (sec.).
  (400-699, default is 488.)

Note 25: This feature is available for SP-3905 MG SIP (16) PROG-A Issue 5 or later.

Note 26: This feature is available for SP-3905 MG SIP (16) PROG-A Issue 7 or later.

When receiving incoming calls that exceed the assigned limit number while this feature is enabled, an error response code is sent back to a SIP network and further incoming calls are rejected until the next period of monitoring incoming calls.

Note 27: Only Initial-INVITE is counted as an incoming call. In addition, INVITE from an unauthorized destination is also counted as an incoming call when SIP Access Filter feature is disabled.
The followings are not counted as an incoming call:

- Outgoing call
- Abandoned or received call
- Re-INVITE
- INVITE from unauthorized destination (when SIP Access Filter feature is enabled)
- INVITE without the following header
  - Via
  - From
  - To
  - CSeq
  - CallID

42 SETΔSIP_PORT_NO

The command is used to specify a port number that receives SIP messages.

MG(SIP) > set sip_port_no SIP port number(1024-65535):5060	• Assign the SIP port number (default: 5060).

43 SETΔSIP_QOS

This command is used to specify the QoS of Session Initiation Protocol (SIP).

MG(SIP) > set sip_qos	See SET DRS_QOS command for more details.

44 SETΔSIP_REGISTER

The command is used to assign an IP address or a Fully Qualified Domain Name (FQDN) of the Registry server.

MG(SIP) > set sip_register SIP register type(0=IP address/1=FQDN):_	• Select the register type. 0: IP address 1: FQDN

When **IP address** (=0) is selected:

MG(SIP) > set sip_register SIP register type(0=IP address/1=FQDN):0 SIP register IP address: 192.168.100.100 SIP register port number(1024-65535): 5060 SIP register expires time(1-65535): 3600	• When IP address (=0) is selected. • Assign the IP address of the register server (default: 0.0.0.0). • Assign the port number of the register server (default: 5060) • Assign the register alive time in seconds (default: 3600).

When **FQDN** (=1) is selected:

MG(SIP) > set sip_register SIP register type(0=IP address/1=FQDN):1 Full Qualified Domain Name(MAX63): nec.com SIP register port number(1024-65535): 5060 SIP register expires time(1-65535): 3600	• When FQDN (=1) is selected. • Assign the FQDN (default:0, max 63 characters). **Note 28** • Assign the port number of the register server (default: 5060) • Assign the register alive time in seconds (default: 3600).

Note 28: Be sure not to enter a space after FQDN characters.

45 SETΔSIP_ROUTE

This command is used to specify route information in the SIP side network. The registered number of the route information is up to 10.

`MG(SIP) > set sip_route`	See SET IPX_ROUTE command for more details.

46 SETΔSIP_RTP_PORT_NO

This command is used to specify the base RTP port number from SIP network.

`MG(SIP) > set sip_rtp_port_no` `SIP side RTP port number (1024-65024): 50000`	• Assign the base RTP port number for SIP side (default: 50000) **Note 29**

Note 29: The value must be assigned by an even number.

47 SETΔSIP_SERVER

The command specifies the IP address or the Fully Qualified Domain Name (FQDN) of a SIP proxy server.

Note: Pressing the Enter key can skip the item. However,“SIP server type” and “IPaddress/FQDN” cannot be skipped.

`MG(SIP) > set sip_server` `SIP server type(0=IP address/1=FQDN):_`	• Select the type of the proxy server. 0: IP address 1: FQDN

When **IP address** (=0) is selected:

`MG(SIP) > set sip_server`	
`SIP server type(0=IP address/1=FQDN):0`	• When IP address (=0) is selected.
`SIP server IP address: 192.168.100.100`	• Assign the IP address of the proxy server (default: 0.0.0.0).
`SIP server port number(1024-65535): 5060`	• Assign the port number of the proxy server (default: 5060)
`Strict or Loose(0/1): 0`	• Select a Strict router or Loose router for the proxy server (default: 0). 0: Strict router 1: Loose router
`Domain Name(MAX128):_`	• Input a string that specifies the service provider in a maximum of 128 characters.

When **FQDN** (=1) is selected:

```
MG(SIP) > set sip_server

SIP server type(0=IP address/1=FQDN):1


Fully Qualified Domain Name(MAX63):nec.com

SIP server port number(1024-65535): 5060


Strict or Loose(0/1): 0




Domain Name(MAX128):_
```

- When FQDN (=1) is selected.
- Assign the FQDN of the proxy server in a maximum of 62 characters (default: 0).
- Assign the port number of the proxy server (default: 5060)
- Select a Strict router or Loose router for the proxy server (default: 0).

  0: Strict router
  1: Loose router
- Input a string that specifies the service provider in a maximum of 128 characters.

Note: Be sure not to enter a space after FQDN characters.

48 SETΔSIP_TEL_SERVICE

The command is used to enable/disable the use of additional service features (Hold/Retrieve/Transfer from the SIP network side terminal).

```
MG(SIP) > set sip_tel_service

  Is SIP telephony service function disable?
          (0: disable/1: enable(default=0)): _
```

- Enable/disable additional service feature.
  0: additional service feature is disabled (default)
  1: additional service feature is enabled

When **enable (**=1) is selected:

```
MG(SIP) > set sip_tel_service

Is SIP telephony service function disable?
        (0: disable/1: enable(default=0)):1


Is Replaces function enable? (0: enable/1: disable(default=0)):_
```

- When enable (=1) is selected:
- Enable/disable Replaces function.
  0: enable (default)
  1: disable

```
Is hold [a=inactive] function enable? (0: enable/
1: disable(default=0)):
```

0: a=inactive hold function is enabled (default)
1: a=inactive hold function is disabled

Note: Assign this command adjusting to the specification on SIP network

Note: Setting of a=inactive hold function enable/disable is available for SP-3905 MG SIP (16) PROG-A Issue 3 or later.

49 SETΔSLIPRESP

This command is used to determine a SLIP response code. This command is used to determine an error response code that is sent in order to prompt a SIP server to bypass when all the resources of MG-SIP16 [SCA-16SIPMGA/MG-16SIPMGA] are busy.

```
MG(SIP) > set slipresp

SIP Server slip response code?(400-699):_
```

- Set the SLIP response code (default: 488).

50 SETΔUPDATE

This command is used to enable/disable the use of update method.

```
MG(SIP) > set update

        Is the UPDATE method support function disable?
                    (0: disable/1: enable(default=0)):_
```

- Enable/disable update method.
  0: Update method is enabled (default)
  1: Update method is disabled

Note: Assign this command adjusting to the specification on SIP network.

51 SETΔRESPONSE_TABLE

This command is used to set response table.

```
MG(SIP) > set response_table

Select Response_table (Error_cause to SIP_Error_response)
          (0:normal/1:revised_table (default=0)):_
```

- Select the response table pattern
  0: Normal table (default)
  1: Server error is not sent out from MG-SIP16 to SIP network

Note:

- Generally this command is not required to be changed.
- This command is available for SP-3905 MG SIP (16) PROG-A Issue 3 or later.

52 SETΔOUT_OF_AREA_CODE

This command is used to set the error response code to inform out-of-area error on the Telephony Server network side.

```
MG(SIP) > set out_of_area_code

Please set up the error response code when the out of
area. (400-606 (default=408)): 408
```

- Enter the error response code (default: 408)

Note:

- Generally this command is not required to be changed.
- This command is available for SP-3905 MG SIP (16) PROG-A Issue 3 or later.

53 SET△MULTISESSION

This command is used to enable/disable the use of Multi-Path Switch in ACD system by using MG-SIP16.

MG(SIP) > set multisession The multi-session setting is disable. Is the multi-session setting enable? (0:disable/ 1:enable (default=0): 1 The multi-session setting is enable. MG(SIP) >	The current setting is displayed. 0: disable (default) 1: enable The result is displayed.

Note: This command is available for SP-3905 MG SIP (16) PROG-A 02.01.00.00 or later.

SHOW COMMAND

1 SHOW∆ARP

This command is used to show the Address Resolution Protocol (ARP) table. The following shows a sample display.

```
MG(SIP) > show arp

LINK LEVEL ARP TABLE
Destination     LL Address          Flags     Refcnt     Use    Interface
------------------------------------------------------------------------
90.0.0.63       08:00:3e:23:79:e7   0x405     0          82     lo0
------------------------------------------------------------------------
```

Note: The actual value may differ from this sample.

2 SHOW∆CONFIG

This command is used to show the configuration that has been currently specified for the MG-SIP16.

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:_
```

- Select a desired item (0 - 9) to display.

When MAC Data (=0) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:0

Ether[1] MAC address: 00-00-00-00-00-00

Ether[2] MAC address: 00-00-00-00-00-00
```

- When MAC Data (=0) is selected:
- MAC address of Ether [1] of MG-SIP 16
- MAC address of Ether [2] of MG-SIP 16

When DRS Data (=1) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:1


DRS[0] IP address: 0.0.0.0: PortNo[3456]


DRS[1] IP address: 0.0.0.0: PortNo[3456]


DRS[2] IP address: 0.0.0.0: PortNo[3456]


DRS[3] IP address: 0.0.0.0: PortNo[3456]
```

- When DRS Data (=1) is selected:
- IP address and port number of the currently configured DRS will be displayed.

When Common Config Data (=2) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:2

set signaling_port_no:
 Signal port number           :61012
-------------------------------------

set registration_port_no:
 Registration port number     :3456
-------------------------------------

set pre_negotiation_port_no:
 Voice path port number       :61014
-------------------------------------

set ipx_rtp_port_no:
 IPX side RTP port number     :51000
-------------------------------------

set sip_rtp_port_no:
 SIP side RTP port number     :50000
-------------------------------------

set h245_base_port_no:
 H245 base port number        :40000
-------------------------------------

Does it display more? Y/N=y
```

- When Common Config Data (=2) is selected:
- Currently assigned config data will be displayed.
- To see the config data more, enter “y”. To exit this command, press “n”.

```
set drs_qos:
 DRS QOS                    : 0xa0
     PRECEDENCE             : 5
     DELAY                  : 0
     THROUGHPUT             : 0
     RELIABILITY            : 0
     COST                   : 0
-------------------------------------

set rtp_qos:
 RTP QOS                    : 0xa0
     PRECEDENCE             : 5
     DELAY                  : 0
     THROUGHPUT             : 0
     RELIABILITY            : 0
     COST                   : 0
-------------------------------------

Does it display more? Y/N=y
-------------------------------------

set sip_qos:
 SIP QOS                    : 0xa0
     PRECEDENCE             : 5
     DELAY                  : 0
     THROUGHPUT             : 0
     RELIABILITY            : 0
     COST                   : 0
-------------------------------------

set domain:
 Domain name                : 0
-------------------------------------

set dnsaddress:
 DNS IP address             : 0.0.0.0
-------------------------------------

set hc_alarm:
 H/C Alarm type             : IPX and SIP side enable

-------------------------------------

set hc_timer:
 H/C Timer value            : 240
-------------------------------------

set musictype:
 Music Type                 : Type1
-------------------------------------

set call_hold:
 Call Hold function         : enable
 RTP detect timer value     : 3sec
 Response code to reject    : 488
-------------------------------------
```

Note 30

- When MG Based Call Retention is enabled.

Note 31, **Note 32**

Note 30: H/C Alarm type display varies depending on the type that is assigned by the “set hc_alarm.”

- When assigned as IPX network ⇒ SIP network: “Telephony Server and SIP side enable”
- When assigned as IPX network: “Telephony Server side enable”
- When assigned as SIP network: “SIP side enable”

- When assigned not to send: “Disable”

Note 31: The display shows “set call_hold” since SP-3905 MG SIP (16) PROG-A Issue 5.

Note 32: When “disable” is selected by the SET command “call_hold”, “disable” is displayed, but “RTP detect timer value” and “Response code to reject” are not displayed.

When Port Config Data (=3) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:3


Ether[1]
      IP address: 0.0.0.0
      Subnet    : 0.0.0.0
      Interface : Speed/Duplex-Auto/Automatic
      Port type : IPX Side Port

Ether[2] MAC address: 00-00-00-00-00-00
      IP address: 0.0.0.0
      Subnet    : 0.0.0.0
      Interface : Speed/Duplex-Auto/Automatic
      Port type : SIP Side Port
```

- When Port Config Data (=3) is selected:
- Information of data that is assigned for ports.

When SIP Config Data (=4) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:4


set sip_server:
 Server type                    :0
 Sever IP address               :0.0.0.0
 Server port number             :5060
 Strict or Loose                :0
 Domain Name                    :0
-----------------------------------------
set sip_register:
 Register IP address            :0.0.0.0
 Register port number           :5060
 Expires time                   :3060
-----------------------------------------
set keynumber:
 Key number                     :0
-----------------------------------------
set auth:
 User ID                        :0
 Password                       :0
-----------------------------------------

Does it display more?Y/N=y
-----------------------------------------
```

- When SipConfig Data (=4) is selected:
- SIP config data will be displayed.

```
set privacy_pattern:
 Privacy pattern                  :Remote-Party-ID
 Dummy string                     :anonymous
-------------------------------------------------
set session_timer:
 Session-timer                    :0
 Session-expires                  :180
 Refresher                        :UAC
 Invite Refresher                 :enable
 Forced                           :disable
-------------------------------------------------
set prack:
 100rel                           :enable
 Stop cyclical-send of 18x        :disable
-------------------------------------------------
set cdn_pattern:
 Called-number pattern            :To:userinfo
-------------------------------------------------
set sip_port_no:
 SIP port number                  :5060
-------------------------------------------------

Does it display more?Y/N=y
-------------------------------------------------
set 184ToPrivacy:
 184->Privacy function            :disable
-------------------------------------------------
set slipresp:
 SIP Server slip response code.   :488
-------------------------------------------------
set self_sip_domain:
 Self SIP domain mode             :disable

Does it display more?Y/N=y
-------------------------------------------------
set dtmf_mode:
 DTMF Mode                        :Negotiation(SIP/SDP)
 DTMF Duration                    :120 ms
 DTMF Pause                       :100 ms
 DTMF Payload type                :101
-------------------------------------------------
set 183rbt:
 RBT add(193 w/o SDP)             :enable
-------------------------------------------------
set pathon:
 Path-on 183 after  180           :disable
-------------------------------------------------
set another_keynumber:
 Another keynumber1               :0
 Another keynumber2               :0
 Another keynumber3               :0

Does it display more?Y/N=y
-------------------------------------------------
```

```
set multi_regist:
 Multi-registration mode                          :disable
-----------------------------------------------------------

Set sip_tel_service:
 SIP telephony service function                   :disable
-----------------------------------------------------------

set reg_interval
 SIP telephony service function                   :disable
-----------------------------------------------------------

set update
 UPDATE Method support                            :disable
-----------------------------------------------------------

set auth_header:
 Auth-header cache function                       :enable
-----------------------------------------------------------

set cause_table:
 Cause_table selection                            :normal
-----------------------------------------------------------

set response_table
 Response_table selection                         :normal

Does it display more? Y/N=y
-----------------------------------------------------------

set cpn_pattern
 Priority of Calling-number                  :Displayname
-----------------------------------------------------------

set cc_convert
 Country-code convert                             :disable
-----------------------------------------------------------

set check number
 Number check function                            :disable
-----------------------------------------------------------

set out_of_area_code:
 Response code when out of area             :408(default)
-----------------------------------------------------------

set sdp_style
 SDP style setting                                :normal
-----------------------------------------------------------

set call_id_relay
 Call-ID relay mode                              :disable
-----------------------------------------------------------

set sip_accfilter:
 SIP Access Filter                               :disable
 Burst Access Filter                             :disable
-----------------------------------------------------------
set congestion:
 Congestion function                              :disable
-----------------------------------------------------------
```

Note 33

Note 34

Note 35

Note 36

Note 37

Note 39

Note 38

Note 38, **Note 40**
Note 41

Note 42

```
set dns_option:
 DNS Type                          :Locating SIP
                                    servers
                                    function (RFC3263)
 DNS cache                         :enable
```

Note 33: "revised_table" will be displayed when revised_table is selected in "response_table" command.

Note 34: "User info" will be displayed when User info is selected in "cpn_pattern" command.

Note 35: "enable" will be displayed when enable is selected in "cc_convert" command.

Note 36: "enable" will be displayed when enable is selected in "check_number" command.

Note 37: "RFC4566" will be displayed when RFC4566 is selected in "sdp_style" command.

Note 38: "set call_id_relay" and "set sip_accfilter" are displayed since SP-3905 MG SIP (16) PROG-A Issue 5.

Note 39: When "Pattern 1" or "Pattern 2" is selected by the setting command "cc_convert", the following parameters are displayed.
(Example) When "Pattern 2" is selected ("Pattern 2" is displayed for SP-3905 MG SIP (16) PROG-A Issue 10 or later):
Country Code: 81
National Prefix: 0
National Destination Code: 3
International Prefix: 010
Number of Local Number digits: 3

Note 40: When "enable" is selected for "SIP Access Filter" by the SET command "sip_accfilter", "enable" and the following settings are displayed:

- When IP address is assigned by the SET command "sip_server"
  (SIP server IP Address: 192.168.100.100)
  SIP Access Filter mask: 255.255.255.255
- When FQDN is assigned by the SET command "sip_server"
  (SIP server FQDN: sipserver.nec.com)
  SIP Access Filter mask: 255.255.255.255

When "disable" is selected for "SIP Access Filter", the above settings are not shown.

Note 41: For SP-3905 MG SIP (16) PROG-A Issue 7 or later, when "enable" is selected for "Burst Access Filter" by the SET command "sip_accfilter", "enable" and the following settings are displayed:
Burst Access Filter: enable
Burst Access limit timer value: 30
Burst Access limit number value: 500
Burst Access reject response code: 600

When "disable" is selected for "Burst Access Filter", the above settings are not shown.

Note 42: Setting for SIP Server's specified location (RFC3263) feature is displayed. This parameter is displayed for SP-3905 MG SIP (16) PROG-A Issue 10 or later. When "A Record resolve (single IP Address)", "A Record resolve (multi IP Address)", or "A Record resolve (multi IP Address for REGISTER bypass)" is selected, the display is as selected is shown.

Additional Information when SIP Config Data (=4) is selected:

Item	Detail
Server type	"Server IP address" may be displayed as "Server FQDN", pertaining to the data assigned.
Register IP Address	"Register IP address" may be displayed as "Register FQDN", pertaining to the data assigned.
Privacy pattern	Displayed as pattern shown below, pertaining to the data assigned. "DisplayName" "Remote-Party-ID" "RFC3323/3325(0)" "RFC3323/3325(1)"
Dummy string	Displayed only when "Remote-Party-ID" is assigned for "Privacy pattern".
Session-timer	May be displayed "Disabled", pertaining to the data assigned.
Session-expires	Not displayed when the value of "Session-timer" is "disable".
Refresher	Not displayed when the value of "Session-timer" is "disable". May be displayed "UAS", pertaining to the data assigned.
Invite Refresher	Not displayed when the value of "Session-timer" is "disable". May be displayed "disabled", pertaining to the data assigned.
Forced	Displayed as "enabled" when Forced section in "session_timer" is assigned as enabled.
100rel	May be displayed "disabled", pertaining to the data assigned.
Stop cyclical-send of 18x	Not displayed when the value of "100rel" is "disable". May be displayed "enabled", pertaining to the data assigned.
Called-number pattern	May be displayed "Request-URI", pertaining to the data assigned.
isub function	May be displayed "enabled", pertaining to the data assigned.
184 → 0 Privacy function	Displayed as pattern shown below, pertaining to the data assigned. "disable" "enable (1)" "enable (2)"
Self SIP domain mode	May be displayed "enabled", pertaining to the data assigned.
Self SIP domain string	Not displayed when the value of "Self SIP domain mode" is "disable". Domain name assigned will be displayed when "enable".
DTMF Mode	Displayed as pattern shown below, pertaining to the data assigned. "Negotiation (SIP/SDP)" "In-Band (G.711)" "Out-Band (RFC2833)"
DTMF Payload type	Not displayed when the value of "DTMF Mode" is "In-Band".
RBT add (183 w/o SDP)	May be displayed "Disabled", pertaining to the data assigned.
Path-on 183 after 180	May be displayed "enabled", pertaining to the data assigned.
Transmitting Interval timer	Not displayed when the value of "Multi-registration mode" is "disable".

Item	Detail
Standby timer value	Not displayed when the value of "Multi-registration mode" is "disable".
Contact header type	Not displayed when the value of "Multi-registration mode" is "disable". May be displayed "SIP-URI", pertaining to the data assigned.
Multi_regist	When enable is selected in "**multi_regist**" command, "enable" is displayed and the following are also displayed. Transmitting interval timer: 1sec Standby timer value: 30sec Contact header type: Privacy or SIP-URI **Note:** The settings above are not displayed when "disable" is assigned in "**multi_regist**"
SIP telephony service function	When enable is selected in "**sip_tel_service**" command, "enable" is displayed and the setting of Replaces function is displayed as follows. Replaces function: enable Replaces function: disable **Note:** Replaces function setting is not displayed when "disable" is assigned in "**sip_tel_service**".
UPDATE Method support function	May be displayed "enable", pertaining to the data assigned.
Auth-header cache function	May be displayed "disable", pertaining to the data assigned.
Cause_table selection	May be displayed "alternate routing", pertaining to the data assigned.

When **Route Config Data (=5)** is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:5


Ether[1]
Route type: Static

No | Gateway address   | Destination IP address / Prefix
-----------------------------------------------------------
 1 | 192.168.  0.254   | 172.16. 0. 0           / 16

Ether[2]
Route type: Static

No | Gateway address   | Destination IP address / Prefix
-----------------------------------------------------------
 1 | 192.168.  0.254   |   0. 0. 0. 0           / 0
```

- When Route Config Data (=5) is selected:

3 SHOW∆INTERFACE

This command is used to show the link and setting state of Ether connection.

```
MG(SIP) > show interface

Use one-port only

Ether[1]:

 MAC Address:00-00-00-00-00-00


 Interface: Speed/Duplex = Auto/Auto


 Link status: Link up
```

- MAC address is indicated.
- Speed and operation mode will be indicated.
- Link status can be monitored.

4 SHOW∆ROUTE

This command is used to show the Route Table.

```
MG(SIP) > show route

ROUTE NET TABLE

Destination     Gateway         Flags    Refcnt    Use   Interface
------------------------------------------------------------------
10.41.205.0     10.41.205.100   0x101    0         0     dp0
10.41.207.0     10.41.207.100   0x101    0         0     dp1
------------------------------------------------------------------

ROUTE HOST TABELE
Destination     Gateway         Flags    Refcnt    Use   Interface
------------------------------------------------------------------
127.0.0.1       127.0.0.1       0x101    0         0     lo0
------------------------------------------------------------------
```

- It may take time to display the route table information when DNS server IP address has been assigned.

Note: The actual value may differ from this sample.

5 SHOW∆STATUS

This command is used to show a status of the system.

[Setting Example]

Earlier than SP-3905 MGSIP (16) PROG-A Issue 3

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:_
```

0: Port status (default)
1: Telephony Server network registration status
2: SIP network registration status
9: Exit

When **Port status (=0)** is selected:

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:0

IPX port link up (100Base-TX/Half)
SIP port link up (10Base-TX/Half)
```

• When Port Status (=0) is selected:

Note 43

Note 43: Port status is displayed as follows depending on the status.

Port Status	IPX Network	SIP Network
100M/Half	IPX port link up (100Base-TX/Half)	SIP port link up (100Base-TX/Half)
100M/Full	IPX port link up (100Base-TX/Full)	SIP port link up (100Base-TX/Full)
10M/Half	IPX port link up (10Base-TX/Half)	SIP port link up (10Base-TX/Half)
10M/Full	IPX port link up (10Base-TX/Full)	SIP port link up (10Base-TX/Full)
Link Down	IPX port link down	SIP port link down

When **IPX status (=1)** is selected:

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:1

MG(SIP) > IPX Registration Information
Registration Done. (DRS IP address 172.16.253.1)
```

When IPX status (=1) is selected:

Note 44

Note 44: Display pattern is as follows depending on the registration status.
- During Registration: Now Registering
- Registration Succeed: Registration Done.
(The IP address succeeding in registration appears as well.)

When **SIP status (=2)** is selected [Multi Registration Mode is disabled]:

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:2

MG(SIP) > IPX Registration Information
Registration Done. (DRS IP address 172.16.253.1)
```

When SIP status (=2) is selected:

Note 45

Note 45: Displayed message for each registration status is as follows:

Status	Displayed Message	Remarks
During Registration	`Now Registering.`	
Registration Succeed	`Registration Done.`	
Registration Failed	`Registration NG. Waiting Re-Registration timer.`	
Registration Invalid	`Registration Server Configuration data is not setting.`	No data has been assigned by using *set sip_register* command.

When **SIP status (=2)** is selected [Multi Registration Mode is enabled]:

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:2

MG(SIP) > IPX Registration Information
Registration Done.

MG(SIP) > SIP Registration Information

------Registration NG RegIndex------

[MG-No:1]

9 10 11 12 13 14 15 16

[MG-No:2]

[MG-No:3]

[MG-No:4]

[MG-No:5]

[MG-No:6]

[MG-No:7]

[MG-No:8]

[MG-No:9]

[MG-No:10]

[MG-No:11]

[MG-No:12]

[MG-No:13]

[MG-No:14]

[MG-No:15]

------Registration OK RegIndex------

[MG-No:1]

1 2 3 4 5 6 7 8

[MG-No:2]

[MG-No:3]

[MG-No:4]

[MG-No:5]

[MG-No:6]

[MG-No:7]
```

When SIP status (=2) is selected:

- registration failed CNT (RegIndex) information is displayed here.
- registration failed CNTs
- MG-No:5-15 are displayed for SP-3905 MG SIP (16) PROG-A Issue 6 or later.
- registration OK CNT (RegIndex) information is displayed here.
- registration OK CNTs
- MG-No:5-15 are displayed for SP-3905 MG SIP (16) PROG-A Issue 6 or later.

```
[MG-No:8]
[MG-No:9]
[MG-No:10]
[MG-No:11]
[MG-No:12]
[MG-No:13]
[MG-No:14]
[MG-No:15]
```

Note: In the above example, registration was attempted for 16 numbers toward the SIP server. However, 8 numbers failed. Assign MG-No by using ASRIL command. “CNT” is a parameter of ASRIL command.

Since SP-3905 MGSIP (16) PROG-A Issue 4 or later:

- When **Port status (=0)** is selected:

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit



Please choose a reference number:0

IPX Port link up(100Base-TX/Full)
SIP Port link up(100Base-TX/Full)
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 46

Note 46: Status of each port is displayed as follows:

Port type	Status of port to LAN	Status of port to SIP network
100M/Half	IPX port link up (100Base-TX/Half)	SIP port link up (100Base-TX/Half)
100M/Full	IPX port link up (100Base-TX/Full)	SIP port link up (100Base-TX/Full)
10M/Half	IPX port link up (10Base-T/Half)	SIP port link up (10Base-T/Half)
10M/Full	IPX port link up (10Base-T/Full)	SIP port link up (10Base-T/Full)
Link Down	IPX port link down	SIP port link down

- When **IPX status (=1)** is selected:

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit



Please choose a reference number:1

IPX Registration Information
Registration Done. (DRS IP address
192.168.0.1)
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 47

Note 47: Display changes depending on the registration status:

When MG-SIP16 is trying to register:	Now Registrating.
After MG-SIP16 successfully registered:	Registration Done. (DRS IP address 192.168.0.1) (The IP address succeeding in registration appears as well.)

- When **SIP status (=2)** is selected [Multi Registration Mode is disabled]:

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit



Please choose a reference number:2

SIP Registration Information
Registration OK.
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 48

Note 48: Display changes depending on the registration status:

When MG-SIP16 is trying to register:	Now Registrating.
After MG-SIP16 successfully registered:	Registration OK.
After MG-SIP16 fails to register:	Registration is NG. Waiting Re-Registration timer. (MG-SIP16 is trying to register again)
When registration is disabled:	Register Server Configuration data is not set. (No setting data of “set sip_register” command)

- When **SIP status (=2)** is selected [Multi Registration Mode is enabled]:

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit



Please choose a reference number:2

SIP Registration Information

------Registration NG RegIndex------


[MG-No:1]

9 10 11 12 13 14 15 16

[MG-No:2]

[MG-No:3]

[MG-No:4]

[MG-No:5]

[MG-No:6]

[MG-No:7]

[MG-No:8]

[MG-No:9]

[MG-No:10]

[MG-No:11]

[MG-No:12]

[MG-No:13]

[MG-No:14]

[MG-No:15]

------Registration OK RegIndex------


[MG-No:1]

1 2 3 4 5 6 7 8

[MG-No:2]

[MG-No:3]

[MG-No:4]
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

Note 49

Information on CNTs (RegIndex) failing in registration

MG-No: 1

CNTs failing in registration

MG-No: 2

MG-No: 3

MG-No: 4

MG-No: 5 **Note 50**

MG-No: 6

MG-No: 7

MG-No: 8

MG-No: 9

MG-No: 10

MG-No: 11

MG-No: 12

MG-No: 13

MG-No: 14

MG-No: 15

Information on CNTs (RegIndex) succeeding in registration

MG-No: 1

CNTs succeeding in registration

MG-No: 2

MG-No: 3

MG-No: 4

```
[MG-No:5]
[MG-No:6]
[MG-No:7]
[MG-No:8]
[MG-No:9]
[MG-No:10]
[MG-No:11]
[MG-No:12]
[MG-No:13]
[MG-No:14]
[MG-No:15]
-----------------------------------
```

MG-No: 5 **Note 50**
MG-No: 6
MG-No: 7
MG-No: 8
MG-No: 9
MG-No: 10
MG-No: 11
MG-No: 12
MG-No: 13
MG-No: 14
MG-No: 15

Note 49: The example above shows a total of 16 CNTs tried registration, and eight (9 to 16) of them failed.
(Use the ASRIL command to set MG-Nos and a pilot number. CNT is a parameter set with the ASRIL command)

Note 50: MG-No:5-15 are displayed for SP-3905 MGSIP PROG-A Issue 6 or later.

- When **CH status (=3)** is selected:

```
MG(SIP)> show status

0:Port status
1:IPX status
2:SIP status
3:CH status
9:Exit



Please choose a reference number:3

---------------------------------------

|  |    0|   1|  2|  3|  4|  5|  6|  7|

---------------------------------------

|0 |ACT(S)| --| --| --| --| --| --| --|


|8 | --    | --| --| --| --| --| --| --|

---------------------------------------

|             |actch=1|                 |
```

0: Port status (Default)
1: Telephony Server network registration status
2: SIP network registration status
3: Information of channels in use
9: Exit

"ACT(S)"appears for a channel in use; "-" appears for a channel not in use.

Number of channels in use

```
----------------------------------------

Use Session Count=1

INVITE Client Transaction = 0, max=0


INVITE Server Transaction = 0,  max=0


Other Client Transaction = 0,  max=1


Other Server Transaction = 0,  max=1









The number of Filtered Messages = 0
( Out of Range = 0 , No DNS Cache = 0)



The number of Burst Filtered Messages = 0



MG(SIP)>
```

Number of sessions in use

Number of INVITE client transactions and their maximum number

Number of INVITE server transactions and their maximum number

Number of client transactions other than INVITE and their maximum number

Number of server transactions other than INVITE and their maximum number (the maximum number represents the maximum number counting up to this time from when MG-SIP16 is turned on.)

Number of SIP packets that were discarded by SIP Access Filter **Note 51**
When "disable" is selected for "SIP Access Filter", this parameter is not shown.

Number of incoming calls that are rejected by Burst Access Filter **Note 52**
When "disable" is selected for "Burst Access Filter", this parameter is not shown.

Note 51: This parameter is displayed for SP-3905 MG SIP (16) PROG-A Issue 5 or later.

Note 52: This parameter is displayed for SP-3905 MG SIP (16) PROG-A Issue 7 or later.

6 SHOW∆VERSION

This command is used to show a version information installed in MG-SIP16.

```
MG(SIP) > show version

Firmware Information    | SP No |     Issue
-------------------------------------------------
MG(SIP) BOOT PROG       | 3839  |  01.00.00.00
MG(SIP) MAIN PROG       | 3905  |  01.00.00.00
MG(SIP) AU PROG         |  --   |  01.00.00.00
MG(SIP) HW              |  --   |  CA-CC10-1A
```

- MG(SIP) BOOT PROG: kernel version
- MG(SIP) MAIN PROG: program version
- MG(SIP) AU PROG: Music/Tone/DTMF version
- MG(SIP) HW: hardware version

DOWNLOAD COMMAND

1 DOWNLOAD

This command is used to download Main Program/DTMF/Music data via Ether1 port. The data is downloaded from Trivial File Transfer Protocol (TFTP) server.

[When downloading **all programs**]

```
MG(SIP) > download

Please reboot after the command.

--- Download Menu ---
Download of all programs.(default) --- input: 1
Download of one program.           --- input: 2

Input: 1

--- MG-SIP IP address set ---
Select Ether Port[1(Ether1)/2(Ether2)/Q(quit)]: 1

Current MG-SIP IP address: 10.41.1.100
Change MG-SIP address? [Y(change)/N(current)/Q(quit)]:y

If you want return to the previous step, please input 'Q'.
Input new IP address: 172.16.253.250

--- TFTP IP address set ---
Current TFTP server IP address: 10.41.1.250
Change TFTP server IP address?[Y(change)/N(current)/Q(quit)]:y

If you want to return to the previous step, please input 'Q'.
Input new IP address: 172.16.253.250


 Change IP address complete.
 New MG-SIP IP address: 172.16.253.100
 New TFTP IP address: 172.16.253.250

 Are these IP address correct?[Y(correct)/N(modify)/Q(quit)]
 If you enter Y,MG-SIP ONLINE service will be stop:y


 mgsipmwlist.txt download...
 SP3843/mgsip.bin download...
 Checksum matched!

 ################################
 Complete
 SP3843/tone.dat download...
 Checksum matched!

 ################################
 Complete
 SP3843/holdmusic.dat download...
 Checksum matched!

 ################################
 Complete
```

- To download all programs, enter "1".
- Select Ether1 that is used for download.
- To change the IP address that is used for downloading, enter "y".
- Enter a new IP address. **Note 53**, **Note 54**
- default: 10.41.1.250
- To change the TFTP server IP address, enter "y".
- Enter the IP address of TFTP server that is prepared at your site.
- When the specified IP addresses are correct, enter 'y'.
- downloading main program
- downloading DTMF Tone file
- downloading music
- Download is complete.

Note 53: The new IP address that is used for downloading and those of other ports should be different network addresses (different segments).

Note 54: Do not use a network address for which static routing has been set.

```
--- Download menu ---

 Download of all programs.(default) --- input:1
 Download of one program.           --- input:2


 input: q

MG(SIP) > _
```

- When download is complete, the menu appears again.

Enter ‘q’ to exit download command.

Note: Be sure to reboot the MG-SIP16 after downloading data.

[When downloading **one program**]

```
MG(SIP) > download

Please reboot after the command.

--- Download Menu ---
Download of all programs.(default) --- input: 1
Download of one program.           --- input: 2

Input: 2

--- MG-SIP IP address set ---
Select Ether Port[1(Ether1)/2(Ether2)/Q(quit)]: 1

Current MG-SIP IP address: 10.41.1.100
Change MG-SIP address? [Y(change)/N(current)/Q(quit)]:y

If you want return to the previous step, please input 'Q'.
Input new IP address: 172.16.253.250

--- TFTP IP address set ---
Current TFTP server IP address: 10.41.1.250
Change TFTP server IP address?[Y(change)/N(current)/Q(quit)]:y

If you want to return to the previous step, please input 'Q'.
Input new IP address: 172.16.253.250


 Change IP address complete.
 New MG-SIP IP address: 172.16.253.100
 New TFTP IP address: 172.16.253.250

 Are these IP address correct?[Y(correct)/N(modify)/Q(quit)]:y

--- Program download ---
Main program  :0
dtmf data     :1
music data    :2
Quit          :[Q/q]

Input:0

 SP3843/mgsip.bin download...
 Checksum matched!

 ##################################
 Complete

--- Program download ---
Main program  :0
dtmf data     :1
music data    :2
Quit          :[Q/q]

Input:q

MG(SIP) > _
```

- To download one program, enter “2”.
- Select Ether1 that is used for download.
- To change the IP address that is used for downloading, enter “y”.
- Enter a new IP address. **Note 55**, **Note 56**
- default: 10.41.1.250
- To change the TFTP server IP address, enter “y”.
- Enter the IP address of the TFTP server that is prepared at your site.
- When the specified IP addresses are correct, enter ‘y’.
- Select a file you want to download.
- Main program is selected in this example.
- downloading the Main program...
- Download is complete.
- When download is complete, the program download menu appears again.
- Enter ‘q’ to exit download command.

Note: Be sure to reboot the MG-SIP16 after downloading data.

Note: Be sure to check the product name of the firmware to download before downloading.

Note 55: If checksum error occurs during download, an error message similar to the following is displayed and the display goes back to the download menu. In this case, execute download again.

```
Checksum unmatched!!
Checksum of Filename is 12345. Not.66666.
```

Note 56: If download fails, an error message similar to the following is displayed. The message includes an error number. Please see the table that shows countermeasures.

```
tftp Download: tftp Copy ERROR errno=0x4b0007
```

Meaning of Error Number

ERROR NUMBER	CAUSE	COUNTERMEASURES
0x4b0007	The MG-SIP16 and the TFTP server are not connected.	Connect MG-SIP16 and TFTP server correctly.
0x4b0008	The specified download file does not exist in the TFTP server.	Check the file name of the download file. Check the TFTP server setting.
0x41	The IP addresses of the MG-SIP16 and the TFTP server are not in the same segment.	Check the IP addresses of the MG-SIP16 and the TFTP server, and reassign the IP address.
0x43	The TFTP server's IP address cannot be found.	
0x0d	The TFTP server's IP address is not correct.	

PING COMMAND

1 PING△*P1*

This command is used to send ping packets to a specified address to confirm network status. Ping is attempted 5 times to the address specified.

Note: The number of ping attempts (5 times) and packet size (56 bytes) cannot be changed.

```
MG(SIP) > ping 172.16.253.3
PING 172.16.253.3(172.16.253.3):56 data bytes
64 bytes from 172.16.253.3: icmp_seq=0 ttl=255 time=9.6ms
64 bytes from 172.16.253.3: icmp_seq=1 ttl=255 time=1.1ms
64 bytes from 172.16.253.3: icmp_seq=2 ttl=255 time=9.6ms
64 bytes from 172.16.253.3: icmp_seq=3 ttl=255 time=9.9ms
64 bytes from 172.16.253.3: icmp_seq=4 ttl=255 time=9.6ms
--- 172.16.253.3 ping statistics ---
5 packets transmitted. 5 packets received. 0% packet loss
Round-trip min/avg/max=1. 1/7. 9/9. 9 ms
MG(SIP) > _
```

- Specify an appropriate IP address.
- 56 bytes cannot be changed.
- ping is attempted 5 times.
- Ping statistics will displayed

REBOOT COMMAND

1 REBOOT

This command is used to reboot the MG-SIP16. Also configuration data can be saved to the Flash memory by using this command.

```
MG(SIP) > reboot

Do you want to save Config data? Y/N=y




Do you want to reboot MG(SIP) Y/N=y



Config data flash write start.

##

Complete

Config data flash write end.

MG(SIP) reboot start...
```

- Config data can be saved before rebooting the MG-SIP16. To save the running config to the Flash memory, enter "y".
  y: save **Note 57**
  n: not save

  If other than above is entered "`Reboot command was interrupted`" will be displayed.
- Reboot the MG-SIP16 or not is specified.
  y: reboot
  n: not reboot

  If other than above is entered "`Reboot command was interrupted`" will be displayed.

Note 57: Before selecting "Y" to save the running configuration data to the Flash memory, be sure to execute the following commands:
- set ipaddress (Assign the IP addresses for LAN side and SIP network side.)
- set drsaddress (Assign the IP address of DRS.)
- set sip_server (Assign the IP address of the SIP server)
- set keynumber (Assign a pilot number.)

If any item has not been assigned when saving the running configuration data, the following message will be displayed.

```
The following setting commands are not perfect.

"set ipaddress" command. (IPX side)

"set ipaddress" command. (SIP side)

"set drsaddress" command.

"set sip_server" command.

"set keynumber" command.

So, Config data is made a default setup.

Is it all right?Y/N=y
```

The following is displayed:

- if the IP address for LAN side has not been assigned
- if the IP address for SIP network side has not been assigned
- if the IP address of DRS has not been assigned
- if the IP address of a SIP server has not been assigned
- if a pilot number has not been assigned

- To apply default value, enter "y".

  If other than above is entered "`Reboot command was interrupted`" will be displayed.

EXIT COMMAND

1 EXIT

This command is used to exit from configuration mode.

```
MG(SIP) > exit

Exit ConfigMode. Bye!


->
```

- Exits from Config mode.

HELP COMMAND

1 HELP/?

This command is used to show the brief explanation of all the commands that are available on the Maintenance Console.

```
MG(SIP) > help

set                 : Config data set command.
show                : Config data show command.
download            : MG(SIP) program download command.
ping                : Ping command.
exit                : Config mode exit command.
reboot              : MG(SIP) reboot command.
help                : Help command.
?                   : Help command.
```

- Brief explanation is displayed.

5.3 Error Messages on Maintenance Console

The following are error messages displayed on the Maintenance Console.

ERROR MESSAGE	TROUBLESHOTTING
`Illegal command.`	An incorrect command is entered. Enter the command correctly.
`Illegal parameters`	An incorrect parameter is entered. Enter the parameter correctly.
`Invalid parameters`	An invalid parameter is entered. Enter the parameter correctly.
`Please set up IPX side IP address`	Assign the LAN side IP address by **set ipaddress** command.
`Please set up SIP side IP address`	Assign the SIP side IP address by **set ipaddress** command.
`Please set up DRS IP address`	Assign the DRS IP address by **set drsaddress** command.
`Please set up SIP server IP address/ FQDN`	Specify a SIP server by **set sip_server** command.
`Please set up keynumber`	Assign a pilot number by **set keynumber** command.
`User program download error 1`	Internal error
`User program download error 2`	Download file cannot be found.
`User program download error 3`	Network connection cannot be established.
`User program download error 4`	TFTP errors other than User program download errors 1 to 3
`User program download error 5`	Flash write error (User Program)
`User program download error 6`	Flash write error (Music/Tone)
`Input parameter total error [DTMF Duration + DTMF Pause < Min 120ms]`	Assign 120ms or more to the total of DTMF Duration and DTMF Pause.
`Registration NG. Waiting Re-Registration timer.`	Registration error. Re-Registration is being performed.
`Register Server Configuration data is not setting.`	There is no Register Configuration Data. Assign the data by **set sip_register** command.

Note: Refer to each command for the other error messages.

MG-SIP16

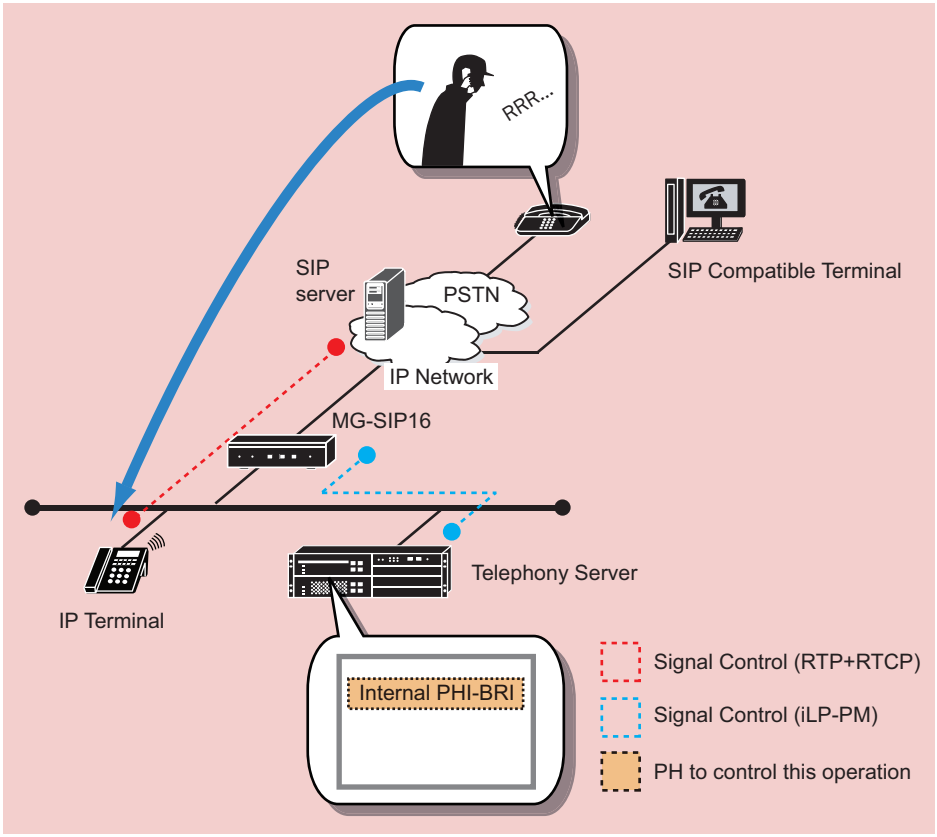
1 What is MG-SIP16?

MG-SIP16 is an Media Gateway to provide the system with Session Initiation Protocol (SIP) interface. It enables the system to build multi-service and reliable Voice over IP (VoIP) networks using SIP defined by IETF. SIP is an application-layer control protocol that can initiate call setup, routing, authentication and transferring other feature messages to endpoints.

Up to 16 channels of extensions in the network can communicate to the outside SIP network via an MG-SIP16 at the same time. As MG-SIP16 complies with small and middle sized remote offices flexibly, more offices can profit Peer-to-Peer VoIP services using IP telephone.

MG-SIP16 supports the SIP standard terminals based on RFC3261. Thereby, MG-SIP16 controlled by Internal PHI-BRI (**Note 1**) of the Telephony Server provides a full array of the call routing capabilities to maximize network performance in the packet voice network (SIP network). MG-SIP16 provides the system with a flexible and cost-efficient network environment without wasting the accumulated assets of the Telephony Server services.

Note 1: Internal PHI-BRI is installed in the Telephony Server to control signaling control data between the Telephony Server and MG-SIP via external Ethernet of the Telephony Server.



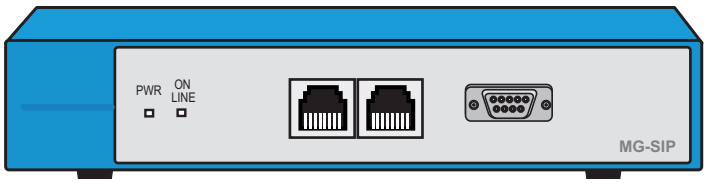
Note: Connection test with common carrier is required.

2 Specifications

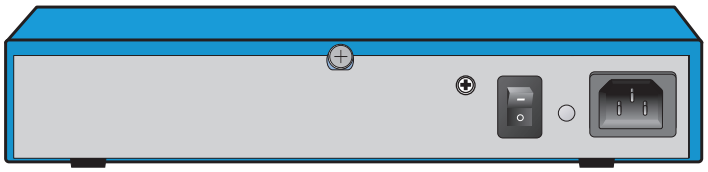
2.1 Hardware Specifications

The following explains the hardware specifications of MG-SIP16.

Front View



Rear View



ITEM	SPECIFICATION		REMARKS
External interface	Serial connector (RS-232C, D-sub 9 pins) × 1		for maintenance **Note 1**
	RJ-45 Ether connector (100BASE-TX/10BASE-T) × 2		Port for connecting to LAN × 1 Port for connecting to SIP network × 1
Setting	Desktop horizontal setting (standard setting)		without any fastening hardware
	19-inch rack mount		SV70 RACK MTG is used
Input power supply	100 VAC (50/60 Hz) ± 10% 120 VAC (50/60 Hz) ± 10% 230 VAC (50/60 Hz) ± 10% 240 VAC (50/60 Hz) ± 10%		
Electric power consumption	Less than 10 W		
Dimension	Width 210 mm × Height 43 mm × Depth 297 mm		1U-half-box size
Weight	1.8 kg		
Environmental requirement	Operational Temperature Rang	0°C to 40°C (32°F to 104°F)	
	Operational Humidity Range	20% to 90% (not condensing)	

ITEM	SPECIFICATION	REMARKS
Cooling	Air-cooling without FANs	

Note 1: Use a straight-through cable to connect this connector to PC.

2.2 Software Specifications

The available features are in the following:

ITEM	SPECIFICATION	REMARKS
LAN interface	10Mbps/100Mbps Ethernet	
Communication speed	10Mbps/100Mbps auto negotiation, Half/Full duplex	
Protocol	RFC3261 (SIP)	Only UDP is supported
SIP server conditions	SIP Proxy Server or SIP Redirect Server	
Channel capability	Maximum 16 channels/MG-SIP16	
Voice CODEC	G.711 (transparent mode)	
FAX relay	Data transmission as voice data (G.711)	
DTMF	H.245 Alphanumeric (LAN side) RFC2833 (SIP network side) Data transmission as voice data (G.711)	
Address translation	IP masquerade (NAPT)	
Caller ID notification	Direct-in number, Pilot number	
Download	Firmware download	
Holding tone	Internal Music 1: Minuet Internal Music 2: For Elise	
Maintenance	Maintenance console (PC) via serial connection	Telnet remote maintenance is not supported

Note: Additional services (such as REFER) on the SIP procedure are not provided in this system.

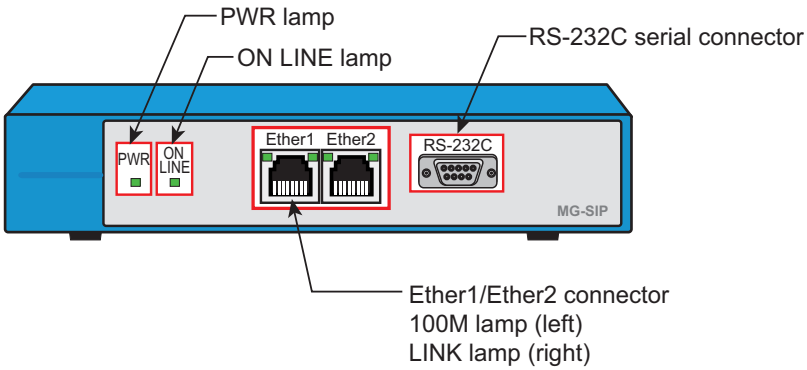
Note: Tone and holding tone to SIP network is generated by MG-SIP. When MGC(Internal PHI-BRI) external holding tone is selected by ASYDL command, the information is provided by the Telephony Server (via IPPAD).

Note: These services might not be performed if the settings of the IP terminal or the SIP network are not appropriate.

2.3 Switches, Lamps, and Connectors

- Front

See the figure and table below for the location and description of the parts on the front panel of MG-SIP16.



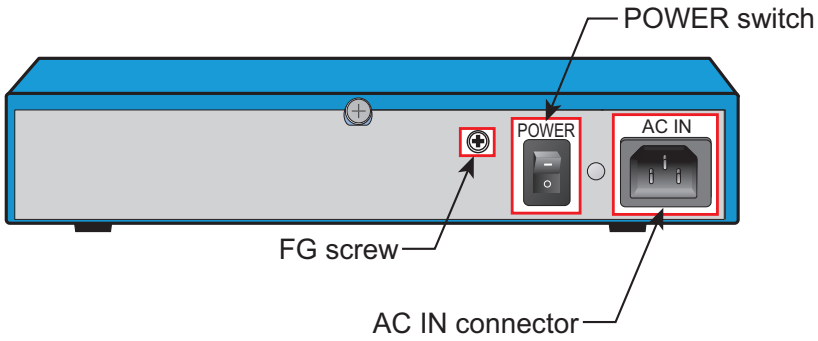
Description of Lamps and Connectors on Front Panel

NAME		COLOR	DESCRIPTION	REMARKS
PWR Lamp		Green	Power ON.	
		OFF	Power OFF.	
ON LINE Lamp		Green	Lights when registration is established	
			Flashes in abnormal state during initialization	**Note 1**
		OFF	Remains OFF when the initial setting is incomplete.	
Ether connector	Ether1	Ether interface for LAN (Telephony Server network side)		
	Ether2	Ether interface for WAN (SIP network side)		
100M lamp (Ether1/2)		Green	Transmission speed is 100 Mbps	
		OFF	Transmission speed is 10 Mbps	
LINK lamp (Ether1/2)		Green	Lights when Layer 1 link is established	
			Flashes during IP packets are being sent/received.	
		OFF	Remains OFF when Layer 1 link is not established	
RS-232C connector		Interface for connecting external maintenance console (PC) with RS-232C cable.		*for maintenance

Note 1: The following causes may be considered when ON LINE lamp flashes:
- MAIN program is not found
- TONE data is not found
- MUSIC data is not found

- Rear

  See the figure and table below for the location and description of the parts on the rear panel of MG-SIP16.



Description of Switches and Connectors on Rear Panel

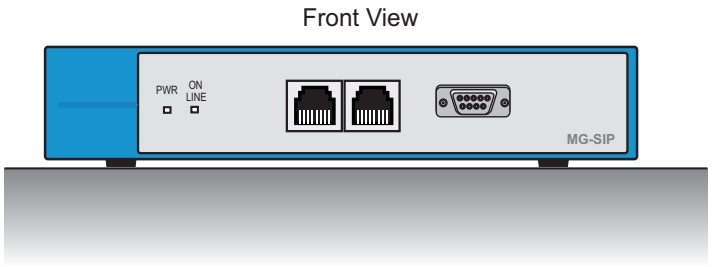
NAME	DESCRIPTION	REMARKS
AC IN connector	Plug in the attached AC power cable for main power supply	
POWER switch	Power is supplied to MG-SIP16 (Up: ON, Down: OFF)	**Note 2**
FG screw	Ground cable connection	

Note 2: When reclosing the power supply, wait for more than a second to turn on the power switch.

3 Installation

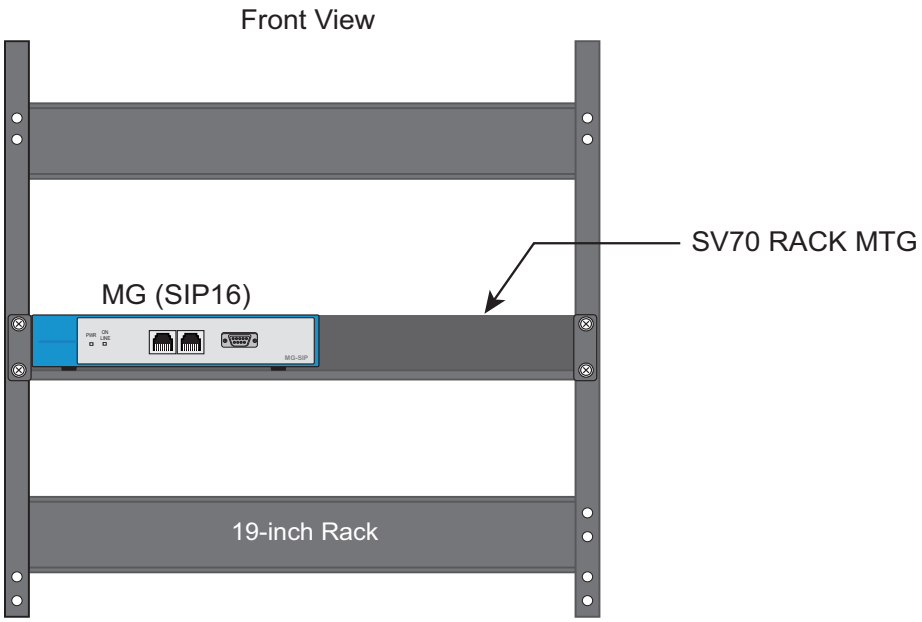
3.1 Mounting MG-SIP16

a.) Desktop horizontal setting



b.) 19-inch rack mount

Use a tray SV70 RACK MGT to mount MG-SIP16 on 19-inch rack. Be sure to check the SV70 RACK MGT is securely fixed on the rack before setting the MG-SIP16.

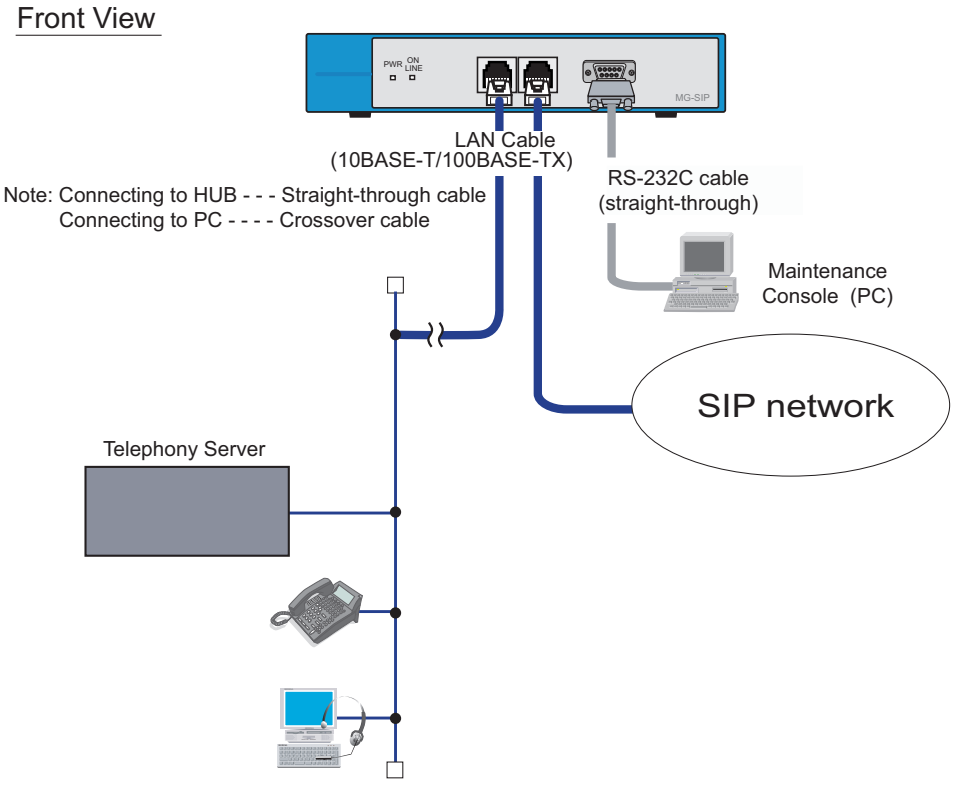


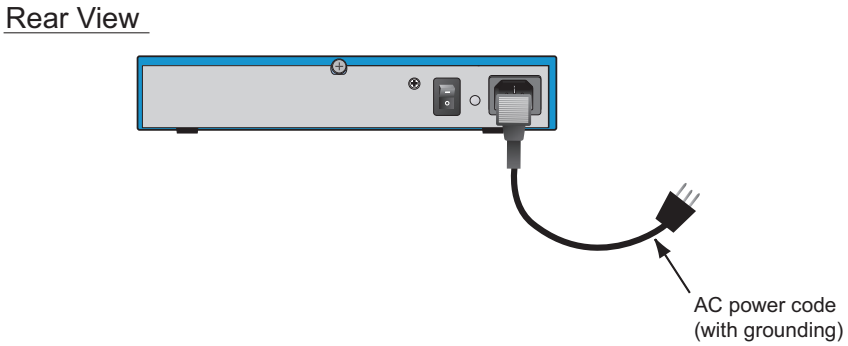
3.2 Cable Connection

This section shows the cable connection to MG-SIP16. The MG-SIP provides the following types of interfaces:

- Ethernet Port to SIP network (WAN)/Telephony Server network (LAN)
- Power Supply
- Serial Port connection to Maintenance Console

Connect the required cables according to your system configuration.



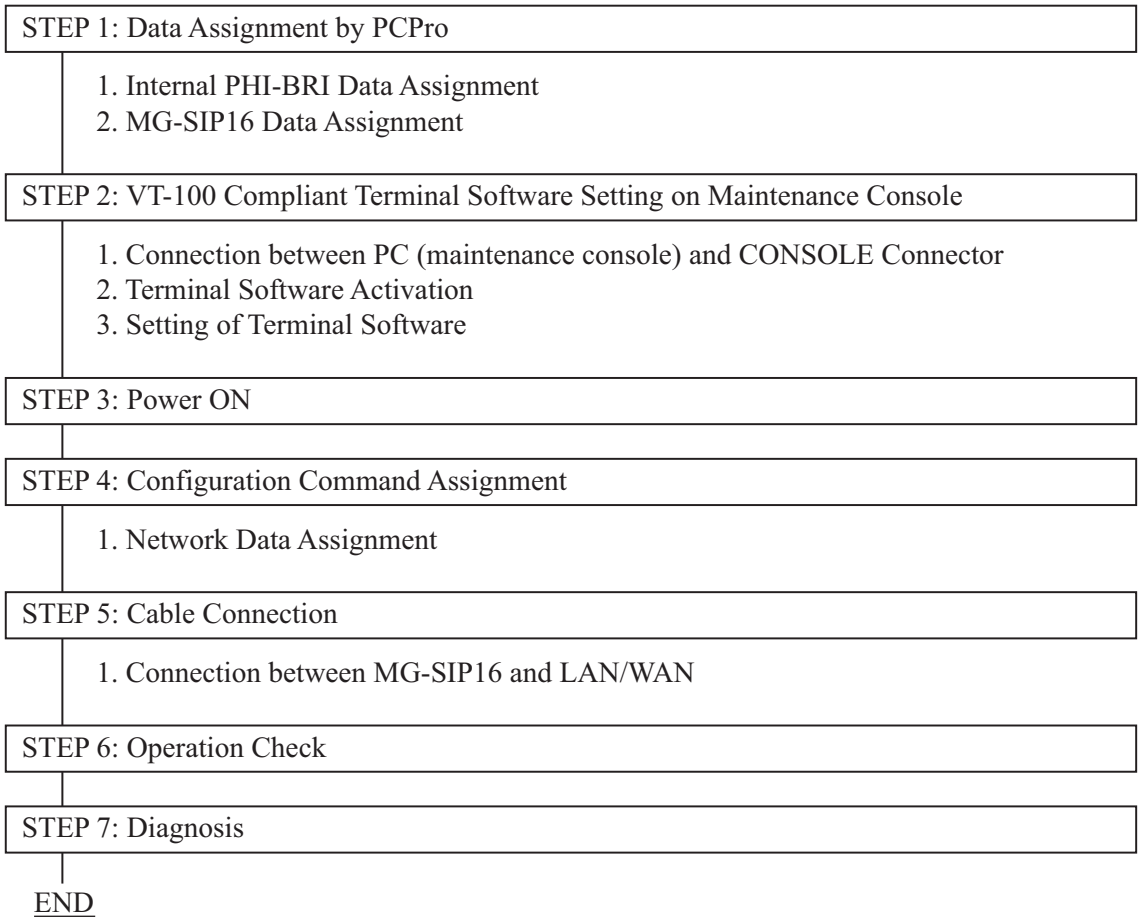


Note: Be sure to connect ground cable to AC power cable to prevent the device from lightning, electric shock, and external noises.

Note: Do not connect the ground cable to gas barrel. It may cause fire.

4 Startup MG-SIP16 and Basic Tests

This section explains procedures for startup and basic tests. Follow the procedure below. These steps provide the minimum data required only for MG-SIP16 setup. Before taking the following steps, refer to Service Conditions of [M-111] Media Gateway SIP in Data Programming Manual, and make sure network environment is appropriate for setting MG-SIP16.



4.1 Data Assignment by PCPro

For this information about MG-SIP16 settings, refer to [M-111] MG-SIP in Data Programming Manual.

4.2 VT-100 Compliant Terminal Software Setting on Maintenance Console



Note: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data.

STEP 1: Connect a PC (maintenance console) to RS-232C connector.

STEP 2: Run VT-100 compliant terminal software (e.g. HyperTerminal) on the Maintenance Console.

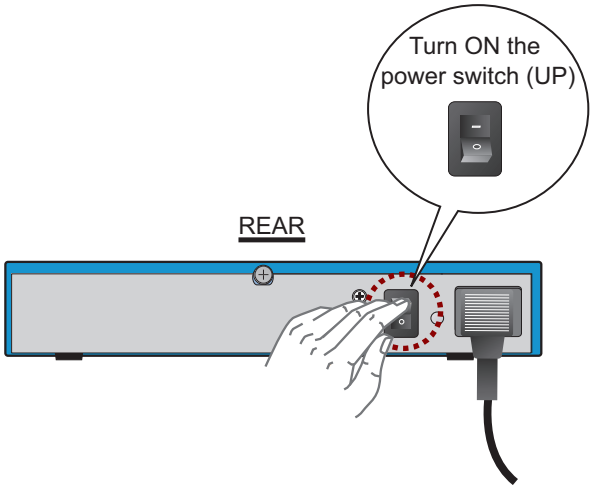
STEP 3: Set the parameter of the terminal software as follows:

- Port: *COM1 (depending on PC setting)*
- Baud Rate: *9600 bps*
- Data: *8 bits*
- Parity: *None*
- Stop Bit: *1*
- Flow Control: *None*

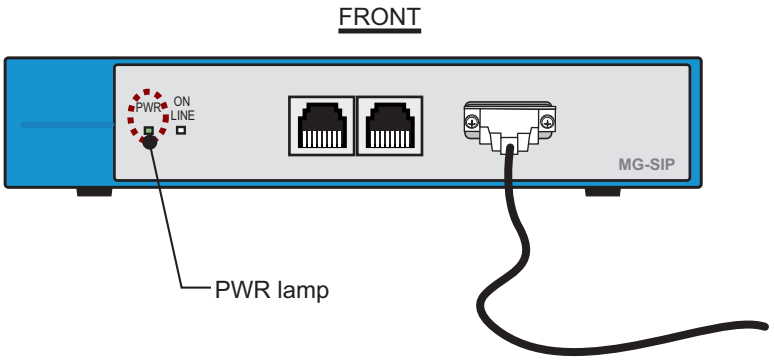
4.3 Power ON

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

STEP 1: Turn ON the power switch (UP) on the rear panel of MG-SIP16.



STEP 2: Make sure the LED indicate normal status.
- PWR lamp lights green (*Boot program automatically starts)



4.4 Configuration Command Assignment

Assign the configuration data by command operation on the maintenance console.

Note: "DRS (Device Registration Server)" used in this section refers to the Telephony Server. The Telephony Server acts as DRS for MG-SIP16 using Proprietary Protocol.

The following message is displayed on the Maintenance Console screen.

```
MG-SIP DIAGNOSIS NORMAL END

MG-SIP ID
    Ether1: xxxxxxxxxxxx
    Ether2: yyyyyyyyyyyy
Boot program version: SP3842 SIPMG BOOT PROG-B [xx.xx]


Starting MG-SIP Boot program...
Attaching interface lo0... done
Adding xxxx symbols for standalone.

Main Program Start...

please setting config data!!
```

Note: When the RS-232C cable is connected after starting up the MG-SIP16, "->" prompt will not appear. In this case, press Enter key to display the "->" prompt.

Note: To confirm the configuration information:
Press ESC key within five seconds after "Main Program Start..." to display "->" prompt. Then, input "config" to go into the configuration mode. (However, registration to the Telephony Server is not executed. See Using Configuration Commands, assign the MG-SIP16 data. for the usual data settings.)

Note: If the key control is not activated, a communication problem between the console and the MG-SIP16 might occur. Make sure the connector is firmly inserted.

Using Configuration Commands, assign the MG-SIP16 data.

The following data is assigned here:

Setting Data	Configuration Command
IP address of MG-SIP16's ether port	set ipaddress
IP address of MGC (DRS)	set drsaddress
SIP server data	set sip_server
Pilot number of MG-SIP16	set keynumber

Note: Assign the data depending on the SIP network configuration.

STEP 1: When a prompt "->" is displayed, enter "config" and then press Enter key.

STEP 2: A prompt "MG-SIP>" is displayed indicating the console command mode.

STEP 3: Specify DRS IP address.
Open **set drsaddress** command and assign IP address of DRS. For more information, refer to **page 1710**.

STEP 4: Assign IP address to MG-SIP16.
Open **set ipaddress** command and assign the MG-SIP16 address. For more information, refer to **page 1714**.

STEP 5: Specify SIP server.
Open **set sipserver** command and assign the SIP server IP address. For more information, refer to **page 1728**.

STEP 6: Specify the pilot number of MG-SIP16.
Open **set keynumber** command and assign the pilot number. For more information, refer to **page 1721**.

Note: Configuration data cannot be saved until the essential data above has been assigned. Refer to Configuration Command for the detail of each command.

STEP 7: Reboot MG-SIP.
Open **reboot** command to save the settings. For more information, refer to **page 1748**.

STEP 8: After the MG-SIP16 is rebooted, the following message appears on the Maintenance Console.

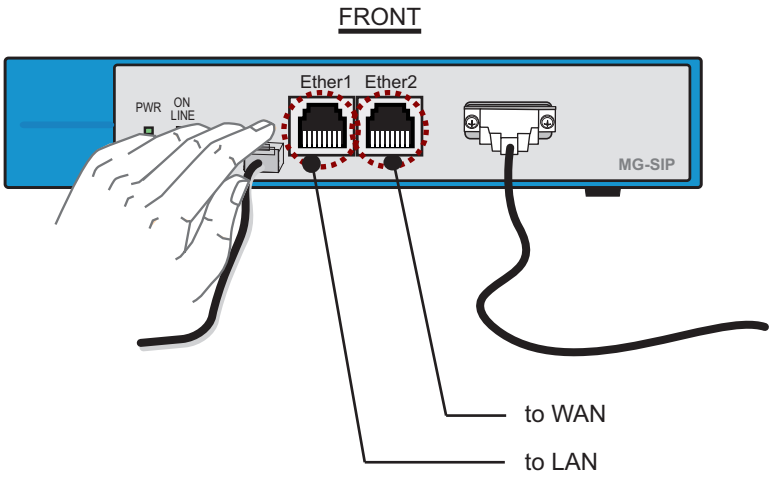
```
Press Enter Key.
```

4.5 Cable Connection



STEP 1: Connect MG-SIP16 to the LAN and WAN by using appropriate LAN cables.

Note: Before connecting the MG-SIP16 to network, be sure to execute "ping" command to check the following:
- Is there other device having the same IP address overlapped?
- Is the new IP address assigned correct?



When you have finished, the following message appears on the Maintenance Console.

```
**************************************
*          MG-SIP ONLINE START       *
**************************************
```

Note: Both LAN1 and LAN2 must be connected to make MG-SIP16 online. (For a one-port configuration, only LAN1 connection makes MG-SIP16 online.)

STEP 2: Check the lamp indication on the front panel of MG-SIP16.

- PWR lamp: lights green
- ON LINE lamp: lights green

4.6 Operation Check

When installation and necessary data assignment have been completed, perform the following operation tests.

STEP 1: Reboot the MG-SIP16 by using **reboot** command.

STEP 2: Make sure the following message appears on the Maintenance Console.

```
**************************************
*          MG-SIP ONLINE START       *
**************************************
```

Note: If a message indicating MG-SIP OFFLINE START is displayed, make sure of the following:
- Confirm a cable connected to SIP network is inserted firmly.
- Check the Link lamp lights.

If any message does not appear on the screen for three minutes, it could be a communication problem between MG-SIP16 and MGC (DRS). Confirm the LAN cable and the IP Address on the Telephony Server side.

STEP 3: Make sure of the connectivity between LAN and SIP network.
Open **show status** command to confirm the network registration status on the Telephony Server and SIP sides. For more information, refer to **page 1740**.

STEP 4: Make sure of the registration status of MG-SIP16.
Open **DIMG** command on PCPro to check the registration status.

4.7 Diagnosis

STEP: Diagnose the user program is working properly.
On the Maintenance Console, type “ping ***appropriate IP address***” to make sure the MG-SIP16 connects the network and operates normally. For more information about the command, refer to **page 1747**.

5 Maintenance Console Commands

5.1 How to Use Maintenance Command

Note: Note the following conditions:
- "DRS (Device Registration Server)" used in this section refers to the Telephony Server. The Telephony Server acts as DRS for MG-SIP16 using Proprietary Protocol.
- If you input "exit" after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

- Connection Settings

  A communication between Maintenance Console and MG-SIP16 is established via communications software.

  Note: For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. This section explains the procedure for setting data by using HyperTerminal as an example. For Windows Vista or later operating systems, prepare a communications/terminal software yourself and assign the configuration data referring to the description for HyperTerminal.

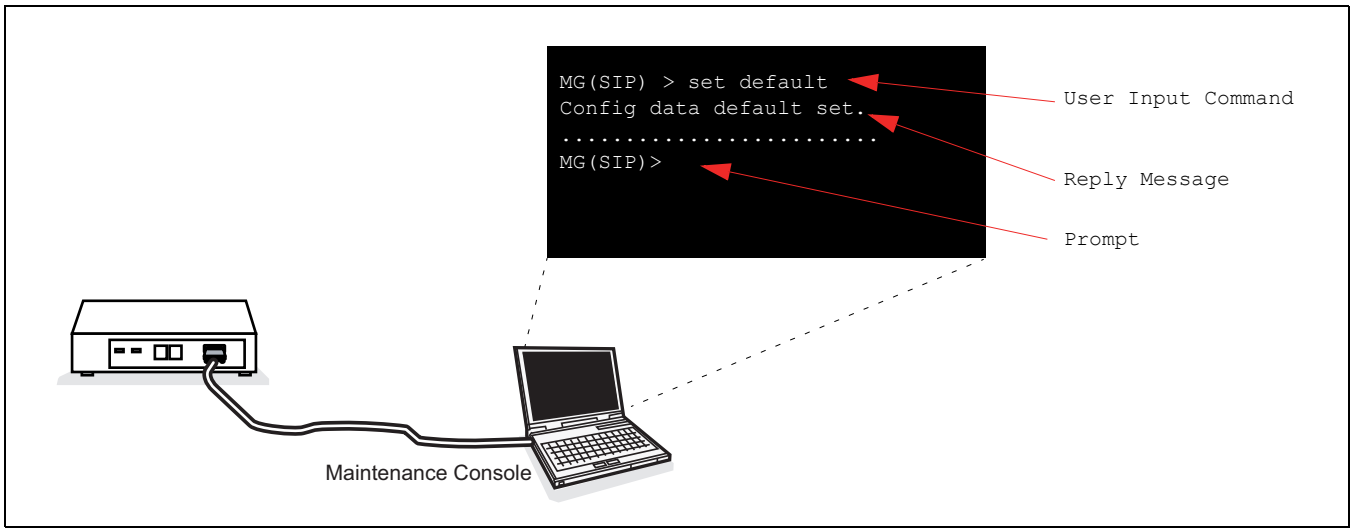
  When the program is activated, messages are displayed. After a prompt "->" is displayed, enter "`config`" after the prompt to login.

```
-> config
```

  The following prompt appears, indicating that the Maintenance Console command entry is ready:

```
MG(SIP) >
```

An example of indication is shown below:



The user input command above consists of a several components. The following describes these components using one of the ***set*** commands.

```
MG(SIP) > set drsaddress
          (1)    (2)

MG(SIP) > ping 123.201.18.45
          (1)     (3)
```

(1) Command
(2) Sub Command
(3) Parameter

Input the desired command, sub command and each required parameter after the prompt ("MG-SIP>" as an example here) is indicated. Parameters vary depending on the specified command. When all data (command name, sub command name, parameter) are specified correctly, the command executes the required data processing, and then informs the processed result on the screen. When all the command operation is completed, you may input "exit" after a prompt.

Note: During the maintenance command program is activated, it also provides a help function for referring to available command and sub command. After a prompt is indicated, request to list up all the command help by “help” or “?” after the prompt and press the Enter key. If you know more details about each command, it is also available to list up the target help by “command name Δ ?” after the prompt, and press the Enter key. The example below shows the screen when executing help function regarding “? (help)” and “set address”.

```
MG(SIP) > ?
 set                    : Config data set command
 show                   : Config data show command
 download               : MG-SIP program download command
 ping                   : Ping command
 exit                   : Config data exit command
 reboot                 : MG-SIP reboot command
 help                   : Help command
 ?                      : Help command

MG(SIP) > set ?

 drsaddress             : Setting IP address
 signaling_port_no      : Setting signaling port number
```

5.2 How to Read Maintenance Command on This Section

The commands on this section are explained with defined characters. These characters’ meanings are in the following:

CHARACTERS	MEANING
Δ	Blank
P	Parameters
[ ]	Parameter Option (indicates optional)

The maintenance console uses the commands listed on the table below.

* If you go out of the configuration mode by using “logout” command without saving the setting information using “reboot” command, the changed settings are discarded. To save the settings, execute “reboot” command, and exit the configuration mode.
* When you input a command, the current setting is displayed. If you change the setting, the changed data is displayed. For “ipx_route” and “sip_route” commands, the changed settings and “Are you sure?” message are displayed.
* Pressing the Enter key can skip each item.

List of Maintenance Command

COMMAND	No.	SUB COMMAND	FUNCTION	PAGE
SET	1	183RBT	Assigns whether to enable/disable local RBT when 183 message without SDP is received.	page 1705
	2	ANOTHER_KEYNUMBER	Assigns additional three pilot numbers used for registration to SIP server.	page 1705
	3	AUTH	Assigns an authentication information.	page 1705
	4	AUTH_HEADER	Assigns the cache function of authentication header.	page 1705
	5	CAUSE_TABLE	Assigns the error translation table.	page 1706
	6	cc_convert	Assign calling party’s country code display conversion feature	page 1706
	7	CDN_PATTERN	Assigns called number pattern.	page 1707
	8	check_number	Assign limit to number of digits for calling/called party number	page 1708
	9	cpn_pattern	Assign how to obtain cpn (calling party number)	page 1708
	10	DEFAULT	Specifies default settings of the configuration.	page 1709
	11	DNSADDRESS	Assigns the DNS IP address.	page 1709
	12	DOMAIN	Specifies the domain of SIP-MG.	page 1710
	13	DRSADDRESS	Assigns the DRS IP address.	page 1710
	14	DRS_QOS	Specifies the DRS ToS.	page 1710
	15	DTMF_MODE	Assigns a type of DTMF mode.	page 1712
	16	H245_BASE_PORT_NO	Assigns the H.245 base port in SIP network.	page 1713
	17	HC_ALARM	Assigns a type of Health Check pattern.	page 1713
	18	HC_TIMER	Assigns a type of Health Check pattern.	page 1714
	19	INTERFACE	Assigns an interface to the port.	page 1714
	20	IPADDRESS	Assigns the IP address and the subnet mask to the port.	page 1714
	21	IPX_ROUTE	Assigns the route information in the Telephony Server side.	page 1715
	22	IPX_RTP_PORT_NO	Assigns the RTP port in LAN.	page 1721
	23	KEYNUMBER	Assigns the pilot number of MG-SIP16.	page 1721
	24	MULTI_REGIST	Assigns the registration function per number.	page 1721
	25	MUSICTYPE	Assigns the type of music to be sent from MG(SIP).	page 1722
	26	PRACK	Assigns PRACK information.	page 1722
	27	PRE_NEGOTIATION_PORT_NO	Assigns the UDP port receiving packets for voice control path.	page 1722
	28	PRIVACY_PATTERN	Assigns a type of Calling Line Identification.	page 1722
	29	REGISTRATION_PORT_NO	Assigns the UDP port receiving registration packets.	page 1723
	30	REG_INTERVAL		page 1724
	31	RTP_PATHON	Assigns Path-on function by 183 Progress after receiving 180 Ringing.	page 1724
	32	RTP_QOS	Specifies the RTP ToS.	page 1724
	33	SELF_SIP_DOMAIN	Assigns SIP Domain.	page 1724
	34	SESSION_TIMER	Specify information regarding session timer.	page 1725
	35	SIGNALING_PORT_NO	Assigns the UDP port receiving control signal packets	page 1726

COMMAND	No.	SUB COMMAND	FUNCTION	PAGE
SET	36	SIP_PORT_NO	Specifies the ToS transmitted to/from SIP network.	page 1726
	37	SIP_QOS	Specifies the SIP ToS	page 1727
	38	SIP_REGISTER	Assigns the IP address or the FQDN to registry server.	page 1727
	39	SIP_ROUTE	Assigns the route information in the SIP side.	page 1727
	40	SIP_RTP_PORT_NO	Assigns the RTP port in SIP network.	page 1728
	41	SLIPRESP	Assigns a SLIP response code.	page 1730
	42	UPDATE	Assigns the setting of update method.	page 1730
	43	SLIPRESP	Assigns a SLIP response code.	page 1730
	44	UPDATE	Assigns the setting of update method.	page 1730
	45	RESPONSE_TABLE	Assigns the response table pattern.	page 1730
	46	OUT_OF_AREA_CODE	Assigns the error response code to inform out-of-area error on IPX network side.	page 1730
SHOW	1	ARP	Displays the ARP.	page 1731
	2	CONFIG	Displays the configuration.	page 1731
	3	INTERFACE	Displays the link and setting state of Ether connection	page 1739
	4	ROUTE	Displays the routes.	page 1740
	5	STATUS	Displays status of the system.	page 1740
	6	VERSION	Displays the firmware version installed in MG-SIP16.	page 1742
DOWNLOAD		-	Downloads data with the IP address and file name	page 1743
PING		-	Tests whether the destination is reached at Layer 3 level.	page 1747
REBOOT		-	Restarts MG-SIP16	page 1748
EXIT		-	Exits configuration setting.	page 1749
HELP/?		-	Shows the help display	page 1749

Note: For versions prior to below, assign by command “SET∆81to0.”
SP3796/SP-3816Ver08. 00. 02. 00
SP3843Ver04. 00. 02. 00
SP3905Ver01. 00. 03. 00

SET COMMAND

1 SET△183RBT

This command is used to enable/disable the connection of local RBT when 183 message without SDP is received.

```
MG(SIP) > set 183rbt

Is RBT added when 183 without SDP is received?
(0:enable/1:disable(default=0) : 0
```

- Enter 0 or 1 (default=0).
  0: Enable (local RBT connection is used)
  1: Disable (local RBT connection is not used)

Assign this command adjusting to the specifications on SIP network.
Normally this command is not required to be changed.

2 SET△ANOTHER_KEYNUMBER

The command is used to assign three pilot numbers (in addition to the pilot number assigned by the "KEY-NUMBER" command) for registration to SIP server.

```
MG(SIP) > set another_keynumber

Another keynumber 1 (MAX32) : 1000
Another keynumber 2 (MAX32) : 2000
Another keynumber 3 (MAX32) : 0511112222
```

- Enter the pilot number used for registration to SIP server (default = 0).

Note: Assign this command adjusting to the specifications on SIP network. Normally this command is not required to be changed. Unique number to be assigned for each of Another keynumber 1/2/3. Assign value=0 (default) for parameter when nothing is to be assigned.

3 SET△AUTH

The command is used to specify a User ID and a password for HTTP Digest Auth. This parameter is used when the SIP server performs authentication.

```
MG(SIP) > set auth

User ID  (MAX32) : 0

Password (MAX32) : 0
```

- Assign the User ID (Default: 0/Maximum: 32 bytes).
- Assign the password (Default: 0/Maximum: 32 bytes).

4 SET△AUTH_HEADER

The command is used to assign whether to add cache information to authentication header of request message in updating ACK and REGISTER for re-INVITE/200 OK.

```
MG(SIP) > set auth_header

Is Authorization header cache function enable?

(0:enable/1:disable (default=0)) : _
```

- Select whether to use cache function to authentication header.

  0 = Cached authentication information is added (default)
  1 = Cached authentication information is not added.

Note: Assign this setting in accordance with the specifications of connected SIP network.

5 SETΔCAUSE_TABLE

The command is used to select the translation table of error cause to be sent to LAN received from SIP network as error response.

```
MG(SIP) > set cause_table

Select cause_table(SIP_Error_response to Error_cause)

           (0:normal/1:alternate routing(default=0)): _
```

- Select the error translation table.
  0 = Normal table (default)
  1 = Alternate routing table

Note: Assign this setting in accordance with the specifications of connected SIP network.

6 SETΔCC_CONVERT

This command is used to assign calling party's country code display conversion feature (since version 09.00.00.00).

When this feature is available, conversion will take place as in the following table.

Direction of Call termination/ origination	Intended Number	Conversion Feature
Call termination via SIP	Calling party	Convert to "0" if first numbers are "81" or "+81"
Call termination via SIP	Calling party	Add "0" to first number if number is more than 8 digits
Call origination via MG(SIP)	Calling party	Convert to "0" if first number is "81"

It is possible to confirm the previous settings through this command since this command is an extension of the previous version's SETΔ81to0.

```
MG(SIP) > set cc_convert

Is this function enable or disable?

                      (0:disable/1:enable (default=0)): 0
```

- Enter 0 or 1 (default=0).
  0 = Disable (default)
  1 = Enable

Note: Assign this setting in accordance with the specifications of connected SIP network.

7 SETΔCDN_PATTERN

The command is used to assign the way of obtaining information for called number from SIP network. When this command is enabled, called number is obtained according to the priority order shown in the table below:

Selected Parameter		Order of priority			
		1	2	3	4
0	To	P-N-Dest-Discern	To (userinfo)	Request-URI (userinfo)	-
1	isub	P-N-Dest-Discern	Request-URI (isub)	Request-URI (userinfo)	To (userinfo)
2	Request-URI	P-N-Dest-Discern	Request-URI (userinfo)	To (userinfo)	-
3	P-Called-Party-ID	P-Called-Party-ID (userinfo)	To (userinfo)	Request-URI (userinfo)	P-N-Dest-Discern

```
MG(SIP) > set cdn_pattern
Active called-party-number?
(0:To:userinfo/1:isub/2:Request-URI/3:P-Called-Party-ID(default=0)):0
```

- Select a type to obtain called number information.
  0: userinfo part of the To header is given priority (Default)
  1: isub of Request-URI is given priority
  2: userinfo part of Request-URI is given priority
  3: userinfo part of P-Called-Party-ID is given priority

Note:

- Assign this command adjusting to the specifications on SIP network.
- This command is available for SP-3843 SIPMG PROG-B Issue 6 or later.
- For the earlier versions of firmware, the command displays as follows. P-Called-Party is not available.
  When isub parameter is enable, the called number is obtained from isub of URI-PARAM in Request-URI. If the called number cannot be obtained from isub, it will be obtained from TO header or Request-URI that has been set in Config.

```
MG(SIP) > set cdn_pattern
Active called-party-number?(0:To:userinfo/1:Request-URI(default=0)):0
isub function (0:disable/1:enable(default=0)): _
```

- Select a type to obtain called number information.
- Priority is selected for the isub parameter of URI-PARAMS.

8 SET△CHECK_NUMBER

This command is used to assign a limit to number of digits for calling/called party number (since version 09.00.00.00).
Calling/called party number sent via the Telephony Server network may be limited to numbers only.

```
MG(SIP) > set check_number

Is this function enable or disable?

                                (0:disable/1:enable(default=0)): _
```

- Enter 0 or 1 (default=0).
  0 = Disable (default)
- 1 =Limit to numbers only

Note: Assign this command adjusting to the specifications on SIP network.

9 SET△CPN_PATTERN

This command is used to assign how to obtain cpn (calling party number). It is possible to change the priority of obtaining calling party number when a call terminates via SIP network. The following shows the method of obtaining cpn when this feature is available.

When this command is enabled, calling party number is obtained according to the priority order shown in the table below:

Selected Parameter		Order of priority		
		1	2	3
0	Displayname	Displayname	Userinfo	-
1	Userinfo	Userinfo	Displayname	-
2	Anonymous	Userinfo (Anonymous)	Userinfo	Displayname
3	P-Asserted-ID	P-Asserted-ID	Displayname	Userinfo

```
MG(SIP) > set cpn_pattern

What calling party number is given priority?

(0:Displayname/1:Userinfo/2:Anonymous/3:P-Asserted-ID(default=0)):
```

- 0: Display name is given priority (default)
- 1: Userinfo is given priority
- 2: When Anonymous is detected in Userinfo, cpn is handled as blocked, disregarding the second priority and later.
- 3: P-Asserted-ID is given priority.

Note:

- Assign this command adjusting to the specifications on SIP network.
- Select 2 when the caller ID blocking is judged by the userinfo in From header on the SIP network side specification.
  e.g.) From: “01234567” <sip:anonymous@anonymous.invalid>
- Do not select 2 when the caller ID blocking is assigned by Displayname only on the SIP network side.
  e.g.) From: “Anonymous” <sip:01234567@xxx.com> In this case, the cpn is informed when 2 is selected.

- Numbers from 0 to 9, *, or # can only be obtained as a calling party number. When any other characters are contained in the calling party number, the order of priority will shift to the next precedence.
  However, if any characters other than the ones indicated above are detected in Displayname, the next and later priority will be disregarded and the cpn will be handled as blocked.
  e.g.) From: “0123ABC” <sip:01234567@xxx.com> In this case, the cpn will be handled as blocked when 0 is selected.
- This command is available for SP-3843 SIPMG PROG-B Issue 6 or later.
- For the earlier versions of firmware, the command works as follows. Anonymous and P-Asserted-ID are not available.

When this feature is unavailable, calling party number is obtained in the following order

Order of priority	Obtaining pattern
1	Obtain from Remote-Name (Display Name section)
2	Obtain from Remote-URL (user Info section)

When this feature is available, calling party number is obtained in the following order

Order of priority	Obtaining pattern
1	Obtain from Remote-URL (user Info section)
2	Obtain from Remote-Name (Display Name section)

```
MG(SIP) > set cpn_pattern
What calling party number is given priority?
                          (0:displayname/1:Userinfo(default=0)): _
```

- 0: Display name is given priority (default)
- 1: User info given priority

10 SETΔDEFAULT

The command is used to set back to the default setting of MG-SIP16 configuration. Executing this command saves the default setting to the flash memory.

```
MG(SIP) > set default
Are you sure? Y/N=y
Config data default set.
MG(SIP) >
```

- Enter “y” to determine to set the default value

11 SETΔDNSADDRESS

This command is used to specify the DNS IP address.

```
MG(SIP) > set dnsaddress
DNS IP address :   0.0.0.0
```

- Specify DNS IP address. (Default: 0.0.0.0)

12 SET∆DOMAIN

This command is used to specify the domain of MG-SIP16.

MG(SIP) > set domain Domain name(MAX128) : nec.com	• Specify the domain name. (Default: 0/Maximum: 128 bytes)

13 SET∆DRSADDRESS

This command is used to assign DRS address to MG-SIP16.

MG(SIP) > set drsaddress	
DRS unit(0)	
DRS IP address: 172.16.253.1	• Assign the IP address of unit (0) (Default: 0.0.0.0).
DRS port number(1024-65535): 3456	• Assign the UDP port number for unit(0) (Default: 3456).
DRS unit(1)	
DRS IP address: 172.16.253.2	• Assign the IP address of unit (1) (Default: 0.0.0.0).
DRS port number(1024-65535): 3456	• Assign the UDP port number for unit(0) (Default: 3456).
DRS unit(2)	
DRS IP address: 172.16.253.3	• Assign the IP address of unit (2) (Default: 0.0.0.0).
DRS port number(1024-65535): 3456	• Assign the UDP port number for unit(0) (Default: 3456).
DRS unit(3)	
DRS IP address: 172.16.253.4	• Assign the IP address of unit (3) (Default: 0.0.0.0).
DRS port number(1024-65535): 3456	• Assign the UDP port number for unit(0) (Default: 3456).

Note: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

Note: unit(0), unit(1), unit(2), and unit(3) represent primary, secondary, tertiary, and fourthly respectively.

14 SET∆DRS_QOS

This command specifies the value of Type of Service (ToS) field on packets from MG-SIP16 to DRS.

When IP PRECEDENCE (=1) is selected:

```
MG(SIP) > set drs_qos

Input type: (1=PRECEDENCE/2=DIFFSERV/3=TOS): 1

PRECEDENCE(0-7): 5

DELAY(0/1): 0

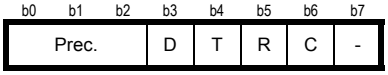
THROUGHPUT (0/1): 0

RELIABILITY(0/1): 0

COST(0/1): 0
```

- When IP PRECEDENCE (=1) is selected:
- Specify the precedence (default: 5). **Note 1**
  0-7 (Low - High)
- Specify the delay (default: 0).
  0/1 = Normal/Delay
- Specify the throughput (default: 0).
  0/1 = Normal/High Throughput
- Specify the reliability (default: 0).
  0/1 = Normal/High Reliability
- Specify the cost (default: 0).
  0/1 = Normal/Cost Precedence

Note 1: IP Precedence - ToS field is allocated as shown below.



: *Prec. = PRECEDENCE (3 bits), D = Delay, T = Throughput, R = Reliability, C = Cost*

When DIFFSERV (=2) is selected:

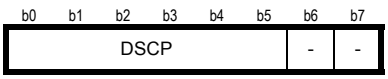
```
MG(SIP) > set drs_qos

Input type: (1=PRECEDENCE/2=DIFFSERV/3=TOS): 2

DSCP(0-63): 40
```

- When DIFFSERV (=2) is selected:
- Specify the ToS field of DiffServ (default: 40)**Note 2**

Note 2: DiffServ - ToS field is allocated as shown below.



: *DSCP (Differentiated Service Code Point (6 bits)*

When TOS (=3) is selected:

```
MG(SIP) > set drs_qos

Input type: (1=PRECEDENCE/2=DIFFSERV/3=TOS): 3

DSCP(00-FE): a0
```

- When TOS (=3) is selected:
- Specify the ToS field (default: a0).

15 SETΔDTMF_MODE

This command is used to specify the DTMF relay system in SIP network. MG-SIP16 supports Out-Band (RFC2833) and In-Band (G.711 data transmission as voice data). Negotiation, Out-Band, or In-Band can be assigned.

Note: DTMF relay method on the Telephony Server network side is automatically set according to the one on the MG-SIP network side, as follows:

DTMF relay system on the SIP network side	DTMF relay system on the Telephony Server network side	Remarks
RFC2833 (out-band)	Proprietary (out-band)	Conversions between "RTP (DTMF: RFC2833) packets on SIP network" and "UDP (DTMF: Proprietary) packets on Telephony Server network"
G.711 PassThrough (in-band)	G.711 PassThrough (in-band)	Conversions between "RTP packets on SIP network" and "RTP packets on Telephony Server network"

```
MG(SIP) > set dtmf_mode
DTMF Mode (0=Negotiation,1=Out-Band,2=In-Band)(default=0): _
```

- Select DTMF Mode.
  0: Negotiation
  1: Out-Band (fixed)
  2: In-Band (fixed)

When Negotiation is selected:

```
MG(SIP) > set dtmf_mode
DTMF Mode (0=Negotiation,1=Out-Band,2=In-Band)(default=0): 0
DTMF Duration (50-240(default=120)):
DTMF Pause(30-240(default=100)):
Payload type(RFC2833)(96-127(default=101)):
```

- When Negotiation (=0) is selected:
- Specify DTMF Duration.
- Specify DTMF Pause.
- Specify Payload type.

When Out-Band is selected:

```
MG(SIP) > set dtmf_mode
DTMF Mode (0=Negotiation,1=Out-Band,2=In-Band)(default=0): 1

DTMF Duration (50-240(default=120)):

DTMF Pause(30-240(default=100)):

Payload type(RFC2833)(96-127(default=101)):
```

- When Out-Band (=1) is selected:
- Specify DTMF Duration.
- Specify DTMF Pause.
- Specify Payload type.

When In-Band is selected:

```
MG(SIP) > set dtmf_mode
DTMF Mode (0=Negotiation,1=Out-Band,2=In-Band)(default=0): 2

DTMF Duration (50-240(default=120)):

DTMF Pause(30-240(default=100)):
```

- When In-Band (=2) is selected:
- Specify DTMF Duration.
- Specify DTMF Pause.

Note: Note that the sum of DTMF Duration and DTMF Pause values must be specified more than 120ms. If not, the following error message is displayed.

```
Input parameter error.
      reason [DTMF Duration + DTMF Pause < Min120ms]
```

16 SET△H245_BASE_PORT_NO

This command is used to specify the H.245 port number to/from the Telephony Server network.

```
MG(SIP) > set h245_base_port_no

H245 base port number(1024-65535): 40000
```

- Assign the negotiation port number (default: 40000).

17 SET△HC_ALARM

This command is used to set the alarm function which is activated to send a warning tone when a Health Check timeout occurs.

```
MG(SIP) > set hs_alarm

Please select H/C alarm type? (default=0)

       0: IPX and SIP side enable
       1: IPX side enable
       2: SIP side enable
       3: disable
```

- Select a type of Health Check Alarm.

  0: Warning tone is sent to the Telephony Server and SIP sides (default).
  1: Warning tone is sent to the Telephony Server side only.
  2: Warning tone is sent to SIP side only.
  3: disable

18 SET∆HC_TIMER

This command is used to specify the Health Check time-out.

`MG(SIP) > set hc_timer` `H/C timer value(130-65535):`	• Assign the Health Check timer value (default: 240 seconds).

19 SET∆INTERFACE

This command is used to assign the Ether speed and the duplex type to each port on MG-SIP16.

`MG(SIP) > set interface`	
`Ether(1) speed (AUTO=0/10M=1/100M=2):0`	• Assign an Ether speed type to Ether 1. 0: Automatic Negotiation (default) 1: 10 Mbps (fixed) 2: 100 Mbps (fixed)
`Ether(2) speed (AUTO=0/10M=1/100M=2): 1`	• Assign an Ether speed type to Ether 2. 0: Automatic Negotiation (default) 1: 10 Mbps (fixed) 2: 100 Mbps (fixed)
`Ether(2) duplex (Half=1/Full=2): 1`	• Assign a duplex type to Ether 1 and Ether 2. **Note 3** 1: Half Duplex 2: Full Duplex

Note 3: When “Automatic Negotiation” is selected, “Full Duplex” is automatically applied to the interface. Therefore, this command line will not appear for interface that is specified as “Automatic Negotiation”. When 100M is specified for Ether 1, the duplex type should also be assigned for Ether 1.

20 SET∆IPADDRESS

This command is used to assign an IP Address and a subnet mask to each Ether port on MG-SIP16.

- Ether1: LAN (Telephony Server network) side
- Ether2: WAN (SIP network) side

Note: When the IP addresses of both LAN and WAN are assigned in the same segment, use Ether1 port only. Select one port in the number of port setting, and assign Ether1's IP address only. In this case, Ether2 is not used.

```
MG(SIP) > set ipaddress

Use one-port only? Y/N=n

Ether[1]
         IP address:  10.     1.     0.   1
         Subnet:     255.   255.   255.   0

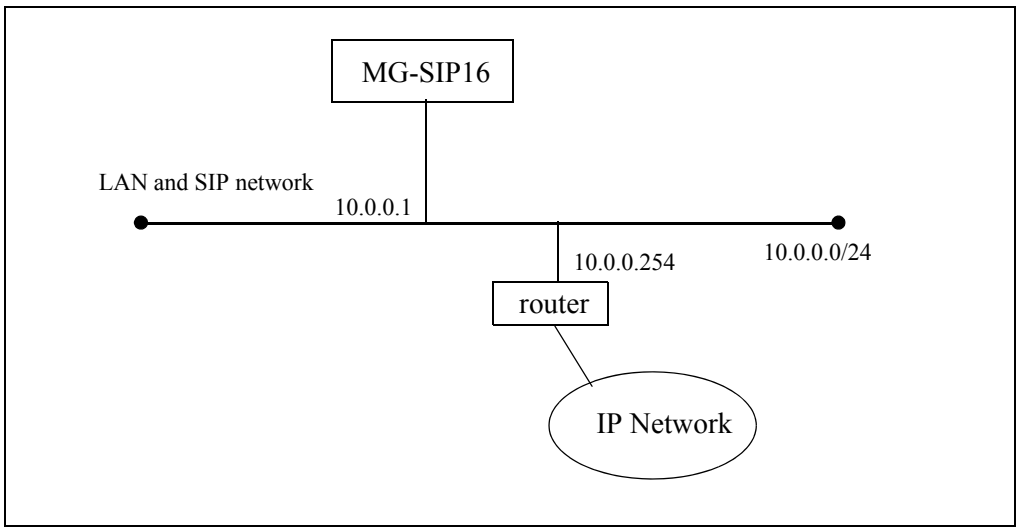

Ether[2]
         IP address: 192. 168.     1.   1
         Subnet:     255. 255.   255.   0
```

- Enter "n" when two ports are used.

Ether [1]: LAN
- Assign the IP address (default: 0.0.0.0) for Ether [1].
- Assign the subnet mask (default: 0.0.0.0) for Ether [1].

Ether [2]: SIP network
- Assign the IP address (default: 0.0.0.0) for Ether [2].
- Assign the subnet mask (default: 0.0.0.0) for Ether [2].

Note: When the IP addresses of LAN and SIP network sides are assigned in the same segment, use Ether1 only as shown below.



21 SETΔIPX_ROUTE

This command is used to specify route information in the Telephony Server side network. The registered number of the route information is up to 10. Pressing the Enter key can skip some of the items.

```
MG(SIP) > set set ipx_route

Route type(0: Exit/1: None/2: Static): 0
```

- Specify the Route type.
  0: Exit
  1: None (default)
  2: Static

When **Exit** (Route type = 0) is selected:

```
MG(SIP) > set set ipx_route
Route type(0: Exit/1: None/2: Static): 0

MG(SIP) > _
```

- When Exit (=0) is selected
- This will exit the command.

When **None** (Route type = 1) is selected:

```
MG(SIP) > set set ipx_route
Route type(0: Exit/1: None/2: Static): 1

Route type: None
Are you sure? Y/N=y
MG(SIP) > _
```

- When None (=1) is selected
- Enter “y” to set the data. **Note 4**

Note 4: Pressing any key other than “y” causes the following message.

```
Route setting command was interrupted.
```

When **Static** (Route type = 2) is selected: **Note 5**

[To Assign Destination Network Address and Gateway Address]

Note 5: Usually, gateway data should be set as 'Static' at LAN side.

```
MG(SIP) > set ipx_route

Route type(0: Exit/1: None/2: Static): 2

Select command (0: Exit/1: Set/2: Delete): 1

Select gateway type (0: Exit/1: Gateway/2: Default gateway): 1

Destination network address(0.0.0.0): 172.16.0.0

Input subnet mask bit(0-31): 16

Gateway IP address(0.0.0.0): 192.168.0.254

Route type: Static

Gateway address    | Destination network / Prefix
--------------------------------------------------
192. 168.   0. 254 | 172.  16.   0.   0  / 16

Are you sure? Y/N=y

MG(SIP) > _
```

- When Static (=2) is selected
- Select 1 to set the data.
- Select Gateway (=1) as a gateway type.
- Specify the destination network address (default: 0.0.0.0).
- Specify the subnet mask (default: 0).
- Specify the gateway IP address (default: 0.0.0.0).
- Enter "y" to set the data. **Note 6**

Note 6: Pressing any key other than "y" displays the following message.

```
Route setting command was interrupted.
```

[To Assign Gateway Address only]

```
MG(SIP) > set ipx_route

Route type(0: Exit/1: None/2: Static): 2


Select command (0: Exit/1: Set/2: Delete): 1


Select gateway type (0: Exit/1: Gateway/2: Default gateway): 2


Gateway IP address(0.0.0.0): 192.168.0.254


Route type: Static

Gateway address    | Destination network / Prefix
-------------------------------------------------
192. 168.   0. 254 |   0.   0.   0.   0  / 0

Are you sure? Y/N=y

MG(SIP) > _
```

- When Static (=2) is selected
- Select 1 to set the data.
- Select Default gateway (=2) as a gateway type.
- Specify the default gateway IP address (default: 0.0.0.0).
- Enter “y” to set the data. **Note 7**

Note 7: Pressing any key other than “y” displays the following message.

```
Route setting command was interrupted.
```

Note: Two or more Default Gateway cannot be registered.

Note: To set a default gateway, it should be assigned to LAN port or SIP network port either.

[To Delete the assigned Routing Information]

```
MG(SIP) > set ipx_route

Route type(0: Exit/1: None/2: Static): 2


Select command (0: Exit/1: Set/2: Delete): 2


No | Gateway address  | Destination network / Prefix
-------------------------------------------------
 1 | 192.168.  0.254  | 172.16. 0. 0        / 16
 2 | 172. 16.  0.254  |  10. 0. 0. 0        / 8


Select Delete No?: 1




No | Gateway address  | Destination network / Prefix
-------------------------------------------------
 1 | 172. 16.  0.254  |  10. 0. 0. 0        / 8

Are you sure? Y/N=y


MG(SIP) > _
```

- Select 2 to delete routing data.
- Select 2 to delete routing data. **Note 8**
- Select No of Static Route Information you want to delete. (In this example, 1 is specified.)
- Enter “y” to delete the data. **Note 9**

Note 8: If there is no route to be deleted, the following will be displayed.

```
There is no static route table to delete.
```

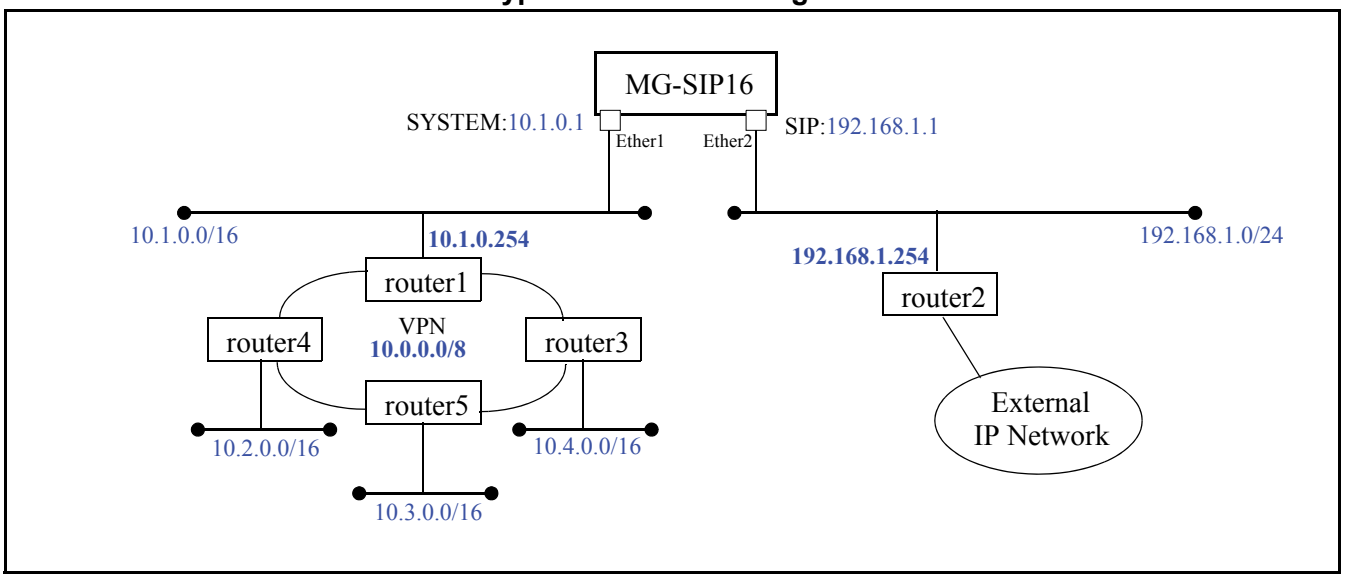
Note 9: Pressing any key other than “y” displays the following message.

```
Route setting command was interrupted.
```

Note: Routing assignment is unnecessary for network segment assigned to Ether (0).

The following shows a typical network configuration and the sample data setting.

Typical Network Configuration



Sample Data Setting for the above network configuration

```
MG(SIP) > set ipx_route

Route type(0: Exit/1: None/2: Static)                        : 2

Select command (0: Exit/1: Set/2: Delete)                    : 1

Select gateway type (0: Exit/1: Gateway/2: Default gateway): 1

Destination network address(0.0.0.0)                        : 10.0.0.0

Input subnet mask bit(0-31)                                  : 8

Gateway IP address(0.0.0.0)                                  : 10.1.0.254

Route type: Static

Gateway address     | Destination network / Prefix
-------------------------------------------------
  10.  1.  0. 254   | 10.   0.   0.    0  / 8

MG(SIP) > set sip_route

Route type(0: Exit/1: None/2: Static)                        : 2

Select command (0: Exit/1: Set/2: Delete)                    : 1

Select gateway type (0: Exit/1: Gateway/2: Default gateway): 2

Gateway IP address(0.0.0.0)                                  : 192.168.1.254

Route type: Static

Gateway address     | Destination network / Prefix
-------------------------------------------------
192. 168.  1. 254   |   0.   0.   0.   0  / 0
```

22 SETΔIPX_RTP_PORT_NO

This command is used to assign the base port number that is used for RTP at LAN side.

```
MG(SIP) > set ipx_rtp_port_no

IPX side RTP port number (1024-65024): 51000
```

- Assign the base port number that is used for RTP at LAN side (default: 51000). **Note 10**

Note 10: The value must be assigned by an even number.

23 SETΔKEYNUMBER

The command is used to assign a pilot number of MG-SIP16 for registration.

```
MG(SIP) > set keynumber

Key number(MAX32): 0
```

- Assign the pilot number when register is performed (default: 0). **Note 11**

Note 11: Be sure not to enter a space after the key number.

24 SETΔMULTI_REGIST

This command is used to enable/disable the setting of registration to SIP server per number.

```
MG(SIP) > set multi_regist

Enable Multi-registration mode?
(0:disable/1:enable(default=0)): 1


The interval of REGISTER message transmitting
(1-10sec(default=1sec)): 1


Standby timer value(10-3600sec(default=30sec)): 30


Contact header type?
(0: Privacy/1: SIP-URI(default=0)): 0
```

- .Select disable or enable.
  0: disable (default)
  1: enable
- Assign the time interval to send register (default: 1sec).
- Assign the time value to re-register after fault recovery (default: 30sec).
- Assign the header type.
  0: Privacy (default) **Note 12**
  1: SIP-URI **Note 13**

Note 12: When “Privacy” is selected, assign a random value to the User ID field of SIP message “Contact header”.
When “SIP-URI” is selected, assign the SIP-URI to the User ID field of SIP message “Contact header”. Assign the telephone number if SIP-URI has not been assigned.

Note 13: Use configuration command “setΔsip_register” to assign the SIP server for register destination. The assignment of “setΔsip_register” is necessary when registration is to be done per number.
Assign this command adjusting to the specifications on SIP network.

25 SET△MUSICTYPE

This command is used to select music type that is sent from MG-SIP16.

```
MG(SIP) > set musictype

Please select the music type
(0: Type1/1: Type2(default=Type1)): 0
```

- Select the music type to be sent from the MG-SIP16.
  0: Type 1 (Minuet) (default)
  1: Type 2 (For Elise)

26 SET△PRACK

This command is used to enable/disable Provisional Response Acknowledgement (PRA) function. When this is set enabled, the cyclical-send of provisional response function can be specified.

```
MG(SIP) > set prack

Is 100rel enable?
(0: enable/1: disable(default=0)): 0



Function which stop cyclical-send of Provisional Response
(0: disable/1: enable(default=0)): 0
```

- Select enable or disable for PRACK function.

  0: Prack function is enabled (default)
  1: Prack function is disabled

- Select enable or disable for stopping cyclical-send of provisional response. (This line appears when '0' is set in the previous line.)

  0: disable (cyclical 18x send will occur)
  1: enable (cyclical 18x send will not occur)

Note: Assign this command adjusting to the specifications on the SIP network.

27 SET△PRE_NEGOTIATION_PORT_NO

This command is used to specify the UDP port number that receives packets regarding the voice control path. To make this assignment effective, it is required to execute the "SAVE" command and to restart the MG-SIP16 by using the "REBOOT" command.

```
MG(SIP) > set pre_negotiation_port_no


Pre negotiation port number(1024-65535): 61014
```

- Assign the negotiation port number (default: 61014)

28 SET△PRIVACY_PATTERN

This command is used to specify a type of Calling Line Identification Non-Presentation.

```
MG(SIP) > set privacy_pattern

Please select calling number privacy pattern.
(0:DisplayName/1:Remote-Party-ID/2:RFC3325(default=0)):
```

- Select a pattern of RFC3325.
  0: DisplayName (default)
  1: Remote-Party-ID
  2: RFC3323/3325(P-Preferred-ID/Privacy)

When **DisplayName** (=0) is selected:

```
MG(SIP) > set privacy_pattern

Please select calling number privacy pattern.
(0:DisplayName/1:Remote-Party-ID/2:RFC3325(default=0)):0


Privacy pattern: DisplayName
```

- When DisplayName (=0) is selected:

When **Remote-Party-ID** (=1) is selected:

```
MG(SIP) > set privacy_pattern

Please select calling number privacy pattern.
(0:DisplayName/1:Remote-Party-ID/2:RFC3325(default=0)):1

Please input a dummy string.(MAX32): anonymous

Privacy pattern: Remote-Party-ID


Dummy string anonymous
```

- When Remote-Party-ID (=1) is selected.
- Enter a dummy string in maximum of 32 characters. **Note 14**

Note 14: Be sure not to enter a blank character to the end of the Dummy string characters (with the Copy and Paste features of your personal computer), and be careful not to mistype a character.

When **RFC3323/3325** (=2) is selected:

```
MG(SIP) > set privacy_pattern

Please select calling number privacy pattern.
(0:DisplayName/1:Remote-Party-ID/2:RFC3325(default=0)):2


Please select RFC3325 pattern.
(0: Pattern 1/1: Pattern 2(default=0)):0


Privacy pattern: RFC3325(0)
```

- When RFC3325 (=2) is selected.
- Select an RFC3325 pattern
  0: Pattern 1
  (P-Preferred-ID Header is not attached)
  1: Pattern 2
  (P-Preferred-ID Header is attached)

29 SETΔREGISTRATION_PORT_NO

This command is used to specify the UDP port number that receives the registration packets.

```
MG(SIP) > set registration_port_no

Registration port number (1024-65535): 3456
```

- Assign the port number (default: 3456).

30 SET△REG_INTERVAL

This command is used to assign the retry waiting time when failed to register, due to the error-response or no answer from the server when Register packet was sent to SIP server from MG(SIP).

```
MG(SIP) > set reg_interval

REGISTER Interval timer (1-255min(default=5min)): 5
```

- Assign the registration retry waiting time.
  Re-register waiting time (min): (default: 5min)

Note: Assign this command adjusting to the specification on SIP network.
When registration per number function is effective, assign by setting MG(SIP) using the largest number within the same MG(SIP) group referring to table below.

Amount of Numbers	Time (minute)
1-300	5
301-600	10
601-900	15
901-1000	20

31 SET△RTP_PATHON

This command is used to assign Path-on function by 183Progress after receiving 180Ringing.

```
MG(SIP) > set rtp_pathon

Path-on 183 after 180?(0: disable/1: enable(default=0)): 0
```

- Assign Path-on function data.
  0: disable (default)
  1: enable

Note: Assign this command adjusting to the specifications on the SIP network.

32 SET△RTP_QOS

This command is used to specify the QoS of Real-Time Protocol (RTP). The sample data setting is explained in 14.SET DRS_QOS command.

```
MG(SIP) > set rtp_qos
```

See SET DRS_QOS command for more details.

33 SET△SELF_SIP_DOMAIN

This command is used to create SIP domain.

```
MG(SIP) > set self_sip_domain

Self SIP domain mode is disable?(0: disable/1: enable(default=0)): _
```

When **SIP Domain Mode is Disable** (=0) is selected:

```
MG(SIP) > set self_sip_domain

Self SIP domain mode is disable?(0: disable/1: enable(default=0)): 0
```

- When 0 (=disable) is specified (default)

When **SIP Domain Mode is Enable** (=1) is selected:

```
MG(SIP) > set self_sip_domain

Self SIP domain mode is disable?(0: disable/1: enable(default=0)): 1

Please input a self SIP domain string.(MAX128):
```

- When 1 (=enable) is specified.
- Input the SIP domain name in maximum of 128 characters.

Note: Assign this command adjusting to the specifications on the SIP network.

Note: This command is required only when SIP domain must be separated between the SIP server and MG(SIP)16.

Note: When no data has been assigned by this command, SIP domain that has been set by "set∆sip_server" command will be used as the SIP domain of MG(SIP)16.

34 SET∆SESSION_TIMER

This command is used to specify the Session Timer.

```
MG(SIP) > set session_timer

Is a session-timer enable?(0: enable/1: disable(default=0)):_
```

- Enable/Disable session timer
  0: Session Timer is enabled
  1: Session Timer is disabled

When **Session-Timer is Enable** (=0) is selected:

```
MG(SIP) > set session_timer

Is a session-timer enable?
(0: enable/1: disable(default=0)): 0

Session-expires(0-86400(default=180sec)): 180

Refresher(0: UAC/1: UAS(default=0)): 0

Add "refresher=uac" in INVITE?
(0: disable/1: enable(default=0)): 1

forced mode?(0: disable/1: enable(default=0)): 0

Session-timer is enable.
Session-expires: 180
Refresher: UAC
Invite Refresher: disable
Forced: disable
```

- When Enable(=0) is selected:
- Set the session timer.
- Determine a point to make refresher.
  UAC: User Agent Client
  UAS: User Agent Server
- refresher=uac addition to INVITE message:
  0: refresher=uac is not added
  1: refresher=uac is added
- forced mode:
  0: Session timer will not be activated when Supported/Require header does not exist (default).
  1: Session timer will be activated by using Session-Expires when Supported/Require header does not exist.

When **Session-Timer is Disable** (=1) is selected:

```
MG(SIP) > set session_timer

Is a session-timer enable?(0: enable/1: disable(default=0)): 1

Session-timer is disable.
```

- When Disable(=1) is selected.

35 SET△SIGNALING_PORT_NUMBER

This command is used to specify the UDP port number that receives the control signal packets.

```
MG(SIP) > set signaling_port_no

Signaling port number(1024-65535):61012
```

- Assign the signaling port number (default: 61012).

36 SET△SIP_PORT_NO

The command is used to specify a port number that receives SIP messages.

```
MG(SIP) > set sip_port_no

SIP port number(1024-65535):5060
```

- Assign the SIP port number (default: 5060).

37 SETΔSIP_QOS

This command is used to specify the QoS of Session Initiation Protocol (SIP).

`MG(SIP) > set sip_qos`	See SET DRS_QOS command for more details.

38 SETΔSIP_REGISTER

The command is used to assign an IP address or a Fully Qualified Domain Name (FQDN) to the SIP registrar. This command is required for using a Proxy Server.

`MG(SIP) > set sip_register` `SIP register type(0=IP address/1=FQDN):_`	• Select the registrar type. 0: IP address 1: FQDN

When **IP address** (=0) is selected:

`MG(SIP) > set sip_register`	
`SIP register type(0=IP address/1=FQDN):0`	• When IP address (=0) is selected.
`SIP register IP address: 192.168.100.100`	• Assign the IP address of the SIP registrar (default: 0.0.0.0).
`SIP register port number(1024-65535): 5060`	• Assign the port number of the SIP registrar (default: 5060)
`SIP register expires time(1-65535): 3600`	• Assign the registrar alive time in seconds (default: 3600).

When **FQDN** (=1) is selected:

`MG(SIP) > set sip_register`	
`SIP register type(0=IP address/1=FQDN):1`	• When FQDN (=1) is selected.
`Full Qualified Domain Name(MAX63): nec.com`	• Assign the FQDN (default:0, max 63 characters). **Note 15**
`SIP register port number(1024-65535): 5060`	• Assign the port number of the SIP registrar (default: 5060)
`SIP register expires time(1-65535): 3600`	• Assign the registrar alive time in seconds (default: 3600).

Note 15: Be sure not to enter a space after FQDN characters.

39 SETΔSIP_ROUTE

This command is used to specify route information in the SIP side network. The registered number of the route information is up to 10.

`MG(SIP) > set sip_route`	See SET IPX_ROUTE command for more details.

40 SETΔSIP_RTP_PORT_NO

This command is used to specify the RTP base port number from SIP network.

```
MG(SIP) > set sip_rtp_port_no

SIP side RTP port number (1024-65024): 50000
```

- Assign the RTP base port number for SIP side (default: 50000) **Note 16**

Note 16: The value must be assigned by an even number.

41 SETΔSIP_SERVER

The command specifies the IP address or the Fully Qualified Domain Name (FQDN) of a SIP proxy server.

Note: Pressing the Enter key can skip the item. However, “SIP server type” and “IPaddress/FQDN” cannot be skipped.

```
MG(SIP) > set sip_server

SIP server type(0=IP address/1=FQDN):_
```

- Select the type of the proxy server.
  0: IP address
  1: FQDN

When **IP address** (=0) is selected:

```
MG(SIP) > set sip_server

SIP server type(0=IP address/1=FQDN):0

SIP server IP address: 192.168.100.100

SIP server port number(1024-65535): 5060

Strict or Loose(0/1): 0

Domain Name(MAX128):_
```

- When IP address (=0) is selected.
- Assign the IP address of the proxy server (default: 0.0.0.0).
- Assign the port number of the proxy server (default: 5060)
- Select a Strict router or Loose router for the proxy server (default: 0).

  0: Strict router
  1: Loose router
- Input a string that specifies the service provider in a maximum of 128 characters.

When **FQDN** (=1) is selected:

```
MG(SIP) > set sip_server

SIP server type(0=IP address/1=FQDN):1


Fully Qualified Domain Name(MAX63):nec.com


SIP server port number(1024-65535): 5060


Strict or Loose(0/1): 0









Domain Name(MAX128):_
```

- When FQDN (=1) is selected.
- Assign the FQEN of the proxy server in a maximum of 62 characters (default: 0).
- Assign the port number of the proxy server (default: 5060)
- Select a Strict router or Loose router for the proxy server (default: 0).

  0: Strict router
  1: Loose router
- Input a string that specifies the service provider in a maximum of 128 characters.

Note: Be sure not to enter a space after FQDN characters.

42 SET△SIP_TEL_SERVICE

The command is used to enable/disable the use of additional service features (Hold/Retrieve/Transfer from the SIP network side terminal).

```
MG(SIP) > set sip_tel_service

  Is SIP telephony service function disable?
          (0: disable/1: enable(default=0)): _
```

- Enable/disable additional service feature.
  0: additional service feature is disabled (default)
  1: additional service feature is enabled

When **enable (**=1) is selected:

```
MG(SIP) > set sip_tel_service

Is SIP telephony service function disable?
        (0: disable/1: enable(default=0)):1


Is Replaces function enable? (0: enable/1: disable(default=0)):_
```

- When enable (=1) is selected:
- Enable/disable Replaces function.
  0: enable (default)
  1: disable

```
Is hold [a=inactive] function enable? (0: enable/
1: disable(default=0)): _
```

0: a=inactive hold function is enabled (default)
1: a=inactive hold function is disabled

Note: Assign this command adjusting to the specification on SIP network.

Note: Setting of a=inactive hold function enable/disable is available for SP-3843 SIPMG PROG-B Issue 6 or later.

43 SETΔSLIPRESP

This command is used to determine a SLIP response code.

```
MG(SIP) > set slipresp

SIP Server slip response code?(400-699):_
```

- Set the SLIP response code (default: 488).

44 SETΔUPDATE

This command is used to enable/disable the use of update method.

```
MG(SIP) > set update

        Is the UPDATE method support function disable?
                    (0: disable/1: enable(default=0)):_
```

- Enable/disable update method.
  0: Update method is enabled (default)
  1: Update method is disabled

Note: Assign this command adjusting to the specification on SIP network.

45 SETΔRESPONSE_TABLE

This command is used to set response table.

```
MG(SIP) > set response_table

Select Response_table (Error_cause to SIP_Error_response)
          (0:normal/1:revised_table (default=0)):_
```

- Select the response table pattern
  0: Normal table (default)
  1: Server error is not sent out from MG-SIP16 to SIP network

Note:

- Generally this command is not required to be changed.
- This command is available for SP-3843 SIPMG PROG-B Issue 6 or later.

46 SETΔOUT_OF_AREA_CODE

This command is used to set the error response code to inform out-of-area error on SV9500 network side.

```
MG(SIP) > set out_of_area_code

Please set up the error response code when the out of
area. (400-606 (default=408)): 408
```

- Enter the error response code (default: 408)

Note:

- Generally this command is not required to be changed.
- This command is available for SP-3843 SIPMG PROG-B Issue 6 or later.

SHOW COMMAND

1 SHOW∆ARP

This command is used to show the Address Resolution Protocol (ARP) table. The following shows a sample display. **Note 17**

```
MG(SIP) > show arp

LINK LEVEL ARP TABLE
Destination     LL Address          Flags     Refcnt    Use    Interface
------------------------------------------------------------------------
90.0.0.63       08:00:3e:23:79:e7   0x405     0         82     lo0
------------------------------------------------------------------------
```

Note 17: Actual value may differ from this sample.

2 SHOW∆CONFIG

This command is used to show the configuration that has been currently specified for the MG-SIP16.

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:_
```

- Select a desired item (0 - 9) to display.

When MAC Data (=0) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:0


Ether[1] MAC address: 00-00-00-00-00-00


Ether[2] MAC address: 00-00-00-00-00-00
```

- When MAC Data (=0) is selected:
- MAC address of Ether [1] of MG-SIP 16
- MAC address of Ether [2] of MG-SIP 16

When DRS Data (=1) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:1


DRS[0] IP address: 0.0.0.0: PortNo[3456]


DRS[1] IP address: 0.0.0.0: PortNo[3456]


DRS[2] IP address: 0.0.0.0: PortNo[3456]


DRS[3] IP address: 0.0.0.0: PortNo[3456]
```

- When DRS Data (=1) is selected:
- IP address and port number of the currently configured DRS will be displayed.

When Common Config Data (=2) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:2

set signaling_port_no:
 Signal port number           :61012
-------------------------------------

set registration_port_no:
 Registration port number     :3456
-------------------------------------

set pre_negotiation_port_no:
 Voice path port number       :61014
-------------------------------------

set ipx_rtp_port_no:
 IPX side RTP port number     :51000
-------------------------------------

set sip_rtp_port_no:
 SIP side RTP port number     :50000
-------------------------------------

set h245_base_port_no:
 H245 base port number        :40000
-------------------------------------

Does it display more? Y/N=y
```

- When Common Config Data (=2) is selected:
- Currently assigned config data will be displayed.
- To see the config data more, enter “y”. To exit this command, press “n”.

```
set drs_qos:
 DRS QOS                    : 0xa0
     PRECEDENCE             : 5
     DELAY                  : 0
     THROUGHPUT             : 0
     RELIABILITY            : 0
     COST                   : 0
-------------------------------------

set rtp_qos:
 RTP QOS                    : 0xa0
     PRECEDENCE             : 5
     DELAY                  : 0
     THROUGHPUT             : 0
     RELIABILITY            : 0
     COST                   : 0
-------------------------------------

Does it display more? Y/N=y
-------------------------------------

set sip_qos:
 SIP QOS                    : 0xa0
     PRECEDENCE             : 5
     DELAY                  : 0
     THROUGHPUT             : 0
     RELIABILITY            : 0
     COST                   : 0
-------------------------------------

set domain:
 Domain name                : 0
-------------------------------------

set dnsaddress:
 DNS IP address             : 0.0.0.0
-------------------------------------

set hc_alarm:
 H/C Alarm type             : IPX and SIP side enable

-------------------------------------

set hc_timer:
 H/C Timer value            : 240
-------------------------------------

set musictype:
 Music Type                 : Type1
```

Note 18

Note 18: H/C Alarm type display varies depending on the type that is assigned by the “set hc_alarm.”

- When assigned as IPX network ⇒ SIP network: “Telephony Server and SIP side enable”
- When assigned as IPX network: “Telephony Server side enable”
- When assigned as SIP network: “SIP side enable”
- When assigned not to send: “Disable”

When Port Config Data (=3) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:3


Ether[1]
      IP address: 0.0.0.0
      Subnet    : 0.0.0.0
      Interface : Speed/Duplex-Auto/Automatic
      Port type : IPX Side Port

Ether[2] MAC address: 00-00-00-00-00-00
    IP address: 0.0.0.0
      Subnet    : 0.0.0.0
      Interface : Speed/Duplex-Auto/Automatic
      Port type : SIP Side Port
```

- When Port Config Data (=3) is selected:
- Information of data that is assigned for ports.

When SIP Config Data (=4) is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:4


set sip_server:
 Server type                    :0
 Sever IP address               :0.0.0.0
 Server port number             :5060
 Strict or Loose                :0
 Domain Name                    :0
-----------------------------------------
set sip_register:
 Register IP address            :0.0.0.0
 Register port number           :5060
 Expires time                   :3060
-----------------------------------------
set keynumber:
 Key number                     :0
-----------------------------------------
set auth:
 User ID                        :0
 Password                       :0

Does it display more?Y/N=y
```

- When SipConfig Data (=4) is selected:
- SIP config data will be displayed.

```
set privacy_pattern:
 Privacy pattern                  :Remote-Party-ID
 Dummy string                     :anonymous
-------------------------------------------------
set session_timer:
 Session-timer                    :0
 Session-expires                  :180
 Refresher                        :UAC
 Invite Refresher                 :enable
 Forced                           :disable
-------------------------------------------------
set prack:
 100rel                           :enable
 Stop cyclical-send of 18x        :disable
-------------------------------------------------
set cdn_pattern:
 Called-number pattern            :To:userinfo
-------------------------------------------------
set sip_port_no:
 SIP port number                  :5060

Does it display more?Y/N=y
-------------------------------------------------
set 184ToPrivacy:
 184->Privacy function            :disable
-------------------------------------------------
set slipresp:
 SIP Server slip response code.   :488
-------------------------------------------------
set self_sip_domain:
 Self SIP domain mode             :disable

Does it display more?Y/N=y
-------------------------------------------------
set dtmf_mode:
 DTMF Mode                        :Negotiation(SIP/SDP)
 DTMF Duration                    :120 ms
 DTMF Pause                       :100 ms
 DTMF Payload type                :101
-------------------------------------------------
set 183rbt:
 RBT add(193 w/o SDP)             :enable
-------------------------------------------------
set pathon:
 Path-on 183 after  180           :disable
-------------------------------------------------
set another_keynumber:
 Another keynumber1               :0
 Another keynumber2               :0
 Another keynumber3               :0

Does it display more?Y/N=y
-------------------------------------------------
```

```
set multi_regist:
 Multi-registration mode                          :disable
-----------------------------------------------------------

Set sip_tel_service:
 SIP telephony service function                   :disable
-----------------------------------------------------------

set reg_interval
 SIP telephony service function                   :disable
-----------------------------------------------------------

set update
 UPDATE Method support                            :disable
-----------------------------------------------------------

set auth_header:
 Auth-header cache function                       :enable
-----------------------------------------------------------

set cause_table:
 Cause_table selection                            :normal
-----------------------------------------------------------

set response_table
 Response_table selection                         :normal

Does it display more? Y/N=y
-----------------------------------------------------------

set cpn_pattern
 Priority of Calling-number                  :Displayname
-----------------------------------------------------------

set cc_convert
 Country-code convert                             :disable
-----------------------------------------------------------

set check number
 Number check function                            :disable
```

Note 19

Note 20

Note 21

Note 22

Note 19: “revised_table” will be displayed when revised_table is selected in “response_table” command.

Note 20: “User info” will be displayed when User info is selected in “cpn_pattern” command.

Note 21: “enable” will be displayed when User info is selected in “cc_convert” command.

Note 22: “enable” will be displayed when User info is selected in “check_number” command.

Additional Information when SIP Config Data (=4) is selected:

Item	Detail
Server type	“Server IP address” may be displayed as “Server FQDN”, pertaining to the data assigned.
Register IP Address	“Register IP address” may be displayed as “Register FQDN”, pertaining to the data assigned.

Item	Detail
Privacy pattern	Displayed as pattern shown below, pertaining to the data assigned. "DisplayName" "Remote-Party-ID" "RFC3323/3325(0)" "RFC3323/3325(1)"
Dummy string	Displayed only when "Remote-Party-ID" is assigned for "Privacy pattern".
Session-timer	May be displayed "Disabled", pertaining to the data assigned.
Session-expires	Not displayed when the value of "Session-timer" is "disable".
Refresher	Not displayed when the value of "Session-timer" is "disable". May be displayed "UAS", pertaining to the data assigned.
Invite Refresher	Not displayed when the value of "Session-timer" is "disable". May be displayed "disabled", pertaining to the data assigned.
Forced	Displayed as "enabled" when Forced section in "session_timer" is assigned as enabled.
100rel	May be displayed "disabled", pertaining to the data assigned.
Stop cyclical-send of 18x	Not displayed when the value of "100rel" is "disable". May be displayed "enabled", pertaining to the data assigned.
Called-number pattern	May be displayed "Request-URI", pertaining to the data assigned.
isub function	May be displayed "enabled", pertaining to the data assigned.
184 → 0 Privacy function	Displayed as pattern shown below, pertaining to the data assigned. "disable" "enable (1)" "enable (2)"
Self SIP domain mode	May be displayed "enabled", pertaining to the data assigned.
Self SIP domain string	Not displayed when the value of "Self SIP domain mode" is "disable". Domain name assigned will be displayed when "enable".
DTMF Mode	Displayed as pattern shown below, pertaining to the data assigned. "Negotiation (SIP/SDP)" "In-Band (G.711)" "Out-Band (RFC2833)"
DTMF Payload type	Not displayed when the value of "DTMF Mode" is "In-Band".
RBT add (183 w/o SDP)	May be displayed "Disabled", pertaining to the data assigned.
Path-on 183 after 180	May be displayed "enabled", pertaining to the data assigned.
Transmitting Interval timer	Not displayed when the value of "Multi-registration mode" is "disable".
Standby timer value	Not displayed when the value of "Multi-registration mode" is "disable".
Contact header type	Not displayed when the value of "Multi-registration mode" is "disable". May be displayed "SIP-URI", pertaining to the data assigned.
Multi_regist	When enable is selected in "**multi_regist**" command, "enable" is displayed and the following are also displayed. Transmitting interval timer: 1sec Standby timer value: 30sec Contact header type: Privacy or SIP-URI **Note:** The settings above are not displayed when "disable" is assigned in "**multi_regist**"

Item	Detail
SIP telephony service function	When enable is selected in "**sip_tel_service**" command, "enable" is displayed and the setting of Replaces function is displayed as follows. Replaces function: enable Replaces function: disable **Note:** Replaces function setting is not displayed when "disable" is assigned in "**sip_tel_service**".
UPDATE Method support function	May be displayed "enable", pertaining to the data assigned.
Auth-header cache function	May be displayed "disable", pertaining to the data assigned.
Cause_table selection	May be displayed "alternate routing", pertaining to the data assigned.

When **Route Config Data (=5)** is selected:

```
MG(SIP) > show config

0=MAC Data
1=DRS Data
2=Common Config Data
3=Port Config Data
4=SIP Config Data
5=Route Config Data
9=Exit

Please choose a reference number:5


Ether[1]
Route type: Static

No | Gateway address  | Destination IP address / Prefix
-----------------------------------------------------------
 1 | 192.168.  0.254  | 172.16. 0. 0           / 16

Ether[2]
Route type: Static

No | Gateway address  | Destination IP address / Prefix
-----------------------------------------------------------
 1 | 192.168.  0.254  |   0. 0. 0. 0           / 0
```

- When Route Config Data (=5) is selected:

3 SHOW∆INTERFACE

This command is used to show the link and setting state of Ether connection.

```
MG(SIP) > show interface

Use one-port only

Ether[1]:

 MAC Address:00-00-00-00-00-00


 Interface: Speed/Duplex = Auto/Auto


 Link status: Link up
```

- MAC address is indicated.
- Speed and operation mode will be indicated.
- Link status can be monitored.

4 SHOW∆ROUTE

This command is used to show the Route Table.

```
MG(SIP) > show route

ROUTE NET TABLE

Destination     Gateway         Flags    Refcnt    Use   Interface
------------------------------------------------------------------
10.41.205.0     10.41.205.100   0x101    0         0     dp0
10.41.207.0     10.41.207.100   0x101    0         0     dp1
------------------------------------------------------------------

ROUTE HOST TABELE
Destination     Gateway         Flags    Refcnt    Use   Interface
------------------------------------------------------------------
127.0.0.1       127.0.0.1       0x101    0         0     lo0
------------------------------------------------------------------
```

- It may take time to display the route table information when DSN server IP address has been assigned.

Note: Actual value may differ from this sample.

5 SHOW∆STATUS

This command is used to show a status of the system.

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:_
```

0: Port status (default)
1: Telephony Server network registration status
2: SIP network registration status
9: Exit

When **Port status (=0)** is selected:

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:0

IPX port link up (100Base-TX/Half)
SIP port link up (10Base-TX/Half)
```

- When Port Status (=0) is selected:

Note 23

Note 23: Port status is displayed as follows depending on the status.

Port Status	IPX Network	SIP Network
100M/Half	IPX port link up (100Base-TX/Half)	SIP port link up (100Base-TX/Half)
100M/Full	IPX port link up (100Base-TX/Full)	SIP port link up (100Base-TX/Full)
10M/Half	IPX port link up (10Base-TX/Half)	SIP port link up (10Base-TX/Half)

Port Status	IPX Network	SIP Network
10M/Full	IPX port link up (10Base-TX/Full)	SIP port link up (10Base-TX/Full)
Link Down	IPX port link down	SIP port link down

When **IPX status (=1)** is selected:

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:1

MG(SIP) > IPX Registration Information
Registration Done. (DRS IP address 172.16.253.1)
```

When IPX status (=1) is selected:

Note 24

Note 24: Display pattern is as follow depending on the registration status.
- During Registration: Now Registering
- Registration Succeed: Registration Done.

When **SIP status (=2)** is selected [Multi Registration Mode is disabled]:

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:2

MG(SIP) > IPX Registration Information
Registration Done. (DRS IP address 172.16.253.1)
```

When SIP status (=2) is selected:

Note 25

Note 25: Displayed message for each registration status is as follows:

Status	Displayed Message	Remarks
During Registration	Now Registering	
Registration Succeed	Registration Done	
Registration Failed	Registration NG. Waiting Re-Registration timer.	
Registration Invalid	Registration Server Configuration data is not setting.	No data has been assigned by using *set sip_register* command.

When **SIP status (=2)** is selected [Multi Registration Mode is enabled]:

```
MG(SIP) > show status

0: Port status
1: IPX status
2: SIP status
9: Exit

Please choose a reference number:2

MG(SIP) > IPX Registration Information
Registration Done.

MG(SIP) > SIP Registration Information

------Registration NG RegIndex------

[MG-No:1]

9 10 11 12 13 14 15

[MG-No:2]

[MG-No:3]

[MG-No:4]

------Registration OK RegIndex------

[MG-No:1]

1 2 3 4 5 6 7 8

[MG-No:2]

[MG-No:3]

[MG-No:4]
```

When SIP status (=2) is selected:

- registration failed CNT (RegIndex) information is displayed here.
- registration failed CNTs
- registration OK CNT (RegIndex) information is displayed here.
- registration OK CNTs

Note: In the above example, registration was attempted for 16 numbers toward the SIP server. However, 8 numbers failed. Assign MG-No by using ASRIL command. “CNT” is a parameter of ASRIL command.

6 SHOW∆VERSION

This command is used to show a version information installed in MG-SIP16.

```
MG(SIP) > show version

Firmware Information    | SP No |     Issue
-----------------------------------------------------
MG(SIP) BOOT PROG       | 3842  |  01.00.00.00
MG(SIP) MAIN PROG       | 3843  |  01.00.00.00
MG(SIP) AU PROG         |  --   |  01.00.00.00
MG(SIP) HW              |  --   |  PZ-CC162-2A
```

- MG(SIP) BOOT PROG: kernel version
- MG(SIP) MAIN PROG: program version
- MG(SIP) AU PROG: Music/Tone/DTMF version
- MG(SIP) HW: hardware version

DOWNLOAD COMMAND

1 DOWNLOAD

This command is used to download Main Program/DTMF/Music data via Ether1 port. The data is downloaded from Trivial File Transfer Protocol (TFTP) server.

[When downloading **all programs**]

```
MG(SIP) > download

Please reboot after the command.

--- Download Menu ---
Download of all programs.(default) --- input: 1
Download of one program.           --- input: 2

Input: 1

--- MG-SIP IP address set ---
Select Ether Port[1(Ether1)/2(Ether2)/Q(quit)]: 1

Current MG-SIP IP address: 10.41.1.100
Change MG-SIP address? [Y(change)/N(current)/Q(quit)]:y

If you want return to the previous step, please input 'Q'.
Input new IP address: 172.16.253.250

--- TFTP IP address set ---
Current TFTP server IP address: 10.41.1.250
Change TFTP server IP address?[Y(change)/N(current)/Q(quit)]:y

If you want to return to the previous step, please input 'Q'.
Input new IP address: 172.16.253.250


 Change IP address complete.
 New MG-SIP IP address: 172.16.253.100
 New TFTP IP address: 172.16.253.250

 Are these IP address correct?[Y(correct)/N(modify)/Q(quit)]
 If you enter Y,MG-SIP ONLINE service will be stop:y


 mgsipmwlist.txt download...
 SP3843/mgsip.bin download...
 Checksum matched!

 ##################################
 Complete
 SP3843/tone.dat download...
 Checksum matched!

 ##################################
 Complete
 SP3843/holdmusic.dat download...
 Checksum matched!

 ##################################
 Complete
```

- To download all programs, enter “1”.
- Select Ether1 that is used for download.
- To change the IP address that is used for downloading, enter “y”.
- Enter a new IP address.

Note 26, Note 27

- default: 10.41.1.250
- To change the TFTP server IP address, enter “y”.
- Enter the IP address of TFTP server that is prepared at your site.
- When the specified IP addresses are correct, enter ‘y’.
- downloading main program
- downloading DTMF Tone file
- downloading music
- Download is complete.

Note: The new IP address that is used for downloading and those of other ports should be different network address (different segment).

Note: Do not use a network address for which static routing has been set.

```
--- Download menu ---

 Download of all programs.(default) --- input:1
 Download of one program.           --- input:2


 input: q

MG(SIP) > _
```

- When download is complete, the menu appears again.

Enter ‘q’ to exit download command.

Note: Be sure to reboot the MG-SIP16 after downloading data.

[When downloading **one program**]

```
MG(SIP) > download

Please reboot after the command.

--- Download Menu ---
Download of all programs.(default) --- input: 1
Download of one program.           --- input: 2

Input: 2

--- MG-SIP IP address set ---
Select Ether Port[1(Ether1)/2(Ether2)/Q(quit)]: 1

Current MG-SIP IP address: 10.41.1.100
Change MG-SIP address? [Y(change)/N(current)/Q(quit)]:y

If you want return to the previous step, please input 'Q'.
Input new IP address: 172.16.253.250

--- TFTP IP address set ---
Current TFTP server IP address: 10.41.1.250
Change TFTP server IP address?[Y(change)/N(current)/Q(quit)]:y

If you want to return to the previous step, please input 'Q'.
Input new IP address: 172.16.253.250


 Change IP address complete.
 New MG-SIP IP address: 172.16.253.100
 New TFTP IP address: 172.16.253.250

 Are these IP address correct?[Y(correct)/N(modify)/Q(quit)]:y

--- Program download ---
Main program  :0
dtmf data     :1
music data    :2
Quit          :[Q/q]

Input:0

 SP3843/mgsip.bin download...
 Checksum matched!

 ##################################
 Complete

--- Program download ---
Main program  :0
dtmf data     :1
music data    :2
Quit          :[Q/q]

Input:q

MG(SIP) > _
```

- To download all programs, enter "1".
- Select Ether1 that is used for download.
- To change the IP address that is used for downloading, enter "y".
- Enter a new IP address. **Note 26, Note 27**
- default: 10.41.1.250
- To change the TFTP server IP address, enter "y".
- Enter the IP address of TFTP server that is prepared at your site.
- When the specified IP addresses are correct, enter 'y'.
- Select a file you want to download.
- Main program is selected in this example.
- downloading the Main program...
- Download is complete.
- When download is complete, the program download menu appears again.
- Enter 'q' to exit download command.

Note: Be sure to reboot the MG-SIP16 after downloading data.

Note: Be sure to check the product name of the firmware to download before downloading.

Note 26: If checksum error occurs during download, an error message similar to the following is displayed and the display goes back to the download menu. In this case, execute download again.

```
Checksum unmatched!!
Checksum of Filename is 12345. Not.66666.
```

Note 27: If download fails, an error message similar to the following is displayed. The message includes an error number. Please see the table that shows countermeasures.

```
tftp Download: tftp Copy ERROR errno=0x4b0007
```

Meaning of Error Number

ERROR NUMBER	CAUSE	COUNTERMEASURES
0x4b0007	MG-SIP16 and the TFTP server is not connected.	Connect MG-SIP16 and TFTP server correctly.
0x4b0008	The specified download file does not exist in TFTP server.	Check the file name of the download file. Check the TFTP server setting.
0x41	The IP address of MG-SIP16 and TFTP server is not in the same segment.	Check the IP address of MG-SIP16 and TFTP server, and reassign the IP address.
0x43	TFTP server's IP address cannot be found.	
0x0d	TFTP server's IP address is not correct.	

PING COMMAND

1 PING△*P1*

This command is used to send ping packets to a specified address to confirm network status. Ping is attempted 5 times to the address specified.

Note: The number of ping attempts (5 times) and packet size (56 bytes) cannot be changed.

```
MG(SIP) > ping 172.16.253.3
PING 172.16.253.3(172.16.253.3):56 data bytes
64 bytes from 172.16.253.3: icmp_seq=0 ttl=255 time=9.6ms
64 bytes from 172.16.253.3: icmp_seq=1 ttl=255 time=1.1ms
64 bytes from 172.16.253.3: icmp_seq=2 ttl=255 time=9.6ms
64 bytes from 172.16.253.3: icmp_seq=3 ttl=255 time=9.9ms
64 bytes from 172.16.253.3: icmp_seq=4 ttl=255 time=9.6ms
--- 172.16.253.3 ping statistics ---
5 packets transmitted. 5 packets received. 0% packet loss
Round-trip min/avg/max=1. 1/7. 9/9. 9 ms
MG(SIP) > _
```

- Specify an appropriate IP address.
- 56 bytes cannot be changed.
- ping is attempted 5 times.
- Ping statistics will displayed

REBOOT COMMAND

1 REBOOT

This command is used to reboot the MG-SIP16. Also configuration data can be saved to the Flash memory by using this command.

```
MG(SIP) > reboot
Do you want to save Config data? Y/N=y




Do you want to reboot MG(SIP) Y/N=y



Config data flash write start.
##
Complete
Config data flash write end.
MG(SIP) reboot start...
```

- Config data can be saved before rebooting the MG-SIP16. To save the running config to the Flash memory, enter "y".
  y: save **Note 28**
  n: not save

  If other than above is entered "`Reboot command was interrupted`" will be displayed.
- Reboot the MG-SIP16 or not is specified.
  y: reboot
  n: not reboot

  If other than above is entered "`Reboot command was interrupted`" will be displayed.

Note 28: Before selecting "Y" to save the running configuration data to the Flash memory, be sure to execute the following commands:
- set ipaddress (Assign the IP addresses for LAN side and SIP network side.)
- set drsaddress (Assign the IP address of DRS.)
- set sip_server (Assign the IP address of the SIP server)
- set keynumber (Assign a pilot number.)

If any item has not been assigned when saving the running configuration data, the following message will be displayed.

```
The following setting commands are not perfect.
"set ipaddress" command. (IPX side)
"set ipaddress" command. (SIP side)
"set drsaddress" command.
"set sip_server" command.
"set keynumber" command.
So, Config data is made a default setup.
Is it all right?Y/N=y
```

The following is displayed:

- if IP address for LAN side has not been assigned
- if IP address for SIP network side has not been assigned
- if IP address of DRS has not been assigned
- if IP address of SIP server has not been assigned
- if a pilot number has not been assigned

- To apply default value, enter "y".

  If other than above is entered "`Reboot command was interrupted`" will be displayed.

EXIT COMMAND

1 EXIT

This command is used to exit from configuration mode.

```
MG(SIP) > exit

Exit ConfigMode. Bye!


->
```

- Exit from Config mode...

HELP COMMAND

1 HELP/?

This command is used to show the brief explanation of all the commands that are available on the Maintenance Console.

```
MG(SIP) > help

set                 : Config data set command.
show                : Config data show command.
download            : MG(SIP) program download command.
ping                : Ping command.
exit                : Config mode exit command.
reboot              : MG(SIP) reboot command.
help                : Help command.
?                   : Help command.
```

- Brief explanation is displayed.

5.3 Error Messages on Maintenance Console

The following are error messages displayed on the Maintenance Console.

ERROR MESSAGE	TROUBLESHOTTING
`Illegal command.`	An incorrect command is entered. Enter the command correctly.
`Illegal parameters`	An incorrect parameter is entered. Enter the parameter correctly.
`Invalid parameters`	An invalid parameter is entered. Enter the parameter correctly.
`Please set up IPX side IP address`	Assign Telephony Server side IP address by **set ipaddress** command.
`Please set up SIP side IP address`	Assign SIP side IP address by **set ipaddress** command.
`Please set up DRS IP address`	Assign DRS IP address by **set drsaddress** command.
`Please set up SIP server IP address/ FQDN`	Specify SIP server by **set sip_server** command.
`Please set up keynumber`	Assign a pilot number by **set keynumber** command.
`User program download error 1`	Internal error
`User program download error 2`	Download file cannot be found.
`User program download error 3`	Network connection cannot be established
`User program download error 4`	TFTP errors other than User program download errors 1 to 3
`User program download error 5`	Flash write error (User Program)
`User program download error 6`	Flash write error (Music/Tone)
`Input parameter total error [DTMF Duration + DTMF Pause < Min 120ms]`	Assign 120ms or more to the total of DTMF Duration and DTMF Pause.
`Registration NG. Waiting Re-Registration timer.`	Registration error. Re-Registration is being performed.
`Register Server Configuration data is not setting.`	There is no Register Configuration Data. Assign the data by **set sip_register** command.

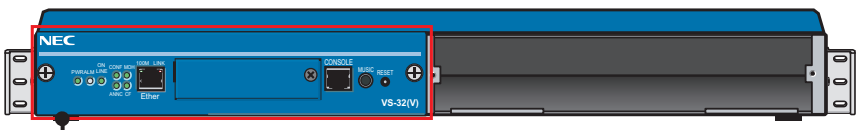
Note: Refer to each command for the other error messages.

VS-32(Dual) [SCA-VS32VA/MG-VS32VA/SCA-VS32VA-B]

1 Introduction

This section describes the setup, data programming, operation, and maintenance procedures of the Voice Server Conference Server (referred to as VS32(Dual) hereinafter) with the Announcement, Music On Hold, and Conference features. These features can be performed over IP network that may reduce communication cost drastically, compared with the existing Public Switched Telephone Network (PSTN).

VS32(Dual) has two types of hardware; VS-32(Dual) Card [SCA-VS32VA/SCA-VS32VA-B] and VS-32(Dual) Box [MG-VS32VA] for box type. VS32(Dual) Card is accommodated in Multi Purposes Chassis (MPC). Those ones are shown in the following figure:



VS-32(Dual) Card [SCA-VS32VA] **Note 1**



VS-32(Dual) Box [MG-VS32VA]

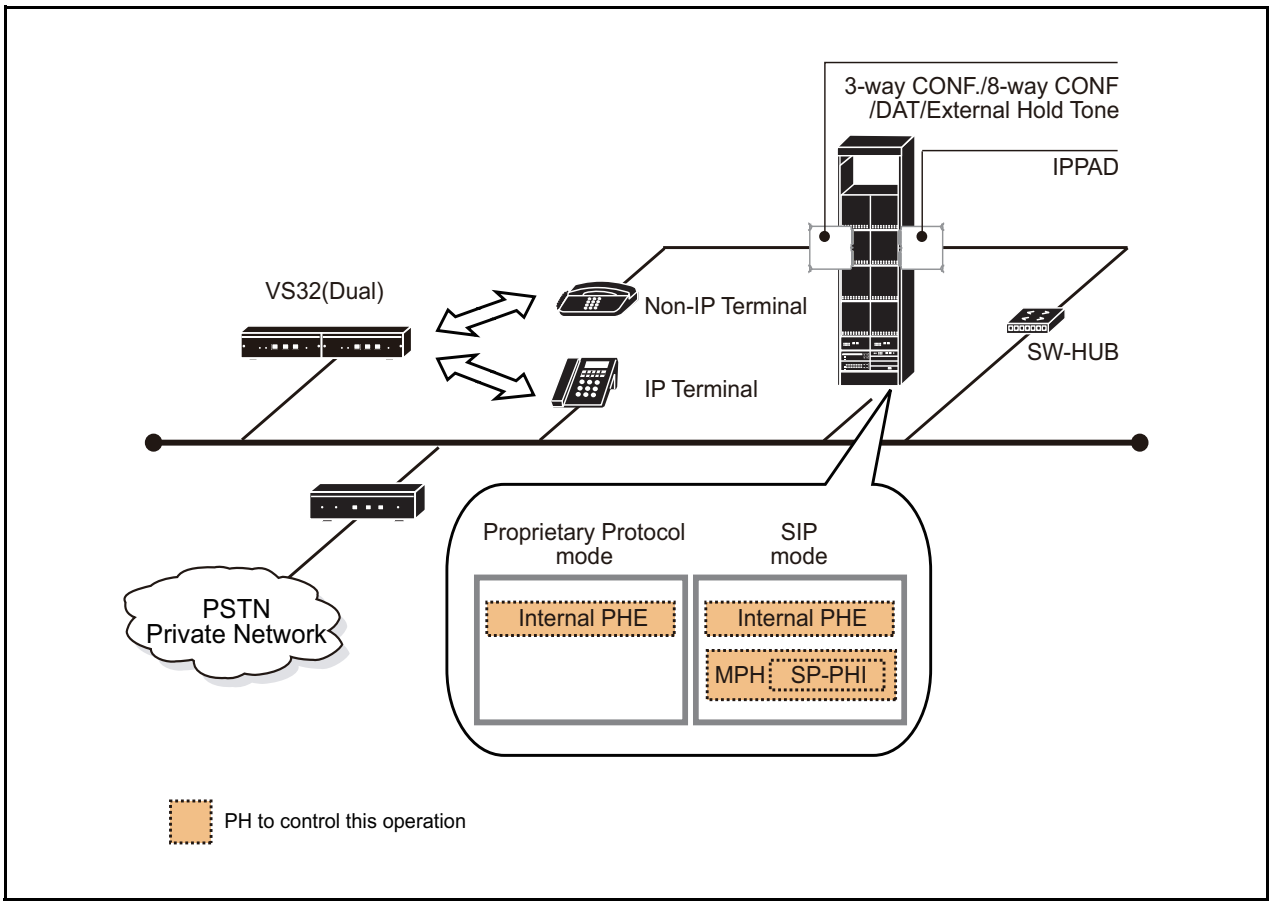
Note 1: VS32(Dual) Card is a slot-in type of line card mounted in 1U-MPC (Multi Purposes Chassis). A 1U-MPC can accommodate a maximum of two cards. There is no restriction on the combination of mounting card types; any other MG/MC card can be mounted in the same 1U-MPC with VS32(Dual) Card.

Note: VS32(Dual) is available for Australia, North America, and EMEA.

VS32(Dual) can select registration mode; Proprietary Protocol mode (default) or SIP mode depending on the configuration setting.

In Proprietary Protocol mode, control signal between the Telephony Server and VS32(Dual) is handled by Internal PHE (built-in PH function), whereas SP-PHI carries that kind of task in SIP mode using Session Initiation Protocol (SIP). In SIP mode, control signal and voice packets are encrypted to ensure security feature. Conference, three-way calling, announcement, and external hold-tone features are provided on IP network with security.

Note: Registration mode can be selected when SP-3891 CA-VS32 PROG-A Issue 3A or later version of firmware is installed on VS32(Dual). When SP3891 CA-VS32 PROG-A Issue 2A or earlier version of firmware is installed, VS32(Dual) works in Proprietary Protocol mode only.



1.1 VS32(Dual) Feature Details

VS32(Dual) allows a user to assign the features such as Announcement, Music On Hold, and Conference features within 32 channels as follows:

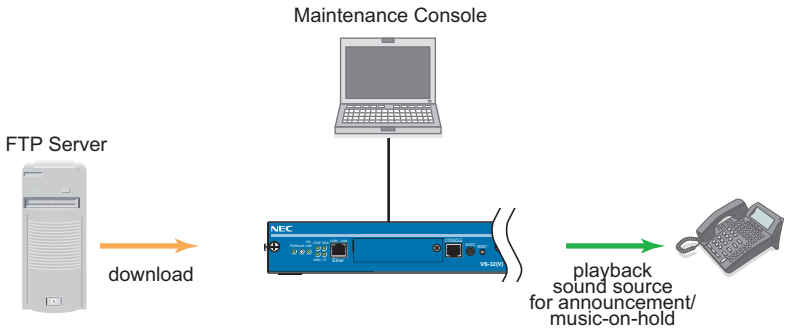
CH / CASE	0														15															31
CASE 1	3-party			3-party			3-party			3-party			3-party		*	3-party			3-party			3-party			3-party			*	
CASE 2	3-party			3-party			3-party			3-party			3-party		*	8-party								8-party					
CASE 3	3-party			3-party			3-party			3-party			3-party		*	16-party													
CASE 4	8-party								8-party																8-party					
CASE 5	8-party								8-party							16-party														
CASE 6	16-party															16-party														
CASE 7	32-party																													
CASE 8	3-party			3-party			3-party			3-party			3-party		*	Announcement/IP External Music On Hold													
CASE 9	8-party								8-party							Announcement/IP External Music On Hold													
CASE 10	16-party															Announcement/IP External Music On Hold													
CASE 11	Announcement/IP External Music On Hold																													
CASE 12 **Note 1**	Announcement Trunk										Announcement Trunk										Announcement Trunk							*	*
CASE 13 **Note 1**	Announcement Trunk										Announcement Trunk										*	*	*	*	*	*	*	*	*	*
CASE 14 **Note 1**	Announcement Trunk										*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
CASE 15 **Note 1**	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Announcement Trunk							

Note: An asterisk (*) indicates a non-used port.

Note 1: This case is only available when VS32 Announcement Multiple Connection is in service. For the details of this feature, refer to “VS32 Announcement Multiple Connection” in Chapter 4 of Data Programming Manual - ACD.

For announcement and external music-on-hold sound source, WAVE files stored in internal Flash ROM of VS32(Dual) or in CF memory card are used. In addition, playback of monaural sound data from MUSIC jack (external input connector) is available. Create WAVE files on PC conforming to the specified format. Download these WAVE files via FTP and save them on internal Flash ROM of VS32(Dual). For more details, see *SETUP*

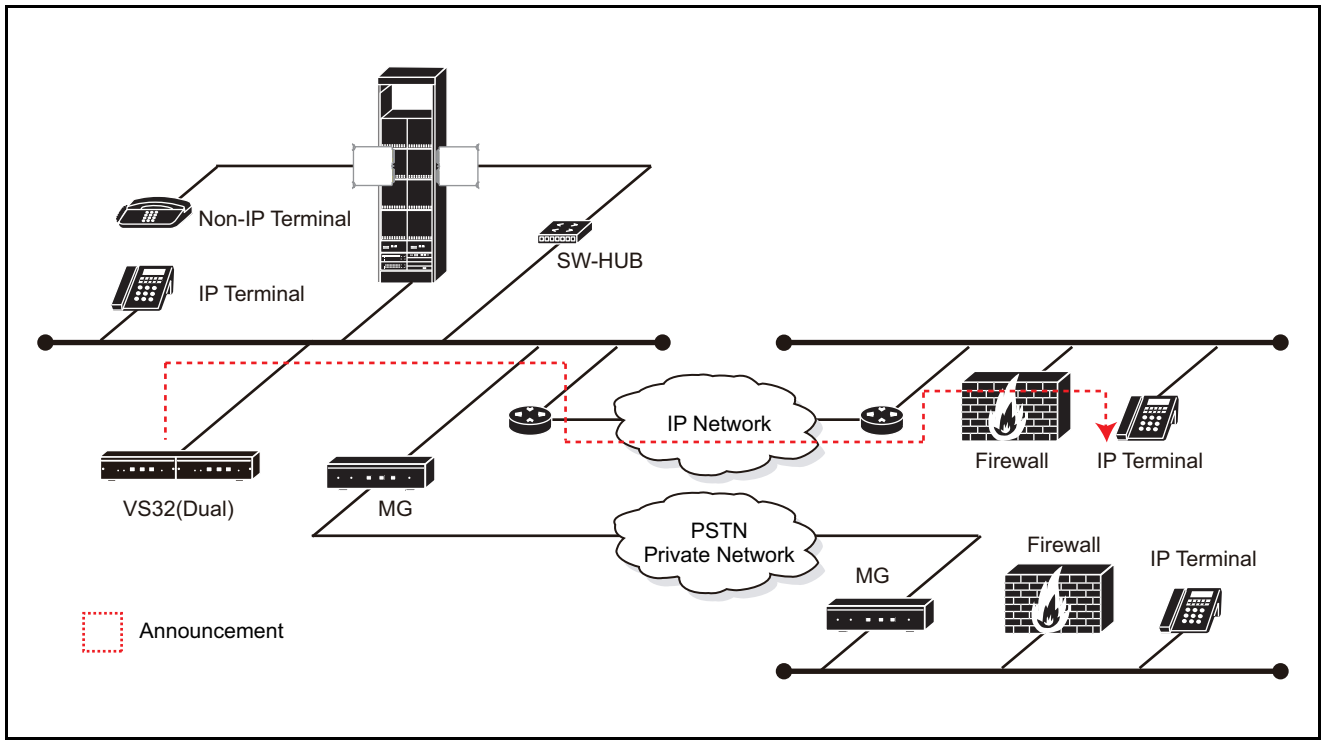
WAVEFILE command in Section 4.1, How To Use Maintenance Command.



The following are the details about the VS32(Dual) features.

1. Announcement Feature

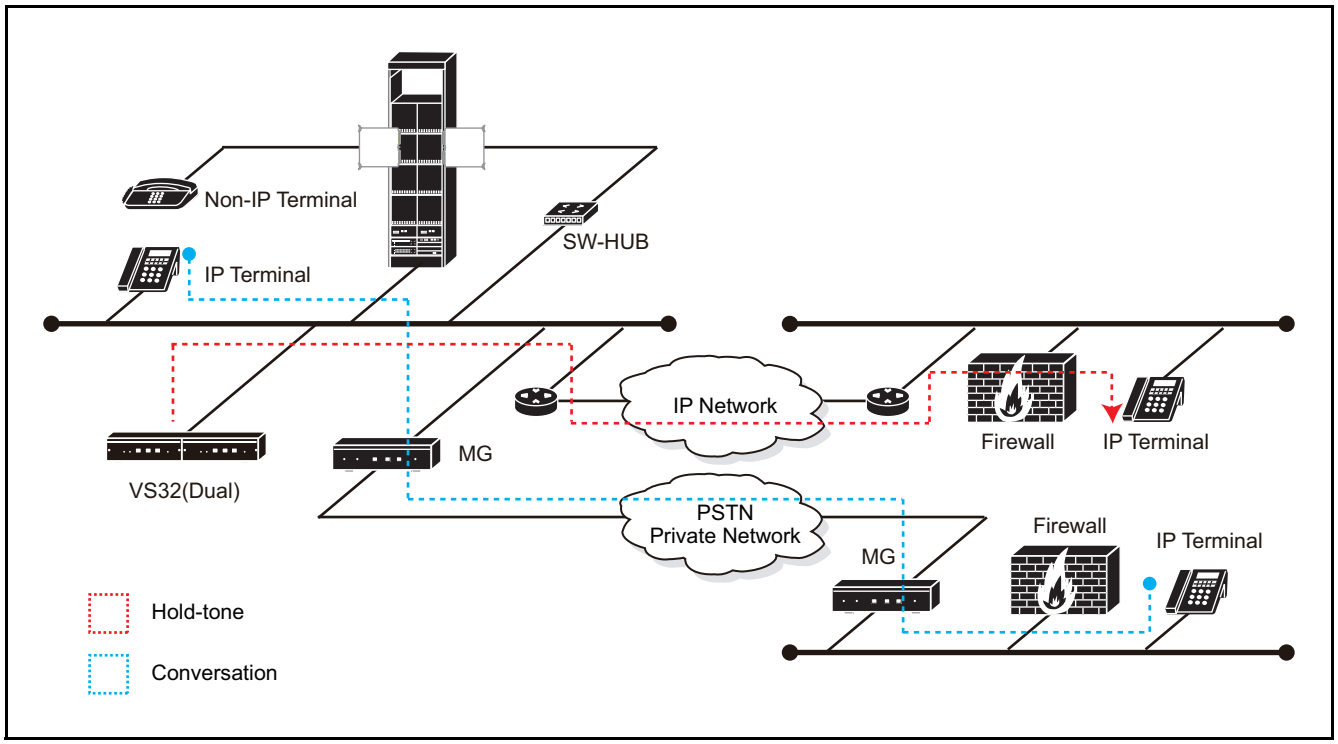
VS32(Dual) can provide various announcement services for stations dialing the access code. This feature can be performed without IPPAD circuit card.



Music source files in the internal Flash ROM or CF Memory Card of VS32(Dual) are used for the announcement sound source. Music source files edited by PC are also available. For more information, refer to page 1812.

2. IP External Music On Hold Feature

VS32(Dual) provides external holding tone to held calls. This feature can be performed without IPPAD circuit card.



Music source files in the internal Flash ROM or CF Memory Card of VS32(Dual) are used in the External hold-tone sound source. For more information, refer to page 1812. Besides MUSIC equipment can be used as the external sound source via External Input Interface Music Jack.

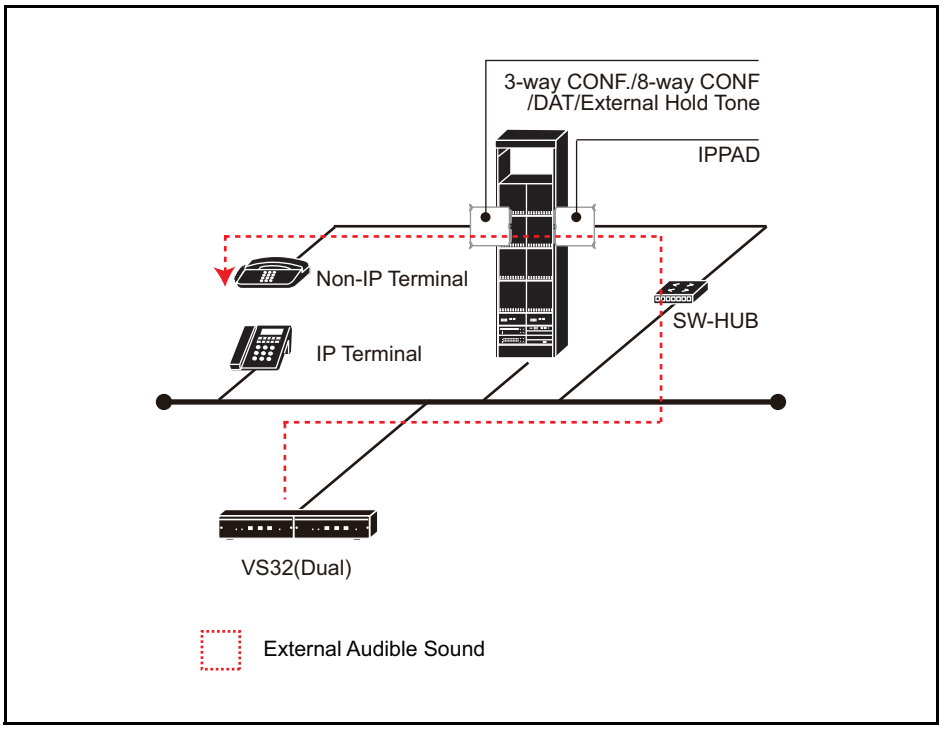
3. Music On Hold Per Line Feature

VS32(Dual) provides distinctive music on hold for different lines (such as My Line and Sub Lines on a Desktop terminal).

Note: Available since FP95-114 V4.

4. External Audible Sound Feature

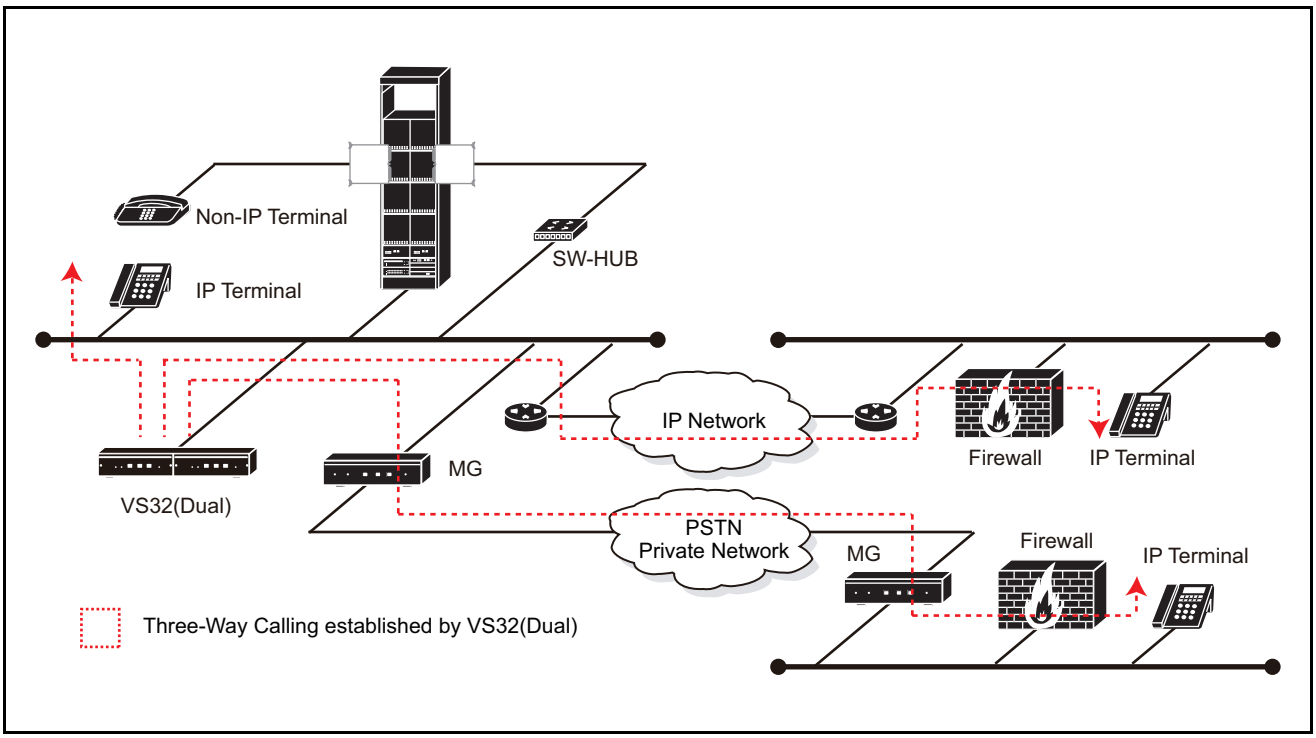
VS32(Dual) provides external audible sound (such as ringing tone) to non-IP terminals instead of TSW ROM and EMA/PLO ROM. This feature can be performed by fixing the connection between Music on Hold (MOH) of VS32(Dual) and Speech Path Memory (SPM). This feature requires IPPAD circuit card.



5. Three-Way Calling

This feature enables a station user to make a Three-Way Calling by calling another party, when it is on two-way connection. Even if the additional station user holds the call, Three-Way Calling may be established (this service is called Consultation Hold).

Three-Way Conference is also used as UMS conversation recording to record the conversation between two parties.



6. Multiple-Party Conference

8-party/16-party/32-party (including a Conference Leader who hosts the conference) conferences are available in the conference feature.

1. PRESET

When a Conference Leader seizes the conference port, VS32(Dual) automatically calls the pre-assigned Conferees from the Conferee's port. The conference can be established when called-Conferee answers the call. Note that this feature does not support specified two-party call with Conferee, and forced release of Conferee.

2. PROGRESSIVE

Conference Leader seizes the conference port first. The leader controls the conference by calling the conferees and connecting them to the conference. Conference Leader calls them one by one until all the members are summoned.

3. MEET-ME

There are two ways to establish the MEET-ME conference.

- Conference Leader dials Conferees and then transfers Conferees answering the call to a specific port reserved for the conference by dialing the conference station pilot number.
- Conference Leader and Conferees decide the conference time in advance. When the time comes, Conferees voluntarily call a specific conference port to join the conference.

Whenever a participant enters the conference or leaves the conference, following notification tone is sent:

- When entering the conference, the others hear a notification tone for 480ms.
[830.6Hz (240ms) + 1046.5Hz (240ms)]

- When leaving the conference, the others hear a notification tone for 480ms.
[830.6Hz (240ms) + 493.9Hz (240ms)]

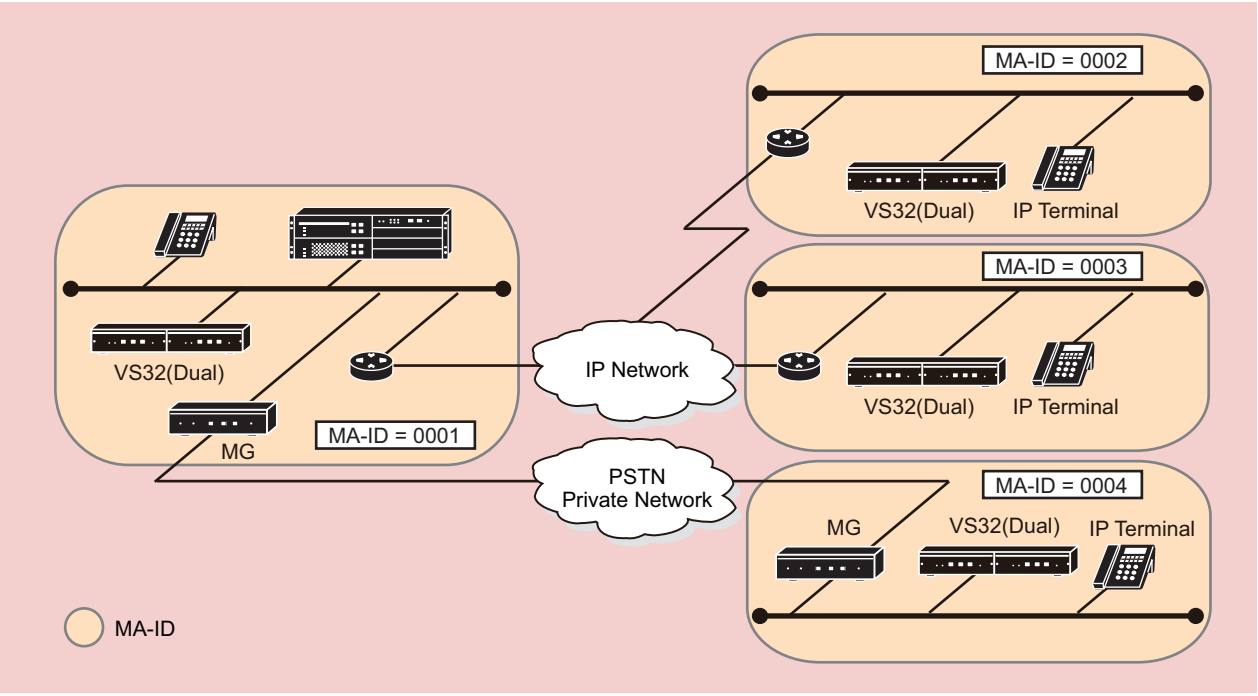
4. ADD-ON

Any conference member can invite stations to the conference by dialing even if the operating station is not a conference leader.

7. Least Cost Routing

This feature enables the terminal to take the least cost routing to VS32(Dual). For example, on the condition that the Telephony Server in a main office manipulates multiple VS32(Dual)s installed in remote offices, adding MA-IDs to them will provide best routing to send and receive the packets peer to peer. Thereby, the following can be achieved.

- The problem of voice quality such as delays in transferring the voice signals might be solved.
- The redundant number of packets over the WLAN can be reduced to a minimum.
- The use of VS32(Dual)s that are far from an originating terminal can be restricted.

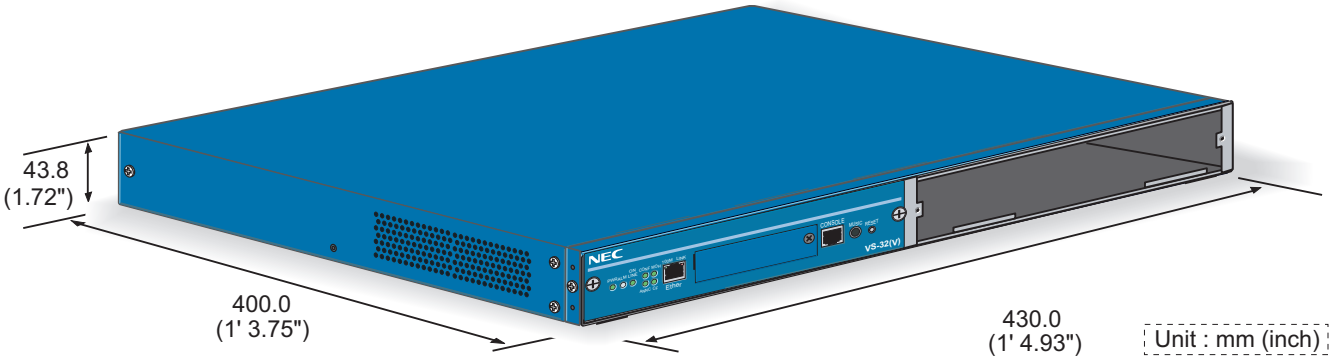


1.2 Specifications

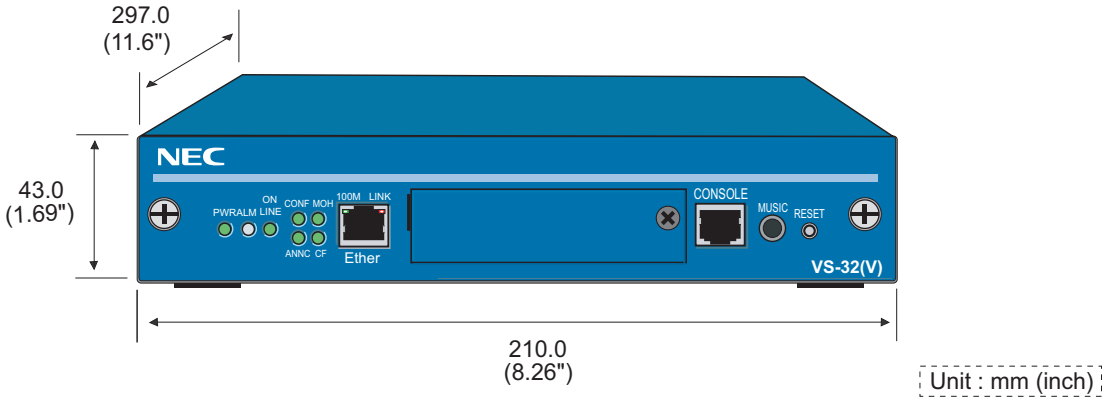
1. Dimension

- VS-32(Dual) Card [SCA-VS32VA/SCA-VS32VA-B]

  VS-32(Dual) Card is mounted in 1U-MPC (19-inch rack mount, 1U-box).

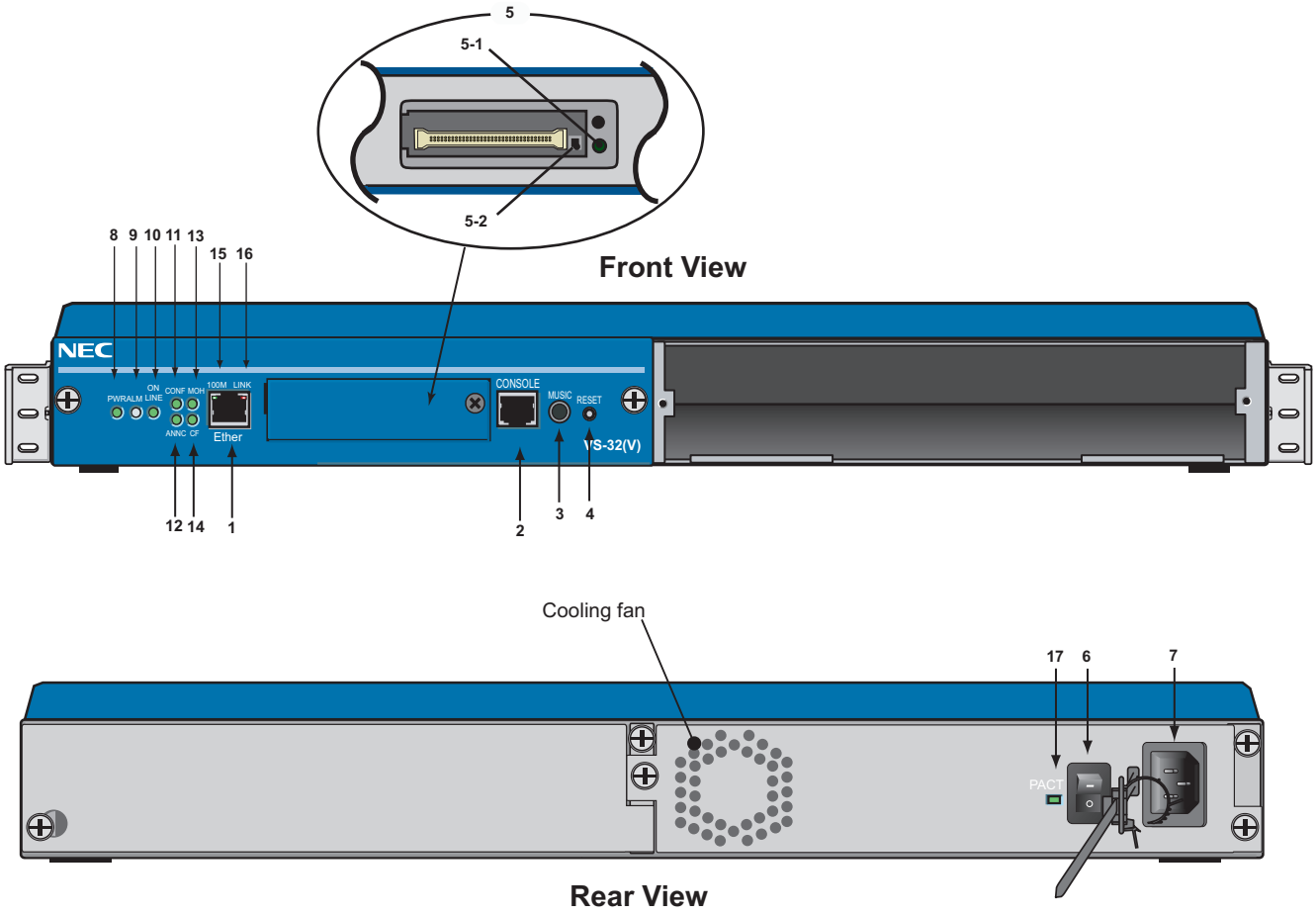


- VS-32(Dual) Box [MG-VS32VA]



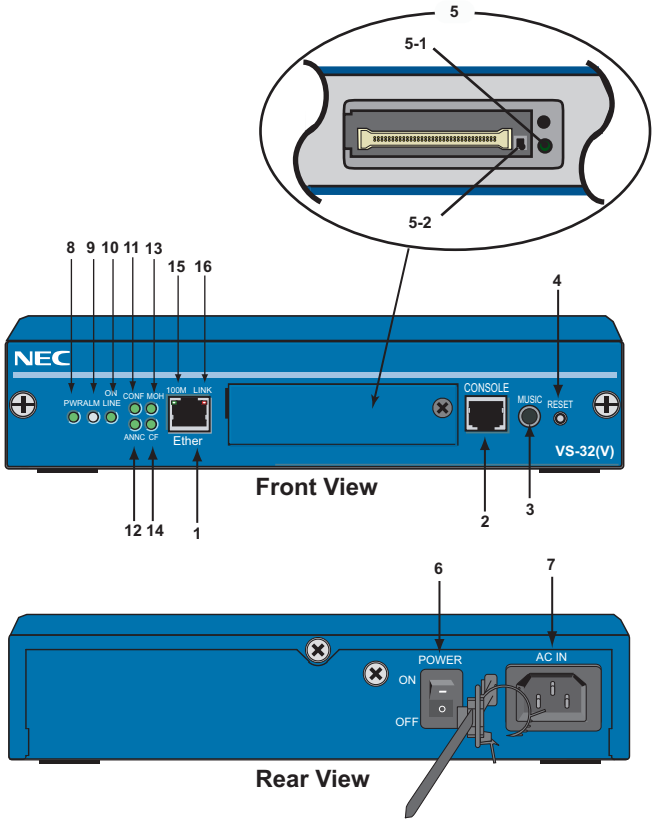
2. Layout of Connectors, Lamps, and Switches

Connectors, lamps, and switches indications are explained below.



Size : 1U-MPC mount (maximum 2 cards/unit)
Weight : 7.0 kg at the maximum mount on 1U-MPC

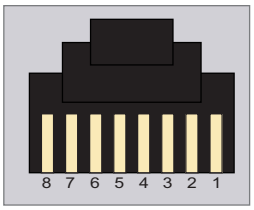
Note: This figure is an example when the 1U-MPC is in single power configuration. Prepare one more power unit for dual power configuration. (See the Appliance Model Installation Manual for the mounting procedure of power unit.)



Size : 210(W)×297(D)×43(H) mm
Weight : 1.8kg

The interfaces of VS32(Dual) are listed in:

Specifications of VS32(Dual)

No.	NAME	SPECIFICATIONS	NOTE
1	Ether Connector	LAN interface RJ-45 100Mbps/10Mbps, auto-negotiation (Half/ Full Duplex)	RJ-45  Pin No. / FUNCTION 1 TX+ 2 TX- 3 RX+ 4 - 5 - 6 RX- 7 - 8 -
2	CONSOLE Connector	RJ-45 with serial connection for maintenance console • Speed: 9600bps • Data length: 8 bit • Parity bit: None	VS32(Dual) is maintained by using the terminal program via serial interface. CONSOLE cable RJ-45 ⇔ RS-232C is used.
3	MUSIC Connector	External input interface music jack	3.5ϕ mini-jack (monaural type)
4	RESET Switch	VS32(Dual) reset switch	Boot program is started.
5	Compact Flash Card Slot	CF Memory Card slot for storing announce and music-on-hold sound source. (TYPE I of CF Memory Card is available.)	Before ejecting CF Memory Card from VS32(Dual), turn off the power of the VS32(Dual) or push CFMBR switch to turn the CF LED off.
5-1	CFMBR Switch	Make-busy of CF Memory Card	This switch is used to turn off CF lamp.
5-2	Eject Lever		This lever is used to eject a Compact Flash Card.
6	Power Switch	Power ON/OFF switching	
7	AC IN Connector	AC power inlet AC 100V/120V/230-240V, 50/60Hz ±10%	The power varies depending on the countries. Plug in an attached three-polar grounded AC power cable for main power supply (Cable Length: 3 m [9.8 ft.])

LED Lamp display status are listed in :

No.	LAMP	MEANING	STATUS	
8	PWR	Status of VS32(Dual) Power	Green	VS32(Dual) power ON
			OFF	VS32(Dual) power OFF
9	ALM **Note 1**	Status of the power module	Red	Lights when power failure is detected in dual power configuration Steady lights in single power configuration
			OFF	Normal operation in dual power configuration
10	ON LINE	Connection status between the Telephony Server and VS32(Dual)	Green	Registration to the Telephony Server is completed
			OFF	Registration is not completed (off-line)
11	CONF	Status of the conference trunk	Green	One or more channels are used for conference feature
			FLASH	No registration or no assigned data. Data is assigned but all make busy.
			OFF	All channels are idle for conference feature
12	ANNC	Status of the announcement feature	Green	One or more channels are used for announcement feature
			FLASH	No registration or no assigned data Data is assigned but all make busy
			OFF	All channels are idle for announcement feature
13	MOH	Status of the external music on hold feature	Green	One or more channels are used for external music on hold feature
			FLASH	No registration or no assigned data. Data is assigned but all make busy. Do not turn off the power during flashing.
			OFF	All the channels are used for external music on hold feature
14	CF	Status of the Internal Flash ROM and Compact Flash Card	Green	CF Card is mounted
			FLASH	CF Card access Internal Flash ROM access
			OFF	CF Card is not mounted CF MBR
15	100 M	Transmission Speed	Green	100 M bps
			OFF	10 M bps
16	LINK	Ethernet Link Status	Green	Ethernet Link has been established.
			FLASH	Sending/Receiving data
			OFF	Ethernet Link has not been established.
17	PACT **Note 1**	Status of the power unit	Green	Normal operation
			OFF	Power failure

Note 1: ALM and PACT lamps are used for VS-32(Dual) Card only.

3. Port Numbers

The following provides the port number to be used in the system

Port Number in Proprietary Protocol mode

Function		TP side	
		Port Number (default)	How to Change Port Number
VS32(Dual) ⇔ Telephony Server	Registration	3456	Default value can be changed by ADTM command.
	iLP-PM	60130	Default value can be changed by ADTM command.
Peer to Peer	P2P communication control port	62000	Default value can be changed by the configuration command *SET PORTNUMBER*.
	RTP start port	1024	
	H.245 start port	60000	

Port Number in SIP mode

	Function	TP side			SP side	
		LAN Port (default)	Port Number (default)	Command to Change Setting	Port Number (default)	Command to Change Setting
TP ⇔ SP Note 2	Registration	LAN1	3456	ADTM (Port Number only)	22000	Cannot be changed
	iLP-PM	LAN1	60130	ADTM (Port Number only)	64105	ALIDL
SP Internal Control Port Note 3	iLP-PM	-	-	-	64010	ALIDL
					22001	ASPC
VS32(Dual) ⇔ SP	SIP	-	-	-	5060	Cannot be changed
H.245 Negotiation	Ready	-	-	-	22002	ASPC
	H.245	-	-	-	22003 ~ 26000	ASPC

Note 2: The packet between TP and SP (“TP Û SP” in the table) does not flow over the network because both of which are part of the Telephony Server.

Note 3: The packet related to SP internal control port does not flow over the network.

4. Available Channels When Using SIP Mode

   The number of channels that are processed depends on codec and payload cycle used by VS32(Dual) in SIP mode. Therefore, adjustments will be needed, such as placing unnecessary channels into the Make Busy status.

   See VoIP Encryption [V-27] in Data Programming Manual - Business for the number of available channels on the encryption status of this component.

5. Service Features Available in VS32(Dual)

   Features available in VS32(Dual) are listed in:

ITEMS	FEATURE NAME	REMARKS
External Music Source	Music On Hold (C.O. Incoming Call Function)	For IP devices only
CFT	Executive Right-of-Way (Extension Function)	
	Three-Way Calling (Extension Function)	
	Supervisory Call/Attendant Override	
	Busy Verification/Attendant Override/Monitoring (CCIS)	
Announcement	Call Forwarding - Unused Number/Level/All Calls - Announcement (Extension Function)	For single connection only
	Unused Number/Dead Level Number - Announcement	For single connection only
	Call Forwarding - Intercept/Announcement	For single connection only
	Delay Announcement - UCD	For single connection only
	Automatic Announcement - Called PS Out of Zone	For single connection only
Conference Call	Group Call - Automatic Conference (20-party)	
	8/16/32-Party (Progressive, Preset, Meet-Me, Add-On)	
ACD	Supervisor Override	
	Announcement (Delay/Night/Holiday)	For single connection only
	Monitoring - ACD SUPERVISOR - ACD	For single connection only
	Emergency/Recorder	
	Monitoring/Continuous Monitoring	
Operation and Maintenance	FTP	
	Peg Count	
	IP Device Firmware Remote Download	

ITEMS	FEATURE NAME	REMARKS
IP related features	ToS Control	
	VS32 Conference Server (Three-Way Calling, Multiple-Party Conference, IP External Music On Hold, Music On Hold Per Line, Announcement, External Multiple Music-On-Hold Source, Least Cost Routing for VS32, Payload Change)	
	DTMF Playback (in RTP Information Output feature)	

1.3 Requirements

[1] Hardware Requirements

The required hardware for using VS32(Dual) is described in this section. To use VS32(Dual), the following hardware must be prepared:

- 1U-MPC (multi purposes chassis) for mounting on 19-inch rack **Note 1**
- PC running Terminal Software (for using Maintenance Console)
- FTP Server (required for file downloading)
- Cables

  LAN cable: Use any of the following cables for connecting to LAN.

  10BASE-T: Unshielded Twisted Pair (UTP) Straight-through Cable Category-3 or higher, (a maximum of 100m)

  100BASE-TX: Unshielded Twisted Pair (UTP) Straight-through Cable Category-5 or higher, (a maximum of 100m)

  CONSOLE Cable: RJ-45 ⇔ RS232C serial cable (for using maintenance console)

  Audio Cable: Microphone input (for using external hold-tone source)
  ϕ3.5 mini-jack (monaural type)
  **optional*

Note 1: Required for VS-32(Dual) Card only.

[2] Firmware Program

The following program is installed in VS32(Dual).

- Installed Firmware: SP-3891 CA-VS32 PROG-A Issue 3A or later for dual registration mode

Note: When SP-3891 CA-VS32 PROG-A Issue 2A or earlier version of firmware is installed, VS32(Dual) works in Proprietary Protocol mode only.

[3] Environmental Requirements

- Operational Temperature Range: 0°C to 40°C (32°F to 104°F)
- Operational Humidity Range: 20% to 90% (not condensing)
- Main Source Power: 100 VAC / 120 VAC / 230 VAC / 240 VAC (50/60 Hz) ±10%

1.4 Service Conditions

See [V-26] VS32 Conference Server in the Data Programming Manual - Business.

2 Installation

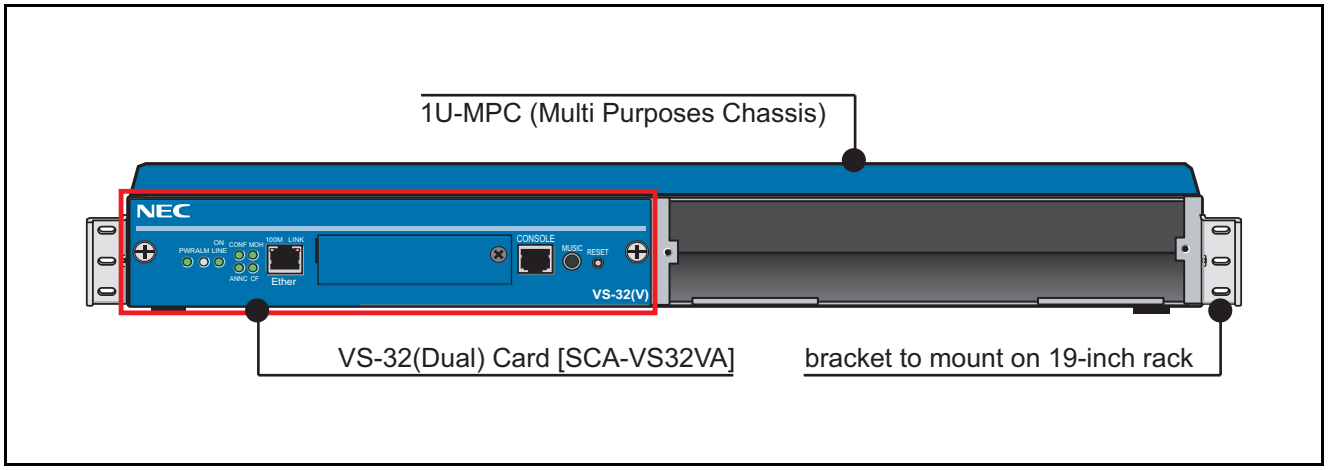
This section shows how to install the hardware required for using VS32(Dual).

2.1 How to Set VS32(Dual)

- How to Mount VS-32(Dual) Card on 1U-MPC

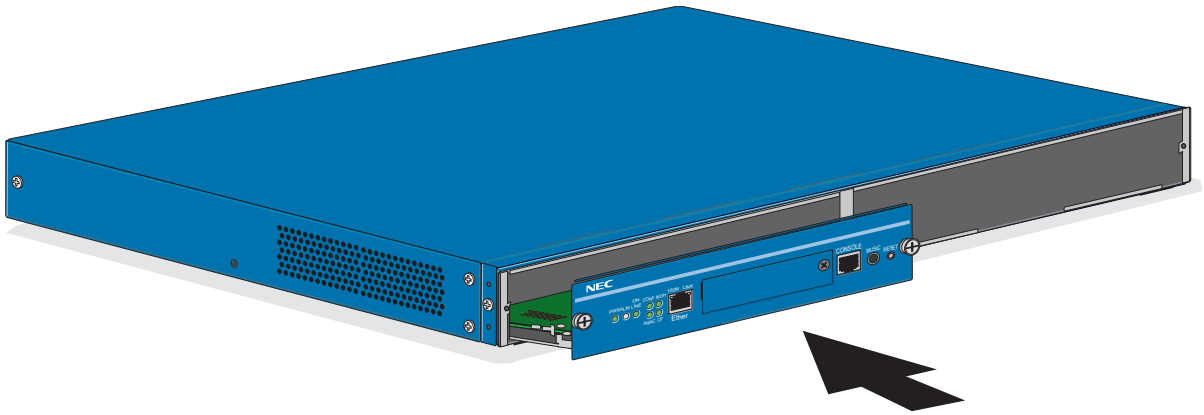
  VS-32(Dual) Card is used by mounting on 1U-MPC (19-inch rack mount, 1U-box).

  Note: See the Appliance Model Installation Manual for the procedure to mount 1U-MPC on 19-inch rack.

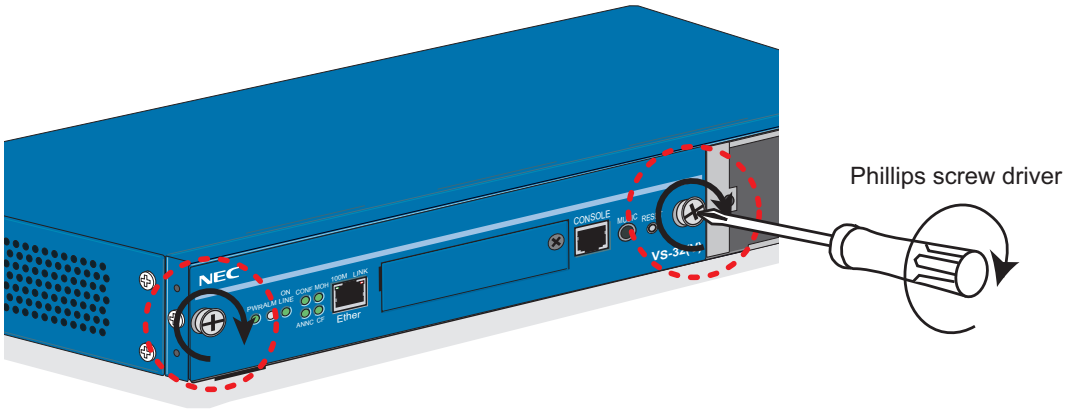


Note: This figure is an example to mount a VS-32(Dual) Card in the left slot on 1U-MPC.

STEP 1: Insert VS-32(Dual) Card into 1U-MPC.

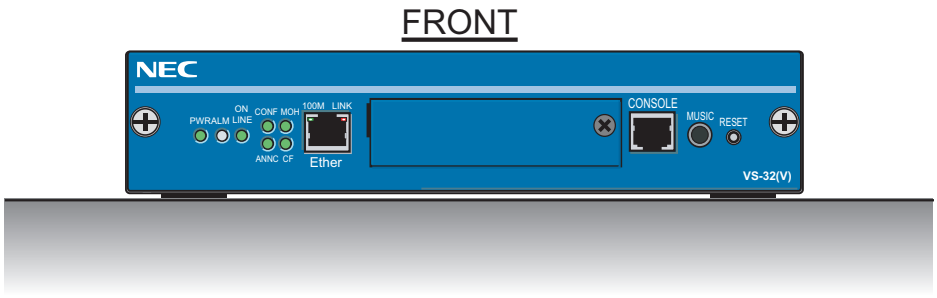


STEP 2: Secure the VS-32(Dual) Card to 1U-MPC fixing two screws on right and left sides.



- VS-32(Dual) Box desktop horizontal setting

Desktop Horizontal Setting



2.2 Cable Connection to VS32(Dual)

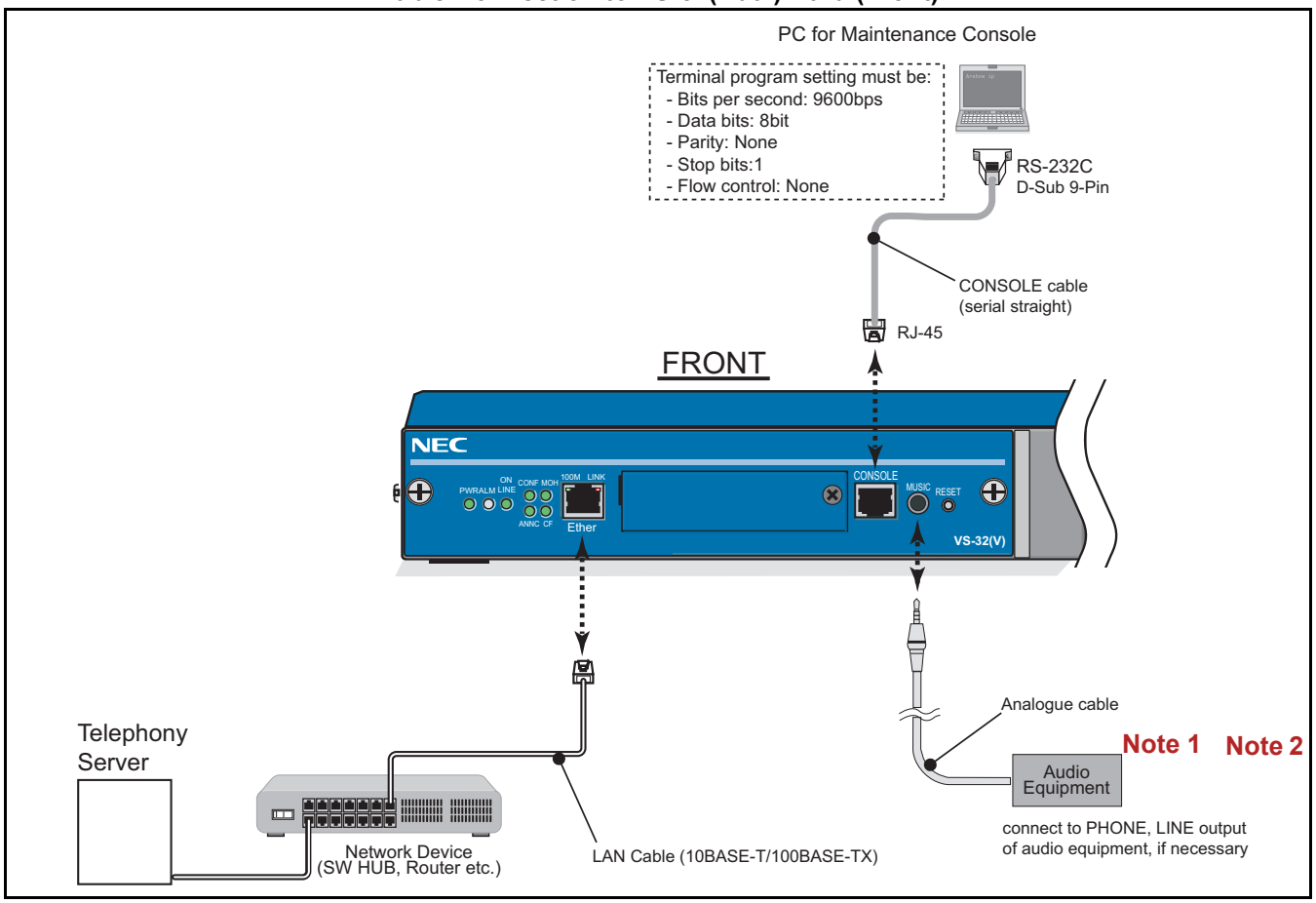
The VS32(Dual) provides the following types of interfaces:

- Connection to LAN
- Power Supply
- Serial port connection to Maintenance Console
- Connection to audio equipment (*optional)

Connect the required cables according to the system configuration. An example of cable configuration is shown below:

1. VS-32(Dual) Card Cable Connection

Cable Connection to VS-32(Dual) Card (Front)

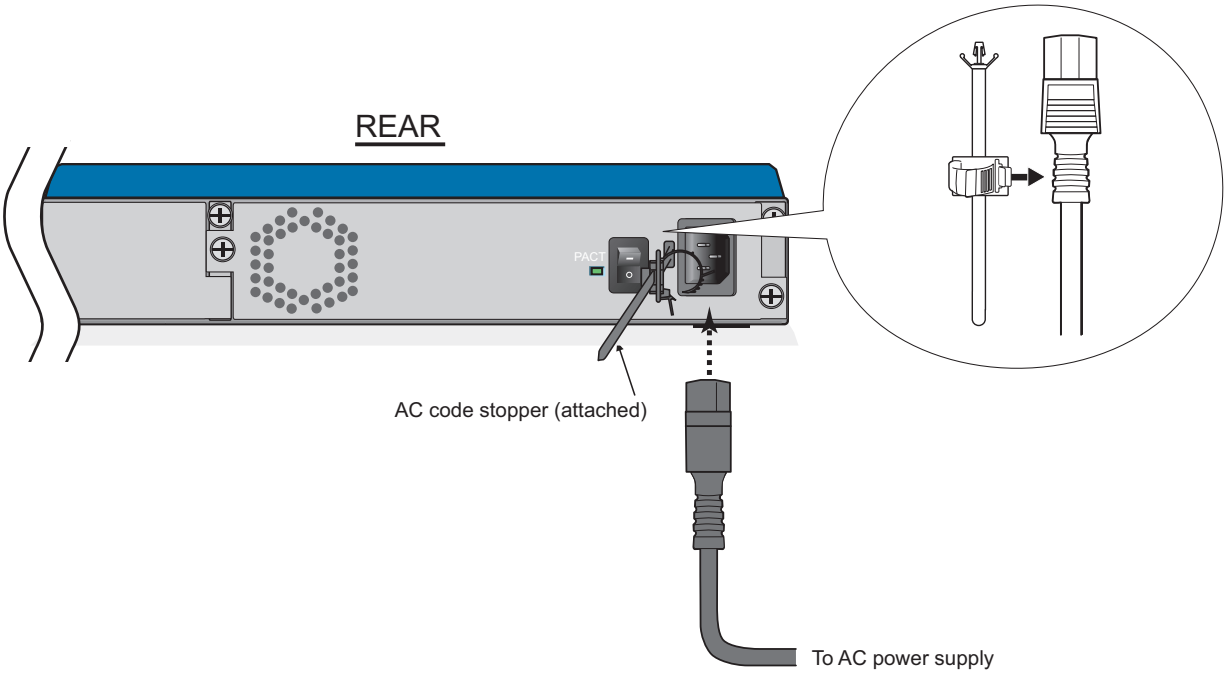


Note 1: Cable of external hold tone source needs to be conformed with all-purpose ϕ3.5 monaural ear phone jack. Adjustment of output level for external hold tone source needs to be started from low to higher to avoid over-current. The tuning of volume level is to be done by monitoring from the telephone terminal connected over PSTN line and tuning the output level of external hold tone source. Input impedance from the external hold tone source needs to be within the range of 8Ω-50kΩ. Make sure not to exceed this range.

Note 2: If audio equipment has a ground terminal, be sure to make proper connection to grounding of audio equipment.

Cable Connection to VS-32(Dual) Card (Rear)

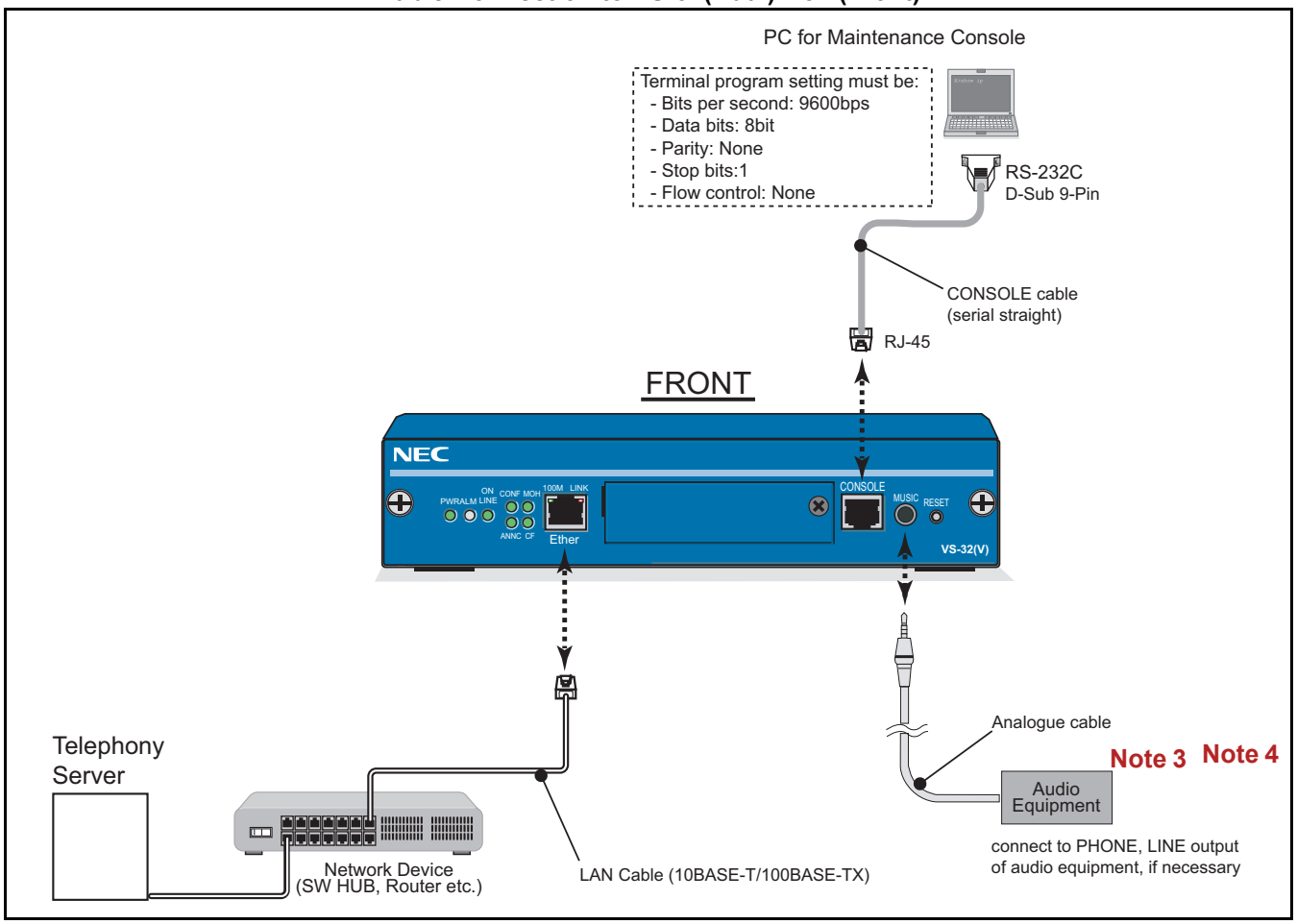
Connect the AC power cable to AC power inlet on the rear panel of VS-32(Dual) Card. Fix the AC power cable with the stopper.



Note: For the safety measures against static electricity, lighting strike, and other electrical surges, be sure to make proper connection to grounding (less than 10Ω). If the cable is struck by lightning directly, the lightning might cause damage to VS32(Dual) and AC power cable without Ground connection.

2. VS-32(Dual) Box Cable Connection

Cable Connection to VS-32(Dual) Box (Front)

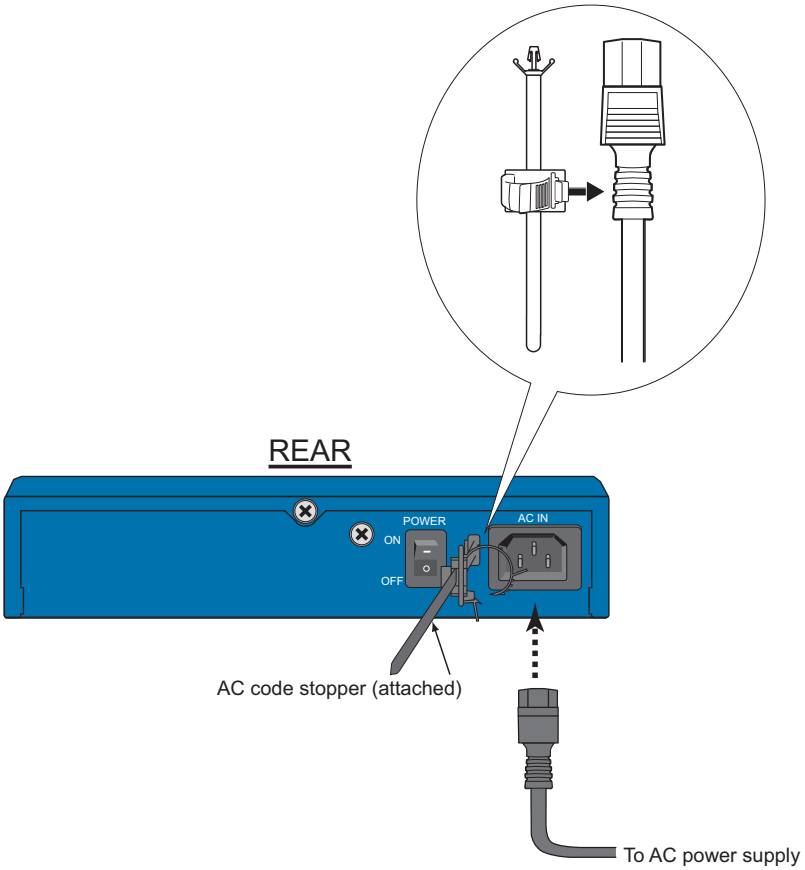


Note 3: Cable of external hold tone source needs to be conformed with all-purpose ϕ3.5 monaural ear phone jack. Adjustment of output level for external hold tone source need to be started from low to higher to avoid over-current. The tuning of volume level is to be done by monitoring from the telephone terminal connected over PSTN line and tuning the output level of external hold tone source. Input impedance from the external hold tone source needs to be within the range of 8Ω-50kΩ. Make sure not to exceed this range.

Note 4: If audio equipment has a ground terminal, be sure to make proper connection to grounding of audio equipment.

Cable Connection to VS-32(Dual) Box (Rear)

Connect the AC power cable to AC power inlet on the rear panel of VS-32(Dual) Box. Fix the AC power cable with the stopper.



Note: For the safety measures against static electricity, lighting struck, and other electrical surges, be sure to take proper connection to grounding (less than 10Ω). If the cable is struck by lightning directly, the lightning might cause damage to VS32(Dual) and AC power cable without Ground connection.

3 Startup VS32(Dual) and Basic Tests

This section explains procedures for startup and basic tests. Follow the procedure below depending on the registration mode.

Note: SIP mode can be selected when SP-3891 CA-VS32 PROG-A Issue 3A or later version of firmware is installed. VS32(Dual) works in Proprietary Protocol mode only when SP-3891 CA-VS32 PROG-A Issue 2A or earlier version of firmware is installed.

STEP 1: Data Assignment by PCPro

When Proprietary Protocol mode	When SIP mode
1. Internal PHE Data Assignment	1. Internal PHE Data Assignment
2. VS32(Dual) Data Assignment **Note 1**	2. SP-PHI Data Assignment
	3. VS32(Dual) Data Assignment **Note 1**
	4. Security Data Assignment

STEP 2: VT-100 Compliant Terminal Software Setting on Maintenance Console

1. Connection between PC (maintenance console) and CONSOLE Connector
2. Terminal Software Activation
3. Setting of Terminal Software

STEP 3: Power ON

STEP 4: Configuration Command Assignment

When Proprietary Protocol mode	When SIP mode
1. Selection whether to use DHCP server	1. One Time Password Assignment
2. Network Data Assignment	2. Selection whether to use DHCP/DNS server
3. Music Source File Setting	3. Network Data Assignment
	4. Music Source File Setting

STEP 5: Cable Connection

1. Connection between VS32(Dual) and LAN

STEP 6: Basic Test Procedures

1. Basic Connection Test
2. Alarm Information Check

END

Note 1: Assign the required feature data, such as Three-Way Conference, Multiple-Party Conference, Announcement, and IP External Music-on-Hold.

3.1 Data Assignment by PCPro

Assign control module data and VS32 feature data (announcement, three-way calling, multiple-party conference, external music-on-hold feature) on the Telephony Server. Depending on the using maintenance application, see the following manuals for the data programming procedure by PCPro.

- Data Programming Manual - Business
  [V-26] VS32 Conference Server
- Data Programming Manual - SIP
  [V-27] VoIP Encryption

3.2 VT-100 Compliant Terminal Software Setting on Maintenance Console



Note: VT-100 compliant terminal software is necessary for assigning configuration data to IP devices. For Windows computers, HyperTerminal was bundled with Windows 95 to Windows XP. For Windows Vista or later operating systems, prepare VT-100 compliant terminal software yourself and assign the configuration data.

STEP 1: Connect a PC (maintenance console) to CONSOLE connector.

STEP 2: Run VT-100 compliant terminal software (e.g. HyperTerminal) on the Maintenance Console.

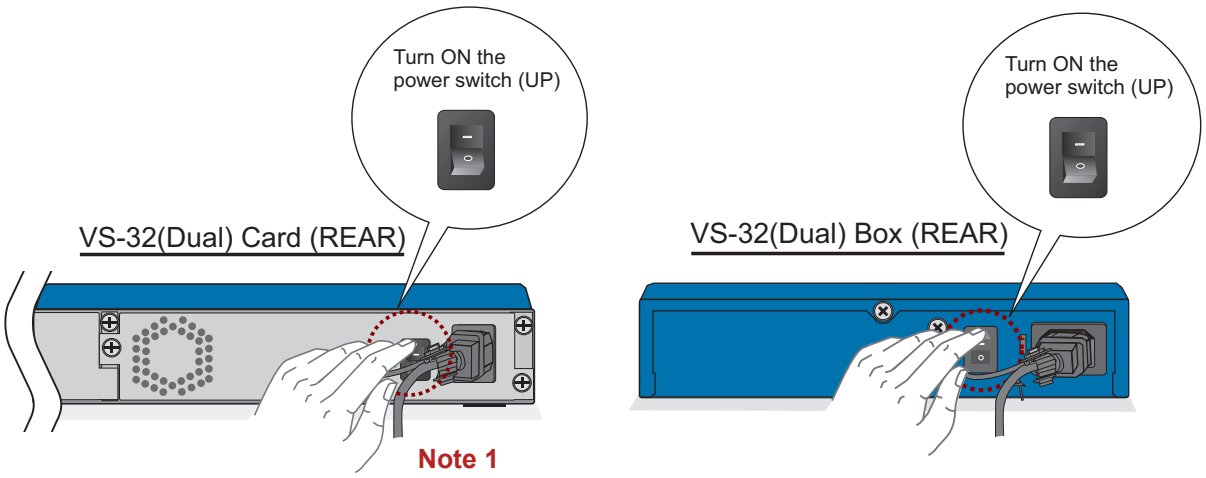
STEP 3: Set the parameter of the terminal software as follows:

- Port: *COM1 (depending on PC setting)*
- Baud Rate: *9600 bps*
- Data: *8 bits*
- Parity: *None*
- Stop Bit: *1*
- Flow Control: *None*

3.3 Power ON

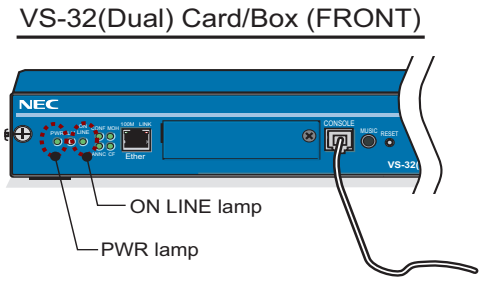


STEP 1: Turn ON the power switch (UP) on the rear panel of VS32(Dual).



Note 1: When the 1U-MPC has already turned on, press “RESET” button on the front panel of VS-32(Dual) Card.

STEP 2: Make sure the LEDs indicate normal status.
- PWR lamp lights green.
- (Boot program automatically starts.)
- ON LINE lamp lights green when the startup sequence is completed.



3.4 Configuration Command Assignment

Assign the network configuration data by command operation on maintenance console.

This section consists of two parts; procedure for Proprietary Protocol mode and procedure for SIP mode. The following explains the procedure by each mode, after finishing the procedure of startup maintenance command.

Note: "DRS (Device Registration Server)" used in this section refers to the Telephony Server. When VS32(Dual) works in Proprietary Protocol mode, the Telephony Server acts as DRS, which is controlling function of the Telephony Server.

Note: "SIP server" used in this section refers to the Telephony Server. When VS32(Dual) works in SIP mode, the Telephony Server acts as SIP server.

Note: The setting data here is an example. Assign the network data adjusting to your network configuration.

[Startup maintenance command]

STEP 1: When the boot program is started, the initial display below is displayed on the screen.

```
VS32-ID: xxxxxxxx

Starting boot program...
--- Online program Initial start (Wait for a while) ---
:
:
:
->
->
```

STEP 2: Maintenance command launches by entering *usrConsole*. Type *"usrConsole"* following the OS prompt (->) and press ENTER key.

```
->
->usrConsole
```

STEP 3: When the system is ready, VS32(Dual)'s default command prompt "VS-32>" appears.

```
VS32 Maintenance command Version 3.00 2006.6.19
VS-32>_
```

<When Proprietary Protocol Mode>

Assign the configuration data for VS32(Dual) in Proprietary Protocol mode. About the configuration data for SIP mode, refer to page 1785.

STEP 1: Enter *SETUP TP* following the prompt and press Enter key.

```
VS-32>SETUP TP
```

Note: When no SETUP command is executed, Proprietary Protocol mode starts with the prompt “VS-32>” in default setting.

STEP 2: Assign whether to use DHCP server. The required setting in *SETUP TP* command differs whether to use the DHCP server.

```
--- DHCP Interface set ---

Current DHCP Interface: ENABLE

Change DHCP Interface? [Y(change)/N(current)/Q(quit)]: y

Input new DHCP Interface [E(enable)/D(disable)]: d
```

STEP 3: Assign other network data according to the setting of DHCP server.

- When DHCP server is used
- When DHCP server is NOT used

- **When DHCP server is used**

  As DHCP server automatically assigns IP addresses to VS32(Dual), Default Gateway, and the Telephony Server, there is no need to assign these network data on VS32(Dual) side. IP addresses listed below, however, have to be prepared in DHCP server side. **Note 1**

  - IP address of Default Gateway **Note 2**
  - IP address of DRS **Note 3**

  Note: Check the number of IP addresses saved in DHCP server is sufficient so as to get IP address of VS32(Dual) anytime.

  Note 1: Assign the required DHCP option in Add Option Type dialog box as follows:
  Class:Global
  Name:Not specified, but do not enter the same option name in duplicate (e.g. DRS2)
  Data:IP address
  Array:Checked
  Code:003 (IP address of Default Gateway)
  161 (DHCP option for IP address of the Telephony Server)
  Refer to “DHCP Server Setup” in System Description for more information on DHCP Server Optional Setting.

  Note 2: When Default Gateway is not assigned in DHCP option (CODE: 003) of DHCP server, Default Gateway setting in VS32 configuration is applied (*for Proprietary Protocol mode only).

  Note 3: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

- **When DHCP server is NOT used**

  Set the following data on VS32(Dual). (See *SETUP TP* command in 4.1 How To Use Maintenance Command for the detail assignment procedure.)

  - IP address and subnet mask of VS32(Dual)
  - IP address of Default Gateway
  - IP address and port number of DRS **Note 4**
  - Communication speed of LAN interface

  Note: When the DHCP is set to “ENABLE”, IP addresses assigned here cannot take effect. Be sure to assign “SET DHCP DISABLE” before starting the IP address setting.

  Note 4: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

STEP 4: Save the assigned configuration data to internal Flash ROM of VS32(Dual) at the last of *SETUP TP* command to complete network setting. If you exit the *SETUP TP* command without saving the configuration data, the assigned data is all canceled after rebooting.

```
**Don't power off in progress**
Do you save the configuration data? [Y/N]: y

Configuration data has been saved.
Re-starting is required for making a setup reflect!!

TP mode setting succeeded.
```

<When SIP Mode>

Assign the configuration data for VS32(Dual) in SIP mode. About the configuration data for Proprietary Protocol mode, refer to page 1782.

STEP 1: Enter *SETUP SP* following the prompt and press Enter key.

```
VS-32>SETUP SP
```

Note: When no SETUP command is executed, Proprietary Protocol mode starts with the prompt "VS-32>" in default setting.

STEP 2: The system requires a one time password for authentication in initial startup (e.g. 12345#). Enter the same password with the one assigned on the Telephony Server side by PCPro.

```
No One Time Password!!

Please input a one time password.
One Time Password: 12345#

Erase start...
Erase OK!
Write start...
Write OK!

One Time Password setting succeeded.
```

Note: As long as you don't enter the one time password, you cannot move on to the next step. When invalid password is entered, error message "Illegal parameter" is displayed and asked to enter again.

STEP 3: Assign whether to use DHCP server and DNS server. The required setting in *SETUP SP* command differs whether to use each server.

1. DHCP server enable/disable setting:

```
--- DHCP Interface set ---

Current DHCP Interface: ENABLE

Change DHCP Interface? [Y(change)/N(current)/Q(quit)]: y

Input new DHCP Interface [E(enable)/D(disable)]: d
```

2. DNS server enable/disable setting:

```
--- DNS Interface set ---
```

```
Current DNS Interface: DISABLE

Change DNS Interface? [Y(change)/N(current)/Q(quit)]: y

Input new DNS Interface [E(enable)/D(disable)]: e

Input new DNS IP Address: 10.41.1.150
```

STEP 4: Assign network data according to the setting of DHCP server and DNS server. (See *SETUP SP* command in 4.1 How To Use Maintenance Command for the detail assignment procedure.)

- When DHCP server and DNS server are used
- When DHCP server is used and DNS server is NOT used
- When DHCP server is NOT used and DNS server is used
- When DHCP server is NOT used and DNS server is NOT used

- **When DHCP server and DNS server are used**

  In this setting, because IP addresses are automatically distributed from DHCP server, it is not required to set IP address on VS32(Dual) side. Set the following data on VS32(Dual):

  - Communication Speed of LAN Interface

  IP addresses listed below, however, need to be assigned on DHCP server side. **Note 6**, **Note 6**

  - IP address of Default Gateway
  - IP address of DNS server
  - Host name of SIP server **Note 7**

  Note 5: Check the number of IP addresses saved in DHCP server is sufficient so as to get IP address of VS32(Dual) anytime.

  Note 6: Assign the required DHCP option in Add Option Type dialog box as follows:
  Class:Global
  Name:Not specified, but do not enter the same option name in duplicate (e.g. SP1)
  Data:IP address
  Array:Checked
  Code:See the table below.

OPTION NAME	*CODE*	*REMARKS*
IP address of Default Gateway	*003*	*Required when DHCP server is active.*
IP address of DNS server	*006*	*Required when host name is assigned to code 120.*
Host name	*012*	*Invalid when code 015 is not assigned.*
Domain name	*015*	*Invalid when code 012 is not assigned.*
IP address or host name of SIP server	*120*	*Either code 120 or 162 is required. Code 120 turns invalid when code 162 is assigned.*
IP address of the Telephony Server	*162*	

  Refer to DHCP Server in Volume 2 of this manual for more information on DHCP option setting.

  Note 7: VS32(Dual) need not assign host name of SIP server in configuration setting because the host name assigned on DHCP server side is applied.

- **When DHCP server is used and DNS server is NOT used**

  In this setting, because IP addresses are automatically distributed from DHCP server, it is not required to set IP address on VS32(Dual) side. Set the following data on VS32(Dual):

  - Communication Speed of LAN Interface

  IP addresses listed below, however, need to be assigned on DHCP server side. **Note 8**, **Note 9**

  - IP address of Default Gateway
  - IP address of SIP server **Note 10**

  Note 8: Check the number of IP addresses stored in DHCP server is sufficient so as to get IP address of VS32(Dual) anytime.

  Note 9: Assign the required DHCP option in Add Option Type dialog box as follows:
  Class:Global
  Name:Not specified, but do not enter the same option name in duplicate (e.g. SP1)
  Data:IP address
  Array:Checked
  Code:See the table below

.

OPTION NAME	*CODE*	*REMARKS*
IP address of Default Gateway	*003*	*Required when DHCP server is active.*
IP address or host name of SIP server	*120*	*Either code 120 or 162 is required. Code 120 turns invalid when code 162 is assigned.*
IP address of the Telephony Server	*162*	

  Refer to DHCP Server in Volume 2 of this manual for more information on DHCP option setting.

  Note 10: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

- **When DHCP server is NOT used and DNS server is used**

  Set the following data on VS32(Dual):

  - IP address of DNS server
  - IP address and subnet mask of VS32(Dual)
  - Host name of VS32(Dual)
  - IP address of Default Gateway
  - Host name of SIP server
  - Communication Speed of LAN Interface

  Set the following data on DNS server:

  - IP address of SIP server **Note 11**

  Note: When the DHCP is set to ENABLE, IP addresses assigned here cannot take effect. Be sure to assign SET DHCP DISABLE before starting the IP address setting.

  Note 11: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

- **When DHCP server is NOT used and DNS server is NOT used**

  Set the following data on VS32(Dual):

  - IP address and subnet mask of VS32(Dual)
  - Host name of VS32(Dual) **Note 13**
  - IP address of Default Gateway
  - IP address and port number of SIP server **Note 12**
  - Host name of SIP server**Note 13**
  - Communication Speed of LAN Interface

  Note: When the DHCP is set to “ENABLE”, IP addresses assigned here cannot take effect. Be sure to assign “SET DHCP DISABLE” before starting the IP address setting.

  Note 12: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

  Note 13: This process can be skipped.

STEP 1: Save the assigned configuration data to internal Flash ROM of VS32(Dual) at the last of *SETUP SP* command to complete network setting. If you exit the *SETUP SP* command without saving the configuration data, the assigned data is all canceled after rebooting.

```
**Don't power off in progress**
Do you save the configuration data? [N/Y]: y

Configuration data has been saved.
Re-starting is required for making a setup reflect!!
```

```
SP mode setting succeeded.
```

Note: When the VS32(Dual) starts up in SIP mode, command prompt "VS-32(SIP)>" appears as follows.

```
VS-32(SIP)>
```

STEP 2: Set music source files by *SETUP WAVEFILE* command. Be sure to save the music source files to internal Flash ROM of VS32(Dual). If not, the assigned data is all canceled after rebooting. (See *SETUP WAVEFILE* command in 4.1 How To Use Maintenance Command for the detail assignment procedure.)

STEP 3: Reboot VS32(Dual) after saving the configuration data. Use *REBOOT* command or turn the POWER switch OFF→ON to reboot VS32(Dual).

```
VS-32> REBOOT

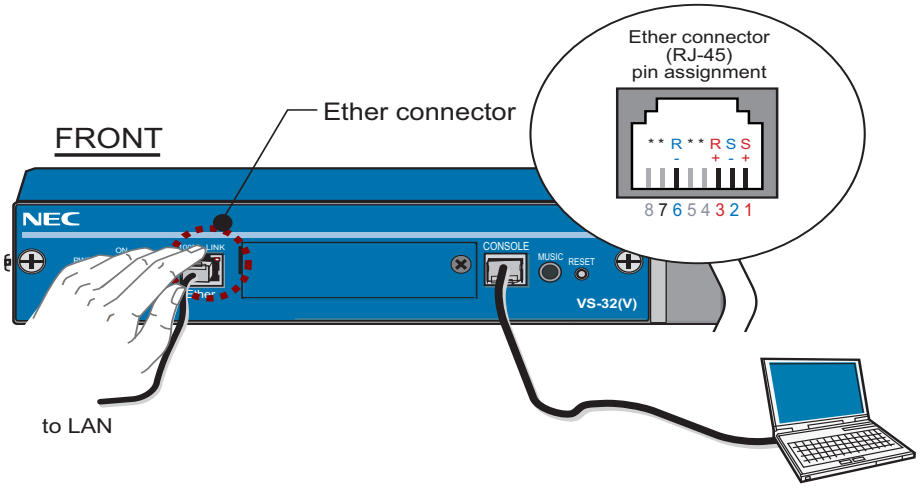
May I do reboot? [Y/N]: y
```

3.5 Cable Connection



STEP 1: Connect the VS32(Dual) to LAN by using an appropriate LAN cable.

Note: Before connecting VS32(Dual) to LAN, be sure to execute “PING” command to check the following:
- Are there other devices having the same IP address overlapped?
- Is the new IP address assigned correct?



STEP 2: Check the lamp indications on the front panel of VS32(Dual).
When VS32(Dual) succeeded in registration, ON LINE lamp lights green after a while.

When feature data is assigned on the Telephony Server side by PCPro, the lamp corresponding to the feature will go out. The lamp flashes when feature setting has not been completed.

RELATED FEATURE NAME	LAMP NAME
Multiple-Party Conference	CONF
Announcement	ANNC
External Music-on-Hold	MOH

That’s all for the starting up procedure of VS32(Dual). Move on to the operation test.

Note: Data memory backup is recommended after confirming the VS32(Dual) assignment on the Telephony Server. See the procedure below:
1. Execute ASECL command to confirm the setting.
2. On “Certified Terminal Assignment” tab, check “Certified Terminal” and then click Read button.
3. Certified Terminal List is displayed. Confirm the MAC address of assigned VS32(Dual) is listed.
4. Execute MEM_HDD/MEM_HDD_N command to backup the data memory.
5. Select “MEM → HDD” in Function, “Data Memory” in Data Type, and then click Execute button.
Refer to Office Data Backup in Operation and Maintenance Manual for more detailed information.

3.6 Basic Test Procedures

This section explains the operation check of VS32(Dual) after completing the startup.

[1] Basic Connection Test

STEP 1: Is the PWR lamp lighting green?

[Not light]

- Check the AC power cable is firmly inserted.
- Check the PWR switch is ON.
- Check the AC power cable from the AC power inlet is firmly connected to power source.

[Lights green]

Go on to STEP 2.

STEP 2: Is the LINK lamp lighting green?

[Not light]

- VS32(Dual) may not be physically connected to the LAN. Check the LAN cable between VS32(Dual) and networking device. Also check the power of network device (switching HUB, router, etc.) is turned ON.
- Check the correct cable is used (use straight-through cable).
- Check the cable is not damaged. (Test the continuity in the LAN cable.)

Replace the LAN cable or the network device if the problem is still not cleared.

[Lights green]

This lamp turns ON when VS32(Dual) initially starts up and connects to LAN. Go on to STEP 3.

STEP 3: Is the ON LINE lamp lighting green?

[Not light]

- Check the data assignment on the Telephony Server side and VS32(Dual) side.

  Telephony Server side:

  - Is the data assignment on PCPro correct?

  VS32(Dual) side:

  - Is the configuration data assigned from the maintenance console correct?
  - Can packets be transferred to the Telephony Server with “ping” command test?
  - Is the result of registration normal in SHOW STATUS command?

[Lights green]

Go on to STEP 4.

STEP 4: Does the CONF/ANNC/MOH lamp go OFF?

[Not go OFF]

- Check the data assignment of the Telephony Server side and VS32(Dual) side.

  Telephony Server side:

  - Is the data assignment on PCPro correct?

  VS32(Dual) side:

  - Is the configuration data assigned from the maintenance console correct?

[Goes OFF]

Go on to STEP 5.

STEP 5: Speech test through VS32(Dual). Call origination OK?

[Call origination does not operate normally]

- Check the station data. Assign the station data again if required.
- Does the telephone terminal normal? (Connect test terminal if required.)

[Call originated normally]

Go on to STEP 6.

STEP 6: Speech quality test through VS32(Dual). Any abnormal delay or noise are found?

[Call quality is not adequate]

- Check the call quality is good on station-to-station call. **Note 1**
- Adjust the setting of PAD, payload, and jitter buffer.
- Check the sound quality of music source files.
- Check the configuration data assigned from the maintenance console.

[Call quality is adequate]

Go on to STEP 7 when CF memory card is used for announcement and music-on-hold feature.

Note 1: Please take note that delay may occur a little longer on conference calls than station-to-station calls.

STEP 7: Is the CF lamp lighting green? (This test is required when CF memory card is accommodated to use announcement and music-on-hold feature.)

[Not light]

- Check the CF memory card is accommodated. If not, insert the CF memory card in the slot.

[Lights green]

Connection test is completed.

[2] Alarm Information Check

- Check the Alarm Lamps. If the red lamp lights, search the cause of fault and perform the appropriate operations. Check the system message even when the VS32(Dual) operates in redundant power configuration.

  Note: ALM Lamp Check is available for VS32(Dual) card only.

  Note: ALM lamp always lights red when the VS32(Dual) operates in single power configuration.

- Check the system message.
  1. Display the system message using DFTD command.
  2. See the system message and confirm whether VS32(Dual) error occurs or not. If an error occurs, perform the fault repair. ([33-R] IP PKG Warning, [33-S] IP PKG Failure)

4 Operation and Maintenance

4.1 How To Use Maintenance Command

Maintenance Command is used to change the VS32(Dual) configuration setting. Default value is pre-assigned for the basic items. Therefore, execute the data change only when needed.
SETUP command is provided to assign the basic data collectively. At least IP address and music source file setting are required to start up VS32(Dual). Use SETUP TP for Proprietary Protocol mode, SETUP SP for SIP mode, and SETUP WAVEFILE for music source file setting respectively.
Use SET command to assign other data into details. Specify any required parameter for each item. For example, DHCP setting has “ENABLE” in default. When static addressing is required, assign the commands “DHCP”, “IPADDRESS”, and “DEFAULTROUTE”.

Note: Note the following conditions:

- “SIP server” used in this section refers to the Telephony Server. When VS32(Dual) works in SIP mode, Telephony Server acts as SIP server.
- “DRS (Device Registration Server)” used in this section refers to the Telephony Server. When VS32(Dual) works in Proprietary Protocol mode, the Telephony Server acts as DRS, which is controlling function of the Telephony Server.
- If you input “exit” after the OS prompt (->), you may not be able to input any more character strings on the screen. In that case, press CTRL + C to go back to the OS prompt.
- If you press CTRL + S on the console, you may not be able to input any more character strings on the screen. In that case, press CTRL + Q to go back to the maintenance console prompt.

Run terminal software (e.g. HyperTerminal) to start maintenance program. Maintenance command launches by entering “usrConsole” following the OS prompt. When the system is ready, the following prompt is shown on the screen. (*VS32(Dual) starts up in Proprietary Protocol mode in default setting.)

<Proprietary Protocol mode>

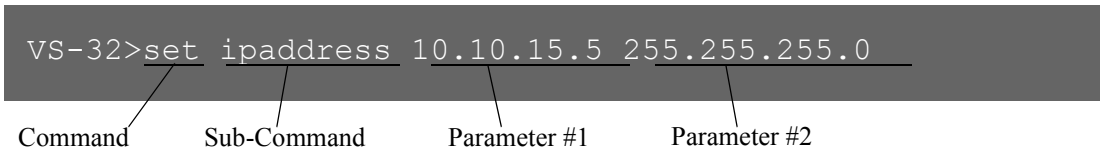
```
VS-32>_
```

<SIP mode>

```
VS-32(SIP)>_
```

Maintenance Command consists of some components: Command, Sub-command, and Parameter. The values to be assigned for each Parameter depend on the Maintenance Command, some of the Maintenance Commands do not require any parameter. A space needs to be entered between Command, Sub-command, and Parameter.

An example screen setting IP address (10.10.15.5) and subnet mask (255.255.255.0) in the system data of VS32(Dual) is shown below:



Note: The command prompt switches to `VS-32(SIP)>` after completing the configuration setting to SIP mode by SETUP SP command. Data setting is explained using the prompt of Proprietary Protocol mode here.

[Command List]

The Maintenance Console uses the commands listed in the following tables.

X: Available, N: Not available

List of Setup Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
SETUP	1	SP	Setting basic IP data for SIP mode:	X	X
	2	TP	Setting basic IP data for Proprietary Protocol mode:	X	X
	3	WAVEFILE	Downloading, uploading, and saving music source file in /wave directory:.	X	X

List of Set Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
SET	1	DEFAULTROUTE	Setting Default Gateway:	X	X
	2	DHCP	Setting DHCP:	X	X
	3	DNS_SW	Setting DNS Server:	N	X
	4	DRSADDRESS	Setting IP address and port number of DRS:	X	N
	5	DRSTOS	Setting ToS value for DRS session:	X	N
	6	INTERFACE	Setting the communication speed of LAN interface:	X	X
	7	IPADDRESS	Setting IP address and subnet mask of VS32(Dual):	X	X
	8	ONE_TIME_PASS	Setting One Time Password for security:	N	X
	9	OWN_NAME	Setting Host Name of VS32(Dual):	N	X
	10	PORTNUMBER	Setting port number of each application:	X	X
	11	SIGNALING_PORT_NO	Setting signaling port number for SIP:	N	X
	12	SIGNALING_QOS	Setting QoS for SIP signaling session:	N	X
	13	SILENT_CHECK	Setting alarm notification of silence: **Note 1**	X	X
	14	SIPSV_IPADDRESS	Setting IP address, port number, and host name of SIP server:	N	X
	15	VLAN	Setting VLANs:	X	X

List of Show Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
SHOW	1	CONFIGDATA	To show configuration data list:	X	X
	2	COUNTRYCODE	To show Country Code:	X	X
	3	DHCP	To show DHCP setting:	X	X
	4	DNS_SW	To show DNS server setting:	N	X
	5	DRSADDRESS	To show IP address and port number of DRS:	X	N
	6	DRSTOS	To show ToS setting for DRS session:	X	N
	7	INTERFACE	To show the setting of LAN communication speed:	X	X
	8	IPADDRESS	To show the setting of IP address, subnet mask, and Default Gateway on VS32(Dual):	X	X
	9	ONE_TIME_PASS	To show One Time Password:	N	X
	10	OWN_NAME	To show Host Name of VS32(Dual):	N	X

List of Show Command (Continued)

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
SHOW	11	PORTNUMBER	To show port number setting:	X	X
	12	SIGNALING_PORT_NO	To show signaling port number for SIP:	N	X
	13	SIGNALING_QOS	To show QoS setting for SIP signaling session:	N	X
	14	SILENT_CHECK	To show alarm notification setting of silent check: **Note 1**	X	X
	15	SIPSV_IPADDRESS	To show IP address, port number, and host name of SIP server:	N	X
	16	STATUS	To show the status of VS32(Dual):	X	X
	17	VERSION	To show the firmware and hardware information:	X	X
	18	VLAN	To show VLAN settings:	X	X

List of Save Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
SAVE	1	CONFIGDATA	To save the configuration data to VS32(Dual) internal Flash ROM:	X	X
	2	WAVE FILE	To save music source files on the RAM to VS32(Dual) internal Flash ROM:	X	X

List of INIT Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
INIT	1	CONFIGDATA	To initialize configuration data to the factory default setting:	X	X

List of REBOOT Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
REBOOT	1	-	To reboot VS32(Dual):	X	X

List of GET Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
GET	1	CONFIGDATA	To download the configuration data file from the specified TFTP server:	X	X

List of PUT Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
PUT	1	CONFIGDATA	To upload the configuration data file to specified TFTP server:	X	X

List of PING Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP

List of PING Command

PING	1	-	To check the network conditions:	X	X

List of CD Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
CD	1	-	To change the current directory:	X	X

List of PWD Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
PWD	1	-	To display the current directory:	X	X

List of RM Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
RM	1	-	To delete file:	X	X

List of LS Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
LS	1	-	To display detailed information for directories and files:	X	X

List of CP Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
CP	1	-	To copy file:	X	X

List of MV Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
MV	1	-	To move and rename file:	X	X

List of EXIT Command

COMMAND	No.	SUB COMMAND	FUNCTION	Proprietary	SIP
EXIT	1	-	To exit the maintenance command:	X	X

Note: When two or more characters are input for specifying command or sub command entry, full name is automatically displayed complementing the rest of the characters. (e.g. When “IN” is input following the SET command, “INTERFACE” setting line automatically appears.)

Note 1: Available since SP-3891 CA-VS32 PROG-A Issue 13.

[Help]

When the maintenance command mode is activated, it provides a Help Function for referring to available commands and sub commands. After a prompt is shown, request to list up the Target Help by entering "?", "command name + ?", or "command name + sub command name + ?" after the prompt, and press the Enter key. The example below shows the screen when requesting the list of SET commands.

```
VS-32> set ?

Subcommand    Parameter1      Parameter2   Parameter3
DEFAULTROUTE  DefaultGateway
DHCP          ENABLE/DISABLE
  :
  :
VS-32> set ipaddress ?
  XXX.XXX.XXX.XXX          IP Address
VS-32> set ipaddress 10.10.15.5 ?
   XXX.XXX.XXX.XXX          Subnet Mask  ex)255.255.255.0
VS-32>
```

[History]

In the command line of Maintenance Command, cursor key UP and DOWN operation shows history function. You can edit the input parameters using Back Space key and change the parameter.

SETUP

Basic settings for IP related data such as IP addresses, subnet mask, and DHCP used in VS32(Dual) is assigned by this command. This command must be executed when starting up VS32(Dual) on the initial setting.

Assign IP network data and music source file following the setting command shown in dialog form. Be sure to save the entered data at the end of each SETUP command.

Note: When any abnormal data is entered, the dialog asks to enter proper data until three times. The third time you enter illegal data, the SETUP command quits discarding all the entered data.

Note: When you quit the SETUP command entry halfway through the setting, all the entered data is to be discarded.

1. Setting basic IP data for SIP mode:

- To startup SETUP SP command:

VS-32> VS-32> *SETUP SP*	Enter “SETUP SP” following the prompt.

- Setting one time password *(*this setting is displayed when one time password has not been assigned yet)*:

No One Time Password!! Please input a one time password One Time Password: *123456*	Enter one time password (e.g. 123456).
Erase start... Erase OK! Write start... Write OK!	Writing to Flash ROM is executed.
One time password setting succeeded.	Result is shown.

- Setting DHCP server enable/disable:

```
--- DHCP Interface set ---

Current DHCP Interface: ENABLE

Change DHCP Interface? [Y(change)/N(current)/Q(quit)]: y

Input new DHCP Interface [E(enable)/D(disable)]: d
```

Line 2: The current setting is displayed.

Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Line 4: Specify whether to use DHCP server.
E=Use DHCP server (default)
D=Not use DHCP server

- Setting DNS server enable/disable:

```
--- DNS Interface set ---

Current DNS Interface: DISABLE

Change DNS Interface? [Y(change)/N(current)/Q(quit)]: y

Input new DNS Interface [E(enable)/D(disable)]: e

Input new DNS IP Address: 10.41.1.150
```

Line 2: The current setting is displayed.

Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Line 4: Specify whether to use DNS server.
E=Use DNS server (default) **Go on to DNS IP Address setting.*
D=Not use DNS server

Line 5: Enter the IP address of DNS server.
e.g. 10.41.1.150
(*required when “D” is selected in DHCP setting and also when “E” is selected in Line 4).

- Setting IP Address and Subnet Mask of VS32(Dual):

```
--- IP Address & Subnetmask set ---

Current IP Address: 0.0.0.0
Current Subnetmask: 0.0.0.0

Change IP Address and Subnetmask? [Y(change)/N(current)/Q(quit)]: y

Input new IP Address: 10.41.1.100
Input new Subnetmask: 255.255.255.0
```

Line 2 and 3: The current setting is displayed.

Line 4: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Line 5: Enter new IP address of VS32(Dual) (e.g. 10.41.1.100)

Line 6: Enter new Subnet Mask (e.g. 255.255.255.0)

Note: This setting is required when DHCP server is “D (disable)”.

Note: Do not assign network address and broadcast address for VS32(Dual) setting. See the examples below:
(Example 1) Network address cannot be assigned as IP address of VS32(Dual).
IP address: 192.168.1.0
Subnet mask: 255.255.255.0
(Example 2) Network address cannot be assigned as IP address of VS32(Dual).
IP address: 172.16.0.0
Subnet mask: 255.255.0.0
(Example 3) Broadcast address cannot be assigned as IP address of VS32(Dual).
IP address: 192.168.1.255
Subnet mask: 255.255.255.0
(Example 4) Broadcast address cannot be assigned as IP address of VS32(Dual).
IP address: 172.16.255.255
Subnet mask: 255.255.0.0

- Setting Host name of VS32(Dual):

```
--- Host Name set ---

Current Host Name: No Value

Change Host Name? [Y(change)/N(current)/Q(quit)]: y

Input new Host Name: vs32.nec.com
```

Line 2: The current setting is displayed.

Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Line 4: Enter new host name of VS32(Dual) in full-domain format. (*Up to 63 bytes of alphanumeric characters, . (period), and - (hyphen) is available.)

Note: This setting is required when DHCP server is “D (disable)” and DNS server is “E (enable)”.

- Setting Default Gateway IP Address:

```
--- Default Gateway IP Address set ---

Current Default Gateway: 0.0.0.0

Change Default Gateway? [Y(change)/N(current)/Q(quit)]: y

Input new Default Gateway: 10.41.1.254
```

Line 2: The current setting is displayed.

Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Line 4: Enter new IP address of Default Gateway (e.g. 10.41.1.254)

Note: This setting is required when DHCP server is “D (disable)”.

Note: Assign Default Gateway on the same network segment where VS32(Dual) belongs.

- Setting IP Address, Port Number, and Host Name of SIP server:

```
--- SIP Server IP Address & Host Name set ---

Current SIP Server/IP Address/Port Number/Host Name:

SIP Server       IP Address       Port Number      Host Name
1                0.0.0.0          5060
2                0.0.0.0          5060
:                :                :
:                :                :
19               0.0.0.0          5060
20               0.0.0.0          5060

Change SIP Server Information? [Y(change)/N(current)/Q(quit)]: y

Input new SIP Server (1-20): 1

Input new IP Address: 10.41.1.200

Input new Port Number: 5060

Is there the Host Name? [Y/N]: y

Input new Host Name: SVR1.nec.com

Continue? [Y(continue)/N(exit)]: n
```

Line 4~Line 9: The current setting of SIP server information (IP address, port number, and host name) is displayed.
Line 10: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 11: Enter the number of SIP server [1-20]
Line 12: Enter the IP address of SIP server (e.g. 10.41.1.200) **Note 3**
Line 13: Enter the port number of SIP server (default=5060)
Line 14: Asked whether to use host name.
Y=Use host name
N=Not use host name
Line 15: Enter new host name of SIP server in full-domain format.
*Up to 63 bytes of alphanumeric characters, . (period), and - (hyphen) are available.
Line 16: Asked whether to continue the setting of other SIP servers.
Y=Continue to register other SIP servers
N=Exit this setting and move on to the next step

Note: This setting is required when DHCP server is “D (disable)”.

Note 2: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

- Setting Communication Speed of LAN Interface:

```
--- Ethernet Speed set ---
```

```
Current LAN Speed: 10MBPS_FD

Change LAN Speed? [Y(change)/N(current)/Q(quit)]: y

Input new Speed [1(AUTO)/2(100M)/3(10M)]: 2

Input new DUPLEX [F(full)/H(half)]: f
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Select the communication speed of LAN interface
1=Auto negotiation (default)
2=100Mbps fixed mode
3=10Mbps fixed mode
Line 5: Select the Duplex mode of LAN interface (*not required for auto negotiation)
F=Full duplex mode
H=Half duplex mode

- Save the assigned configuration data at the last of SETUP SP command to complete network setting.

```
**Don't power off in progress**
Do you save the configuration data? [Y/N]: y

Configuration data has been saved.
Re-starting is required for making a setup reflect!!

SP mode setting succeeded.
```

Line 2: Asked whether to save the assigned data.
Y=Save
N=Discard

Line 3: Result is displayed.

2. Setting basic IP data for Proprietary Protocol mode:

- To startup SETUP TP command:

```
VS-32>

VS-32> SETUP TP
```

Enter “SETUP TP” following the prompt.

- Setting DHCP server enable/disable:

```
--- DHCP Interface set ---

Current DHCP Interface: ENABLE

Change DHCP Interface? [Y(change)/N(current)/Q(quit)]: y

Input new DHCP Interface [E(enable)/D(disable)]: d
```

Line 2: The current setting is displayed.

Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Line 4: Specify whether to use DHCP server.
E=Use DHCP server (default)
D=Not use DHCP server

Note: When DHCP is set to E (enable), this command moves on to LAN interface speed setting in the next step, skipping the VS32(Dual)’s IP address setting through the Telephony Server IP address setting.

- Setting IP Address and Subnet Mask of VS32(Dual):

```
--- IP Address & Subnetmask set ---

Current IP Address: 0.0.0.0
Current Subnetmask: 0.0.0.0

Change IP Address and Subnetmask? [Y(change)/N(current)/Q(quit)]: y

Input new IP Address: 10.41.1.100
Input new Subnet mask: 255.255.255.0
```

Line 2 and 3: The current setting is displayed.

Line 4: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Line 5: Enter new IP address of VS32(Dual) (e.g. 10.41.1.100)

Line 6: Enter new Subnet Mask (e.g. 255.255.255.0)

Note: This setting is required when DHCP server is “D (disable)”.

Note: Do not assign network address and broadcast address for VS32(Dual) setting. See the examples below:
(Example 1) Network address cannot be assigned as IP address of VS32(Dual).
IP address: 192.168.1.0
Subnet mask: 255.255.255.0
(Example 2) Network address cannot be assigned as IP address of VS32(Dual).
IP address: 172.16.0.0
Subnet mask: 255.255.0.0
(Example 3) Broadcast address cannot be assigned as IP address of VS32(Dual).
IP address: 192.168.1.255
Subnet mask: 255.255.255.0
(Example 4) Broadcast address cannot be assigned as IP address of VS32(Dual).
IP address: 172.16.255.255
Subnet mask: 255.255.0.0

- Setting Default Gateway IP Address:

```
--- Default Gateway IP Address set ---

Current Default Gateway: 0.0.0.0

Change Default Gateway? [Y(change)/N(current)/Q(quit)]: y

Input new Default Gateway: 10.41.1.254
```

Line 2: The current setting is displayed.

Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting

Line 4: Enter new IP address of Default Gateway (e.g. 10.41.1.254)

Note: This setting is required when DHCP server is “D (disable)”.

Note: Assign Default Gateway on the same network segment where VS32(Dual) belongs.

- Setting IP Address, Port Number, and Host Name of DRS

```
--- DRS IP Address set ---

Current DRS Server/IP Address/Port Number:

Primary          DRS Address      0.0.0.0       , Port 3456
Secondary        DRS Address      0.0.0.0       , Port 3456
Tertiary         DRS Address      0.0.0.0       , Port 3456
Fourth           DRS Address      0.0.0.0       , Port 3456

Change DRS Information? [Y(change)/N(current)/Q(quit)]: y

Input DRS unit (1:Primary/2:Secondary/3:Tertiary/4:Fourth): 1

Input DRS IP Address: 10.41.1.200

Input DRS Port Number: 3456

Continue? [Y(continue)/N(exit)]: n
```

Line 3~Line 6: The current setting of DRS information (IP address and port number) is displayed.
Line 7: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 8: Enter the number of DRS [1-4]
Line 9: Enter the IP address of DRS (e.g. 10.41.1.200) **Note 3**
Line 10: Enter the port number of DRS (default=3456)
Line 11: Asked whether to continue the setting of other DRSs.
Y=Continue to register other DRSs
N=Exit this setting and move on to the next step

Note: This setting is required when DHCP server is “D (disable)”.

Note 3: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

- Setting Communication Speed of LAN Interface:

```
--- Ethernet Speed set ---

Current LAN Speed: auto

Change LAN Speed? [Y(change)/N(current)/Q(quit)]: y

Input new Speed [1(AUTO)/2(100M)/3(10M)]: 2

Input new DUPLEX [F(full)/H(half)]: f
```

Line 2: The current setting is displayed.
Line 3: Asked whether to change the displayed setting.
Y=change
N=not change
Q=quit this setting
Line 4: Select the communication speed of LAN interface
1=Auto negotiation (default)
2=100Mbps fixed mode
3=10Mbps fixed mode
Line 5: Select the Duplex mode of LAN interface (*not required for auto negotiation)
F=Full duplex mode
H=Half duplex mode

c Save the assigned configuration data at the last of SETUP TP command to complete network setting.

```
**Don't power off in progress**
Do you save the configuration data? [Y/N]: y

Configuration data has been saved.
Re-starting is required for making a setup reflect!!

TP mode setting succeeded.
```

Line 2: Asked whether to save the assigned data.
Y=Save
N=Discard
Line 3: Result is displayed.

3. Downloading, uploading, and saving music source file in /wave directory:

   This command is used to set music source file. WAVE file downloading via FTP and saving to Flash ROM is executed. Be sure to set WAVE file in this command before assigning announcement and external music-on-hold features.

   Before using this command, music source file meeting the following specifications must be prepared:

   - Sound Format

     Sampling Frequency: *8kHz*
     Quantifying Bit Number: *8 bit*
     Quantifying Format: *G.711 A-law/μ-law*
     Channel: *Monaural*

     Create any sound file using application on the PC.

   - File Name

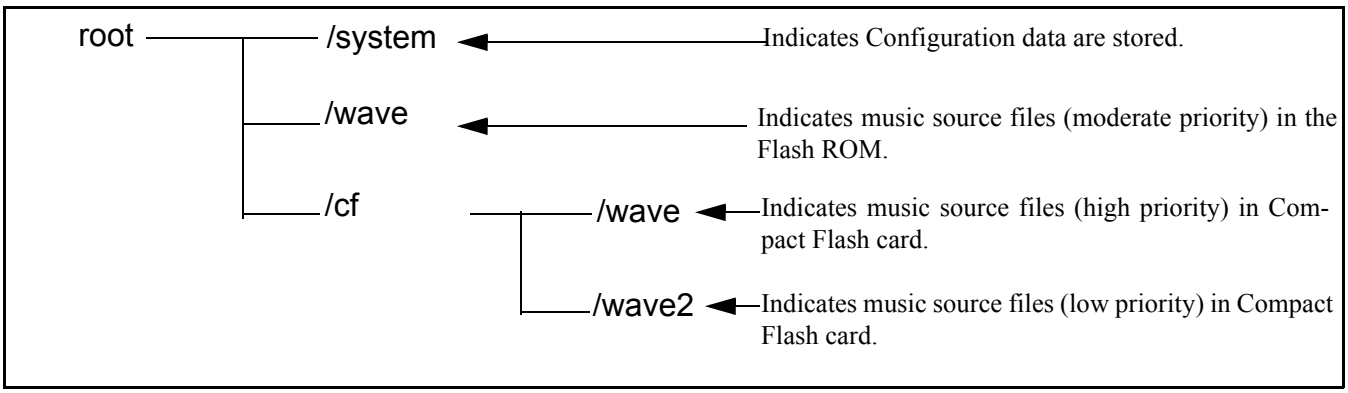
     The first three letters of sound file name must be specified in three digits (000xxxxx-249xxxxx), which are to be associated with Announcement Patterns (ANP) number of AAEDL/AAEDN command, and the identifier must be *wav* or *mdt*.
     The number of files is up to 250, and its capacity adds up to approximately 8M byte; however, it includes management domain for file system so that the actual capacity is less than 8M byte.

     Note: If the same serial number of wave files exist in internal Flash ROM and CF card of VS32(Dual), the system cannot find the file to play back. Make sure not to name the same serial number to multiple files.
     For more information about the directories, refer to Directory tree in VS32(Dual).

     Note: When 255 is assigned to ANP, monaural input music source is used on external input terminal. Wave file with the number 255 cannot be selected.

     Note: When 250 is assigned to ANP, internal music-on-hold 250_minuetto.wav (Minuet) is played. Do not use reserved ANPs 251 to 254 of announcement pattern.

   - Directory tree in VS32(Dual)



Before downloading the music source file, FTP server (such as Internet Information Service) must be installed in the network. Make sure the connection between the FTP server and VS32(Dual) can be established with no problem.

SETUP WAVEFILE is a command of dialog format and has sub menus 1~10. Download appropriate wave files and save them to internal Flash ROM of VS32(Dual) by this command to use announcement and external music-on-hold features.

VS-32> *SETUP WAVEFILE 10.10.10.96*	Enter the IP address of FTP server.
ftp 10.10.10.96 User: *vs32* Password: *******	Enter user name and password to log in to FTP server. (***** is displayed for password.)
Please enter item number 1. Change remote working directory 2. List contents of remote directory 3. Receive remote file 4. List contents of local directory 5. Send local file 6. Copy local file 7. Rename local file 8. Delete local file 9. Check wave file for VS-32 10. Terminate ftp session and exit	Sub menus 1~10 are listed.
enter(1-10): *2* . .. 000.wav 001.wav 002.wav 003.wav 004.wav 005.wav 006.wav	When parameter 2 is entered, wave files stored on FTP server are listed.

```
Please enter item number
 1. Change remote working directory
 2. List contents of remote directory
 3. Receive remote file
 4. List contents of local directory
 5. Send local file
 6. Copy local file
 7. Rename local file
 8. Delete local file
 9. Check wave file for VS-32
 10. Terminate ftp session and exit

enter(1-10): 3
```

On the sub menu select line, enter the parameter 3 to specify the wave file name.

```
Remote file: 006.wav
Copy OK: 81392 bytes copied
```

Enter the wave file name to download.

```
Please enter item number
 1. Change remote working directory
 2. List contents of remote directory
 3. Receive remote file
 4. List contents of local directory
 5. Send local file
 6. Copy local file
 7. Rename local file
 8. Delete local file
 9. Check wave file for VS-32
 10. Terminate ftp session and exit

enter(1-10): 10
 Wave file system is changed. Do you save it?
 **Don't power off during save**
 May I save? [Y/N]: y
########
Complete
 Wave file system has been saved!!
```

Enter the parameter 10 to adjust the wave file to the system. The wave file is saved on the internal Flash ROM of VS32(Dual).

The saved wave files turns available as the sound source of announcement and music-on-hold features.

The procedure below shows how to check whether the wave files in Flash ROM and CF memory card can be played back on VS32(Dual):

```
enter(1-10): 9

Directory Name: /cf/wave

File Name         Codec    Data Size    Play Time  Result  ANP
---------------   ------   ----------   --------   -----   ---

000.wav           mu-law   80000Byte    1s         OK      0
001.wav                                           NG      -

 Illegal Format: Codec=0x0001
 Illegal Format: Channel=2
 Illegal Format: Rate=44100
 Illegal Format: Byte Per Sec=176400
 Illegal Format: Byte Per Block=4
 Illegal Format: Bit Per Sample=16

002.wav           mu-law   80000Byte    10s        OK      2


Directory Name: /wave

File Name         Codec    Data Size    Play Time  Result  ANP
---------------   ------   ----------   --------   -----   ---

000.wav           mu-law   80000Byte    1s         OK      -
001.wav           mu-law   15999Byte    1s         OK      1
250_minuetto.wav  mu-law   205760Byte   25s        OK      250


Directory Name: /cf/wave2

File Name         Codec    Data Size    Play Time  Result  ANP
---------------   ------   ----------   --------   -----   ---


Total Data Size: 309759Byte (1646745Byte Not Used)
Total Play Time: 38s (2958s Not Used)
```

Enter the parameter 9.

Enter a directory name to be checked in. */cf/wave* is the data directory of CF memory card (the directory of first priority).

Error report is displayed when format error is detected. **See the table Errors for WAVE file format.*

/wave is the data directory of internal Flash ROM (the directory of second priority).

/cf/wave2 is the data directory of CF memory card (the directory of third priority).

Errors for WAVE file format

ILLEGAL FORMAT	NORMAL VALUE	COUNTERMEASERS
Codec	0x0006 (A-law) 0x0007 (μ-law)	Create wave file with μ-law or A-law of PCM codec.
Channel	1 (monaural)	Create wave file with monaural channel.
Rate	8000 (8kHz)	Create wave file with 8kHz of sampling period.
Byte Per Sec	8000	Create wave file with 8kHz and 8-bit of sampling.
Byte Per Block	1	Create wave file specifying 8-bit and monaural channel as quantization sample bit number.
Bit Per Sample	8	Create wave file specifying 8-bit as quantization sample bit number.

SET

This command is used to assign individual detailed settings.

1. Setting Default Gateway:

   Assign the IP address of Default Gateway in the same segment where VS32(Dual) belongs. This data can be set also in *SETUP TP* and *SETUP SP* command.

`VS-32> SET DEFAULTROUTE P1`	*P1*: Enter the IP address of Default Gateway (e.g. 10.41.1.254)
`The default Gateway setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

2. Setting DHCP:

   Assign ENABLE when the network uses DHCP server to get IP address. Assign DISABLE when the network applies static addressing. This data can be set also in *SETUP TP* and *SETUP SP* command.

`VS-32> SET DHCP P1`	*P1*: Enter ENABLE or DISABLE ENABLE=DHCP is valid (default) DISABLE=DHCP is invalid
`DHCP setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

3. Setting DNS Server:

This command is used to set whether to use DNS server (required for SIP mode only).

VS-32(SIP)> *SET DNS_SW*	
DNS Interface (ENABLE/DISABLE) [ENABLE]: *ENABLE*	ENABLE=DNS server is used DISABLE=DNS server is not used (default)
DNS IP Address [0.0.0.0]: *10.41.1.150*	Enter the IP address of DNS server (e.g. 10.41.1.150)
DNS Server setting succeeded.	Result is shown.

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: When DISABLE is selected, the setting line of DNS IP Address is not displayed.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

4. Setting IP address and port number of DRS:

This command is used to set IP address and port number of DRS (for Proprietary Protocol mode only). Usually use the default port number 3456 when the setting is not changed in the Telephony Server side. IP address can be set in *SETUP TP* command. Port number can be set in *SET PORTNUMBER* command.

VS-32> *SET DRSADDRESS*	
Please enter DRS unit (1:Primary/2:Secondary/3:Tertiary/4:Fourth):1	Enter the unit of DRS. (Usually 1: Primary is used.)
DRS server address (ex. 111.22.3.4): 10.41.1.200	Enter the IP address of DRS **Note 4** (e.g. 10.41.1.200)
DRS port number (ex. 3456): 3456	Enter the port number of DRS (default = 3456)
DRS server address set complete.	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note 4: About IP address of DRS (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

5. Setting ToS value for DRS session:

This command is used to set quality of service data for DRS session (for Proprietary Protocol mode only). PRECEDENCE setting by specifying each bit or VALUE setting by entering the setting value directly can be selected. Select VALUE setting when specifying Codepoint of Diffserv. Usually use this command data in default setting.

VS-32> *SET DRSTOS P1*	*P1*: PRECEDENCE/VALUE

- When PRECEDENCE is selected:

VS-32> *SET DRSTOS PRECEDENCE*	Enter PRECEDENCE following the sub command.
PRECEDENCE (0-7): *6*	Precedence: 0-7 (low-high) (default=6)
DELAY (0/1): *0*	Delay: 0/1=Normal (default)/Low delay
THROUGHPUT (0/1): *0*	Throughput: 0/1=Normal (default)/High throughput ON
RELIABILITY (0/1): *0*	Reliability: 0/1=Normal (default)/High reliability ON
COST (0/1): *0*	Cost: 0/1= Normal (default)/Cost precedence ON
DRS TOS setting succeeded. (0xC0)	Result is shown.

Result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data is shown below:



Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

- When VALUE is selected:

VS-32> *SET DRSTOS VALUE*	Enter VALUE following the sub command.
TOS (00-FF): *C0*	Specify the value directly in the range of 00-FF (default=C0).
DRS TOS setting succeeded. (0xC0)	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

6. Setting the communication speed of LAN interface:

   Be sure to assign this data adjusting to the network devices (router, switch, or HUB, etc.). This data can be set also in *SETUP TP* and *SETUP SP* command.

VS-32> *SET INTERFACE P1*	*P1*: Enter interface name (*can be skipped).
SPEED (AUTO/100M/10M): *100M*	Select the communication speed AUTO=Auto Negotiation (default) 100M=100 Mbps fixed mode 10M=10 Mbps fixed mode
DUPLEX (FULL/HALF): *FULL*	Select the Duplex mode FULL=Full Duplex mode HALF=Half Duplex mode
Ethernet Speed setting succeeded.	Result is shown.

Note: DUPLEX setting does not appear when AUTO (Auto Negotiation) is selected in SPEED setting.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

7. Setting IP address and subnet mask of VS32(Dual):

   Be sure to assign this data when static addressing is used in the network. This data can be set also in *SETUP TP* and *SETUP SP* command.

VS-32> *SET IPADDRESS P1 P2*	*P1*: Enter the IP Address of VS32(Dual) (e.g. IP address: 10.41.1.100) *P2*: Enter the Subnet Mask (e.g. Subnet mask: 255.255.255.0)
IP Address set complete.	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note: The designated IP address cannot be applied when DHCP is set to ENABLE. Be sure to assign the DHCP setting to DISABLE before performing this IP address assignment.

8. Setting One Time Password for security:

This command is used for SIP mode only.

VS-32(SIP)> *SET ONE_TIME_PASS*	
One Time Password: *P1*	*P1*: Enter the password in numeric [4~10 digits (0-9, *, # can be used)] (e.g. OTP: 12345#)
One time password setting succeeded.	Result is shown.

9. Setting Host Name of VS32(Dual):

This command is used for SIP mode only.

VS-32(SIP)> *SET OWN_NAME P1*	*P1*: Enter the host name of VS32(Dual) in full-domain format within 63 bytes of alphanumeric characters, ". (period)", and "- (hyphen)".
Own name setting succeeded.	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

10. Setting port number of each application:

- Proprietary Protocol mode

This command assigns the communication port for DRS communication (UDP), Internal PHE (UDP), Peer-to-Peer (UDP), H.245 start port (TCP), and RTP start port (UDP). Specify this data when any restriction is placed on available port number in the IP network where VS32(Dual) belongs.

VS-32> *SET PORTNUMBER*	
DRS Port Number(3456): *3456*	Enter communication port of DRS (default=3456)
LPPM Port Number(60130): *60130*	Enter communication port of Internal PHE (default=60130)
Voice Path Control Port Number(62000): *62000*	Enter P2P communication port (default=62000)
H245 Start Port Number(60000): *60000*	Enter H.245 start port (default=60000)
RTP Start port number(1024): *1024*	Enter RTP start port (default=1024)
Port Number setting succeeded.	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note: The value in ( ) shows the current setting. Press Enter key to skip changing the displayed port number.

- SIP mode

  This command assigns RTP start port (UDP). RTP start port is used for voice data communication between the counter party's devices; which reserves the port number 1024 from the specified port. Usually use the default value for RTP start port.

`VS-32(SIP)> SET PORTNUMBER`	
`RTP Start port number(1024): 1024`	Enter RTP start port (default=1024)
`Port Number setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note: The value in ( ) shows the current setting.

11. Setting signaling port number for SIP:

    This command assigns the port number for SIP signaling session (for SIP mode only).

`VS-32(SIP)> SET SIGNALING_PORT_NO P1`	*P1*: Enter the port number used for SP-PHI. [1024-65535] (default=5060)
`Signaling port number setting succeeded.`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

12. Setting QoS for SIP signaling session:

    This command assigns quality of service data for SIP signaling session (for SIP mode only).

`VS-32(SIP)> SET SIGNALING_QOS P1 P2`	*P1*: Enter either of the following parameters or press Enter key to skip P1 and P2 to move on to TOS/ DIFFSERV setting in dialog format. TOS=to set IP Precedence data value DIFFSERV=to set Diffserv data value CLEAR=to clear QoS setting
	P2: Enter the setting value, When TOS is selected in P1: 0x02~0xFF When DIFFSERV is selected in P1, enter DSCP value: 0~63

To set in dialog format (press Enter key after the sub command to skip entering P1 and P2):

- When TOS is selected in QoS setting, assign the data in IP Precedence type:

VS-32(SIP)> *SET SIGNALING_QOS*	
QOS(TOS/DIFFSERV) [TOS]: *TOS*	Select TOS for QoS setting type [TOS/DIFFSERV] (default=TOS)
PRECEDENCE (0-7:6): *6*	Precedence: 0-7 (low-high) (default=6)
DELAY (0/1:0): *0*	Delay: 0/1=Normal (default)/Low Delay ON
THROUGHPUT (0/1:0): *0*	Throughput: 0/1=Normal (default)/High Throughput ON
RELIABILITY (0/1:0): *0*	Reliability: 0/1=Normal (default)/High Reliability ON
COST (0/1:0): *0*	Cost: 0/1=Normal (default)/Cost Precedence ON
Signaling QoS setting succeeded.(0xC0)	Result is shown.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data for IP Precedence type of ToS field is shown below:



Prec.=PRECEDENCE (3 bits)
D=Delay
T=Throughput
R=Reliability
C=Cost

- When DIFFSERV is selected in QoS setting, enter the setting value in DSCP type:

VS-32(SIP)> *SET SIGNALING_QOS*	
QOS (TOS/DIFFSERV:DIFFSERV): *DIFFSERV*	Select DIFFSERV for QoS setting type [TOS/DIFFSERV]
DSCP (0-63:48): *48*	Enter the setting value directly [0-63] (default=48)
Signaling QoS setting succeeded. (0xC0)	Result is shown.

Note: The result of data setting is shown in a 1-byte (hexadecimal) format in accordance with the setting dialog followed by the prompt. The meaning of 1-byte data for Diffserv type of ToS field is shown below:



DSCP = DiffServ Code Point (6 bits)

Note: The value in [ ] shows the current setting. Press enter key to apply the current setting shown in [ ].

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

To directly enter the setting value:

- When P1=TOS is entered:

`VS-32(SIP)> SET SIGNALING_QOS TOS 0xC0`	*P1*: Enter TOS to set IP Precedence data value
	P2: Enter the setting value [0x02~0xFF]
`Signaling QoS setting succeeded.(0xC0)`	Result is shown.

- When P1=DIFFSERV is entered:

`VS-32(SIP)> SET SIGNALING_QOS DIFFSERV 48`	*P1*: Enter DIFFSERV to set Diffserv data value
	P2: Enter the DSCP setting value [0~63]
`Signaling QoS setting succeeded.(0xC0)`	Result is shown.

- When P1=CLEAR is entered to delete the current QoS setting:

`VS-32(SIP)> SET SIGNALING_QOS CLEAR`	*P1*: Enter CLEAR to clear QoS setting
`Signaling QoS clearing succeeded.(0x00)`	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note: The value in ( ) shows the current setting.

13. Setting alarm notification of silence:

Note: Available since SP-3891 CA-VS32 PROG-A Issue 13.

This feature enables alarm notification of silence. The settings are as follows:

- Input Error Detection Notification

  After the VS32 starts to send RTP packets for Three-Way Calling trunks, this feature monitors the number of the receiving ports on the RTP receiving side. When the number of receiving ports is equal to or less than one port, the system message (36-Z) is sent.

  For all of the ports of VS32, this feature monitors that RTP packets are sent or not. When the RTP packets are not sent, the system message (36-Z) is sent. Silence on the Monitoring or the Three-Way Calling is detected by using these feature.

  Note: Note the following:
  - This feature is not supported for SIP mode.
  - When using Silent Monitor by using MG (SIP) as trunk, set “disable” to this feature.

- Silent Detection Notification

  When the VS32 receives RTP packets with voice data but sends RTP packets with silent voice data for a certain period of time, the system message (36-Z) is sent.

Note: Note the following:
- Supported only G.711 μ-law for payload type.
- Supported only Three-Way Calling.

VS-32>SET SILENT_CHECK PACKET CHECK FUNCTION (ENABLE/DISABLE): enable	Input Error Detection Notification ENABLE DISABLE (Default)
PAYLOAD CHECK_FUNCTION (ENABLE/DISABLE) enable	Silence Detection Notification ENABLE DISABLE (Default)
PAYLOAD CHECK SIZE (1 - 5): 1	Byte Count for Silence Detection Target 4 x N byte (N=1 to 5)
Silent Check setting succeeded. In order to make a setup reflect and keep, re-starting is required after saving a configuration file by SAVE command. VS-32>	Result is shown.

14. Setting IP address, port number, and host name of SIP server:

    This command is used for SIP mode only.

VS-32(SIP)> *SET SIPSV_IPADDRESS*	
SIP Server (1-20): *1*	Enter the SIP server's number [1-20] Up to 20 SIP servers can be used in one network.
IP Address: *10.41.1.150*	Enter the IP address of SIP server. **Note 5** e.g. 10.41.1.150 (default=0.0.0.0)
Port Number: *5060*	Enter the port number [1024-65535] (default=5060)
Is there the Host Name? (Y/N) [N]: *y*	Select whether to use host name [Y/N]
Host Name: *SVR1.nec.com*	Enter the host name in the full-domain format, within 63-byte of alphanumerics, ". (period)", and "- (hyphen)". 63. (*This line is displayed when "Y" is selected above.)
SIP server setting succeeded.	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

Note 5: About IP address of SIP server (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

15. Setting VLANs:

This command assigns VLAN ID and its COS value. When VLAN is enabled in VS32(Dual), Physical LAN becomes invalid. IP address, netmask, and Default Gateway settings in physical LAN are succeed into VLAN.

- When VLAN has not been set yet:

VS-32> *SET VLAN*	
Please enter a parameter	
VLAN set ENABLE or DISABLE: *enable*	ENABLE=VLAN is used DISABLE=VLAN is not used (default)
VLAN ID (1-4094) : *5*	Enter the VLAN_ID [1-4094]
COS (0-7) : *3*	Enter the Class of Service (COS) setting [0-7]
VLAN device setting complete.	Result is shown.

- When VLAN has already been set:

VS-32> *SET VLAN*	
VLAN-ID and COS exist already. Is it all right although overwritten? [Y(write)/N(current)/Q(quit)]: *y*	Y=Overwrite the current setting N=Not change Q=Quit this command setting
Please enter a parameter.	
VLAN set ENABLE or DISABLE: *enable*	ENABLE=VLAN is used DISABLE=VLAN is not used (default)
VLAN ID (1-4094) : *5*	Enter the VLAN_ID [1-4094]
COS (0-7) : *3*	Enter the Class of Service (COS) setting [0-7]
VLAN device setting complete.	Result is shown.

Note: To make this assignment effective, use the SAVE command, and restart before exiting the maintenance command.

SHOW

1. To show configuration data list:

    • Proprietary Protocol mode

```
VS-32> SHOW CONFIGDATA

[SYSTEM]
REGISTER_MODE=TP

[IP]
OWN_ADDR=xx.xx.xx.xx
SUBNET_MASK=xxx.xxx.xxx.xxx
DEFAULT_GATEWAY=xx.xx.xx.xxx
DRS_ADDR1=xxx.xxx.xxx.xxx
DRS_PORT1=3456
DRS_ADDR2=0.0.0.0
DRS_PORT2=3456
DRS_ADDR3=0.0.0.0
DRS_PORT3=3456
DRS_ADDR4=0.0.0.0
DRS_PORT4=3456
LPPM_PORT=60130
SWITCH_CTRL_PORT=62000
DRS_TOS=0xC0

 Type <CR> to continue, A<CR> to show all, Q<CR>
to stop:
H245START_PORT=60000
DRS_RCV_PORT=3456

[NETWORK]
LAN_SPEED=auto
DHCP_SW=enable

[MEDIA]
RTPSTART_PORT=1024

[VLAN]
VLAN_SW=DISABLE
VLAN_DATA=
```

The current setting related to Proprietary Protocol mode is shown.

- SIP mode

```
VS-32(SIP)> SHOW CONFIGDATA
[SYSTEM]
REGISTER_MODE=SP

[IP]
OWN_ADDR=xxx.xxx.xxx.xxx
SUBNET_MASK=xxx.xxx.xxx.xxx
DEFAULT_GATEWAY=xxx.xxx.xxx.xxx
OWN_NAME=
DNS_ADDR=0.0.0.0
SIGNALING_PORT=5060

[SIP]
SIPSV_ADDR1=xxx.xxx.xxx.xxx
SIPSV_PORT1=5060
SIPSV_NAME1=
  :
  :
SIG_QOS=1,0xC0

[NETWORK]
LAN_SPEED=auto
DHCP_SW=DISABLE
DNS_SW=DISABLE

[MEDIA]
RTPSTART_PORT=1024

[VLAN]
VLAN_SW=DISABLE
VLAN_DATA=

OTP=<Expired_OTP>
```

The current setting related to SIP mode is shown.

2. To show Country Code:

```
VS-32> SHOW COUNTRYCODE

Use country is JPN. (Japan code: 0x0001)
```

The current setting is shown.

3. To show DHCP setting:

```
VS-32> SHOW DHCP

DHCP is ENABLE
```

The current setting is shown.

4. To show DNS server setting:

```
VS-32(SIP)> SHOW DNS_SW

DNS interface: DISABLE
DNS IP Address: 10.41.1.150
```

Used for SIP mode only.

The current setting is shown.

5. To show IP address and port number of DRS:

This command shows the DRS's IP address and port number setting on VS32(Dual) (for Proprietary Protocol mode only).

Note: About IP address of DRS (Telephony Server), refer to "Registration Destination of IP Devices/Stations" in the System Description.

- When P1=1 is entered specifying the Primary DRS to read out:

```
VS-32> SHOW DRSADDRESS P1


Primary DRS Address 10.41.1.100, Port 3456
```

P1: Specify the DRS [1-4]
1=Primary/2=Secondary/3=Tertiary/4=Fourth

The current setting is shown.

- When P1entering is skipped to show all the DRSs' setting:

```
VS-32> SHOW DRSADDRESS

Primary DRS Address 10.41.1.100, Port 3456
Secondary DRS Address 10.41.1.101, Port 3456
Tertiary DRS Address 10.41.1.102, Port 3456
Fourth DRS ADdress 10.41.1.103, Port 3456
```

The current setting for all the DRSs is shown. (Secondary or latter DRSs are not displayed when not assigned.)

6. To show ToS setting for DRS session:

```
VS-32> SHOW DRSTOS
```

Used for Proprietary Protocol mode only.

```
DRS TOS is 0xC0.
PRECEDENCE=6
DELAY=0
THROUGHPUT=0
RELIABILITY=0
COST=0
```

The current setting is shown.

7. To show the setting of LAN communication speed:

```
VS-32> SHOW INTERFACE P1
Setting: Auto-negotiation
Status: Speed is 100Mbps, Half Duplex, Link Up
```

P1: Enter the interface name (*can be skipped).

Current setting of communication state is shown.

Actual operating state is shown.

8. To show the setting of IP address, subnet mask, and Default Gateway on VS32(Dual):

```
VS-32> SHOW IPADDRESS P1
IP Address: 10.41.1.100
Netmask: 255.255.255.0
Default Gateway: 10.41.1.254
```

P1: Enter the interface name (*can be skipped).

The current setting is shown.

9. To show One Time Password:

   This command is used for SIP mode only.

   - When authentication is not completed between SIP server and VS32(Dual):

```
VS-32(SIP)> SHOW ONE_TIME_PASS
One time password is 123456.
```

The current setting of one time password is shown.

   - When authentication procedure is completed once between SIP server and VS32(Dual):

```
VS-32(SIP)> SHOW ONE_TIME_PASS
One Time Password: <Expired_OTP>
```

One time password is not shown after completing authentication procedure.

   - When One Time Password is not assigned:

```
VS-32(SIP)> SHOW ONE_TIME_PASS
One time password is [No Value].
```

“No value” is displayed when One Time Password is not assigned.

10. To show Host Name of VS32(Dual):

```
VS-32(SIP)> SHOW OWN_NAME

Own Name: vs32.nec.com
```

Used for SIP mode only.

The current setting is shown.

11. To show port number setting:

- Proprietary Protocol mode:

```
VS-32> SHOW PORTNUMBER

DRS Port Number is 3456.
LPPM Port Number is 60130.
Voice Control Port Number is 62000.
H245 Start Port Number is 60000.
RTP Start Port Number is 1024.
```

The current setting of communication port number for DRS, Internal PHE, P2P, H.245 start port, and RTP start port is shown for Proprietary Protocol mode.

- SIP mode:

```
VS-32(SIP)> SHOW PORTNUMBER

RTP Start Port Number is 1024.
```

The current setting of RTP start port is shown for SIP mode.

12. To show signaling port number for SIP:

```
VS-32(SIP)> SHOW SIGNALING_PORT_NO

Signaling port number is 5060.
```

Used for SIP mode only.

The current setting is shown.

13. To show QoS setting for SIP signaling session:

```
VS-32(SIP)> SHOW SIGNALING_QOS

Signaling QoS is 0xC0. (QOS = TOS)

PRECEDENCE = 6
DELAY = 0
THROUGHPUT = 0
RELIABILITY = 0
COST = 0
```

Used for SIP mode only.

The current setting is shown.
*(*This display is an example when TOS (IP PRECEDENCE) type is selected.)*

14. To show alarm notification setting of silent check:

Note: Available since SP-3891 CA-VS32 PROG-A Issue 13.

```
VS-32> SHOW SILENT_CHECK
```

```
PACKET CHECK FUNCTION : ENABLE

PAYLOAD CHECK FUNCTION : ENABLE

PAYLOAD CHECK SIZE : 1
```

The current setting of Input Error Detection Notification is shown.

The current setting of Silence Detection Notification is shown.

The current setting of Byte Count for Silence Detection Target is shown.

15. To show IP address, port number, and host name of SIP server:

Note: About IP address of SIP server (Telephony Server), refer to “Registration Destination of IP Devices/Stations” in the System Description.

```
VS-32(SIP)> SHOW SIPSV_ADDRESS

SIP Server    IP Address      Port Number    Host Name

1             10.41.1.150     5060           SVR1.nec.com
2             0.0.0.0         5060
3             0.0.0.0         5060
:             :               :
:             :               :
20            0.0.0.0         5060
```

Used for SIP mode only.

The current setting is shown.

16. To show the status of VS32(Dual):

When data setting cannot be executed normally and registration error occurs, use this command to check the operating state of VS32(Dual). See 4.2 Error Messages for the output information and their counter-measures.

- Proprietary Protocol mode

```
VS-32> SHOW STATUS

Register Mode             : TP
MAC Address               : 00:00:xx:xx:xx:xx
Link State                : Up
Speed                     : 100Mbps
Duplex                    : Full
VLAN Mode                 : Disable
DHCP Mode                 : Disable
IP Address                : 10.41.1.100
Subnet Mask               : 255.255.255.0
Default Gateway           : 10.41.1.254
Registered Drs Name       : Primary DRS
Registered Drs Address    : 10.41.1.150

Registration Status       : Online
```

The current operating state is shown.

Note: The following information is displayed for Ether connection state:
- Link: Up/Down
- Speed: 100M/10M
- Duplex: Full/Half

Note: Online or offline is informed for Registration Status. In the case of offline, the cause of registration error is to be displayed. See Error Messages (related to registration in Proprietary Protocol mode) for the reason and the countermeasures of registration error.

- SIP mode

```
VS-32(SIP)> SHOW STATUS

Register Mode              : SP
MAC Address                : 00:00:xx:xx:xx:xx
Link State                 : Up
Speed                      : 100Mbps
Duplex                     : Full
VLAN Mode                  : Disable
DHCP Mode                  : Disable
IP Address                 : 10.41.1.100
Subnet Mask                : 255.255.255.0
Default Gateway            : 10.41.1.254
DNS Mode                   : Disable
Encryption                 :
  +-- SIP Encrypt          : All
  +-- RTP Encrypt          : --
Current Sipsv Address      : 10.41.1.200
Registration Status        : Online
```

The current operating state is shown.

Note: Online or offline is informed for Registration Status. In the case of offline, the cause of registration error is to be displayed. See Error Messages (related to registration in SIP mode) for the reason and the countermeasures of registration error.

17. To show the firmware and hardware information:

```
VS-32> SHOW VERSION

VS-32 Hardware: CA-CC09 1A
Boot program: SP-3839 04.00
Firmware: SP-3891 03.00

AC490   Kernel Ver      : xx.xx
        Revision        : xx
        Patch           :
        PatchNumber     :
        Reserved        :
        Month           : xx
        Day             : xx
        Year            : 200x
        Name            : AC490Kernel...

AC490   MainProgram     : xx.xx
        Revision        : xx
        Patch           :
        PatchNumber     :
        Reserved        :
        Month           : xx
        Day             : xx
        Year            : 200x
        Name            : AC490012ae3...

AC490   Driver Ver      : xxx
        SubVersion      : xx
        Date            : xx.xx.xxxx
        Comment         :
```

VS32(Dual)'s hardware, boot program, and software version information is listed.

18. To show VLAN settings:

```
VS-32> SHOW VLAN

DEVICE     ID    COS    IPADDRESS       SUBNETMASK
VLAN1      5     3      10.4.128.5      255.255.255.0
```

Device name, VLAN ID, COS value, IP address, and subnet mask is shown when VLAN is assigned.

SAVE

1. To save the configuration data to VS32(Dual) internal Flash ROM:

```
VS-32> SAVE CONFIGDATA

** Don't power off during save **
May I save? [Y/N]: y

########
Complete

Preservation of configuration data was successful.
Re-starting is required for making a setup reflect!!
```

Enter "y" to save the assigned configuration data to Flash ROM.

Result is shown.

```
VS-32> SAVE CONFIGDATA

** Don't power off during save **
May I save? [Y/N]: n

Configuration data has not been saved.
```

Enter "n" to cancel.

Result is shown.

Note: When VS32(Dual) is rebooted without saving the configuration data, the assigned data is discarded.

2. To save music source files on the RAM to VS32(Dual) internal Flash ROM:

```
VS-32> SAVE WAVEFILE

** Don't power off during save **
May I save? [Y/N]: y

########
Complete

Wave file system has been saved!!
```

Enter "y" to save the wave files on RAM to internal Flash ROM.

Result is shown.

```
VS-32> SAVE WAVEFILE

** Don't power off during save **
May I save? [Y/N]: n

Wave file system has NOT been saved!!
```

When "n" is selected.

Result is shown.

Note: When VS32(Dual) is rebooted without saving the configuration data of wave file, the assigned data is discarded.

INIT

1. To initialize configuration data to the factory default setting:

   Use this command only when required to reset the system data to default value.

   • Proprietary Protocol mode

```
VS-32> INIT CONFIGDATA
*** Warning !! ***
This command initializes the configuration data.
This deletes the current setting.
Recommend to back up the setting.
Command execute or not? [Y/N]: y


Erase start...
Erase OK!
Write start...
Write OK!
Command complete.
You need to setup configuration data!!
```

Asked whether to execute initialization.
Y=Initialize
N=Not execute

Writing to Flash ROM is executed.

Result is shown.

   • SIP mode

```
VS-32(SIP)> INIT CONFIGDATA
*** Warning !! ***
This command initializes the configuration data.
This deletes the current setting.
Recommend to back up the setting.
Command execute or not? [Y/N]: y


Initializes authentication key or not? [Y/N]: y



Erase start...
Erase OK!
Write start...
Write OK!
Command Complete.
You need to setup configuration data!!
```

Asked whether to execute initialization.
Y=Initialize
N=Not execute

Asked whether to clear one time password and authentication data.
Y=Clear OTP/authentication data
N=Not clear OTP/authenticated data

Writing to Flash ROM is executed.

Result is shown.

REBOOT

1. To reboot VS32(Dual):

```
VS-32> REBOOT

May I do reboot? [Y/N]: y
```

Asked whether to execute reboot.
Y=Reboot
N=Cancel

Note: Calls in progress are disconnected on any condition.

GET

1. To download the configuration data file from the specified TFTP server:

   Name the configuration data file to “sysdata” and save it on the route directory of TFTP server.

```
VS-32> GET CONFIGDATA P1

The download of configuration was successful.
```

P1: Enter the IP address of TFTP server.

Result is shown.

Note: This command does not verify the normality of the configuration data downloaded from TFTP server. If any invalid configuration data is downloaded, first use the INIT CONFIGDATA command to initialize the settings, and then set a correct one.

PUT

1. To upload the configuration data file to specified TFTP server:

   The configuration file is uploaded to the route directory of TFTP server with a file name “sysdata.”

```
VS-32> PUT CONFIGDATA P1

The upload of configuration was successful.
```

P1: Enter the IP address of TFTP server.

Result is shown.

PING

1. To check the network conditions:

```
VS-32> PING P1

PING 100.100.100.4: 56 data bytes
64 bytes from 100.100.100.4: icmp_seq=0. time=0. ms
64 bytes from 100.100.100.4: icmp_seq=1. time=0. ms
64 bytes from 100.100.100.4: icmp_seq=2. time=0. ms
64 bytes from 100.100.100.4: icmp_seq=3. time=0. ms
----100.100.100.4 PING Statistics----
4 packets transmitted, 4 packets received, 0% packet loss
round-trip (ms) min/avg/max = 0/0/0
```

P1: Enter the IP address of the system to access.

Connection status will be displayed four times.

```
VS-32> PING P1

PING 100.100.100.4: 56 data bytes
ping: timeout
no answer from 100.100.100.4
```

P1: Enter the IP address of the system to access.

When the connection has a problem, “no answer” message will be displayed.

CD

1. To change the current directory:

```
VS-32> CD /P1
```

P1: Enter the directory name following the *CD* command.
/system --- configuration data is stored
/wave --- wave file is stored
/cf --- CF memory card
For the directory tree, refer to page 1812.
* When *P1 is* omitted, the directory will be set to /system.

PWD

1. To display the current directory:

```
VS-32> PWD
/system
```

The current directory is shown.

RM

1. To delete file:

```
VS-32> RM P1
```

P1: Enter the file name to be deleted following the *RM* command. (e.g. 001.wav)

LS

1. To display detailed information for directories and files:

```
VS-32> LS /P1

Listing Directory /system
-rwxrwxrwx 10 0 2172 May 22 14:00 sysdata
```

P1: Enter the directory following the *LS* command.
For the directory tree, refer to page 1812.
/system --- configuration data is stored
/wave --- wave file is stored
/cf --- CF memory card
* When *P1 is* omitted, current directory and file name is displayed.

CP

1. To copy file:

```
VS-32> CP /P1 /P2




copying file /cf/001.wav -> /wave/001.wav
Copy OK: 2172 bytes copied
```

Specify the source and destination files to copy following the *CP* command.
P1: Source directory and file name
P2: Destination directory and file name to be copied to.
(e.g. “cf/001.wav” for *P1* and “wave/001.wav” for *P2*)

Result is shown.

MV

1. To move and rename file:

```
VS-32> MV /P1 /P2
```

Specify the source and the destination files to move or rename following the *MV* command.
P1: Source directory and file name
P2: Destination directory and file name to be moved to or renamed
(e.g. “/cf/annc.wav” for *P1* and “/wave/001.wav” for *P2*)

Note: File cannot be moved between another disks: for example “/cf” and “/wave”. In this case, use the CP command.

Note: This command can be used to move the file, regardless of the file attribute such as read-only file.

EXIT

1. To exit the maintenance command:

   [Normal occasion]

```
VS-32> EXIT

Finished!
```

When no configuration data is changed.

   [When configuration data is changed]

```
VS-32> EXIT

Configuration data is changed. Does it
save and end?

Y: It saves and ends.
N: It ends without saving.
C: Cancel
[Y/N/C]: y

Configuration data has been changed!!

Finished!
```

When configuration data is changed and the setting has not been saved by SAVE command yet.

Select Y, N, or C.
- Y = Save settings and exit
- N = Exit without saving
- C = Cancel

Note: If any error occurs in saving the setting after “Y” is selected, the screen returns to the prompt of maintenance command (“VS-32>”, in default).

4.2 Error Messages

When any error occurs in using the maintenance commands, error message is displayed to urge data entry again. The error messages listed below will help you to find solutions.

Error Messages

ERROR MESSAGE	CAUSE SOLUTION
Command not completed.	The command did not end normally. Check the normality of environment and enter the correct command.
Command not found.	A command other than the supported command is entered. Enter the supported command.
Command not supported in this operating mode.	Different register mode of command is entered. 1. Check the currently operating register mode. - When the configuration command is running in TP mode (prompt "VS32>" is displayed), commands for SP mode cannot be used. - When the configuration command is running in SP mode (prompt "VS32(SIP)>" is displayed), commands for TP mode cannot be used. 2. Change the register mode by SETUP TP or SETUP SP command, and then use appropriate command for TP or SP mode respectively.
Enter sub command.	Required sub command has not been entered. Enter the required sub command.
Invalid address.	The form of the entered address is different. Enter with the correct address format.
Invalid character.	Any illegal character is entered. Confirm there is no illegal character and a space for password and enter again.
Invalid parameter.	Any illegal parameter is entered. Enter the parameter of correct value.
Invalid password.	The password is incorrect. Enter correct password.
No parameter?	Required parameter has not been entered. Enter the required parameter.
Out of data range.	Data is entered exceeding the available range. Specify the data in the correct data range.
Out of memory range.	Data is entered exceeding the memory range. Specify the correct memory area.

Error Messages (Continued)

ERROR MESSAGE	CAUSE SOLUTION
Section name and Key name already exist.	Specified section name and key name are already used. Enter new section name and key name.
Sub command not found.	The entered sub command is not supported. Enter supported sub command.
System data file (sysdata) corrupted. Initialize system data with “INIT CONFIGDATA” command.	The system data file is corrupted. Initialize the system data using the INIT CONFIG command.
Too many parameters.	Unnecessary parameter is entered. Confirm if the entered parameter is required.
VLAN ID is already registered.	Specified VLAN ID is already used. Enter new VLAN ID.
VLAN ID is not registered.	VLAN ID is not registered. Register VLAN ID.
Illegal Format: Codec=0x000X	CODEC for Wave file must be PCM A-law(0x0006) or PCM μ-law(0x0007).
Illegal Format: Channel=0x000X	The sound is not mono. Please change it to mono sound (0x0001).
Illegal Format: Rate=XXXX	The sampling period of music source must be 8kHz (8000). Please change it to 8kHz.
Illegal Format: Byte Per Sec=XXXXXX	The sampling period of music source must be 8kHz and 8bits (8000). Please change it to 8 bit and 8kHz.
Illegal Format: Byte Per Block=XXXXXX	The digitalization sampling type of music source must be mono (1). Please change it to mono type.
Illegal Format: Bit Per Sample=XXXXXX	The digitalization sampling of music source must be 8 bits (8). Please specify it within 8bits.

Error Messages (related to registration in Proprietary Protocol mode)

ERROR MESSAGE	STATE SOLUTION
VS32 is ONLINE.	Normal operation. -
Registration is Started Now!	VS32(Dual) is trying registration. Wait for a while and then check the operating state later. When the VS32(Dual) keeps this state continuously, there is a possibility that operation error may occur. Try power OFF → ON.

Error Messages (related to registration in Proprietary Protocol mode) (Continued)

ERROR MESSAGE	STATE SOLUTION
DRS Message Send Error!	VS32(Dual) cannot send message to DRS. Possible cause is: •Default gateway of VS32(Dual) is not assigned (0.0.0.0).
	Execute SHOW IPADDRESS command to check the default gateway setting. Reassign when 0.0.0.0 is set.
DRS Message is Unreceivable!	Registration message cannot be received from DRS. Possible cause is: •VS32(Dual) sets incorrect IP address of DRS. •DRS is shut down. •VS32(Dual) has incorrect IP network setting. •Channel route between VS32(Dual) and DRS is disconnected.
	•Execute SHOW IPADDRESS command to check the DRS's IP address setting is correct on VS32(Dual). •Check the DRS is on operating state. •Execute ADTM command on PCPro to send Ping and check the response is normally received.
This VS is Unregistered!	VS32(Dual) is not programmed on DRS.
	Assign VS32(Dual) data on DRS by PCPro.
PH is Unavailable on Server!	PH on DRS does not work properly.
	Confirm whether the PH works normally on DRS.
Exceeded Capability!	DRS exceeds the registration capacity.
	Registration number for IP terminal reaches capacity. Check the capacity of PH.
Parse Error!	VS32(Dual) sends incorrect message.
	Wait for a while and then check the operating state later. When the VS32(Dual) keeps this state continuously, there is a possibility that operation error may occur. Try power OFF → ON.
Receive Result is not Support!	Messages from DRS include some data impossible to analyze.
	Unacceptable setting on VS32(Dual) firmware is informed from DRS. •Investigate the DRS not to be out of control. •Confirm the VS32(Dual)'s firmware version complies with system program.
Receive Registration Data Error!	Conference information from DRS is incorrect.
	Data setting on VS32(Dual) is illegal. Reassign the data referring to manual.
E1 Message Receive Time Out!	Partially initial setting command is not received from the DRS.
	•Collision may occur on the network. Check the state of network. •There is a possibility of DRS shut down during registration. When this state continues, confirm the DRS operates normally.

Error Messages (related to registration in Proprietary Protocol mode) (Continued)

ERROR MESSAGE	STATE SOLUTION
Waiting Response from DHCP Now!	VS32(Dual) is trying to request IP address to DHCP server. VS32(Dual) is applying for getting IP address with DHCP server. Wait for a while and then check the state again.
No Response from DHCP!	Response has not been received from DHCP server. VS32(Dual) cannot receive response from DHCP server. Confirm the DHCP server is normally operating on the network.
Registration is not Started yet!	VS32(Dual) has not started registration yet. Wait for a while and then check the state again. When this state continues, try power OFF → ON.
VS32 Registration Error! Unauthorized! Double Assignment! Illegal LEN! Resource Unavailable! Unknown Error...	There is a possibility that abnormal operation may occur on VS32(Dual). Try power OFF → ON.

Error Messages (related to registration in SIP mode)

ERROR MESSAGE	STATE SOLUTION
Registration is Started Now!	VS32(Dual) is trying registration. Wait for a while and then check the operating state later. When the VS32(Dual) keeps this states continuously, there is a possibility that operation error may occur. Try power OFF → ON.
SIP Initialize Error!	Data setting related to SIP is not assigned or incorrect data is programmed. Reassign the SIP related data using SETUP SP command.
2xx Response Data Error! 3456xx Response Data Received! Register Response Wait Time Out! Inside Register Error! Unknown Error...	There is a possibility that abnormal operation may occur on VS32(Dual). Try power OFF → ON.

SR-MGC(E) [SN8178 MGCEV-B/SN8178 MGCEV-A]

The following explains an SR-MGC(E) [SN8178 MGCEV-B/SN8178 MGCEV-A]: function overview, configuration, installation procedure.

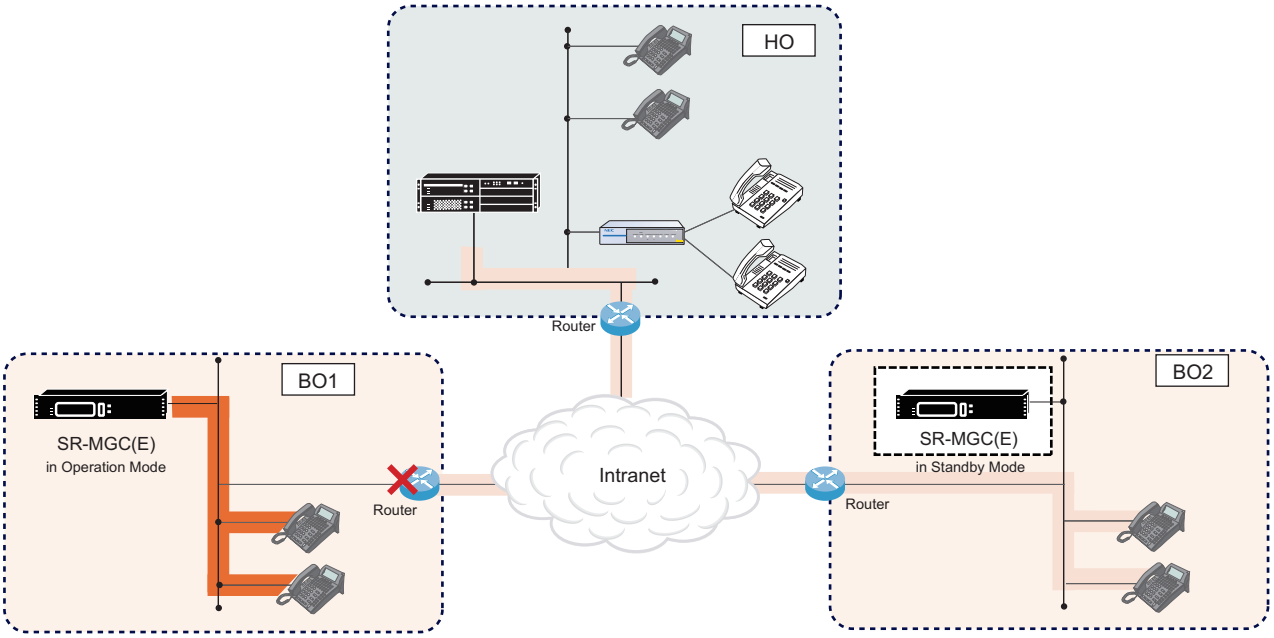
1 General

IP terminals in offices of an enterprise normally work under control of a Telephony Server in a main office: the Telephony Server can maintain all terminals' operations via an IP network, even if some of them are in other offices. It is one of flagship features of our Telephony Server. But what will happen if a failure occurs on the network or the Telephony Server? The Telephony Server will lose control of the terminals in its (main) office as well as ones in other offices depending on the failure - it is a big problem. That's when an SR-MGC(E) really comes into play: Terminals re-register to an SR-MGC(E), which is arranged in advance, so that they can keep working under control of the SR-MGC(E). While the SR-MGC(E) operates, the SR-MGC(E) is checking if the Telephony Server recovers from a network failure or something. If detecting the recover, terminals under control of the SR-MGC(E) register back to, and work under control of the Telephony Server; the SR-MGC(E) switches its operation to standby in case of another failure on the Telephony Server.

Note: For Service Conditions for SR-MGC(E), refer to "Survivable Remote MGC [S-141]" of Data Programming Manual - Business. For Service Conditions peculiar to SR-MGC(E) with Location Diversity, refer to "Location Diversity [L-55]" of Data Programming Manual - Business.

The following is a configuration example.

e.g.A Telephony Server in a head office normally controls IP stations in branch offices. Suppose that a failure occurs on a network or a network device, and which causes the Telephony Server to lose control of stations in branch office (BO) 1; an SR-MGC(E) in BO1 starts controlling the stations.



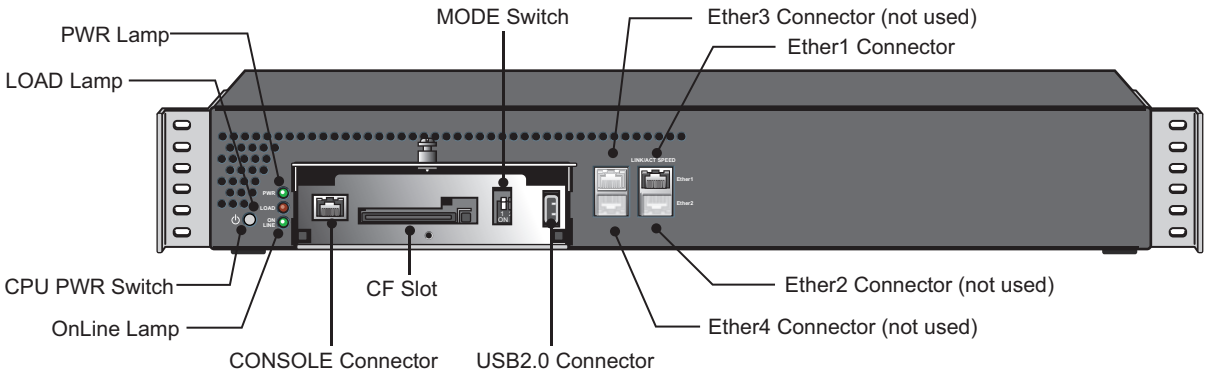
2 Specifications

This section describes the specifications of an SR-MGC(E).

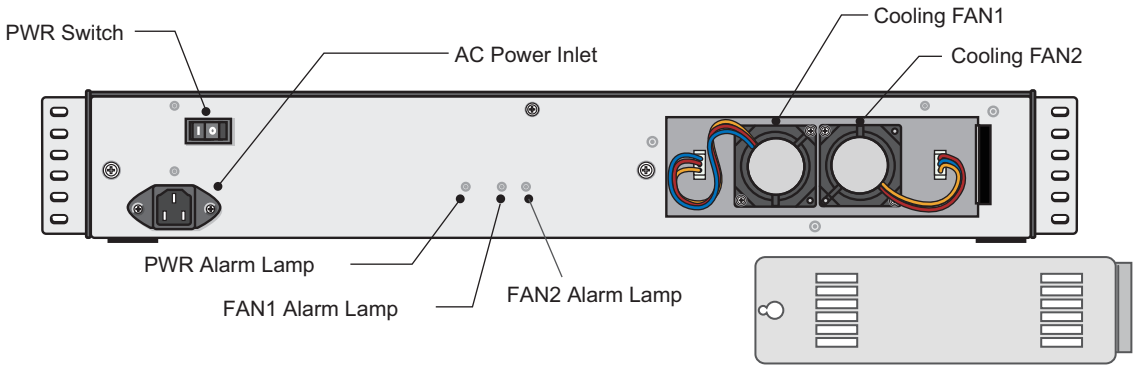
2.1 Part Names

The following are the appearances of an SR-MGC(E), including lamps and connectors.

Front



Rear



2.2 Details

(1) Technical Specifications

Item	Specification
Dimensions	65 (H) x 430 (W) x 297 (D) mm (corresponds to 1.5U when mounting on a 19-inch rack with depth of A4 paper.)
Weight	3.8 kg
Input Power Source	100 VAC ±10% to 240 VAC ±10%
Maximum Power Consumption	75 W

Item		Specification
Use environment	Temperature	Operational Temperature Range: 0°C to 40°C (32°F to 104°F) Storage Temperature Range: -20°C to 60°C (-4°F to +140°F)
	Humidity	Operational Humidity Range: 20% to 90%, non-condensing Storage Humidity Range: 20% to 90%
Seismic design		horizontal acceleration 0.5g *1.1g when mounting on a 19-inch rack.
LAN cable		IEEE802.3 • 10BASE-T: Category 3 or higher, Max 100 m • 100BASE-TX: Category 5 or higher, Max 100 m • 1000BASE-T: Category 5 or higher, Max 100 m • LAN cable: RJ-45
QoS		IEEE802.1p (ToS field is supported, Diffserv)

(2) Front panel

Part	Condition	Description	Remarks
CPU PWR switch	-	Press to turn on when powered off.	Works when the PWR switch on the rear panel is turned off.
		Press to execute auto-shutdown. **Note 1**	
		Press four sec to turn off when powered on.	
PWR lamp	ON (green)	CPU is powered on.	
	OFF	CPU is powered off.	
LOAD lamp	Flash (red)	Accessing to a CF card.	
	OFF	No access to a CF card.	
ONLINE lamp	ON (green)	SP runs & operates properly.	
	Slow flash (green)	TP runs; SP is not.	
	Rapid flash (green)	TP runs; a program is not installed.	
	Flash* (green)	Cannot be activated because of bad license.	*Flash pattern: flashes twice; off two sec
	OFF	The system does not run.	
CONSOLE connector	-	Not used.	
CF slot	-	For inserting a CF card.	
MODE switch	ON	Off-line mode **Note 2**	
	OFF	Normal	Basic setting

Part		Condition	Description		Remarks
USB2.0 connector		-	Not used.		
Ether1 connector	LINK	ON (green)	Connection is established.	External LAN interface for TCP/IP (Max 1Gbps)	
		Flash (green)	Accessing.		
		OFF	Connection is not established.		
	SPEED	ON (green)	100Mbps		
		ON (orange)	1Gbps		
		OFF	10Mbps		
Ether2 connector **Note 3**	LINK	ON (green)	Connection is established.	Not used.	
		Flash (green)	Accessing.		
		OFF	Connection is not established.		
	SPEED	ON (green)	100Mbps		
		ON (orange)	1Gbps		
		OFF	10Mbps		
Ether3 connector **Note 3**	LINK	ON (green)	Connection is established.	Not used.	
		Flash (green)	Accessing.		
		OFF	Connection is not established.		
	SPEED	ON (green)	100Mbps		
		ON (orange)	1Gbps		
		OFF	10Mbps		
Ether4 connector **Note 3**	LINK	ON (green)	Connection is established.	Not used.	
		Flash (green)	Accessing.		
		OFF	Connection is not established.		
	SPEED	ON (green)	100Mbps		
		ON (orange)	1Gbps		
		OFF	10Mbps		

Note1: To confirm that shutdown is complete, check the PWR lamp. When the auto-shutdown does

not work, press and hold the CPU PWR switch for four seconds to turn off the power forcibly.

Note2: If you want to operate an SR-MGC(E) with off-line mode, turn it on with the MODE switch set to on.

If you activate an SR-MGC(E) with off-line mode, the following settings apply:

- SR-MGC(E) is set up without running TP and SP programs.
- An Ether1 IP address comes to 192.168.0.2/24.

Connect the Telephony Server Maintenance Menu to Ether1 so that you can maintain the SR-MGC(E). But Telephony Server Maintenance Menu may not be available depending on the system state.

Note3: Do not connect any cable to the Ether2, Ether3, and Ether4 connectors.

(3) Rear panel

Part	Condition	Description	Remarks
PWR switch	-	Hold down “O” to turn off.	
	-	Hold down “I” to turn on.	
AC power inlet	-	Connected with an attached three-polar grounded AC power cable (Cable Length: 3 m [9.8 ft.])	Fix the cable with the stopper to prevent it from falling out.
PWR alarm lamp	ON (red)	Failure in power.	
	OFF	Works properly.	
FAN1 alarm lamp	ON (red)	FAN1 fails.	
	OFF	FAN1 works.	
FAN2 alarm lamp	ON (red)	FAN2 fails.	
	OFF	FAN2 works.	
Cooling FAN1	-	A FAN for cooling the device.	Replaceable during operation.
Cooling FAN2	-	A FAN for cooling the device.	Replaceable during operation.

(4) Port numbers to be used

Port No.	Path	Function	How to Change Default Port No.
60110	MGC to SR-MGC(E)	A port for Health Check Receive MGC - SR-MGC (Server).	ADTM command
60120	SR-MGC(E) to MGC	A port for Health Check Send MGC - SR-MGC (Client).	ADTM command
60140	MGC to SR-MGC(E)	A port for SR-MGC Charge MGC Side.	ADTM command
60150	SR-MGC(E) to MGC	A port for SR-MGC Charge SR-MGC Side.	ADTM command
22	MGC to SR-MGC(E)	A port for SR-MGC File Update (SSH)	Not available

3 Installation



This section describes installing and cabling procedures for an SR-MGC(E). Take anti-static measures to work on it.

3.1 Installing Procedure

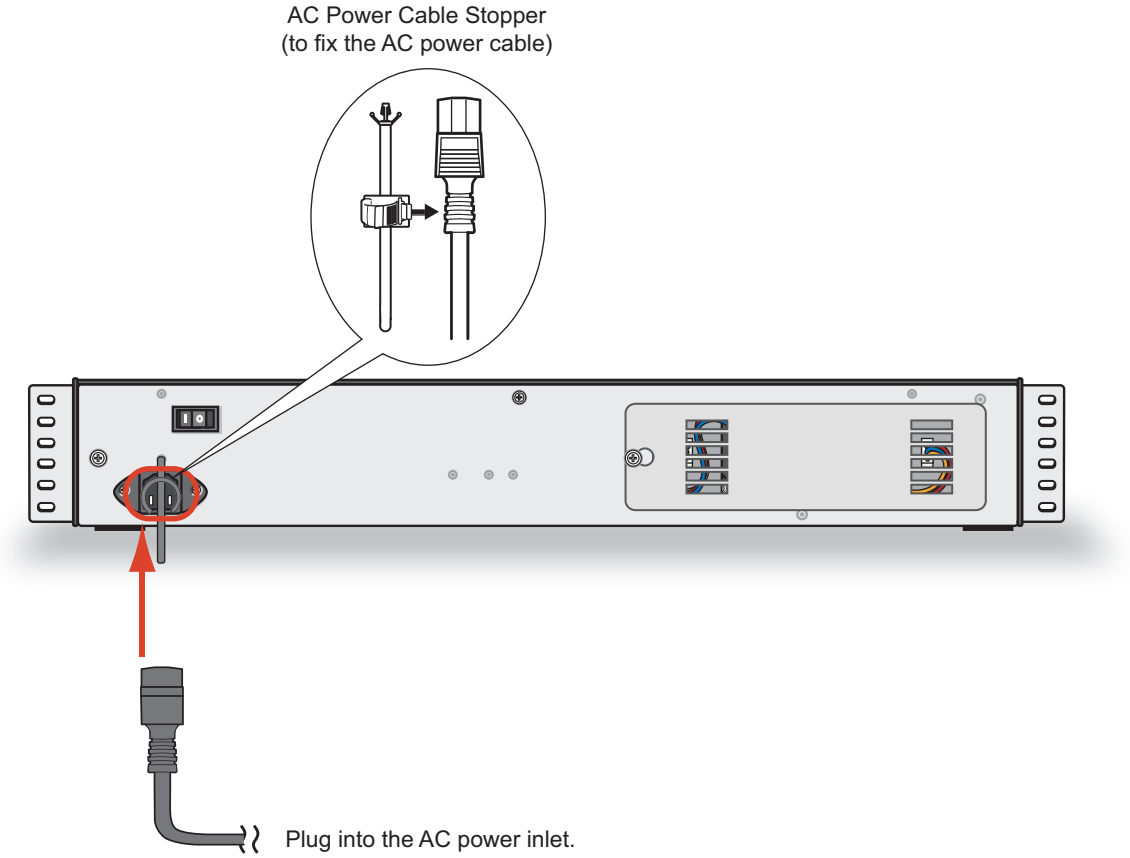
You can mount an SR-MGC(E) on a 19-inch rack. The procedure is the same as mounting an SV9500 server on a 19-inch rack; refer to the UNIVERGE SV9500 Appliance Model Installation Manual.

3.2 Cabling Procedure

The following describes the cabling procedure. Follow the following to connect cables.

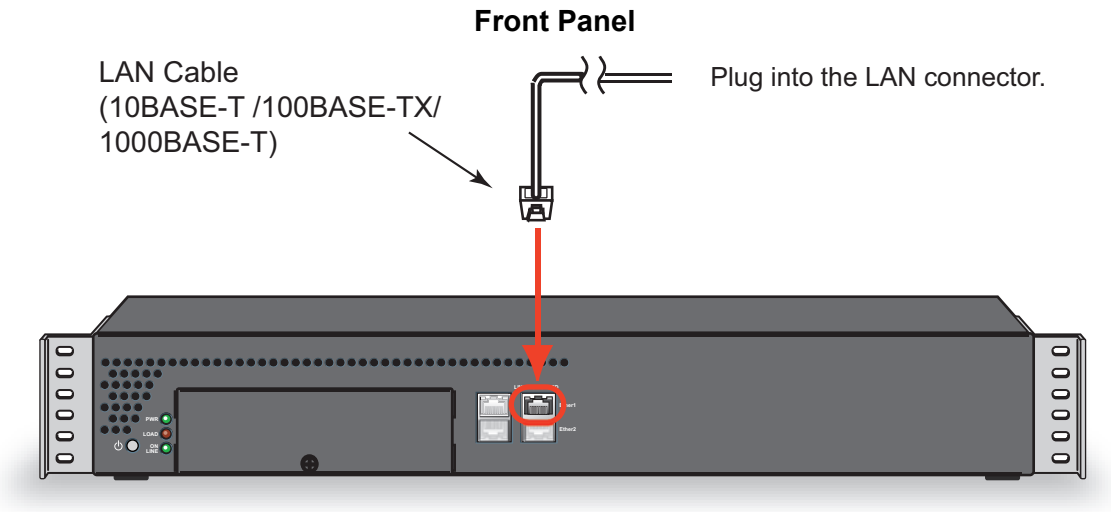
STEP 1:Plug an attached AC power cable into the AC power inlet on the rear panel of an SR-MGC(E); fix the AC power cable with the stopper.

Rear Panel



STEP 2:Connect the other end of the AC power cable with an appropriate AC source.

STEP 3:Plug a LAN cable into the Ether1 connector (RJ-45).



Now you are done. Move on to the next section: Startup.

4 Startup



This section describes the procedure to start up an SR-MGC(E).

SR-MGC(E) Startup Procedure

Note: For details on hardware information, see Specifications.

STEP 1:Turn on an SR-MGC(E).

Turn on power of an SR-MGC(E), where its operation is the following: booting up the system; reading default office data.

Note: An IP address set in default office data is 172.16.253.0/16.

STEP 2:Check lamps.

Make sure that lamp states are as follow.

PWR: ON (green)
ONLINE: Slow flash (green)

Note: After turning on an SR-MGC(E), it will take about five minutes for the lamps to turn to the preceding states.

STEP 3:Connect PCPro (PC) outside your LAN.

Connect a PC with PCPro installed to the SR-MGC(E) through the Ether1 connector on it, so that you can assign office data to the SR-MGC(E).

Note: If connecting them directly, use a LAN cable (crossover cable); if connecting via a HUB, use LAN cables (straight-through cables).

STEP 4:Configure PCPro.

Set data to connect PCPro to the SR-MGC(E).

[PCPro Connection Account Setting]

On the Main Menu, click on System; click on Connection Account Setting; set the following.

Account Name
Connection Type: TCP/IP
TCP/IP Setting
IP Address: 172.16.253.0, a default IP address of an SR-MGC(E)
Port Number: 60000

[PC Setting]

A PC with PCPro needs to have an IP address, subnet mask, and default gateway address set as follow. After you finish setting, restart the PC.

IP address: 172.16.253.253
Subnet mask: 255.255.0.0
Default gateway address: 172.16.253.0, a default IP address of an SR-MGC(E)

Now you are supposed to be able to login to the SR-MGC(E).
Perform the following to check the connectivity between the PC and SR-MGC(E).

[1] Open a DOS window; enter `ping 172.16.253.0`; press the Enter key.

[2] Make sure that you get replies from the SR-MGC(E) (172.16.253.0).

[3] Run PCPro and login to the SR-MGC(E).

Now you can assign office data.

STEP 5:Set an IP address on the SR-MGC(E).

Set network data including an IP address and Health Check. For the procedure to set an IP address of an SR-MGC(E), see the UNIVERGE SV9500 Data Programming Manual - Business.

STEP 6:Set a time zone on the SR-MGC(E).

Set the same clock and time zone data as an MGC to which the SR-MGC(E) belongs. For the procedure to set clock and time zone data, see the UNIVERGE SV9500 Data Programming Manual - Business.

STEP 7:Set SP configuration data on the SR-MGC(E).

Set the following SP configuration data depending on the MGC.

- SIP server ID registration
- MPH-ID registration

For the procedure to set SP configuration data, see the UNIVERGE SV9500 Data Programming Manual - Business.

STEP 8:Backup data on an SR-MGC's CF card.

Backup the data set to the SR-MGC(E) on a CF card: perform the MEM_HDD command; check SR-MGC Data and Data Memory.

STEP 9:Restart the SR-MGC(E).

Restart the SR-MGC(E): perform Office Data Load & System Initialize with the SINZ command.

STEP 10:Connect PCPro (PC) to your LAN.

After setting necessary data on SR-MGC(E) including an IP address matching your LAN, connect the PC to the LAN.

[1] Set an IP address of the PC with PCPro matching your LAN environment.

[2] Restart the PC.

[3] Connect the PC to the LAN.

STEP 11:Connect the SR-MGC(E) to the LAN.

Connect the SR-MGC(E) to the LAN.

STEP 12:Check connectivity between PCPro and the SR-MGC(E).

Perform the following to check if the SR-MGC(E) with a new IP address (here we use 172.223.12.45 as an example) properly connects to the LAN.

[4] Open a DOS window; enter `ping 172.223.12.45` (SR-MGC(E) address); press the Enter key.

[5] Make sure that you get replies from the SR-MGC(E) (172.223.12.45, in this case).

[6] Run PCPro and login to the SR-MGC(E).

STEP 13:Test PCPro operation.

Make sure that you can use PCPro properly.

STEP 14:Assign office data for the SR-MGC(E) to the MGC.

With PCPro logging-in to the MGC, perform the CMNT command to assign office data for the SR-MGC(E) belonging to the MGC.
For the procedure to assign the data, see Section 5 Office Data Assignment.

STEP 15:Copy office data from the MGC to the SR-MGC(E).

Use the CMNT command to copy office data from MGC to SR-MGC(E).

The parameters in the CMNT command are as follows.

- Office Data Copy & Load: Perform the CMNT command; open the File Control tab. Select Office Data Copy & Load from PROCESS TYPE to copy the office data.
- Select All button: Click the Select All button to execute office data or program copy to all the SR-MGCs in the network.
- Clear All button: Click the Clear All button to return all the SR-MGC Numbers to the state of No Processing Request.
- Specifying SR-MGC: Specify the target SR-MGC number (0-255), the box of specified SR-MGC number is displayed in yellow. And then click the Execute button.
  To undo specifying SR-MGC, click the box again.

* The meanings of displayed data are as follows.

Indicated Color	Status of SR-MGC
Gray	SR-MGC Number is not accommodated
White	No processing request
Yellow	On standby (Already requested to execute the process)
Blue	Under processing
Green	Succeeded in processing
Red	Failed in processing
Magenta (Pink)	Cannot execute, because SR-MGC is assigned as the Backup node

STEP 16:Initialize the SR-MGC(E).

If office data are successfully copied, the MGC is supposed to request the SR-MGC(E) to initialize. So after finishing copy process, wait for the SR-MGC(E) to be initialized (about five minutes) without any action.

STEP 17:Paste the label.

Paste the label attached to the CF card onto the main unit of SR-MGC(E).

Note: The location where to paste the label is stated on the pasteboard of the label.

Now you are done. SR-MGC(E) should be set up.

[For Reference]

Especially in the case of the following, you definitely need to initialize the SR-MGC(E). **Note 4**

- You performed office data copy against an SR-MGC(E) whose CF card did not have any office data file.
- You performed office data copy after changing MGC data which needed initialization.

Note4: Perform either of the following two.

- Perform the CMNT command; open the Initialize tab.
  KIND:
  - All: Select this button to execute the initialization on all the SR-MGCs in the network.
  - Individual: Initializes only SR-MGCs specified with an SR-MGC number.
    MGC No.: If selecting “Individual”, specify an SR-MGC number (0-255).
- Perform the SINZ command to restart the SR-MGC(E).

5 Office Data Assignment

For information about office data assignment, refer to Programming section for Survivable Remote MGC [S-141] in the Data Programming Manual - Business.

6 Installation Test

This section describes the basic installation test for SR-MGC(E) including checks for lamp indications and system messages.

(1) Lamp indications

Check lamps to make sure that the SR-MGC(E) is working properly.

For details on lamps, see Specifications.

(2) Basic installation test

Check the following to make sure that the SR-MGC(E) is working properly.

STEP 1:Is the PWR lamp turned ON?

- No.
  - Is the power cable firmly connected?
  - Is the power switch on?
  - Is the power supplied?
- Yes.

  Move on to the next step.

STEP 2:Is the LINK lamp of the Ether1 connector turned ON?

- No.
  - Check if the MGC does not output a system message: 10-F, Connection Failure between the Telephony Server and SR-MGC.
  - Is the SR-MGC(E) connected to a network device such as a switching hub or a router? Is the power of the network device turned on?
  - Do you use a straight-through cable?
  - Is not the cable broken? Test the conduction.

  If none of the above helps you to solve the problem, try another LAN cable, and check the operations of the network devices.
- Yes.

  Indicates that the SR-MGC(E) has established a connection and a link to your LAN.
  Move on to the next step.

STEP 3:How is the state of the 100M lamp of the Ether1 connector?

- Lighting in orange.
  - The SR-MGC(E) connects to a network with transmitting speed of 1Gbps.
- Lighting in green.
  - The SR-MGC(E) connects to a network with transmitting speed of 100Mbps.
  - If you expected transmitting speed of 1Gbps, check the connected network device and the cable between them.
- Not lighting.

- The SR-MGC(E) connects to a network with transmitting speed of 10Mbps.
- If you expected transmitting speed of 1Gbps or 100Mbps, check a connected network device and a cable between them.

STEP 4:Is the Online lamp turned ON?

- No.

- Indicates that the SR-MGC(E) is not set up.

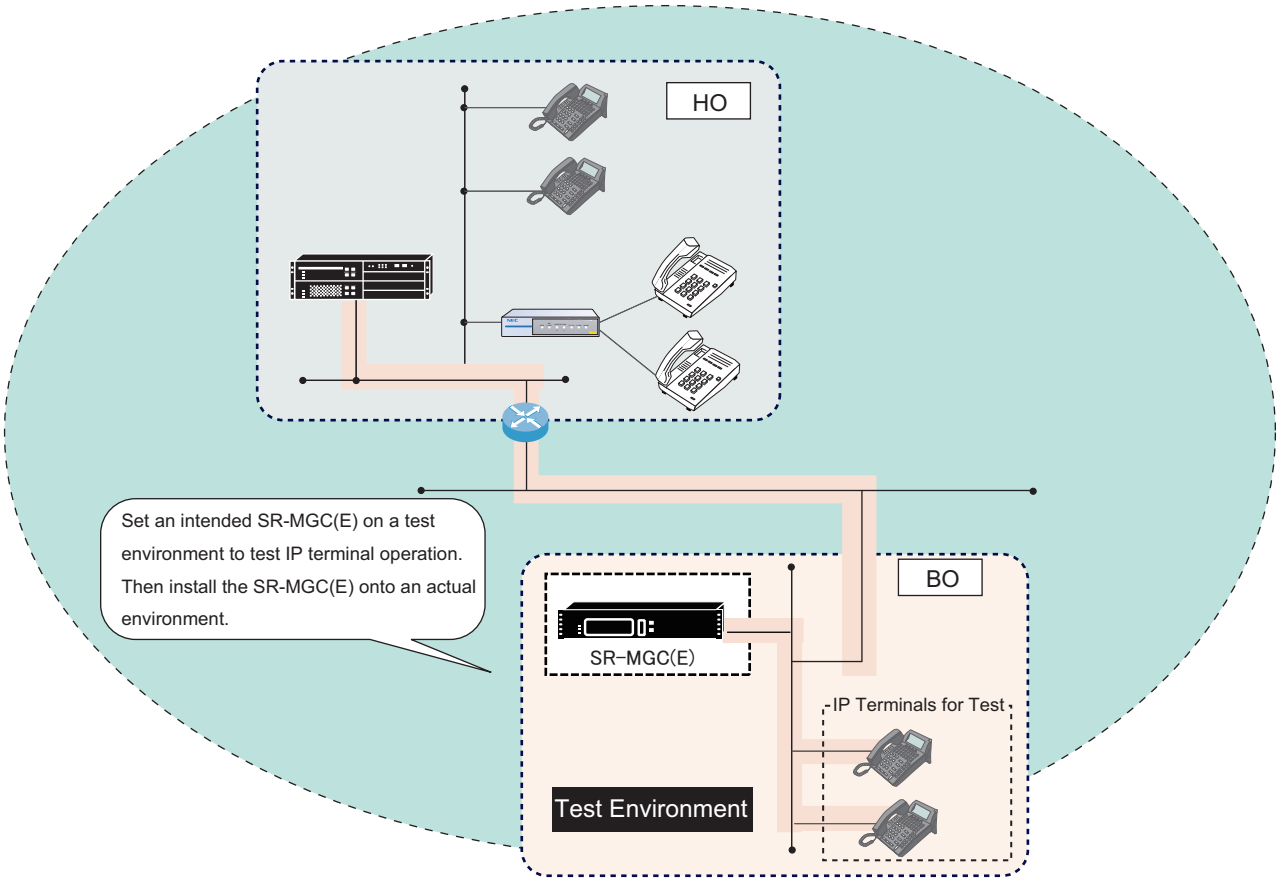
Reread Startup to make sure that all steps in the procedure are performed.

- Yes.

Move on to the next step.

STEP 5:Can you make a call from a station that is controlled by the SR-MGC(E)?

The following is an example of a call test for an SR-MGC(E).



[1] Prepare a test environment which provides a connection to an MGC.

[2] Disconnect the test environment from the MGC; the SR-MGC should start its operation.

[3] Call with an IP terminal for test to another to check connectivity.

Note: Perform the call test in an environment where no other network device is involved.

- If there is a problem with an outgoing/incoming call;

- Do both the SR-MGC(E) and IP terminals for testing belong to the same network?
- Is SR-MGC(E) data set properly?

  Check the assigned data such as IP address by using the AIPA command.

- If there are no problem; a call can be sent and received properly; and the call quality is good.

  End of installation test. Now you can connect the SR-MGC(E) back to the actual operating environment.

(3) Check with a command

You can use the following command to check the state of an SR-MGC(E).

[CMNT: Control of SR-MGC Maintenance Data]

The Update button provides you with states of all SR-MGCs managed by the MGC.

- SR-MGC No.
- STS: Indicates the connection state between the MGC and each SR-MGC.
  * If there is an NG state, perform test (2).
- Connect CNT: Indicates the total value consisting of the number of terminals (IP stations) connected to each SR-MGC, and the number of channels consumed by other devices (MG, Analog MC, VS32 etc.) that are also connected to the SR-MGC.

Note: Every IP station is counted as 1.

Note: As for other devices, every channel consumed by the devices is counted as 1; however, MG (PRI) in proprietary protocol mode is counted on a device basis: 1 MG(PRI) = 1.

- Office Name
- LP Number (only displayed for UMGi system)
- IP Address: SR-MGC address
- Mode: Fixed to 1
- Office Data Copy Status
- Office Data Copy Time

(4) System message check

STEP 1: Perform the DFTD command to display system messages.

STEP 2: Check the system messages to see if any SR-MGC(E) does not have a problem; fix the problem, if necessary.

- 10-F, Connection Failure between the Telephony Server and SR-MGC

7 FAN Replacement



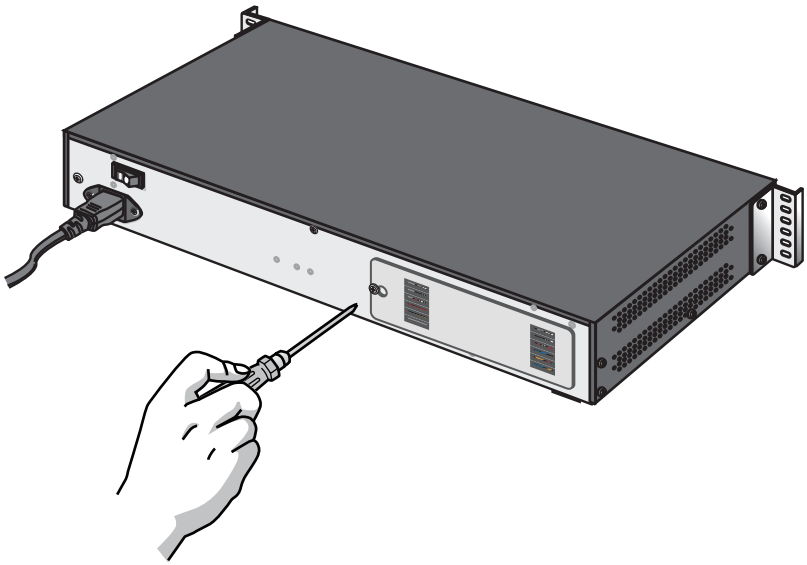
This section describes the procedure to replace FANs inside an SR-MGC(E).

Note: A failure of a cooling FAN raises the temperature inside of an SR-MGC(E), which greatly influences the system. Please replace a cooling FAN every five years to avoid it, even though the cooling FAN still works normally.

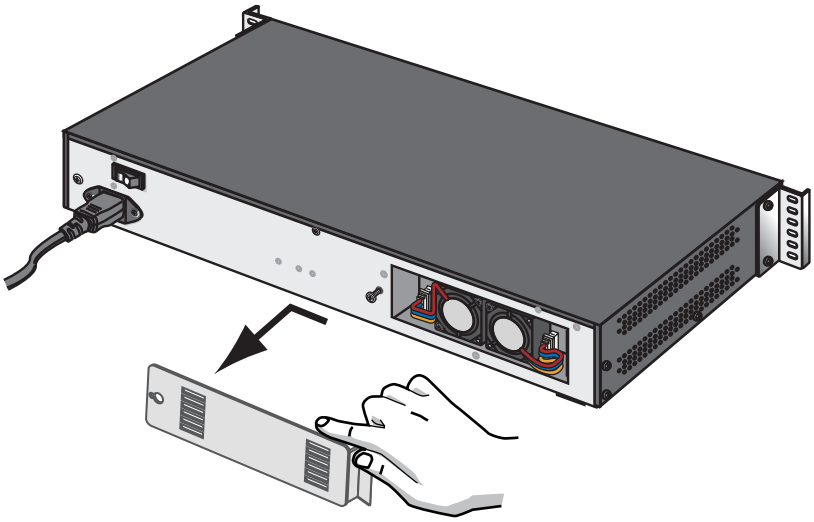
Replacement Procedure

Note: You can replace cooling FANs while the SR-MGC(E) remains on.

STEP 1:Use a Phillips driver to loosen a screw at the left side of the FAN cover on the rear panel of an SR-MGC(E).

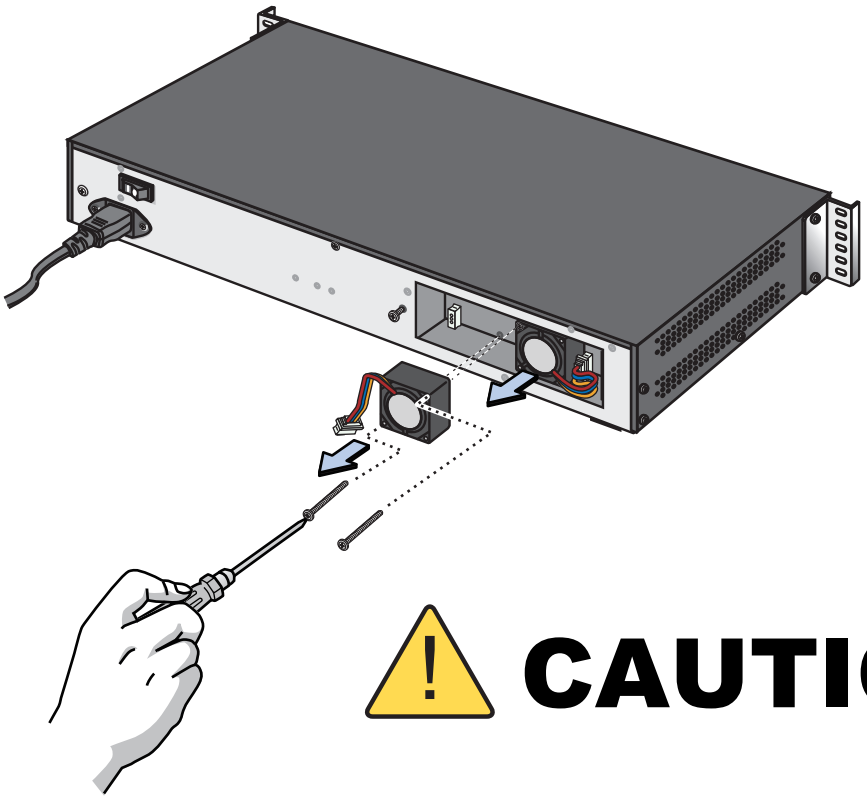


STEP 2:Slide the FAN cover to the left to remove.



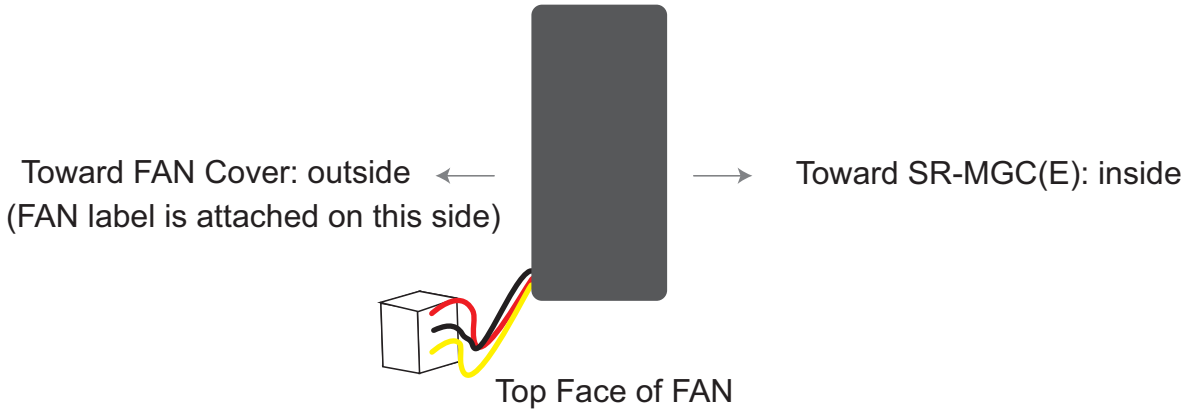
STEP 3:Remove the FAN connector; the screw; the FAN.

Note : If you are replacing FANs while the SR-MGC(E) remains on, removing both FANs may generate heat inside, resulting in system failure. Be sure to replace one by one, but not at the same time.



STEP 4:Attach new FANs: perform the opposite procedure of removing.

Note : When attaching, pay attention to the direction of a FAN. The label on a FAN must face toward the outside of an SR-MGC(E).



Test After Attaching

Check if the replaced FANs work properly.

- If either of FANs does not work properly, check the cabling.

8 Shutdown



This section describes the procedure to shut down an SR-MGC(E).

SR-MGC(E) Shutdown Procedure

For details on hardware information, see Specifications.

The following explains how to shut down the SR-MGC(E) when PCPro can be connected to the SR-MGC(E).

STEP 1: Execute the SINZ command.

Execute the SINZ command using PCPro to operate the followings.

[1] Select the **Use Optional Function** check box.

[2] Select **Shutdown** under **Process Kind Select**.

[3] Click the **Execute** button.

STEP 2: Power off SR-MGC(E).

Make sure that PWR lamp goes out, and then turn off power of the SR-MGC(E).

The following explains how to shut down the SR-MGC(E) when PCPro is not available but Telephony Server Maintenance Menu can be connected to the SR-MGC(E).

STEP 1: Start up Telephony Server Maintenance Menu.

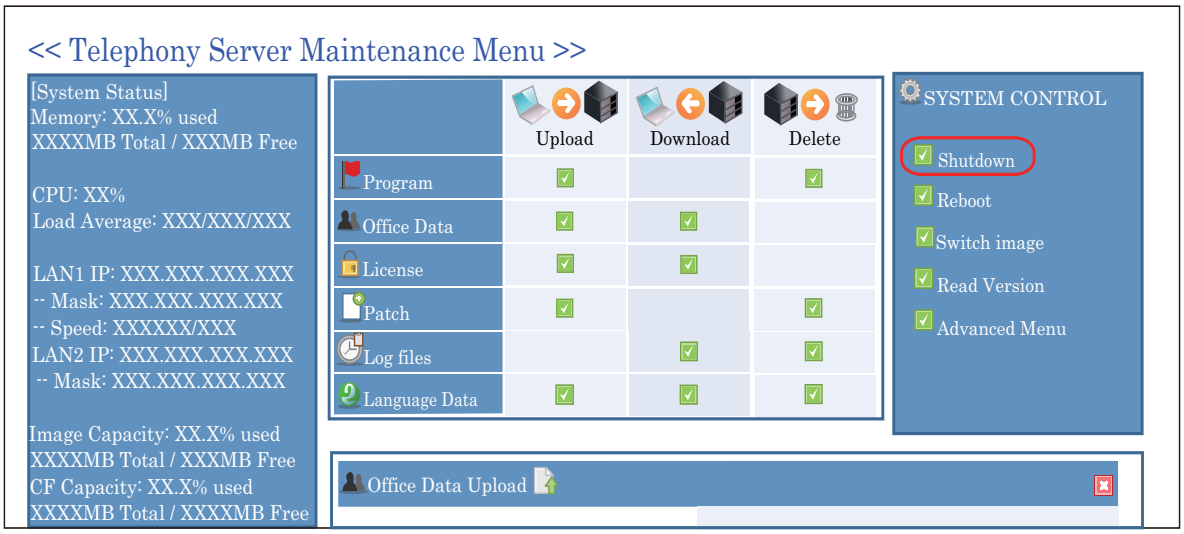
Start the Internet Explorer on a maintenance PC, and then enter “http://xxx.xxx.xxx:9801/” in the address bar.
An IP address of the SR-MGC has to be entered in “xxx”.

STEP 2: Operate Telephony Server Maintenance Menu.

Once the login screen appears, enter a User name and Password, and then click **OK** to log on to Telephony Server Maintenance Menu.

Perform the following procedure after a successful login.

[1] Click the **Shutdown** button under **SYSTEM CONTROL** area.



STEP 1: Power off the SR-MGC(E).

Make sure that PWR lamp goes out, and then turn off the power switch on the rear of the SR-MGC(E).

The following explains how to shut down the SR-MGC(E) when neither PCPro nor Telephony Server Maintenance Menu can be connected to the SR-MGC(E).

STEP 1:Power off the SR-MGC(E)

[1] Press the PWR switch on the front panel of the SR-MGC(E).The SR-MGC(E) automatically shuts down.

[2] Make sure that the PWR lamp goes out after the shutdown, and then turn off the power switch on the rear of SR-MGC(E).

9 Version Upgrade



This section describes the procedure to upgrade an SR-MGC(E) program. Take anti-static measures to work on it.

SR-MGC(E) Version Upgrade Procedure

For details on hardware information, see Specifications.

STEP 1:Turn off an SR-MGC(E).

Perform the SINZ command to shutdown an SR-MGC(E); make sure that the ONLINE lamp goes off; turn off power of the SR-MGC(E).

STEP 2:Unplug a LAN cable from the SR-MGC(E).

Unplug a LAN cable from the LAN1 connector on the front panel of the SR-MGC(E).

STEP 3:Remove an old CF card from the SR-MGC(E).

Remove an existing CF card from the CF slot on the front panel of the SR-MGC(E).

STEP 4:Insert a new CF into the SR-MGC(E).

Insert a CF card supplied for the version upgrade into the CF slot on the front panel of the SR-MGC(E).

STEP 5:Turn on the SR-MGC(E).

Turn on power of the SR-MGC(E), where its operation is the following: booting up the system; reading default office data.

Note : The IP address set in default office data is 172.16.253.0/16.

STEP 6:Check the lamps.

Make sure that lamp states are as follow.

PWR: ON (green)
ONLINE: Slow flash (green)

STEP 7:Connect PCPro (PC) outside your LAN.

Connect a PC with PCPro installed to the SR-MGC(E) through the Ether1 connector on it, so that you can assign office data to the SR-MGC(E).

Note : If connecting them directly, use a LAN cable (crossover cable); if connecting via a HUB, use LAN cables (straight-through cables).

STEP 8:Configure PCPro.

Set data to connect PCPro to the SR-MGC(E).

[PCPro Connection Account Setting]

On the Main Menu, click on System; click on Connection Account Setting; set the following.

Account Name
Connection Type: TCP/IPv4
TCP/IP Setting
IP Address: 172.16.253.0, a default IP address of an SR-MGC(E)
Port Number: 60000

[PC Setting]

A PC with PCPro needs to have an IP address, subnet mask, and default gateway address set as follow. After you finish setting, restart the PC.

IP address: 172.16.253.253
Subnet mask: 255.255.0.0
Default gateway address: 172.16.253.0, a default IP address of an SR-MGC(E)

Now you are supposed to be able to login to the SR-MGC(E).
Perform the following to check the connectivity between the PC and SR-MGC(E).

[1] Open a DOS window; enter `ping 172.16.253.0`; press the Enter key.

[2] Make sure that you get replies from the SR-MGC(E) (172.16.253.0).

[3] Turn on PCPro and login to the SR-MGC(E).

Now you can assign office data.

STEP 9:Set an IP address on the SR-MGC(E).

Set network data including an IP address and Health Check. For the procedure to set an IP address of an SR-MGC(E), see the UNIVERGE SV9500 Data Programming Manual - Business.

STEP 10:Set a time zone on the SR-MGC(E).

Set the same clock and time zone data as an MGC to which the SR-MGC(E) belongs. For the procedure to set clock and time zone data, see the UNIVERGE SV9500 Data Programming Manual - Business.

STEP 11:Set SP configuration data on the SR-MGC(E).

Perform the ASPC command to assign a SIP server ID on the SR-MGC(E); set the following parameter.

[SIP server ID]

• System: System-0 (fixed)

• Input Mode: Standard

• Function: SIP Server

• SIP Server ID: Specify a SIP server ID of the SR-MGC(E), 1 through 127. **Note 5**

Note5: Enter the same value as a SIP server ID assigned on the SR-MGC(E) with the ASSDL/N command.

STEP 12:Backup data on an SR-MGC's CF card.

Backup the data set to the SR-MGC(E) on a CF card: perform the MEM_HDD command; check SR-MGC Data and Data Memory.

STEP 13:Restart the SR-MGC(E).

Restart the SR-MGC(E): perform Office Data Load & System Initialize with the SINZ command.

STEP 14:Connect PCPro (PC) to your LAN.

After setting necessary data on SR-MGC(E), including an IP address matching your LAN, connect the PC to the LAN.

[1] Set an IP address of the PC with PCPro matching your LAN environment: an IP address before changed.

[2] Restart the PC.

[3] Connect the PC to the LAN.

STEP 15:Connect the SR-MGC(E) to the LAN.

Connect the SR-MGC(E) to the LAN.

STEP 16:Check connectivity between PCPro and the SR-MGC(E).

Perform the following to check if the SR-MGC(E) with a new IP address (here we use 172.223.12.45 as an example) properly connects to the LAN.

[1] Open a DOS window; enter `ping 172.223.12.45` (SR-MGC(E) address); press the Enter key.

[2] Make sure that you get replies from the SR-MGC(E) (172.223.12.45, in this case).

[3] Run PCPro and login to the SR-MGC(E).

STEP 17:Test PCPro operation.

Make sure that you can use PCPro properly.

STEP 18:Assign office data for the SR-MGC(E) to the MGC.

With PCPro logging-in to the MGC, perform the CMNT command to assign office data for the SR-MGC(E) belonging to the MGC.
For the procedure to assign the data, see the UNIVERGE SV9500 Data Programming Manual - Business.

STEP 19:Copy office data from the MGC to the SR-MGC(E).

Use the CMNT command to copy office data from MGC to SR-MGC(E).

The parameters in the CMNT command are as follows.

- Office Data Copy & Load: Perform the CMNT command; open the File Control tab. Select Of-

fice Data Copy & Load from PROCESS TYPE to copy the office data.

- Select All button: Click the Select All button to execute office data or program copy to all the SR-MGCs in the network.
- Clear All button: Click the Clear All button to return all the SR-MGC Numbers to the state of No Processing Request.
- Specifying SR-MGC: Specify the target SR-MGC number (0-255), the box of specified SR-MGC number is displayed in yellow. And then click the Execute button.
  To undo specifying SR-MGC, click the box again.

* The meanings of displayed data are as follows.

Indicated Color	Status of SR-MGC
Gray	SR-MGC Number is not accommodated
White	No processing request
Yellow	On standby (Already requested to execute the process)
Blue	Under processing
Green	Succeeded in processing
Red	Failed in processing
Magenta (Pink)	Cannot execute, because SR-MGC is assigned as the Backup node

STEP 20:Initialize the SR-MGC(E).

If office data are successfully copied, the MGC is supposed to request the SR-MGC(E) to initialize. So after finishing copy process, wait for the SR-MGC(E) to be initialized (about five minutes) without any action.

STEP 21:Paste the label.

Paste the label if attached to the CF card onto the main unit of SR-MGC(E).

Note: The location where to paste the label is stated on the pasteboard of the label.

Now you are done. SR-MGC(E) should be upgraded.

[For Reference]

Especially in the case of the following, you definitely need to initialize the SR-MGC(E). **Note 6**

- You performed office data copy against an SR-MGC(E) whose CF card did not have any office data file.
- You performed office data copy after changing MGC data which needed initialization.

Note6: Perform either of the following two.

- Perform the CMNT command; open the Initialize tab.
  KIND:
  - All: Select this button to execute the initialization on all the SR-MGCs in the network.
  - Individual: Initializes only SR-MGCs specified with an SR-MGC number.
    MGC No.: If selecting “Individual”, specify an SR-MGC number (0-255).

- Perform the SINZ command to restart the SR-MGC(E).

SR-MGC(E) Version Downgrade Procedure

The following describes the procedure to return an SR-MGC(E) to the status before upgraded.

SR-MGC(E) Version Downgrade Procedure

STEP 1:Turn off an SR-MGC(E).

Perform the SINZ command to shutdown an SR-MGC(E); make sure that the ONLINE lamp goes off; turn off power of the SR-MGC(E).

STEP 2:Remove a current CF card from the SR-MGC(E).

Remove an CF card now you are using from the CF slot on the front panel of the SR-MGC(E).

STEP 3:Insert an old CF into the SR-MGC(E).

Insert a CF card you had used before upgrading into the CF slot on the front panel of the SR-MGC(E).

STEP 4:Turn on the SR-MGC(E).

Turn on power of the SR-MGC(E).

STEP 5:Check the lamps.

Make sure that lamp states are as follow.

PWR: ON (green)
ONLINE: ON (green)

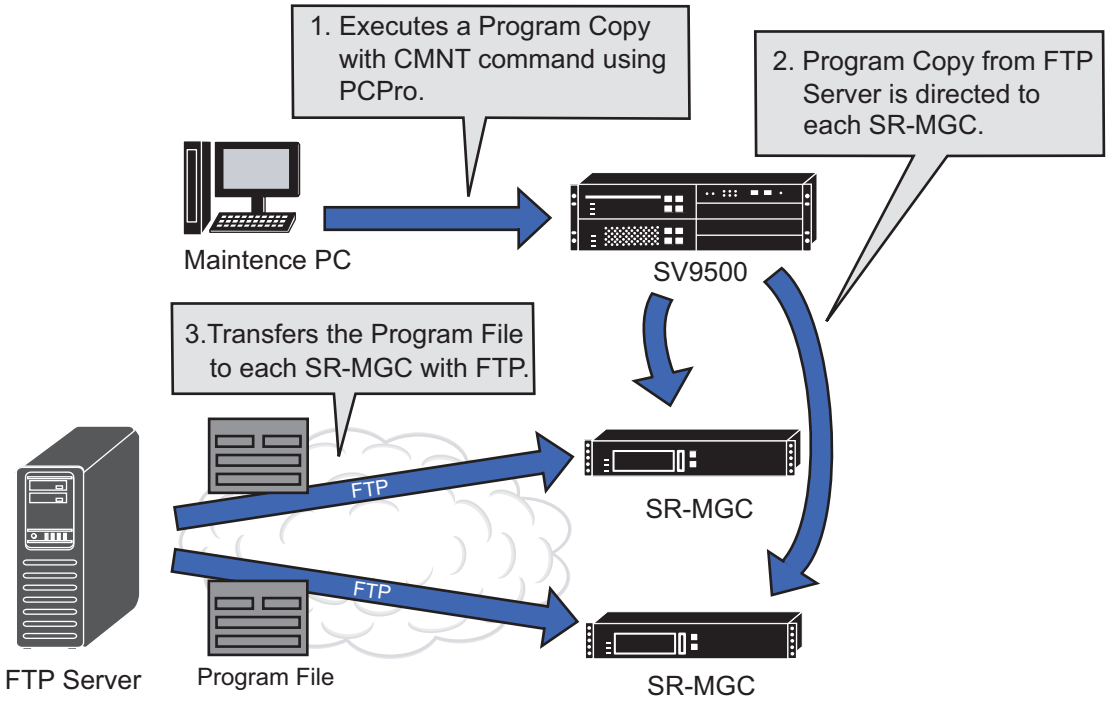
10 Remote Version Upgrade



This section describes the procedure to upgrade an SR-MGC(E) program remotely.
The version of an SR-MGC(E) is upgraded remotely by copying the Program File provided in FTP server to SR-MGC.

Note: Observe the following when performing a Remote Version Upgrade for SR-MGC(E).

- Remote Version Upgrade is only available for Minor Version Upgrade. Major Version Upgrade is not supported.
  Example of Minor Version Upgrade: Upgrading from V1 Issue 1 to V1 Issue 2
- Check whether SR-MGC is in Standby Mode when executing a Remote Version Upgrade. If not, switch SR-MGC from Operation Mode to Standby Mode before executing a Remote Version Upgrade.
- Confirm SIP Server ID before executing a Remote Version Upgrade. SIP Server ID must be reconfigured after executing a Remote Version Upgrade. This reconfiguration is not required for Swtichback.



SR-MGC(E) Remote Version Upgrade Procedure

- For details on hardware information, see Specifications.
- FTP server must be prepared separately from the Telephony Server in order to perform Remote Version Upgrade for SR-MGC(E).

Note: Observe the following when preparing a FTP server for Remote Version Upgrade.

- Import the Program File and the checksum file from the Image folder in the version upgrade DVD “GENERIC SOFTWARE” to the FTP server before performing a Remote Version Upgrade for SR-MGC(E). Store the Program File and the checksum file in a same folder.

File Type	Format of the File Name
Program File	[SC Number]_[Version Number]_[Issue Number]_[Creation Date (in six digits)] Example: 4123_060_0100_120525
Checksum File	[SC Number]_[Version Number]_[Issue Number]_[Creation Date (in six digits)].md5sum Example: 4123_060_0100_120525.md5sum

- A file size of a Program File is more than 2 GB. Make sure that the disk space of the FTP server is enough.
- Multiple FTP servers can be used concurrently.
- IPv6 address cannot be used for an IP address of the FTP server.

STEP 1:Configure PCPro Connection Account Setting.

Set two Connection Accounts on PCPro, one for connecting to SV9500 which SR-MGC is accommodated in and another for connecting to SR-MGC.

Note: Refer to “PCPro Setup Manual” - “Chapter 5 Various Settings of PCPro” - “1. Connection Account Setting” for detailed procedure.

STEP 2:Connect PCPro to SR-MGC.

Connect to SR-MGC using the Connection Account for SR-MGC set in Step1.

STEP 3:Confirm SIP Server ID.

Execute the ASPC command on PCPro to confirm the current SIP Server ID.

Note: Select “System-0” from System in the ASPC command and then click the Read button to confirm the current SIP Server ID. This SIP Server ID will be needed when reconfiguring the ASPC command after a Remote Version Upgrade.

STEP 4:Disconnect PCPro from SR-MGC.

Disconnect the connection with SR-MGC from PCPro.

STEP 5:Connect PCPro to SV9500.

Connect to SV9500 using the Connection Account for SV9500 set in Step1. Refer to “PCPro Setup Manual” - “Chapter 3 Setting Up PCPro” - “Communication Link with Telephony Server” for connecting procedure of PCPro.

STEP 6:Configure the FTP Server Setting.

Configure the FTP Server Setting used for version upgrade with the CMNT command.

[1] Execute the CMNT command in PCPro. Click the FTP Server Setting tab, enter FTP server number used for version upgrade in FTP Server No. and then click the Read button.

Note: Specify the FTP Server No. in the range of 1 to 256.

[2] Set the data for FTP Server used for version upgrade. The parameters for FTP Server Setting are as follows.

FTP Server No. [1 - 256]:

Enter the number to be allocated to the FTP number.

IP Address:

Enter the IP address of FTP server.

Port No. [1 - 65535]:

Enter the port number to connect FTP server (default data: 21).

Location Name [Maximum 20 characters]:

Enter any name as a location name where the FTP server is provided.

File Directory Path [1 to 128 characters]:

Enter the directory path to where the program file and the checksum file are stored within the FTP server. (“0-9”, “A-Z”, “a-z”, “-”, “/”, “_”)

Program File Name [1 to 40 characters]:

Enter the program file name stored in the FTP server (“0-9”, “A-Z”, “a-z”, “-”, “.”, “_”). An example Program file name is 4123_060_XXXX_120525.

User ID [4 to 16 characters]:

Enter the user name to log in to the FTP server. (0-9”, “A-Z”, “a-z”, “-”, “_”)

User Password [4 to 16 characters]:

Enter the user password to log in to the FTP server. (“0-9”, “A-Z”, “a-z”, “-”, “_”)
For personal security, asterisks (*) are displayed on the screen instead of the password.

[3] Click the Set button after filling in each parameter.

STEP 7:Set the Setting tab.

Specify the FTP Server No. in the Setting tab.

[1] Click the Setting tab in the CMNT command, enter the SR-MGC number in SR-MGC No. and then click the Read button.

[2] Specify the FTP server number in FTP Server No. and then click the Set button. The configured data will be outputted in the SR-MGC List.

Note: Do not modify any data other than FTP Server No.

STEP 8:Backup the Data Memory.

Execute the MEM_HDD command to backup the Data Memory.

STEP 9:Execute the Program Copy.

Follow the procedure below to copy the program from the FTP server to SR-MGC.

[1] Execute the CMNT command and open the File Control tab. Select Program Copy from PROCESS TYPE.

[2] Click the target SR-MGC number to perform a Program Copy. A box of the number you have specified will turn to yellow. Click the number again to cancel the designation. When the designation is cancelled, the color of the box turns to white (meaning No Processing Request) again.

[3] Check the box for Appoint Stop Time or Restrict Concurrent Number to specify the time to stop the program copy forcibly or to specify the number of SR-MGCs to allow concurrent copying of a program file.

Note: Observe the following when setting the data for Program Copy.

- Specify the Time to Stop the Program Copy in the range of 0 to 23 for hour and 0 to 59 for minute.
- Set the Time to Stop the Program Copy late enough to complete the Program Copy. It takes about 2 hours in minimum to complete the Program Copy.
- Specify the Concurrent Number for Restrict Concurrent Number in the range of 1 to 255.
- When the Restrict Concurrent Number is disabled, a download of a program file will be executed concurrently to all SR-MGCs that are selected. However, when the FTP server has a limitation on concurrent connection, the download of a program file may fail due to a connection denial of multiple SR-MGCs.

[4] Click the Execute button. A confirmation dialog box asking whether to start the Program Copy appears. Click OK to start the Program Copy.

Note: Click the Cancel button to cancel the Program Copy.

[5] When the Program Copy completes, a dialog box with a message “Executed process was succeeded.” appears.

STEP 10:Execute the Program Switch.

A Program Switch must be executed to apply the program with an upgraded version. Follow the procedure below to switch the program.

[1] Execute the CMNT command and open the File Control tab. Select Program Switch from PROCESS TYPE.

[2] Click the target SR-MGC number to perform a Program Switch. A box of the number you have specified will turn to yellow. Click the number again to cancel the designation. When the designation is cancelled, the color of the box turns to white (meaning

No Processing Request) again.

[3] Click the Execute button. A confirmation dialog box asking whether to start the Program Switch appears. Click OK to start the Program Switch.

[4] When the Program Switch completes, a dialog box with a message “Executed process was succeeded.” appears.

[5] SR-MGCs will restart automatically when the Program Switch is completed. The SR-MGC will boot up with the program file switched to an upgraded version.

STEP 11:Connect PCPro to SR-MGC.

After the SR-MGC boots up, connect to SR-MGC using the Connection Account for SR-MGC set in Step1.

STEP 12:Set SIP Server ID.

Execute the ASPC command on PCPro, select System-0 from System, and then reconfigure SIP Server ID which was confirmed previously in Step3.

STEP 13:Disconnect PCPro from SR-MGC.

Disconnect the connection with SR-MGC from PCPro.

Now you are done. SR-MGC(E) should be upgraded remotely.

SR-MGC(E) Remote Version Downgrade Procedure

The following describes the procedure to return an SR-MGC(E) remotely to the status before upgraded.

SR-MGC(E) Version Remote Downgrade Procedure

STEP 1:Execute the Program Switch.

Execute a Program Switch to restore the program before upgrading the version.
Follow the procedure below to switch the program.

[1] Execute the CMNT command and open the File Control tab. Select Program Switch from PROCESS TYPE.

[2] Click the target SR-MGC number to perform a Program Switch. A box of the number you have specified will turn to yellow. Click the number again to cancel the designation. When the designation is cancelled, the color of the box turns to white (meaning No Processing Request) again.

[3] Click the Execute button. A confirmation dialog box asking whether to start the Program Switch appears. Click OK to start the Program Switch.

[4] When the Program Switch completes, a dialog box with a message “Executed process was succeeded.” appears.

[5] SR-MGCs will restart automatically when the Program Switch is completed. The SR-MGC will boot up with the program file switched to a version before upgrade.

IP Gateway

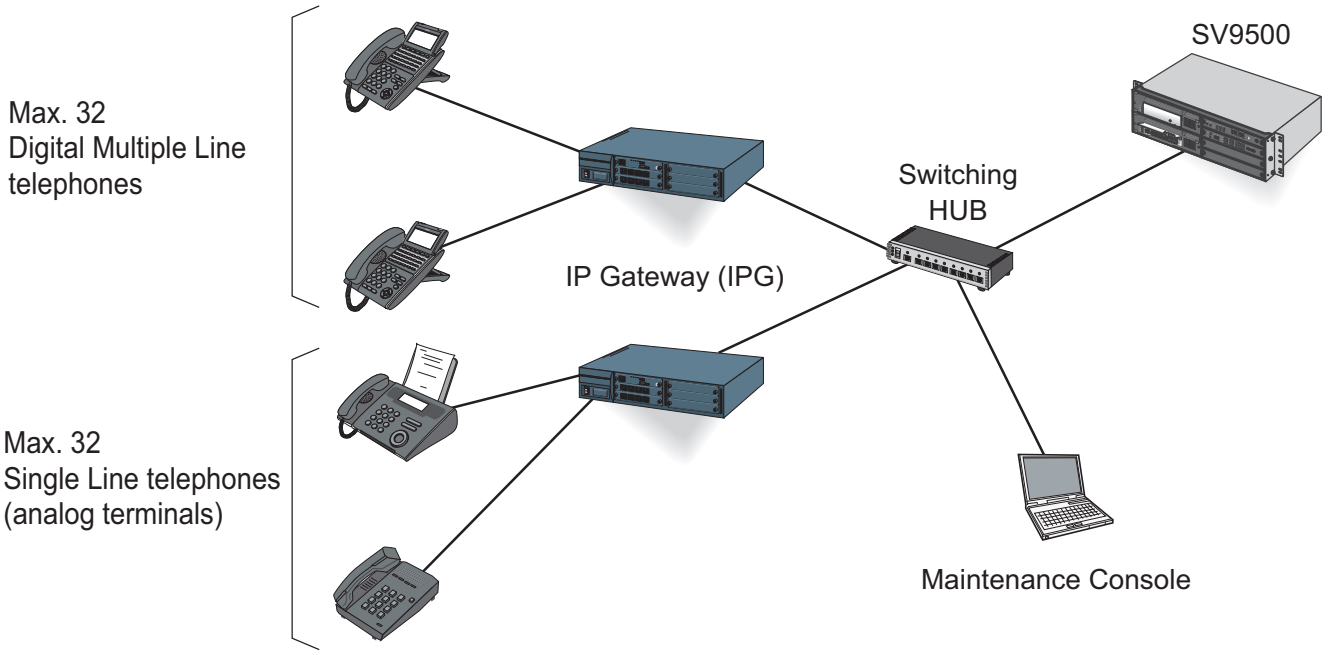
1 General

1.1 What is IP Gateway (IPG)?

Although the same number of cables and Digital Multiple Line telephones/Single Line telephones (analog terminals) have conventionally been needed to connect to SV9500, by using IP Gateway (hereafter called IPG), a maximum of 32 Digital Multiple Line telephones/Single Line telephones could be accommodated to SV9500 via LAN (therefore, the number of the cables for the telephones can be reduced). Also, by using IPG, the system can accommodate Digital Multiple Line telephones/Single Line telephones without the use of PIRs.

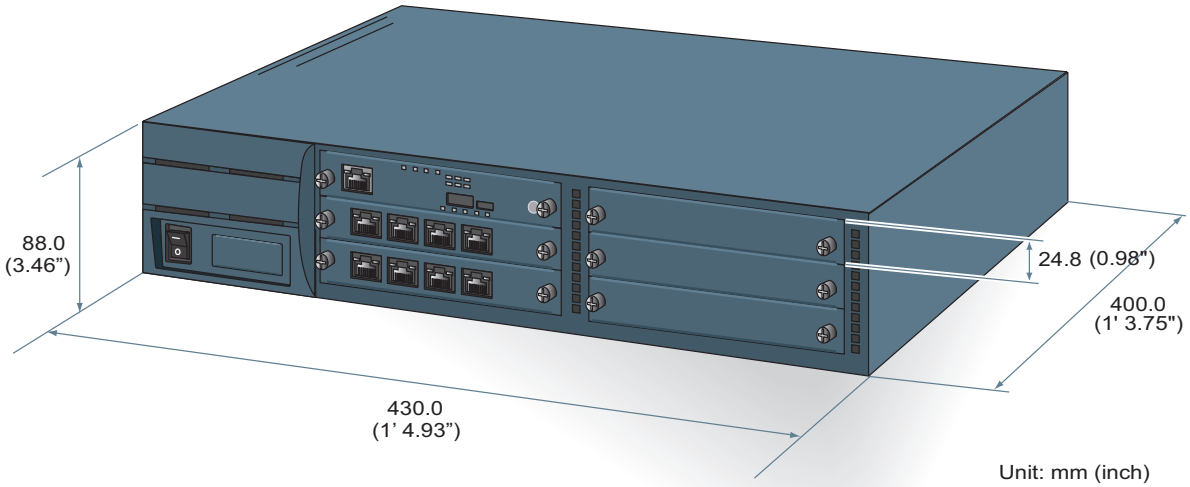
Note: Single Line telephones can be connected to an IPG. Digital Multiple Line telephones and Single Line telephones cannot coexist in a single IPG.

Outline of IPG

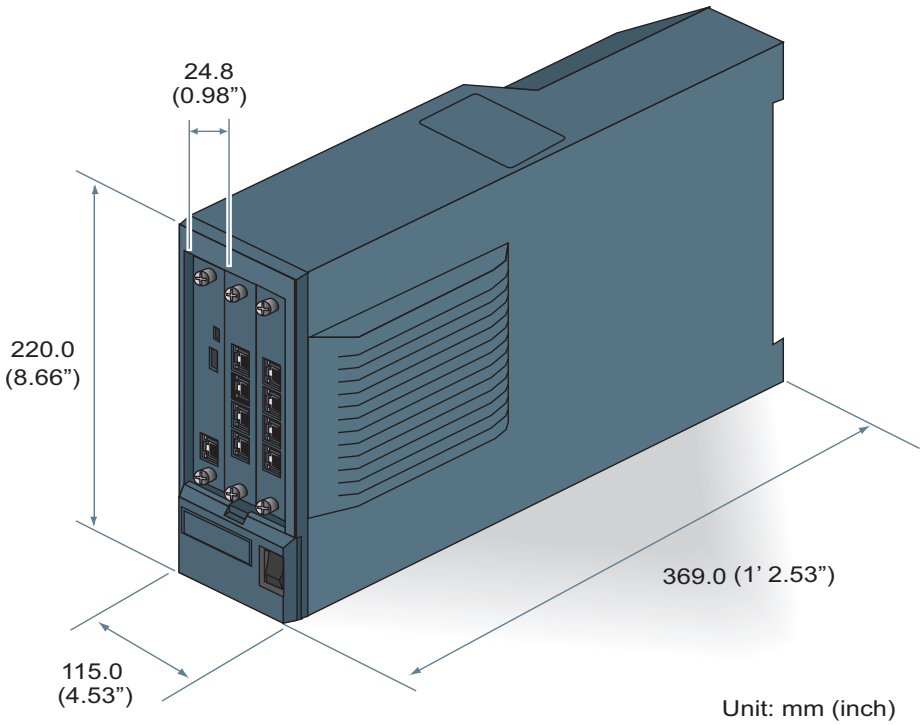


There are two types of IPG chassis: 19” (CHS2U-US) Chassis and 9.5”(CHS2U B-US) Chassis.

Dimensions - 19” (CHS2U-US) Chassis



Dimensions - 9.5” (CHS2U B-US) Chassis



1.2 Conditions

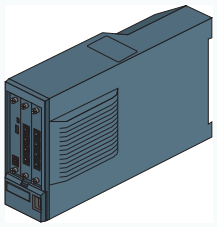
Before starting the installation procedure, the following conditions must be considered.

Service Conditions are described in the following.

Digital: Service Conditions for IPG accommodating Digital Multiple Line telephones (digital terminals)

Analog: Service Conditions for IPG accommodating Single Line telephones (analog terminals)

(1) The following two types of hardware can be connected as IPG. Digital Analog

TYPE	HARDWARE	MAXIMUM OF PORTS	MOUNTING METHOD	FORM IMAGE
1	19” (CHS2U-US) Chassis	32	Wall mount/ Floor Mount/ Stand Mount/ 19-inch rack mount	
2	9.5”(CHS2U B-US) Chassis	32	Wall mount/ Stand Mount	

Note: 19” (CHS2U-US) Chassis and 9.5”(CHS2U B-US) can coexist in a single SV9500.

(2) The following Digital Multiple Line terminals can be accommodated in IPG. Digital

SERIES	TERMINAL/OPTION	NAME
Dterm Series i	Terminal	DTR-8 DTR-8D DTR-16D DTR-32D
	Option	AD(A)-R UNIT WM-R UNIT

SERIES	TERMINAL/OPTION	NAME
DT300 Series Note1	Terminal	DTL-32D DTL-24D DTL-12D DTL-6DE DTL-2E
	Option	8LK-L ADA-L UNIT

- DT300 is supported with the exception of Retro model and ACD. DESI-less (8-LD) terminals are not supported as well.
- All series of DSS Consoles are not supported.
- Button kit for Hotel system is not supported.
- DT300 Series does not work in the Dterm Series i mode.

Note 1: DT330 (12BT) cannot be accommodated in IPG.

(3) Digital Multiple Line terminals accommodated in IPG support the following FEATURE key + digit key operations. Digital

OPERATION	Action	DTERM SERIES i	DT300
FEATURE + 1	Turns microphone on or off.	X	X
FEATURE +2	Adjusts handset receiver volume.	X	X
FEATURE + 3	Selects ringer tone.	X	X
FEATURE + 4	Adjusts transmission/receiving volume.	X	X
FEATURE + 5	Activates hands-free operation.	X	X
FEATURE + 6	Deactivates hands-free operation.	X	X
FEATURE + 7	Turns call indicator lamp on or off for incoming call notification. (If turned off, this lamp will still light to indicate message waiting.)	X	X
FEATURE + 8	Turns Dynamic Dial Pad on or off.	X	X
FEATURE + 9	-	-	-
FEATURE + 0	Turns Side Tone on or off.	X	X
FEATURE + *	-	-	-

X: Available

(4) Availability of Phonebook [P-83], Call History [C-195] and the other Outgoing Call Log functions (Last

Number Call -D [L-65D], etc.) for each terminal is as follows: Digital

FEATURE		DTERM SERIES i	DT300 SERIES
Phonebook			
Phonebook [P-83]	Local Phonebook	N	X
	System Phonebook	N	X
Terminal Phonebook		-	N
Call History			
Call History [C-195]		N	X
Terminal Call History		N	N
Last Number Call -D [L-65D]		X	X

X: Available, N: Not available, -: Not applicable

- See Call History [C-195] and Phonebook [P-83] in Data Programming Manual - Business for detailed conditions.
- When you want to use call history function with DT300 Series, set SFI 238 = 1 (Call History is in service) and SFI 248 = 0 (Terminal Call History is out of service). When you allow both SFI 238 (Call History) and SFI 248 (Terminal Call History) for DT300 Series, Call History cannot be effective.
- Call History can be used in combination with Phonebook on DT300 Series only. The Pbook soft key on Call History screen is only available for DT300 Series ("Pbook" is not displayed on Dterm Series i). The same applies for the Prefix soft key.

(5) Only PB analog terminals and Faxes can be accommodated in IPG. DP terminals are not supported. Analog

(6) Number Display function is not supported. When you accommodate analog terminals with Number Display function into an IPG, disable the function on the terminal side. Analog

1.2.1 Condition and Specification on IPG

(1) Only one IP address of IPG can be identified from SV9500. Each terminal accommodated in IPG does not have its own IP address. Digital Analog

(2) Assign the port number for DRSV2/PROTIMS/RTP with WebPro of IPG side. Use a different port number for each terminal. Digital Analog

(3) Each IPG can accommodate up to 32 terminals. Digital Analog

(4) SV9500 can control up to 4000 units of IP Multiple Line terminal, SIP Multiple Line terminals, and Digital Multiple Line terminals accommodated in IPG. Digital

(5) IPG has no Ground-sensing capability. Analog

(6) Loop Resistance value cannot be changed. Analog

(7) IPG cannot detect a ground fault. Analog

1.2.2 Condition on Hardware

(1) Cable length from IPG to each Digital Multiple Line terminal must be set below 600 meters (1,969 feet) (24 AWG). Digital

(2) Cable length from IPG to each analog terminal must be set below 1,500 meters (4,921 feet) (24 AWG). Maximum loop resistance is 600 Ohms (including internal resistance of telephone set). Analog

(3) Modem connection using IPG is not supported. Analog

1.2.3 Service Limitations

(1) Location Diversity [L-51] is not supported. Digital Analog

(2) Remote Node over IP is not supported. Digital Analog

(3) VoIP Encryption [V-27] is not supported. Digital Analog

(4) Call Log function is not supported, but Fault Log function is supported. Digital Analog

(5) Static NAT is not supported. Digital Analog

(6) RTP warning tone is not supported. Digital Analog

(7) Voice Loop Back is not supported. Digital Analog

(8) This feature is not available in ACD/OAI/Hotel system with the exception of North America. For service conditions for each Hotel feature, refer to Data Programming Manual - Hotel. Digital Analog

(9) Call Retention function is not supported. However, if a fault occurs during a conversation, a call is retained for the following duration until the Health Check Timeout occurs unless any event which becomes a cause of call disconnection occurs. Digital Analog

Equipment Type	Maximum Time Duration until Health Check Timeout Occurs
IPG for Digital terminal	6 minutes 30 seconds
IPG for Analog terminal	2 minutes 30 seconds

A call can be retained in the following cases until the Health Check Timeout occurs. While a call is retained, its status can also be changed (e.g. a call can be held, forwarded, etc.)

- SV9500 Mode Change by LAN Cable Link Down at ACT-side CPU. **Note1**, **Note2**
- SV9500 Mode Change Manually by CMOD Command (TP Only).

Note 1: If communications are failed also between SP and ACT-side TP when IPG for Digital Terminal is registering to SP, a call will not be retained. SV9500 orders the counter party to release a call by Related-call Release.

Note 2: If communications are failed also between SP and ACT-side TP when IPG for Analog terminal is registering to SP, a call will be retained; however, the call status cannot be changed.

(10) PAD control with the commands AIVCL/AIVCN/APAD/APADN is not supported. Perform PAD settings with PAD/EC Control IP/PHC Support. Digital Analog

(11) Internal Zone Paging [I-21] is not supported. Digital

(12) IPG supports Multiple Time Zone [M-114]. The date and time can be changed on an IPG basis. The different date and time information cannot be set within the same IPG. Digital

(13) Multilingual Display [M-117] is not supported. Digital

(14) Limitations regarding login are as follows: Digital

- Log-in authentication with key operation on terminals is not supported. Station number and password must be set on the WebPro of IPG for log-in authentication of terminals accommodated in IPG.
- MAC authentication is not supported.
- When User ID and password are set on the WebPro of IPG side, station number registered on SV9500 side must be used. MAC Address Registration Password which can be set with the ADTM command cannot be used.

(15) Remote Access mode (stopping of Health Check) set by configuration menu on terminals is not supported. Digital

(16) Operations of the local menus on Dterm Series i are not available. Digital

(17) Multilingual display on the menu of terminals is not supported. Digital

(18) Desktop terminal user login override is not possible in the following cases: Digital

- When the user attempts to log in to an IP station directly connected with SV9500 by using a station number that conflicts with a currently logged-in user on a digital station indirectly connected to SV9500 through IPG
- When the user attempts to log in to a digital station indirectly connected to SV9500 through IPG by using a station number that conflicts with a currently logged-in user on another via-IPG digital station or an SV9500-directly-connected IP station

When the override is unsuccessful, the user receives the message “Double Assignment” on the Desktop terminal LCD, and the system attempts to authenticate the user again after 90 seconds. This process is repeated until the conflict is resolved. To eliminate the conflict (login ID overlap), reassign another sta-

tion number to the via-IPG digital station by using WebPro.

(19) IPG accommodating Digital Multiple Line telephones supports the CTSP (Control of Terminal Registration) command. Digital

(20) Analog terminals log in to SV9500 with MAC authentication. Analog

(21) For fax communications, only data transmission as voice data (G.711) is available. T.38 fax relay is not available. Analog

(22) IPG does not support maintenance functions equivalent to Analog 2MC, such as trouble information and statistics information, etc. Analog

(23) IPG does not support the program and system data download function equivalent to Analog 2MC. Analog

(24) Caller ID service is not supported. Analog

(25) Message Waiting Lamp is available on the terminals accommodated in IPG. MW Lamp flashes at intervals of 500 milliseconds (500 msec ON - 500 msec OFF). Analog

(26) Howler Tone is generated when a terminal remains off-hook after a call is completed or when a terminal is off-hook and digits are not dialed in a programmed time. IPG can send a Howler Tone to analog terminals based on instructions from SV9500. Howler Tone sending may repeat every 100 seconds. Analog

(27) As for IPG analog terminals under the control of SR-MGC, when SV9500 recovers and the SR-MGC switches an idle channel back to SV9500, busy channels also switch back to SV9500 due to the detection of Health Check NG even if Automatic Switchback is enabled (ASYDL SYS1 INDEX852 Bit5=1). Analog

(28) IPG accommodating analog terminals does not support the CTSP (Control of Terminal Registration) command. IPG accommodating analog terminals is controlled by SV9500 TP-ACT. When ACT/STBY is changed, the registration destination of the IPG is also changed. Analog

(29) The maximum number of IPG terminals enabling concurrent calls is four. Analog

(30) If a communication failure occurs between IPG and SV9500, IPG operates as shown in the table below when IPG switches its registration destination from SV9500 to an SR-MGC or vice versa when Survivable Remote MGC [S-141] is in service. For more details about Survivable Remote MGC [S-141], refer to Survivable Remote MGC [S-141] in Data Programming Manual - Business. Digital Analog

Note: The table applies when an opposite terminal is a station, and the station does not stop sending or receiving RTP packets nor abandon an originating or terminating call.

Note: If forcible switchback (ASYDL SYS1 INDEX847 Bits 0-3) is enabled, an SR-MGC forcibly switches IPG back to SV9500 after the predetermined period of time expires regardless of the following.

(a) If a communication failure occurs between IPG and SV9500 while SV9500 is operating (Switch from SV9500 to an SR-MGC):

Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
IPG for Digital terminal	After one to two minutes, the call is disconnected. IPG autonomously resets and registers itself to SR-MGC after two to three minutes.	After ringback tone lasts for two to three minutes, IPG autonomously resets and registers itself to SR-MGC (DT connection if a station is kept in off-hook status).	After ringing tone lasts for two to three minutes, IPG autonomously resets itself to register to an SR-MGC.
IPG for Analog terminal Note3	After two to three minutes, the call is disconnected by IPG autonomous reset. Then IPG registers itself to SR-MGC when a station goes on-hook.	After ringback tone lasts for two to three minutes, IPG autonomously resets itself and when a station goes on-hook, IPG registers itself to SR-MGC.	After ringing tone lasts for two to three minutes, IPG autonomously resets itself to register to an SR-MGC.

Note 3: For IPG for Analog terminal, re-registration is executed by IPG autonomous reset after two to three minutes regardless of the time set for forcible switchback (ASYDL SYS1 INDEX847 Bits 0-3).

(b) If the system recovers from a communication failure between IPG and SV9500 (Switchback from SR-MGC to SV9500) with the following system data set:

ASYDL SYS1 INDEX 852 Bit 5=1: Automatic Switchback

Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
IPG for Digital terminal	The call is retained until the time set for Automatic Switchback (5-minute times 1 to 14) elapses. Then IPG autonomously resets itself and when a station goes on-hook, IPG registers itself to SV9500.	After ringback tone lasts for the time set for Automatic Switchback (5-minute times 1 to 14), IPG autonomously resets and registers itself to SV9500 (DT connection if a station is kept in off-hook status).	After ringing tone lasts for the time set for Automatic Switchback (5-minute times 1 to 14), IPG autonomously resets itself to register to an SV9500.
IPG for Analog terminal Note4	After two to three minutes, the call is disconnected by IPG autonomous reset. Then IPG registers itself to SV9500 when a station goes on-hook.	After ringback tone lasts for two to three minutes, IPG autonomously resets itself and when a station goes on-hook, IPG registers itself to SV9500.	After ringing tone lasts for two to three minutes, IPG autonomously resets itself to register to an SV9500.

Note 4: For IPG for Analog terminal, re-registration is executed by IPG autonomous reset after two to three minutes regardless of the time set for forcible switchback (ASYDL SYS1 INDEX847 Bits 0-3).

ASYDL SYS1 INDEX 852 Bit 5=0: Manual Switchback

Equipment State / Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
IPG for Digital terminal	Execute "To Operating mode" in the <Change Operating Tab> in the CMNT command to register IPG to SV9500.	Execute "To Operating mode" in the <Change Operating Tab> in the CMNT command to register IPG to SV9500.	Execute "To Operating mode" in the <Change Operating Tab> in the CMNT command to register IPG to SV9500.
IPG for Analog terminal	Execute "To Operating mode" in the <Change Operating Tab> in the CMNT command to register IPG to SV9500.	Execute "To Operating mode" in the <Change Operating Tab> in the CMNT command to register IPG to SV9500.	Execute "To Operating mode" in the <Change Operating Tab> in the CMNT command to register IPG to SV9500.

1.2.4 Limitations on Voice and Tone

(1) IPG can only generate tones in increments of 100 milliseconds. The following table shows the tone duration for the terminals accommodated in IPG. Digital Analog

Note: Tones for terminals accommodated in IPG may differ from the tones for terminals directly accommodated in SV9500.

CH	TONE	FREQUENCY [Hz]	TONE DURATION	LEVEL [dBm]
0	DT	350+440	continuous	-14
1	SPDT	350+440	200ms 100ms ON OFF	-14
2	RBT	440+480	1000ms 3000ms ON OFF	-19
3	CWT	480+620	continuous	-19
4	BT	480+620	500ms 500ms ON OFF	-24
5	ROT	480+620	300ms 200ms ON OFF	-24
6	SST	440	continuous	-16
7	SDT	350+440	continuous	-14
8	-	-	-	-
9	SDTT	440	100ms-100ms-100ms- 100ms-100ms-100ms- 100ms-1300ms On -0ff -On -0ff -On - 0ff -On -0ff	-16

CH	TONE	FREQUENCY [Hz]	TONE DURATION	LEVEL [dBm]
10	CWRBT	440+480 440	800ms ON 200ms ON 3000ms ON	-19 -16
11	CASRHT	440	100m 100ms ON OFF	-16
12	-	-	-	-
13	CAST	480	continuous	-16
14	-	-	-	-
15	NT	-	-	-

(2) Music on Hold (MOH) is provided by each IPG (Internal MOH). You cannot set MOH per terminal. One of the following options can be selected per IPG. However, when External MOH source is set, External MOH is provided. Digital Analog

1. La Chanson de L'Adieu (Frédéric François Chopin)
2. Trout Quintet (Franz Peter Schubert)
3. Plaisir d'Amou (Jean Paul Egide Martini)
4. Menuet (Johann Sebastian Bach)

Note: Music on Hold (MOH) may be played in the middle of it.

(3) Downloading the Music on Hold is not supported. Digital

(4) Digital terminals accommodated in IPG cannot hear DTMF sent from the counter terminal (the received DTMF can be passed through). Terminals accommodated in IPG can send DTMF to the counter terminal. Digital

(5) Synchronous ring is not supported. Analog

(6) LCA supports limited ringer patterns, refer to following. Analog

Note: Distinctive ringing, other ringer patterns are different from the default SV9500 pattern.

(a) System side (SV9500) can control IPG ringing type.

- Trunk
- Station
- Recall

In above cases, IPG can support only the following ringing patterns. Note that these ringing patterns are ones the LCA Package supports.

- 2 sec (ON) / 4 sec (OFF)
- 1 sec (ON) / 2 sec (OFF)

- 1 sec (ON) / 3 sec (OFF)
- 1 sec (ON) / 4 sec (OFF)

When SV9500 assignment sets ringing pattern other than the above four patterns, IPG rings using "1 sec (ON) / 2 sec (OFF)". But, when SV9500 assignment sets "1 sec (ON) / 1 sec (OFF)", it rings by "0.5 sec (ON) / 0.5 sec (OFF)".

(b) System side (SV9500) doesn't control IPG "FIXED" ringer patterns shown below.

	IPG
FAX	1 sec (ON) / 2 sec (OFF)
Wake-up	0.5 sec (ON) / 0.5 sec (OFF)
Dial-In	Constant (ON)
Tie Line	0.5 sec (ON) / 0.5 sec (OFF)

(7) Burst ring pattern cannot be set. Analog

(8) 1-digit Dial HOOKING is not supported. Analog

(9) Analog terminals accommodated in IPG can play back the DTMF tones received from the counter terminals. Analog

1.2.5 Limitations on IP

(1) DHCP (including backup of addresses) is not supported. Digital Analog

(2) DNS is not supported. Digital Analog

(3) Firmware Auto Update is not supported.

(4) VLAN is supported. Digital Analog

(5) ToS setting is supported. Digital Analog

(6) IPv6 is not supported. Digital Analog

(7) The bandwidth required for carrying control signal is 5 kbps per unit for IPG accommodating digital terminals, and 20 kbps per unit for IPG accommodating analog terminals. Digital Analog

1.2.6 Conditions on Maintenance

(1) To check the registration status of terminals accommodated in IPG, use the DISD command. Also, the DISD command is used to send Soft Reset packets to the terminals registered to IPG. For details on the DISD command, see SV9500 Operations and Maintenance Manual. Digital Analog

(2) When a failure occurs in IPG, any of the following system messages appears. For details on each system

message, see SV9500 Operations and Maintenance Manual. Digital Analog

- 33-R: IP PKG Warning
- 33-S: IP PKG Failure
- 33-T: IP PKG Restore]

1.2.7 Conditions on Data Setting

(1) The UMGi/RNIP system cannot use the IPG. Digital Analog

(2) We recommend that station numbers of terminals accommodated in IPG should be assigned to sequential numbered LENS. Digital Analog

(3) As each IPG is connected to the system, 32 ports of system capacity license and client license are consumed regardless of office data settings. Digital Analog

(4) No office data assignment (on SV9500) is required for IPG itself. Digital Analog

(5) The data settings on IPG cannot be backed up. Digital Analog

(6) The settings of ASYD, SYS3, Indexes 0 to 3 and Indexes 7 to 9 are not supported. Use their defaults (00 Hex). Digital Analog

(7) To enable IPG for Digital Terminal, assign the system data, ASYDL/ASYDN, System Data 1, Index 680, Bit 0 = 1 (IPG for Digital Terminal). Digital

(8) When registering Multiple Line terminal accommodated in IPG, assign “KIND=DtermIP (DtermIP, IP Enabled Dterm)” or “KIND=SIP MultiLine TEL” with AISTL Command. Digital

(9) There is no limitation for IPG on mounting position (LENS) of Multiple Line terminals accommodated in IPG. However, there may be a group which cannot be set up within the same IPG because some services are available under conditions of to be used within the same MG. These conditions take over the existing service conditions such as “available within same MG” or “available within same LP” for Multiple Line Terminals. Refer to the descriptions on existing service conditions for detailed information. Digital

(10) To enable IPG for Analog terminal, assign the system data, ASYDL/ASYDN, System Data 1, Index 680, Bit 1 = 1 (IPG for Analog terminal). Analog

(11) Use the AISTL command to set station data of analog terminals accommodated in IPG as Analog MC. Analog

- TEC=2/3
- KIND=Analog MC
- MC-ID=Virtual MAC address

- MC-CH=0 (“MC-CH=1” is not used)

(12) There is no limitation for IPG on mounting position (LENS) of analog terminals accommodated in IPG. However, there may be a group which cannot be set up within the same IPG because some services are available under conditions of to be used within the same MG. These conditions take over the existing service conditions such as “available within same MG” or “available within same LP” for Analog MC. Refer to the descriptions on existing service conditions for detailed information. Analog

(13) When IPG detects a fax tone during a conversation, IPG changes the codec or payload for fax mode. A timer is provided to prevent the mode from accidently being changed. The timer can be programmed through “Fax error detection timer” on Page 9 - IPG Analog Station Setup. After a predetermined period of time has elapsed since a call was initiated, the mode is not changed even if a fax tone is detected. Analog

1.2.8 Other Conditions

(1) When a terminal accommodated in IPG receives a Voice Call [V-2], a single tone is provided to the terminal (usually, the number of tones which is provided is three). Digital

(2) Follow the steps below to replace a terminal with one of the different series. Terminal information of the existing terminal is cleared. Digital

Step1: Unplug the cable of the existing terminal.

Step2: Wait for more than five seconds.

Step3: Plug the cable of the new terminal.

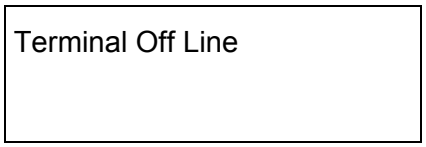
(3) When the status that cable between IPG and a digital terminal is disconnected continues for more than five seconds, IPG stops sending back the response to SV9500 Health Checks for the terminal. Digital

(4) When a fault occurs on lines between IPG and Digital Multiple Line terminals, no fault notification (equivalent to –48 V overcurrent) is transmitted. Digital

(5) IPG provides time-of-day information in the range January 1, 2009 - December 31, 2095. Therefore, if a time is set into SV9500 beyond this range, the time is not reflected in the terminals accommodated in IPG. Digital

(6) When terminals accommodated in IPG is placed into make-busy state by the MBST command, the ter-

minals displays the following on its LCD. Digital



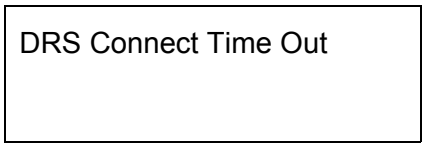
(7) The same station data needs to be assigned on both SV9500 and IPG. When station data is registered on IPG-side, but the data is not assigned on SV9500, the terminals displays the following on its LCD. Digital



(8) The terminals accommodated in IPG can display the same error indication as IP terminals. Digital

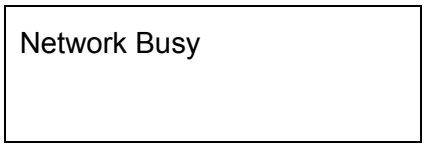
[Example]

- When a timeout occurs after the terminals attempt to connect to DRS, the following is displayed.

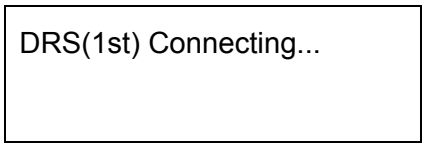


Note: The above error message appears repeatedly, check the current data programming on IPG (Page 5 - IPG DRS Server Setup) or office data setting on SV9500.

- When terminals cannot communicate with the system due to a network failure, the following is displayed.



- IPG retries to connect to SV9500 after displaying the above. When the terminals is trying to connect to DRS, the following is displayed.



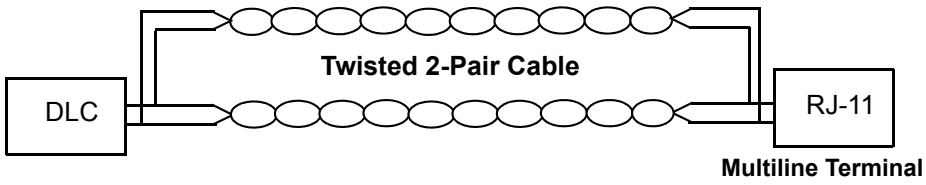
IP terminals display “Exit” in the bottom of LCD and they can attempt to perform DRS registration again by the soft key operation. However, “Exit” is not displayed on the LCD of the terminals accommodated in IPG because they perform DRS registration automatically without any key operation.

1.3 System Requirements and Specifications

1.3.1 Cabling

This section provides cabling requirements and specifications for multiline terminals connected to the IPG. The figure below is a diagram of the chassis connected with each of the multiline terminals and single line telephones by a separate twisted 1-pair cable or 2-pair cable (only for multiline terminals).

Connecting the DLC (CD-8DLCA) Using Twisted 2-Pair Cable



Refer to the following tables for cabling requirements and specifications.

- DT300 Series Loop Resistance and Cable Length
- Cable Connection Between the Analog Port and the Single Line Equipment

DT300 Series Loop Resistance and Cable Length

Terminal or Adapter	By Twisted 1-Pair Cable (without AC Adapter) 24 AWG
DTL-2E-1 (BK) TEL	1,969 ft (600m)
DTL-6DE-1 (BK) TEL	1,969 ft (600m)
DTL-12PA-1 (BK) TEL	1,969 ft (600m)
DTL-12D-1 (BK) TEL DTL-12D-1 (WH) TEL	1,969 ft (600m)
DTL-24D-1(BK) TEL DTL-24D-1(WH) TEL	1,969 ft (600m)
DTL-32D-1 (BK) TEL DTL-32D-1 (WH) TEL	1,969 ft (600m)

Cable Connection Between the Analog Port and the Single Line Equipment

Connected Equipment	Cable	Maximum Feet from Connected Equipment to Telephone
ADA-L UNIT	Twisted Pair	9.5 ft (2.89m)
LCA	Twisted Pair	600 ohms (Including the SLT)

Note: Mixing digital and analog ports through the same 25-pair cable runs is not recommended.

1.3.2 Power Requirements

A dedicated 100 VAC / 120 VAC / 220 VAC / 230 – 240 VAC 50 Hz / 60 Hz circuit located within seven feet of the chassis is required. A separate dedicated outlet for each chassis should be installed.

Note: Double Pole/Neutral Fusing (power supply fuses are located at both the L and N side).

1.3.2.1 Power Supply Specifications

[AC Power Supply]

- Dedicated 15 Amp circuit
- Power Requirements: 120 VAC @ 15 A Controlling/Base Chassis
- Power Consumption: Base Chassis = 263 VA
- Input Voltage: 90 VAC to 264 VAC (Rated Voltage: 100 VAC / 120 VAC / 220 VAC – 240 VAC)
- Frequency: 47 Hz – 63 Hz (Rated frequency: 50/60 Hz)
- Phase and Wire: Single Phase, 2 Line + PE Type
- Grounding Requirements: No. 14 AWG copper wire
- Feeding Voltage: Dterm/OPX/DID: -48 V, SLT: 25 mA / -28 V

[With input voltage of 120VAC and with full load conditions]

- Output Power: Base chassis=130 W
- AC Input I: Base chassis = 2.19 A
- VA @ 120V: Base chassis = 263 VA
- KWh @ AC Input I x 120V/1000: Base chassis = 0.263 KWh
- BTU (KWh) x 3413): Base Chassis = 898BTU

Note: Double Pole/Neutral Fusing (power supply fuses are located at both the L and N side).

1.3.2.2 Power Supply Consumption

Power Consumption

Chassis	Maximum RMS Current	Watts Used (Idle)	Watts Used (Maximum)
Basic Chassis – CD-CP00-US IPG Chassis	2.19 A	96	130

1.3.2.3 Environmental Conditions

[Chassis, Telephones, ADA]

- Operational Temperature Range: +32°F to +104°F (0°C to 40°C)
- Storage Temperature Range: -4°F to +140°F (-20°C to 60°C)

- Operational Humidity Range: 20 to 90% RH (non-condensing)
- Storage Humidity Range: 10 to 90% RH

[Blades – PZ-ME50-US IPG Daughter Board, CD-8DLCA with PZ-8DLCB Daughter Board]

- Operational Temperature Range: +32°F to +104°F (0°C to 40°C)
- Storage Temperature Range: -4°F to +140°F (-20°C to 60°C)
- Operational Humidity Range: 20 to 90% RH (non-condensing)
- Storage Humidity Range: 10 to 90% RH

[Blades – CD-8LCA with PZ-8LCE Daughter Board]

- Operational Temperature Range: +32°F to +104°F (0°C to 40°C)
- Storage Temperature Range: -4°F to +140°F (-20°C to 60°C)
- Operational Humidity Range: 20 to 90% RH (non-condensing)
- Storage Humidity Range: 20 to 90% RH

[IPG Power Supply – MPS7101]

- Operational Temperature Range: +32°F to +104°F (0°C to +40°C)
- Storage Temperature Range: -4°F to 167°F (-20°C to 75°C)
- Operational Humidity Range: 20 to 90% RH (non-condensing)
- Storage Humidity Range: 10 to 95% RH

1.3.2.4 Transmission and Control Specifications

[Transmission]

- Data Length:

  From multiline terminal to CD-8DLCA: 23 bits

  From CD-8DLCA to multiline terminal: 23 bits
- Data Transmission Rates:

  Between CD-8DLCA and multiline terminal: 184K bps (voice and signaling)
- Scanning Time for each multiline terminal: 32 ms.

[Control]

Indicates the speed or capacity:

- Control: Stored program with distributed processing
- Central Processor: 32-bit microprocessor
- Clock: 266 MHz
- Interface Blade: 8- or 16-bit microprocessor
- Optional Blades: 16- or 32-bit microprocessor
- Multiline Terminal (TDM): 8-bit microprocessor

[Series i Terminals]

- The voltage and current for the Dterm Series i multiline terminals are listed below:

  Voltage: -11 to -48 Vdc

  Maximum Current: 250 mA

  Note: Acoustical characteristics meet Electronic Industry Association (EIA) standard proposal SP-1286 and standard EIA RS-470.

[Dialing Specifications]

(1) Dial Pulse Address Signaling

Dial Pulse Address Signaling uses dial pulses (regular momentary interruptions) to signal the equipment. The following Dial Pulse specifications are used in the IMG.

- Pulse Rate: 10 ± 0.5 pps/20 ± 1.0 pps
- Percent Break: 60 ± 1.5%
- Interdigit Interval: 0 pps/20 pps 770ms. to 830ms.

(2) Dual-Tone Multifrequency (DTMF) Address Signaling

DTMF signaling includes push button or Touchtone dialing. When a key on a telephone is pushed, two tones (one high frequency and one low frequency) are provided. In the IMG, the following DTMF specifications are used.

- Frequencies

  Two sinusoidal frequencies are provided, one from the high frequency group and one from the low frequency group.

- Frequency Deviation: Less than ±1.5%
- Signal Level:

  Nominal level per frequency: -6 to -4 dBm

  Minimum level per frequency

  Low Group: -10 dBm

  High Group: -8 dBm

  Maximum level per frequency: 0 dBm

- Rise Time: Within 5ms.
- Duration of Dual Frequency Signal:

  110 ms. default/60ms. minimum

  Interdigital Time: 140ms. default/45ms. minimum

Nominal **Low** Group Frequencies (Hz) \ Nominal **High** Group Frequencies (Hz)	**1209**	**1336**	**1477**
697	1	2	3
770	4	5	6
852	7	8	9
941	Q	0	#

(3) Music Source for Music on Hold via Chassis

- Auxiliary Input: 0.6V PPS Signal Level
- Input Impedance: 600 Ω

1.3.2.5 Battery Backup

IPG has battery backup functions for system backup and for memory backup.

(1) System Backup (Optional)

During a power failure, the CHS2U-US can be backed up using the CHS2U BATT MTG KIT for a back-up time of 10 minutes or one of the CHS LARGE BATT SETs for a backup time ranging from 45 to 180 minutes.

(2) Memory Backup

The CD-CP00-US IPG Blade battery retains the Clock/Calender and Last Number Redial (LNR) buffers for each station when the CD-CP00-US IPG Blade encounters a power loss. With a fully charged battery, the settings are retained for about three years. The System Programmed memory (Customer Database) is stored in non-volatile Memory and can be erased only by a First Initialization. After power is restored, the system Blade returns to normal operation.

1.3.2.6 Weights and Dimensions

Table below shows the shipping weight, height, width and depth of each chassis, assorted blades and adapters.

Weights and Dimensions

Unit	Shipping Weight Note 1	Height	Width	Depth
CHS2U-US	278.7 oz (7.9 kg)	3.47 in (88 mm)	16.9 in (430 mm)	14.17 in (360 mm)
CHS2U B-US	158.7 oz (4.5 kg)	4.53 in (115 mm)	8.66 in (220 mm)	14.53 in (369 mm)
CD-CP00-US IPG	7.06 oz (0.2 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.09 in (180 mm)
PZ-ME50-US IPG	.353 oz (0.01 kg)	0.12 in (3 mm)	2.56 in (65 mm)	1.22 in (31 mm)
CHS LARGE BATT BOX	352.7 oz (10 kg)	23.23 in (590 mm)	17.72 in (450 mm)	10.43 in (265 mm)
CHS LARGE BATT SET	194 oz (5.5 kg)	6.69 in (170 mm)	5.91 in (150 mm)	4.33 in (110 mm)
CHSGW SMALL BATT BOX	59.97 oz (1.7 kg)	4.53 in (115 mm)	8.66 in (220 mm)	3.15 in (80 mm)
CHSGW SMALL BATT SET	31.2 oz (0.88 kg)	5 in (127 mm)	5.75 in (146 mm)	4.75 in (120.6 mm)
MPS7101	42.33 oz (1.2 kg)	2.36 in (60 mm)	7.08 in (180 mm)	6.10 in (155 mm)
PZ-32IPLB	1.76 oz (0.05 kg)	0.60 in (15 mm)	3.15 in (80 mm)	6.3 in (160 mm)
CD-8DLCA	5.89 oz (0.167 kg)	0.98 in (25 mm)	5.71 in (145 mm)	7.09 in (180 mm)
PZ-8DLCB	4.41 oz (0.125 kg)	0.60 in (15 mm)	4.72 in (120 mm)	5.12 in (130 mm)
CD-8LCA	6.46 oz (0.183 kg)	0.98 in (25 mm)	9.45 in (240 mm)	7.68 in (195 mm)
PZ-8LCE	3.70 oz (0.105 kg)	0.60 in (15 mm)	9.45 in (240 mm)	5.12 in (130 mm)
CHS BASE UNIT	352.7 oz (10 kg)	4.72 in (120 mm)	19.69 in (500 mm)	14.37 in (365 mm)
CHS2U BLANK SLOT COVER KIT	1.76 oz (0.05 kg)	2.32 in (60 mm)	1.57 in (40 mm)	1.57 in (40 mm)
CHS L BATT BOX RACK MOUNT BRACKET	352.7 oz (10 kg)	18.5 in (470 mm)	14.6 in (370 mm)	2.76 in (70 mm)

Unit	Shipping Weight Note 1	Height	Width	Depth
CHS2U INT BATT SET	95.24 oz (2.7 kg)	4.33 in (110 mm)	2.76 in (70 mm)	3.15 in (80 mm)
CHS2U RACK MOUNT KIT	17.6 oz (0.5 kg)	0.91 in (23 mm)	9.65 in (245 mm)	3.35 in (85 mm)
CHS1U/2U WALL MOUNT KIT	35.27 oz (1 kg)	1.18 in (30 mm)	13.8 in (350 mm)	1.77 in (45 mm)
CHS LARGE BATT BOX	458.6 oz (13 kg)	5.24 in (133 mm)	16.93 in (430 mm)	14.3 in (363 mm)
CHS2U JOINT BRACKET KIT	7.06 oz (0.2 kg)	0.19 in (3 mm)	5.91 in (150 mm)	1.7 in (43 mm)
CHS2U BATT MTG KIT 6 Slot	106 oz (3.0 kg)	2.95 in (75 mm)	4.45 in (113 mm)	4.13 in (105 mm)

Note 1: Shipping weight includes the shipping carton.

1.4 Work Flow of IPG Installation

START

↓

1. Preparation of Installation ⇒ Before Installation (P.1899)

↓

2. Unpacking the Equipment ⇒ Unpacking the Equipment (P.1911)

↓

3. Before Installation ⇒ Before Installation (P.1912)

↓

4. Installing the Chassis ⇒ Installing the Chassis (P.1912)

↓

5. Blade Switch Setting ⇒ Blade Switch Setting (P.1947)

↓

6. Installing the Blades ⇒ Installing the Blades (P.1966)

↓

7. Cabling And MDF Connection ⇒ Cabling And MDF Connection (P.1973)

↓

8. Battery Connection ⇒ Battery Connection (P.1976)

↓

9. Installing Grounding on Chassis ⇒ Installing Grounding on Chassis (P.1999)

↓

10. Installing AC Power Cords on Chassis ⇒ Installing AC Power Cords on Chassis (P.2002)

↓

11. Starting up the System ⇒ System Startup (P.2004)

↓

12. Installation Test ⇒ Installation Test (P.2041)

↓

13. Work after Installation Test ⇒ Work After Installation Test (P.2041)

↓

END

2 Before Installation

2.1 Components

The following shows components and accessories for IPG.

Chassis Equipment List

Equipment Name	Equipment Description
CHS2U-US	19” Chassis
CHS2U B-US	9.5” Chassis

Chassis Installation Equipment List

Equipment Name	Equipment Description
CHS BASE UNIT	Floor Mount Set for all chassis (CHS2U-US)
CHS2U BLANK SLOT COVER KIT	Blank Slot Cover Set
CHS2U JOINT BRACKET KIT	Upper Joint Bracket for 6-slot Chassis
CHS2U RACK MOUNT KIT	Rack Mount for CHS2U-US Chassis
CHS1U/2U WALL MOUNT KIT	Wall Mount Set for CHS2U-US Chassis
CHS Stand Kit (K)	Stand Mount Kit for 2U Chassis
CHS2U STAND KIT (EXT)	Expansion Plate for Stand Mount Kit for 6-blade Chassis, 2 sets
CHS1U BLANK SLOT COVER KIT(BUS)	Blank Bus Cover

Battery Mount Equipment List

Equipment Name	Equipment Description
CHSGW SMALL BATT BOX	Short-term battery box for 3-slot chassis Backup Time – 10 minutes
CHS LARGE BATT BOX	Long Term Battery Box for CHS1U-US and CHS2U-US Chassis Cable between batteries – 9.06in/230mm Fuse Unit to Batteries – 18.11In/460mm Cable from chassis to battery box – 81.1in/2060mm
CHS2U BATT MTG KIT	Battery Mount for CHS2U-US Chassis Backup time – 10 minutes
CHSGW SMALL BATT SET	Short-term battery set for 3-slot chassis
CHS LARGE BATT SET	Long term battery set (3) 12V 7Ah SLA Batteries with Faston 187 terminals
CHS2U INT BATT SET	Internal battery set for CHS2U-US chassis 12V 2.3Ah SLA Battery with Faston 187

Blade Equipment List

Equipment Name	Abbreviations	Equipment Description
CD-CP00-US IPG	CPU	Main Processor Blade for KTS
PZ-32IPLB	VoIPDB	32-channel VOIP on CCPU
CD-8DLCA	DLC	8-port Digital Station Interface
PZ-8DLCB	DLCDB	8-port Digital Station Interface on CD-8DLCA
CD-8LCA	LC	8-Port Single Line Interface
PZ-8LCE	LCDB	8-port Single Line Telephone Interface on CD-8LCA
PZ-ME50-US IPG	MEM	Memory Expansion on CD-CP00-US IPG

Cable Equipment List

Equipment Name	Equipment Description
BUS CABLE	Bus Cable
AC CORD	AC Power Cable for US
CHS2U BATT CABLE INT	CHS2U-US Battery Cable for Internal Battery 2U Chassis Cable A – 18.9in/480mm Cable B – 3.15in/80mm
CHS2U BATT CABLE EXT-A	Battery Cable for External Battery 6-slot Chassis

2.2 Site Preparation and MDF/IDF Construction

Pre-installation planning is essential. Advanced planning minimizes installation time, cost, and disruption of the customer business activities.

2.2.1 Precautionary Information

Note: Observe the following warnings during installation.

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Use caution when installing or modifying telephone lines.
- To avoid shock or equipment damage, do not plug in or turn the system power on before completing the installation process.
- Avoid working with the equipment during electrical storms.
- Use only commercial AC power to prevent shock or fire.
- Use the power cord supplied for the chassis.
- To prevent overheating, do not bundle AC power cords together.
- Make sure the chassis has a proper earth ground.
- Install batteries with the correct polarity to prevent damaging equipment.
- To avoid damage, the chassis should not be placed on unstable surfaces.
- Although it is recommended to install the blades with the system power off, all blades can be installed hot, except for the CD-CP00-US IPG.

2.2.2 Surveying the Customer Site

In most cases, a survey of the customer site is necessary to determine the proper placement of the Main Distribution Frame (MDF), the exact dimensions of the area selected for the MDF, cabling requirements, and possible Intermediate Distribution Frame (IDF) locations.

The information obtained at the customer site can permit the installer to partially assemble the MDF before installation at the customer premise. This can reduce the time spent installing at the customer site and reduce downtime.

2.2.3 Selecting the Best Location for Proper Installation

[Selecting the Chassis Installation Site]

When selecting an installation site for the chassis, consider the following conditions to ensure proper installation:

- Chassis are normally rack mounted to protect against accident or flooding.
- The chassis should not be located directly beneath pipes. Leaks or condensation could damage the equipment.
- The area where the chassis is located must be free of corrosive and inflammable gases, excessive chemical or industrial dusts, and other materials that could cause a hazard to personnel or to the proper functioning of the equipment.
- The operating ambient temperature and humidity must be within the limits specified in Environmental Conditions in System Requirements and Specifications of Chapter 1.

- The operation of the system is virtually noiseless and allows wide selection of installation sites. Take care to ensure the chassis or cabling does not present a hazard to office traffic. To minimize cabling costs, a centralized location must be chosen.
- Locate the chassis at a site where a dedicated AC power source can be easily accessed.

[Selecting a Permanent MDF Location]

When selecting a permanent site for the MDF, the technician may encounter some of the following conditions:

- Limited space is available but must be used.
- The available space may pose one or more environmental hazards.
- The proposed location has limitations such as insufficient lighting or the lack of a suitable ground for the chassis.
- The technician that encounters these conditions must provide the best possible solution for installing the equipment. This document cannot cover all possible situations, precautions, and actions.

[Constructing the Main Distribution Frame (MDF)]

The Main Distribution Frame (MDF) has two different standard quick-connect terminal blocks that are mounted on a 3/4-inch plywood backboard. Mounting these blocks on standoffs for ease of access is recommended. The recommended blocks are 66B50 for termination of the MDF Cable Assembly and 66M50 for termination of the station cables.

The Intermediate Distribution Frame (IDF) requires the 66M50 blocks only.

Both the MDF and the IDF use standard bridging clips for each terminal block. The bridging clips mate the left half of the terminal block (terminated cable run) to the right half of the terminal block (cross connection wire) to the terminal block (cross connection wire). The bridging clips are also useful during troubleshooting to help isolate the cable runs and terminals/telephones from the central equipment and the Central Office Network from the system.

The CHS2U-US chassis can be mounted on the wall, the floor, a stand or in a rack. Plywood should first be installed on the wall where the chassis will be positioned, to allow for secure anchoring. It has a bracket, which can be used to secure each chassis in any installation.

The system requires a 3-prong dedicated 110 VAC 60 Hz circuit (NEMA 5-15 receptacle) located within seven feet of the AC receptacle. Telco should install the RJ21X to the right of the chassis. Extension blocks should be installed to the left of the chassis.

Chassis are shipped fully assembled. The following are included with the chassis:

19” Chassis (CHS2U-US)

- One black 3-prong power cord (packed outside the chassis)
- CHS2U RACK MOUNT KIT

9.5” Chassis (CHS2U B-US)

- One black 3-prong power cord (packed outside the chassis)

- Wall Mount Kit
- Stand Mount Kit

2.3 Preparation of Web Programming

Using Web Programming (hereafter called WebPro), you can configure the data on IPG. The data on IPG is configured via HTTP access from a web browser on your computer.

2.3.1 System Requirements

The table below shows the minimum system requirements necessary for computer used as WebPro.

System Requirements

Item	Specifications
OS	Microsoft Windows® XP/Microsoft Windows® Vista
CPU	Microsoft Windows® XP : Pentium® processor or higher (at Least 600 MHz Processor) Microsoft Windows® Vista : Pentium® processor or higher (at Least 1 GHz Processor) Microsoft Windows® 7 : 1 GHz or faster 32-bit (x86) or 64-bit (x64) processor
Memory	Microsoft Windows® XP : larger than 128 megabytes Microsoft Windows® Vista : larger than 1 gigabyte Microsoft Windows® 7 : larger than 1 gigabyte (32-bit)/ 2 gigabytes (64-bit)
Browser	Microsoft Internet Explorer® 6.0 or more <Example: in the case of Internet Explorer® 7.x> Follow the steps below to allow the use of active scripts and cookies. (1) Click **Tools** ® **Internet Options...** to open the **Internet Options** dialog box. (2) Click the **Security** tab. (3) Click the **Custom Level...** button to open the **Security Settings** dialog box. (4) Enable **Active scripting** in **Scripting**, and then click the **OK** button. (5) Click the **Privacy** tab. (6) Click the **Advanced...** button to open the **Advanced Privacy Settings** dialog box. (7) Select the **Override automatic cookie handling** check box, and then select the **Always allow session cookies** check box. Click the **OK** button to go back to the **Internet Options** dialog box. (8) Click the **OK** button to close the **Internet Options** dialog box.
Monitor	SVGA (Minimum: 800x600 dots, Recommended: 1,024x768 dots or more)
Others	Mouse, LAN connection port (NIC: RJ-45)

2.3.2 How to Log in to WebPro

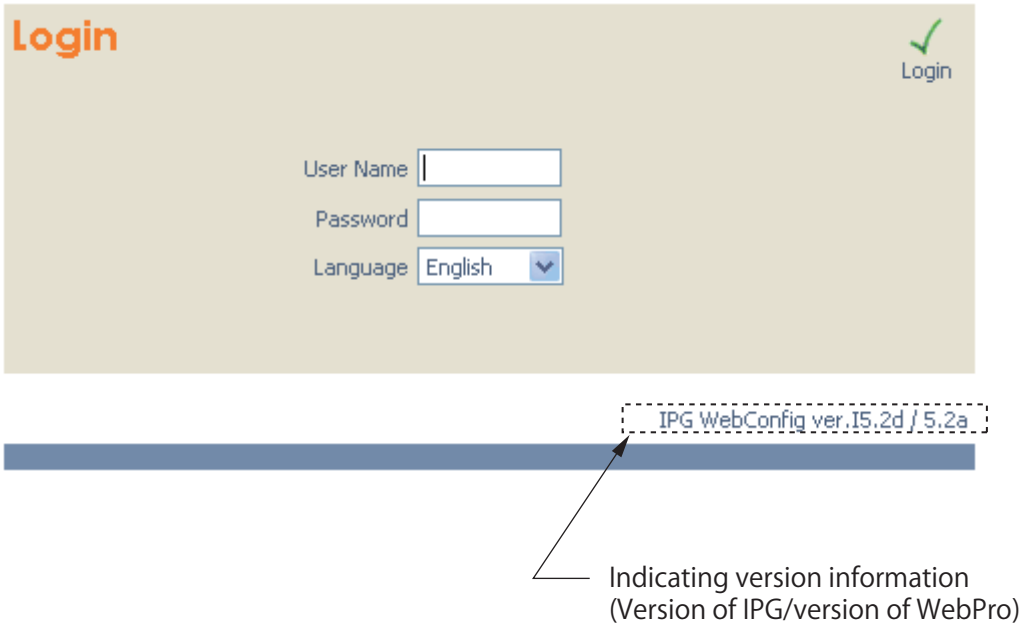
Note: Up to four users can log in to the IPG WebPro at a time.

Note: Do not use Back button on browser while operating the WebPro. If you use Back button on browser by mistake or the LAN connection is lost, the session information about the user logging in to the WebPro remains and the WebPro goes out of control. In that case, it takes about 15 minutes before you can log in to the WebPro again.

(1) Open an internet browser on WebPro PC.

(2) Enter the IP address of IPG (default:172.16.0.10) in the address bar and press Enter key. The **Login** screen appears as follows:

WebPro Login Screen



(3) Enter the followings in the **Login** screen.

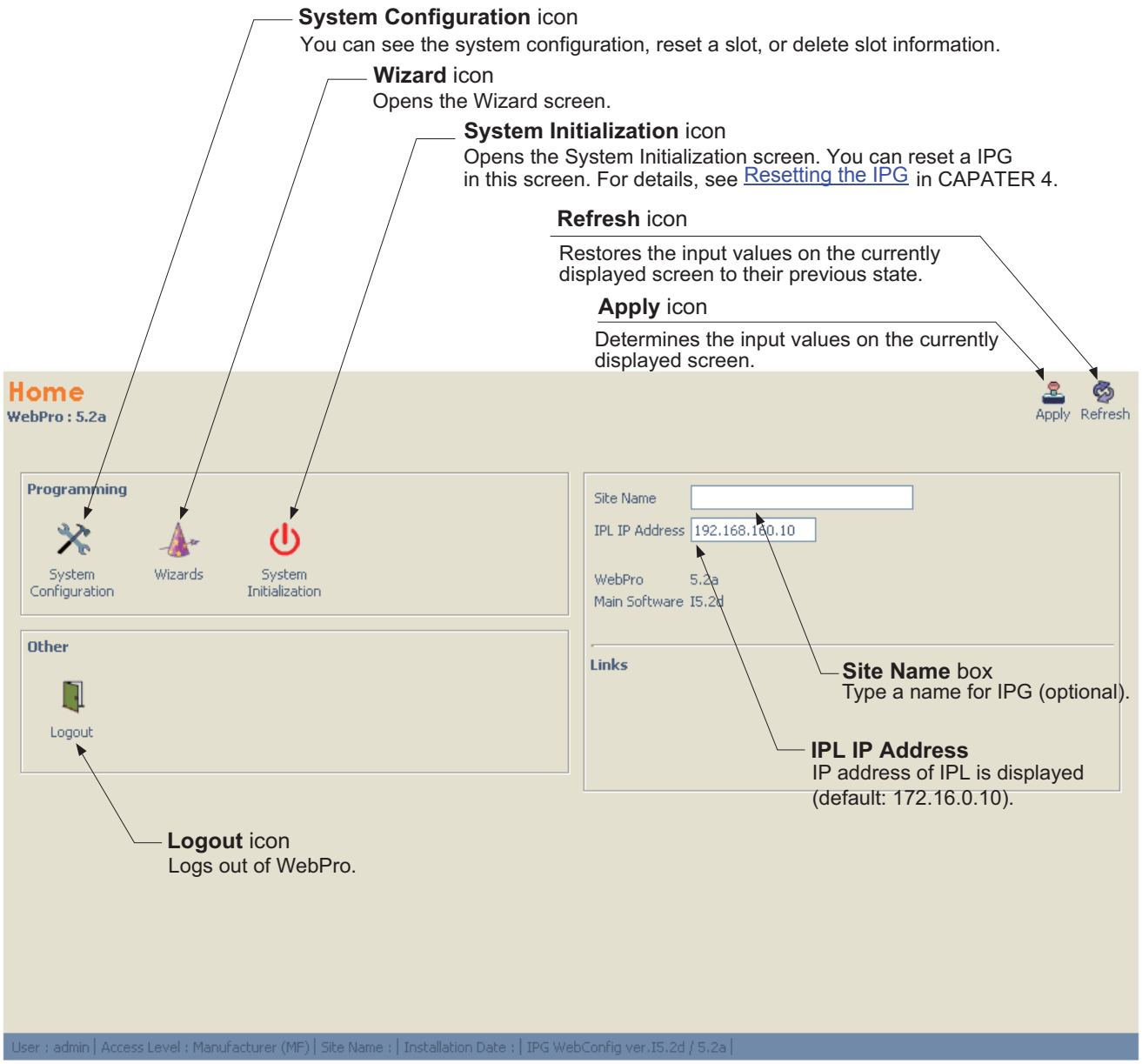
User Name: Type “admin (default)”.

Password: Type “admin (default)”.

Language: Choose “English”.

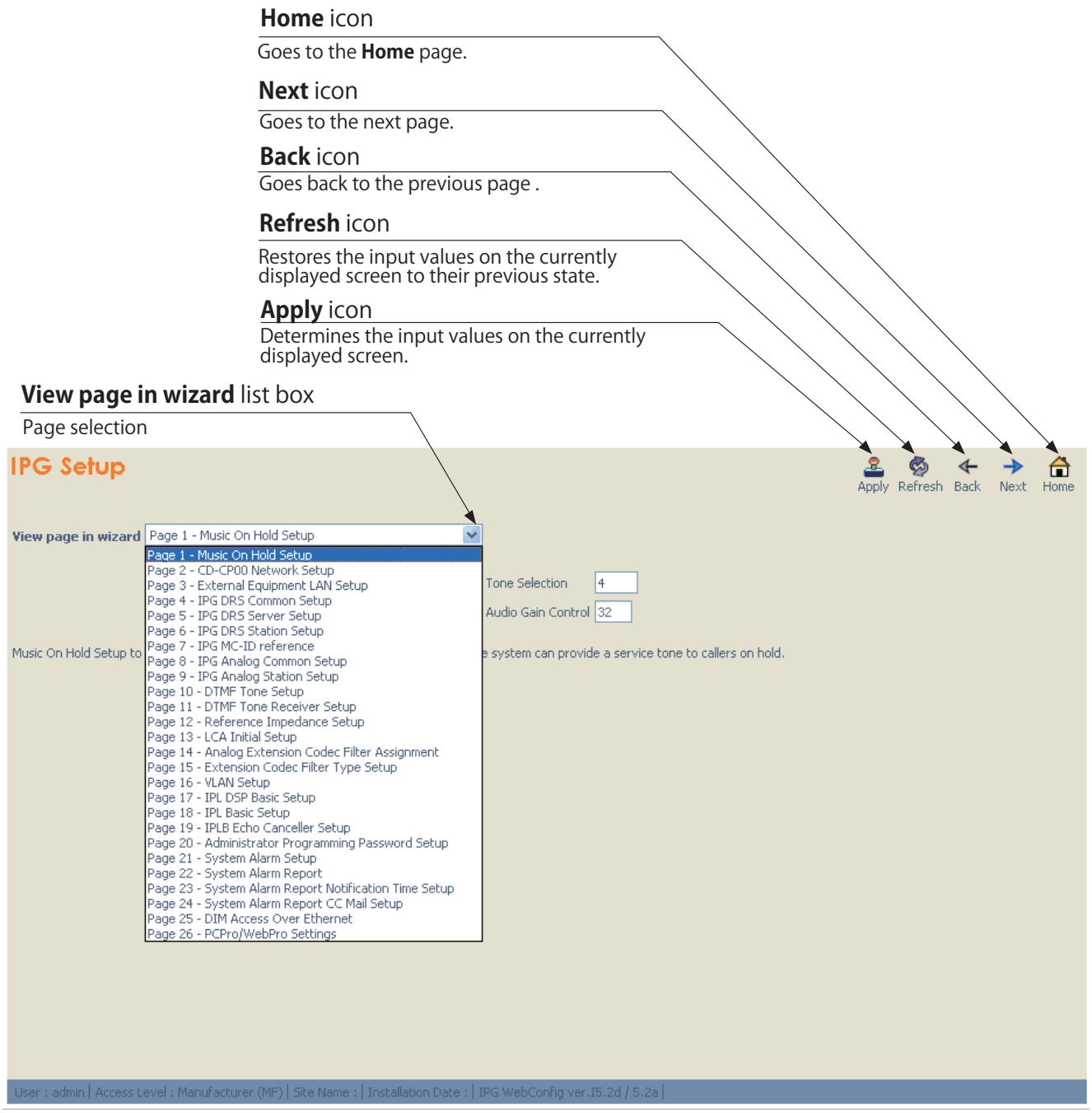
(4) The following **Home** screen appears. Click the **Wizard** icon to open the **Wizard** screen. In the **Wizard** screen, you can configure various data for IPG. For the other icons in the **Home** screen, see the figure below.

Home Screen



(5) The following **Wizard (IPG Setup)** screen appears. You can display various Wizard Pages by choosing the appropriate items in the **View page in wizard** box list. For details on each Wizard Page, see 4.4Data Programming on IPG in CHAPTER 4 SYSTEM STARTUP.

Wizard (IPG Step) Screen



Note: The time at which input values take effect is one of the following. It depends on the parameter.

- When Apply button is clicked.

- When you log out of WebPro.
- When IPG is reset.

Note: After the settings of IP address and VLAN are changed, it is necessary to reset the IPG.

Note: When data related to DRS is changed, the terminals under the control of the IPG are registered again.

2.3.3 How to Log out of WebPro

(1) Click the **Logout** icon in the **Home** screen.

(2) The **Login** screen appears.

(3) Close the internet browser.

Note:

- After the data programming is complete, be sure to log out of WebPro. If the internet browser is closed without the log-out operation, the configured data may be cleared.
- When 15 minutes have passed leaving the PC without operation after log in to WebPro, the user is forcibly logged out of the WebPro. At this time, the data configured before the logged out is saved on the system.

3 Installation

3.1 General Information

This chapter contains information to help the technician install the chassis for the IPG system. Before beginning the installation, thoroughly read "2Before Installation" and observe the precautions while performing the installation.

Installation Procedure For IPG Accommodating Digital Terminals

START

↓

1.	Unpacking the Equipment.	⇒ Unpacking the Equipment
	↓	
2.	Before Installation	⇒ Before Installation
	↓	
3.	Installing the Chassis	⇒ Wall Mounting the 19” (CHS2U-US) Chassis] ⇒ Wall Mounting the 9.5”(CHS2U B-US) Chassis] ⇒ Floor Mounting the 19” (CHS2U-US) Chassis] ⇒ Stand Mounting the 19” (CHS2U-US) Chassis ⇒ Stand Mounting the 9.5” (CHS2U B-US) Chassis] ⇒ Rack Mounting the 19” (CHS2U-US) Chassis]
	↓	
4.	Blade Switch Setting	⇒ CD-CP00-US IPG (Central Processing Unit) ⇒ PZ-ME50-US IPG (Memory Expansion Daughter Board) ⇒ PZ-32IPLB (Voice over IP Daughter Board) ⇒ CD-8DLCA (Digital Station Interface) ⇒ PZ-8DLCB (Digital Station Daughter Board)
	↓	
5.	Installing the Blades	⇒ Install CD-CP00-US IPG into 19” Chassis] ⇒ Install CD-CP00-US IPG into 9.5” Chassis] ⇒ Install CD-8DLCA/CD-8LCA into 19” Chassis] ⇒ Install CD-8DLCA/CD-8LCA into 9.5” Chassis]
	↓	
6.	Cabling And MDF Connection	⇒ Cabling And MDF Connection
	↓	
7.	Battery Connection	⇒ Installing the Internal Batteries on 19” (CHS2U-US) Chassis ⇒ Installing the External Batteries on 19” (CHS2U-US) Chassis ⇒ Installing the External Batteries (CHSGW SMALL BATT BOX) on 9.5” (CHS2U B-US) Chassis ⇒ Installing the External Batteries (CHS LARGE BATT BOX) to the 9.5” (CHS2U B-US) Chassis
	↓	
8.	Installing Grounding on Chassis	⇒ Installing Grounding on 19” (CHS2U-US) Chassis ⇒ Installing Grounding on 9.5”(CHS2U B-US) Chassis
	↓	
9.	Installing AC Power Cords on Chassis	⇒ Installing AC Power Cords on 19” Chassis ⇒ Installing AC Power Cord on 9.5” Chassis

↓

END

Installation Procedure For IPG Accommodating Single Line Terminals

START

↓

1. Unpacking the Equipment. ⇒ Unpacking the Equipment

↓

2. Before Installation ⇒ Before Installation

↓

3. Installing the Chassis
   - ⇒ Wall Mounting the 19” (CHS2U-US) Chassis]
   - ⇒ Wall Mounting the 9.5”(CHS2U B-US) Chassis]
   - ⇒ Floor Mounting the 19” (CHS2U-US) Chassis]
   - ⇒ Stand Mounting the 19” (CHS2U-US) Chassis
   - ⇒ Stand Mounting the 9.5” (CHS2U B-US) Chassis]
   - ⇒ Rack Mounting the 19” (CHS2U-US) Chassis]

↓

4. Blade Switch Setting
   - ⇒ CD-CP00-US IPG (Central Processing Unit)
   - ⇒ PZ-ME50-US IPG (Memory Expansion Daughter Board)
   - ⇒ PZ-32IPLB (Voice over IP Daughter Board)
   - ⇒ CD-8LCA (8-Port Single Line Interface)
   - ⇒ PZ-8LCE (8-Port SLI Daughter Board)

↓

5. Installing the Blades
   - ⇒ Install CD-CP00-US IPG into 19” Chassis]
   - ⇒ Install CD-CP00-US IPG into 9.5” Chassis]
   - ⇒ Install CD-8DLCA/CD-8LCA into 19” Chassis]
   - ⇒ Install CD-8DLCA/CD-8LCA into 9.5” Chassis]

↓

6. Cabling And MDF Connection ⇒ Cabling And MDF Connection

↓

7. Battery Connection
   - ⇒ Installing the Internal Batteries on 19” (CHS2U-US) Chassis
   - ⇒ Installing the External Batteries on 19” (CHS2U-US) Chassis
   - ⇒ Installing the External Batteries (CHSGW SMALL BATT BOX) on 9.5” (CHS2U B-US) Chassis
   - ⇒ Installing the External Batteries (CHS LARGE BATT BOX) to the 9.5” (CHS2U B-US) Chassis

↓

8. Installing Grounding on Chassis
   - ⇒ Installing Grounding on 19” (CHS2U-US) Chassis
   - ⇒ Installing Grounding on 9.5”(CHS2U B-US) Chassis

↓

9. Installing AC Power Cords on Chassis
   - ⇒ Installing AC Power Cords on 19” Chassis
   - ⇒ Installing AC Power Cord on 9.5” Chassis

↓

END

3.2 Unpacking the Equipment

Inspect the equipment for any physical damage. If you are not sure about the function of a component, review the associated information within this manual. Contact your authorized NEC Sales Representative if you have additional questions. Note that the chassis does not initially contain any blades.

Make sure you have appropriate tools for the job, including: a test set, a punch down tool, and a digital voltmeter.

Ensure that you have a building plan showing common equipment, extensions, the Telco demarcation and earth ground location before you start installation. Be sure to properly plan your installation site and that you are familiar with the installation safety precautions.

[1] Before Unpacking

- Confirm the grounding.
  - Be sure to connect the 3M® Model 8012 Portable Field Service Kit to grounding.
  - Do not unpack the packages when grounding is not available.
- Make sure to use the service kit when unpacking the package of circuit card.
- During unpacking, handle the equipment carefully not to be shocked and damaged.

[2] Unpacking Procedure

START

1.	Package quantity check	Check the quantity of received packages with the packing list.
2.	Package visual check	Check the packaging for external damage.
3.	Unpack	
4.	Components check	Check the name and the quantity of all the components and accessories. If anything is missing, report it to the supplier immediately.
5.	Visual check	Visually check the equipment and accessories. - Surface deformed? - Connectors cracked? - Keys and lamps damaged? - Loose wires and parts? If any damage is found, report it to the supplier immediately.

END

3.3 Before Installation

Before installing the chassis check the following:

- Ensure that the MPS7101(Power Supply Unit) is OFF and that the power cord is disconnected from the AC outlet.
- When installing the blades, do not touch the soldered surfaces as this may cause damage.
- Follow safety precautions indicated in Precautionary Information in chapter 2.
- Determine the type of mounting (wall, floor, stand or rack) to be used.

3.4 Installing the Chassis

Before proceeding with installation of chassis, ensure site preparation is completed. The CHS2U-US chassis can be:

MOUNTING METHOD	CHASSIS	REMARKS
Wall-mounted	19” Chassis (CHS2U-US)	Refer to Wall Mounting the 19” (CHS2U-US) Chassis] on page 1913.
	9.5” Chassis (CHS2U B-US)	Refer to Wall Mounting the 9.5”(CHS2U B-US) Chassis] on page 1919.
Floor-mounted	19” Chassis (CHS2U-US)	Refer to Floor Mounting the 19” (CHS2U-US) Chassis] on page 1931.
	9.5” Chassis (CHS2U B-US)	-
Stand-mounted	19” Chassis (CHS2U-US)	Refer to Stand Mounting the 19” (CHS2U-US) Chassis on page 1935.
	9.5” Chassis (CHS2U B-US)	Refer to Stand Mounting the 9.5” (CHS2U B-US) Chassis] on page 1940.
Rack-mounted	19” Chassis (CHS2U-US)	Refer to Rack Mounting the 19” (CHS2U-US) Chassis] on page 1945.
	9.5” Chassis (CHS2U B-US)	-

3.4.1 Wall Mounting the Chassis



[Wall Mounting the 19" (CHS2U-US) Chassis]

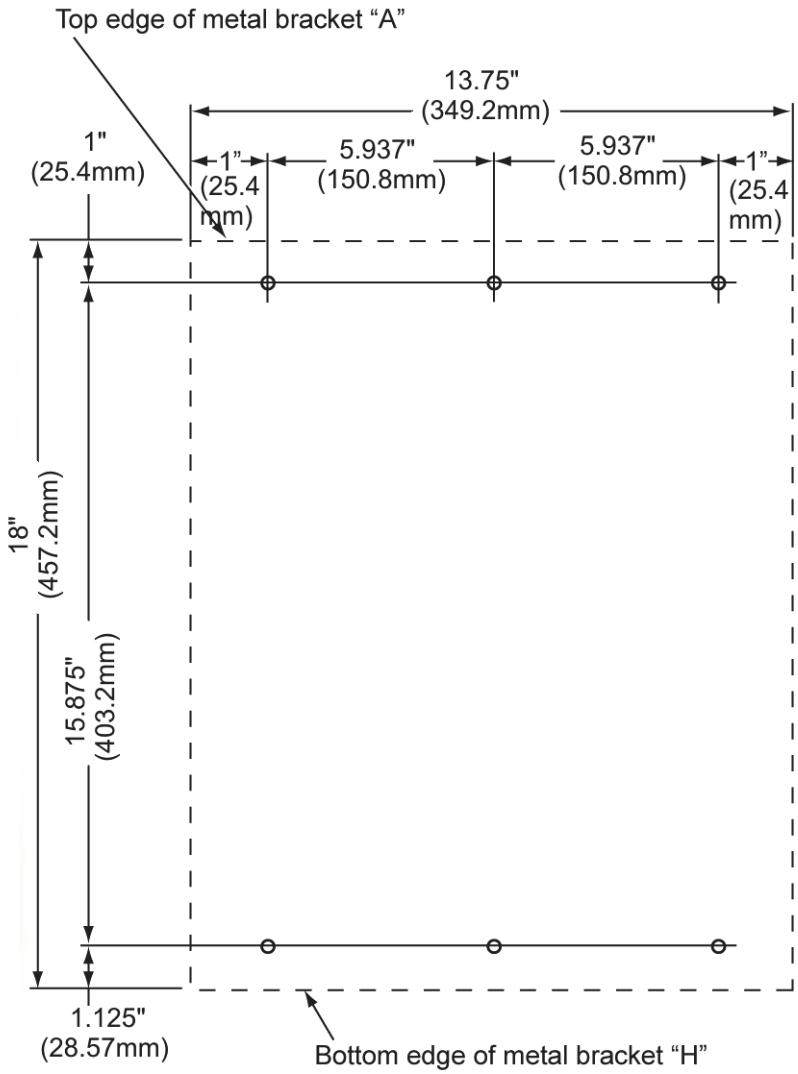
When wall mounting the chassis, ensure the wall can support the weight of the chassis (55 lbs per system chassis – including blades, cords, power supply, etc.). The chassis is secured to the wall with a wall mount bracket.

(1) Use the template shown in Figure Wall Mount Spacing Guide (19" Chassis) on the next page for required spacing before drilling.

Note: Plywood should first be installed on the wall where the chassis will be positioned. This allows secure anchoring of the screws which support the weight of the chassis.

Note: Due to chassis weight, NEC recommends only a single CHS2U-US chassis per wall mount.

Wall Mount Spacing Guide (19" Chassis)

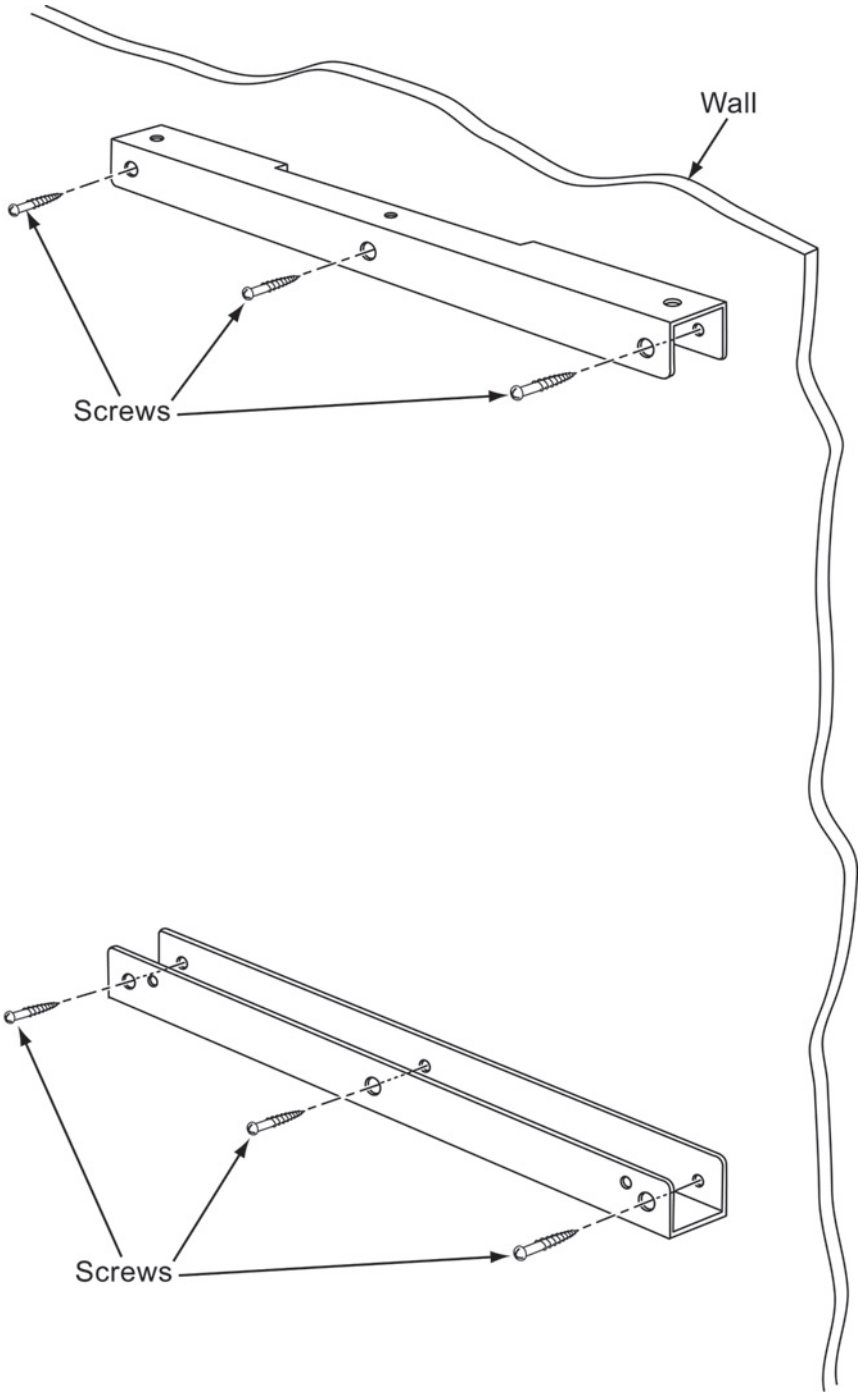


(2) Mark and drill the six holes required for a wall installation.

(3) Align screw holes in wall mount brackets with drilled holes.

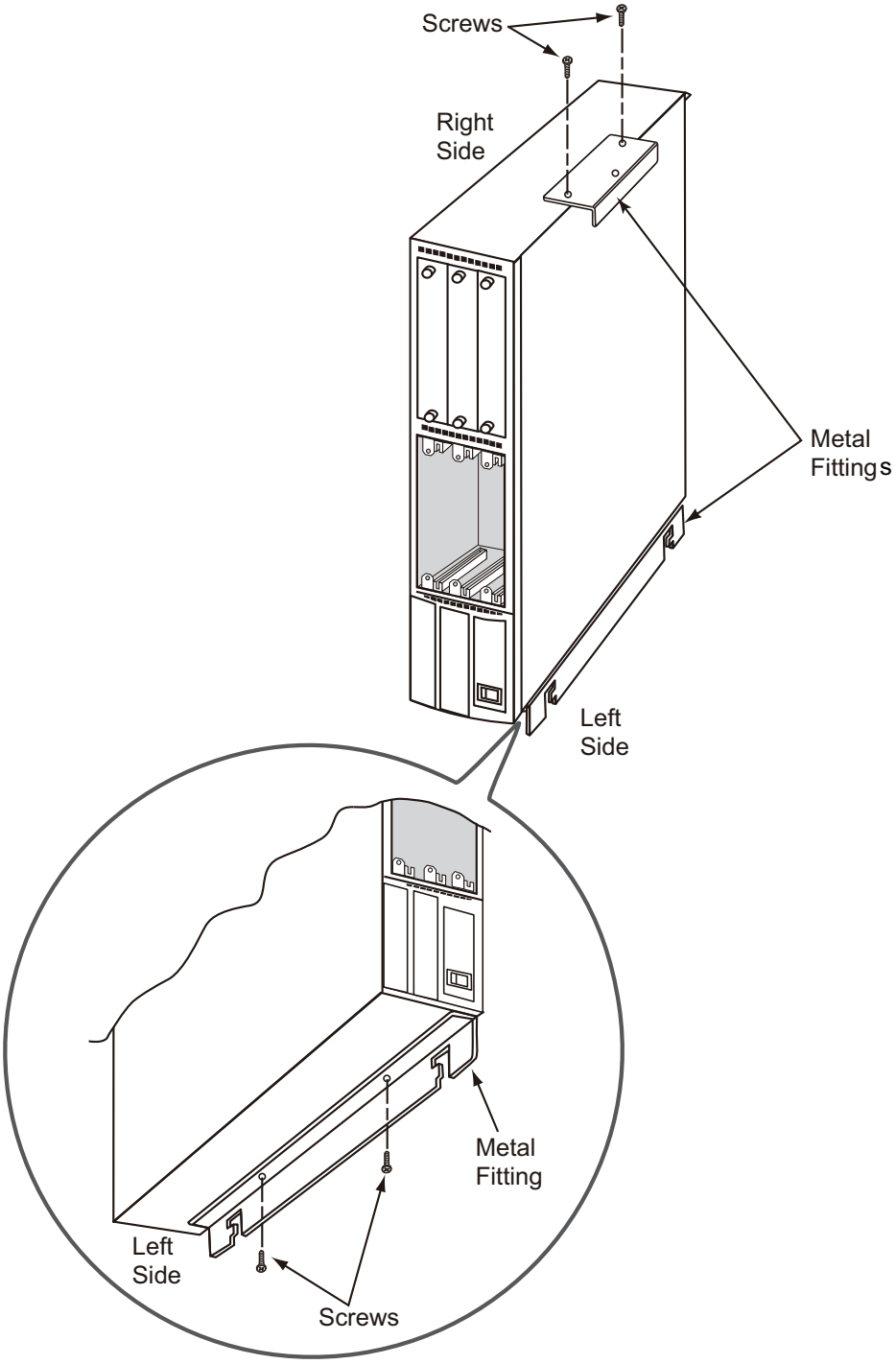
(4) Using six screws, secure the two wall mount brackets to the wall.

Install Wall Mount Brackets with Screws



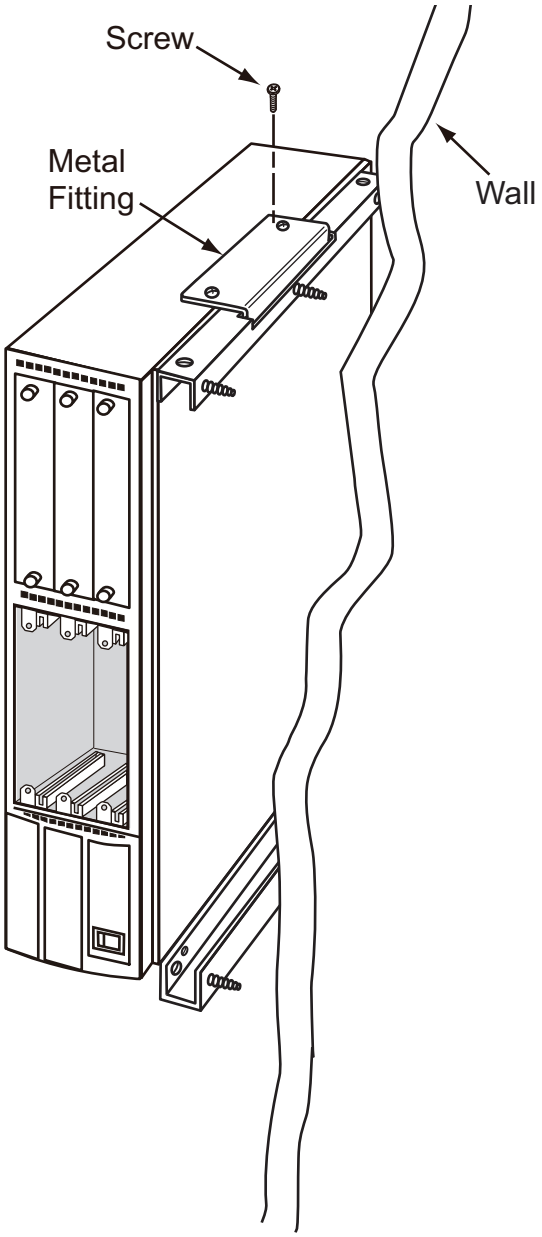
(5) Using four screws, secure the metal fittings on the Left and Right sides of the 19” chassis.

Securing Metal Fittings to Chassis with Screws



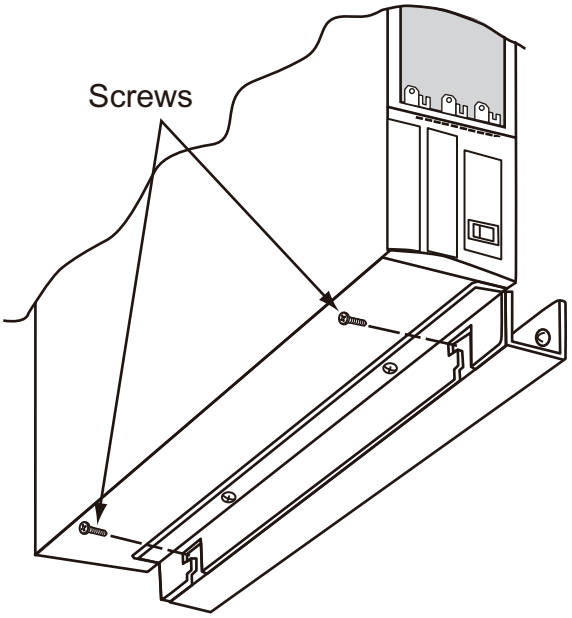
(6) Align the metal fitting with the upper wall mount bracket. The lower metal fitting rests against the lower wall mount bracket. Secure the metal fitting and upper wall mount bracket with a single screw.

Secure Metal Fitting to Upper Wall Mount Bracket with a Screw



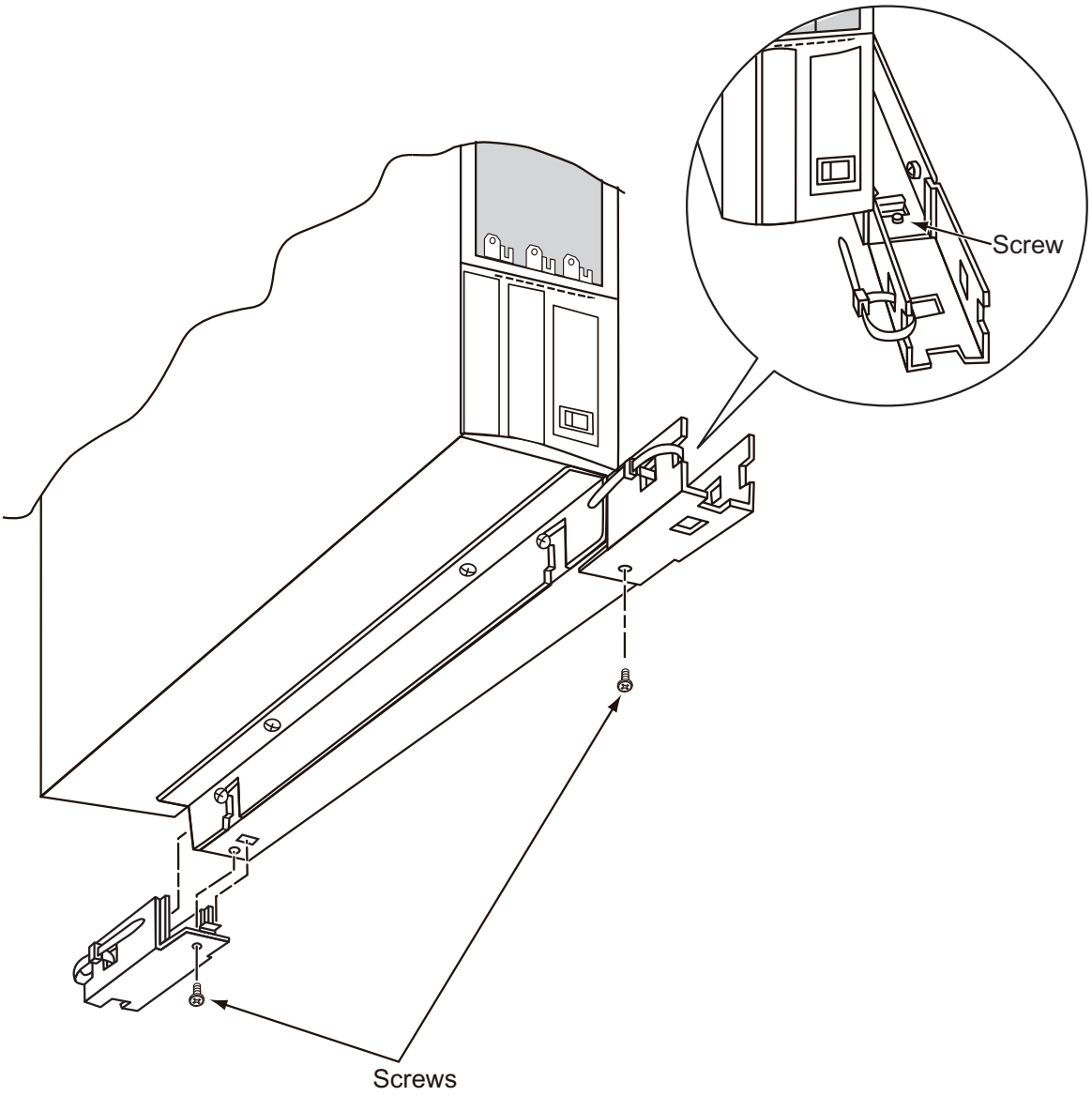
(7) Using two screws, secure the metal fitting to the lower wall mount bracket.

Secure Metal Fitting to Lower Wall Mount Bracket with Screws



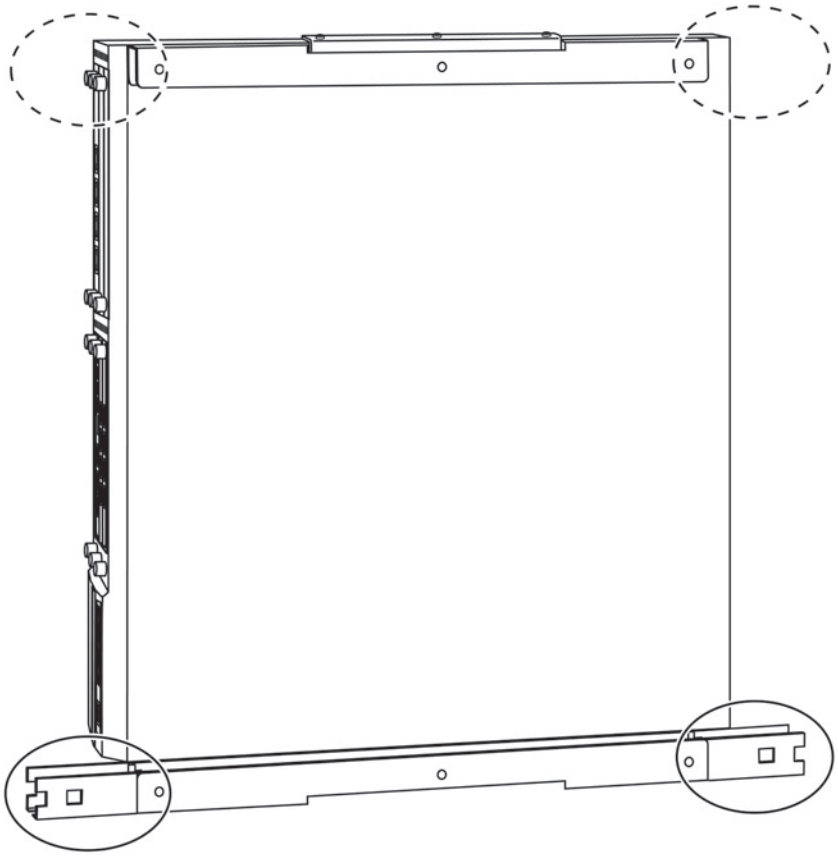
(8) Attach the supplied cable support bracket to either end of the lower wall mount bracket with a single screw.

Attach Cable Support Bracket to Lower Wall Mount Bracket



(9) The cable support bracket can be installed any of the four corners of the 19” chassis.

Attachment Locations of Cable Support Bracket

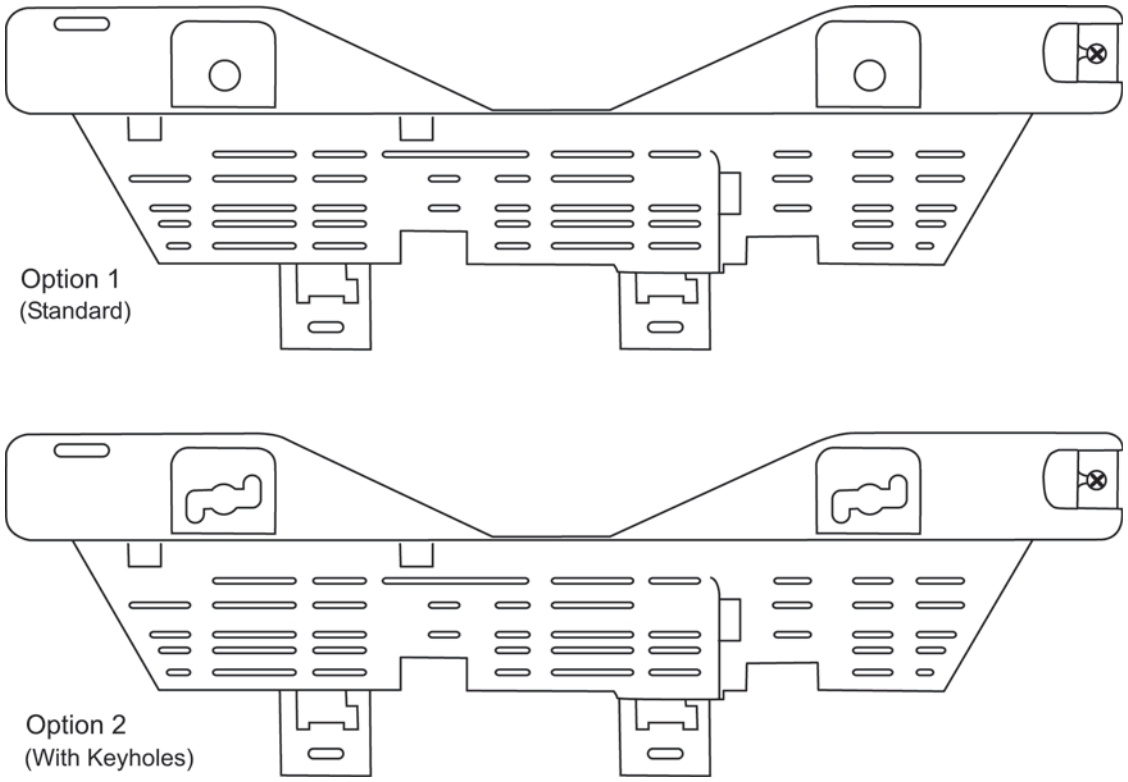


[Wall Mounting the 9.5”(CHS2U B-US) Chassis]

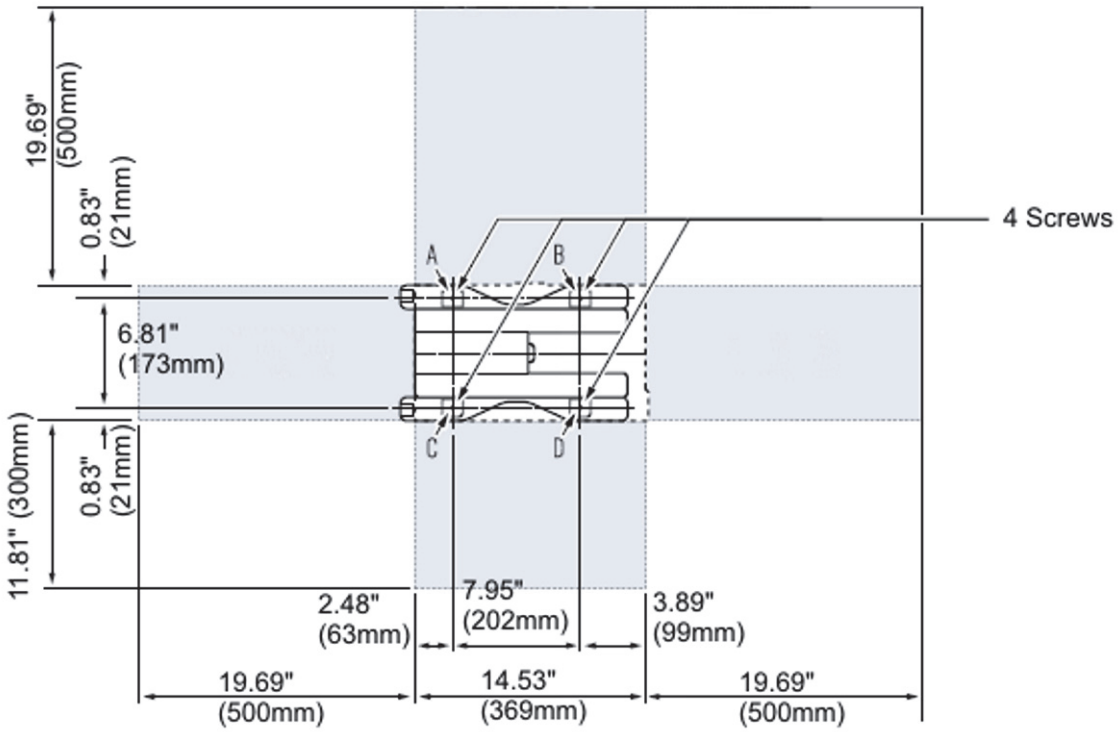
When wall mounting the chassis, ensure the wall can support the weight of the chassis and (25 lbs per system chassis ---- including blades, cords, power supply, etc.). The chassis is secured to the wall with a wall mount bracket.

Optional wall mounting brackets exist for the 9.5” chassis (refer to Optional Wall Mounting Brackets for 9.5” Chassis on page 1920). **Option 1** attaches the mounting bracket is secured to the wall and the chassis attached to the bracket. **Option 2** attaches the bracket to the 9.5” chassis and then, using the key-holes as a guide, the assembled unit slides over screws secured to the wall using the template shown in Wall Mount Spacing Guide (9.5” Chassis) on page 1920.

Optional Wall Mounting Brackets for 9.5” Chassis



Wall Mount Spacing Guide (9.5” Chassis)



[Option 1 – Wall Mount Bracket (Standard) to Wall]

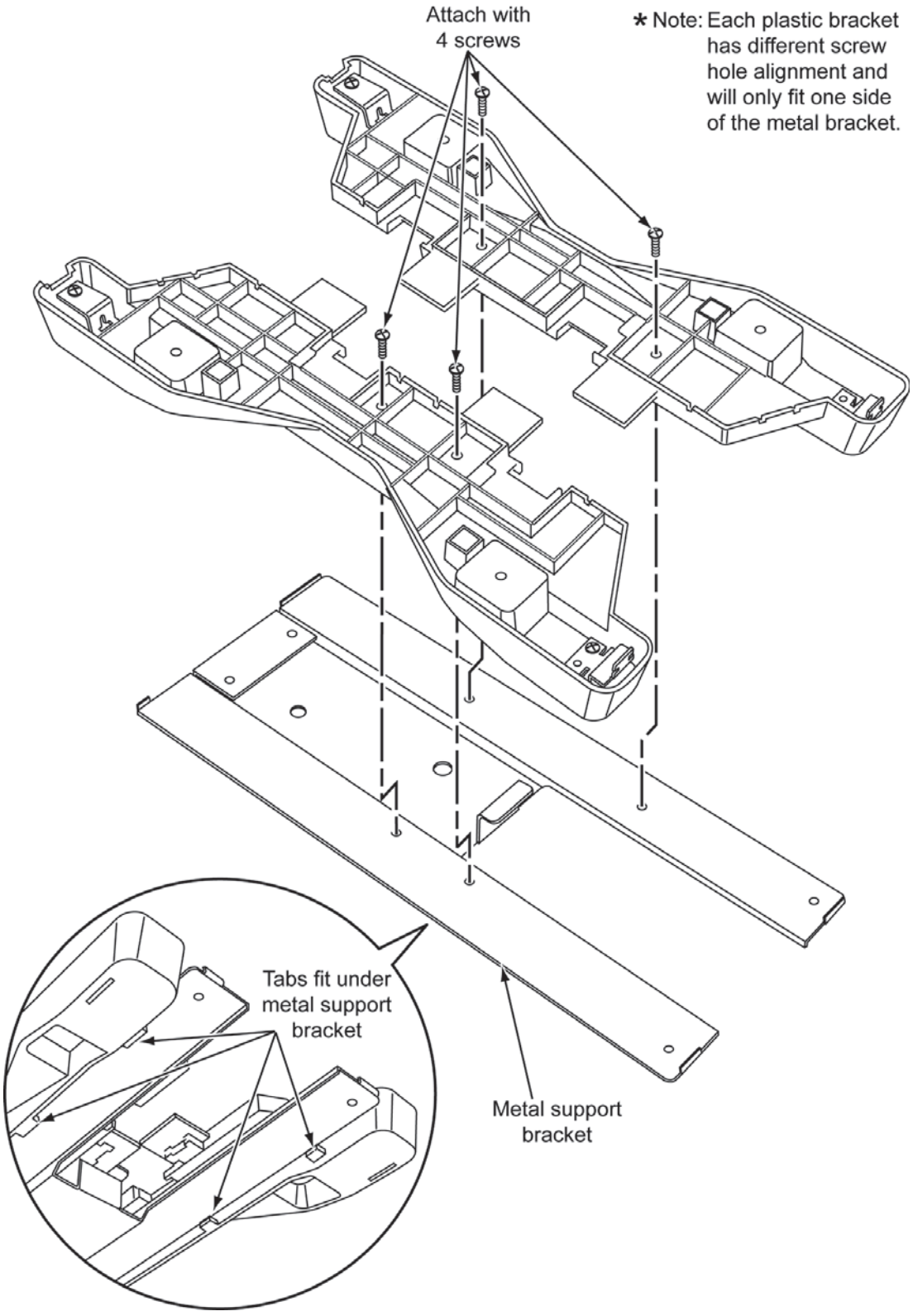
(1) Use the template shown in Wall Mount Spacing Guide (9.5” Chassis) on page 1920 for the required spacing before drilling.

Note: Plywood should first be installed on the wall where the chassis will be positioned. This allows secure anchoring of the screws which support the weight of the chassis.

(2) Mark and drill four holes.

(3) Align the bracket halves with the precut holes in the metal expansion fitting provided.

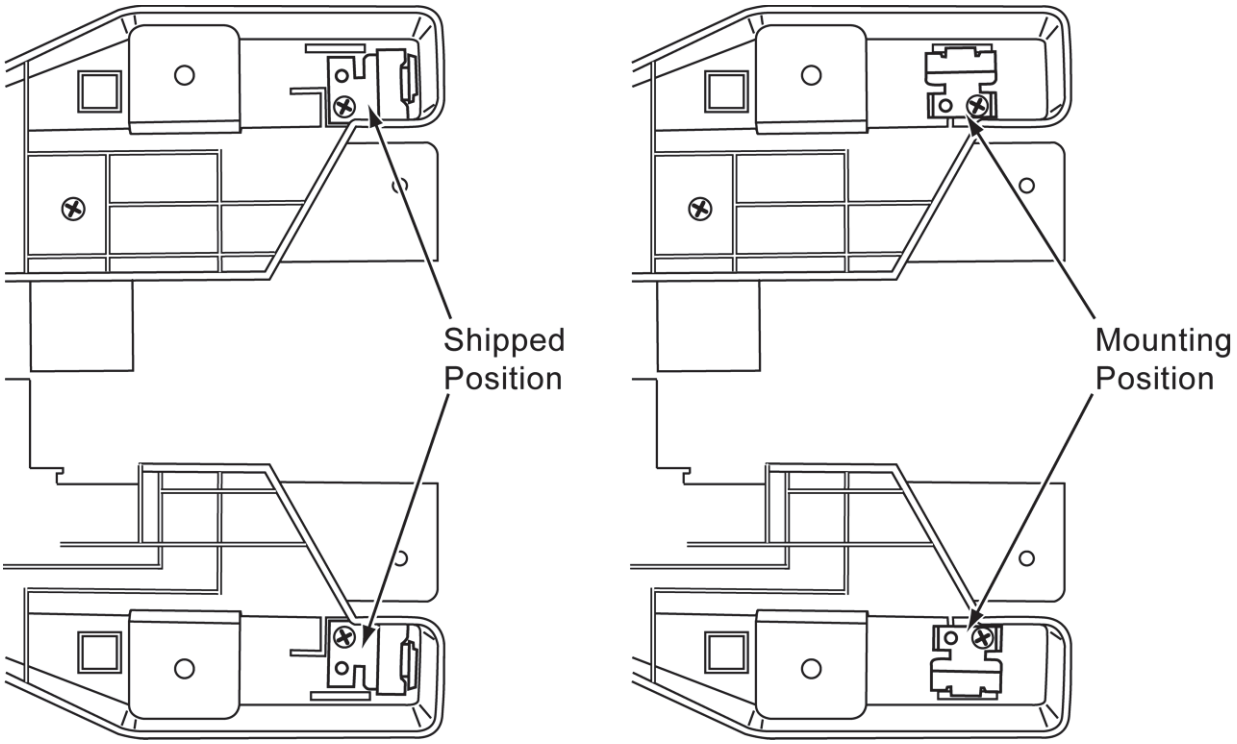
9.5" Mounting Brackets and Metal Expansion Fitting



(4) Secure the bracket halves to the expansion fitting using the four supplied screws (refer to 9.5" Mounting Brackets and Metal Expansion Fitting on page 1922).

(5) Turn bracket assembly over and remove the screws holding two brackets in the shipped position.

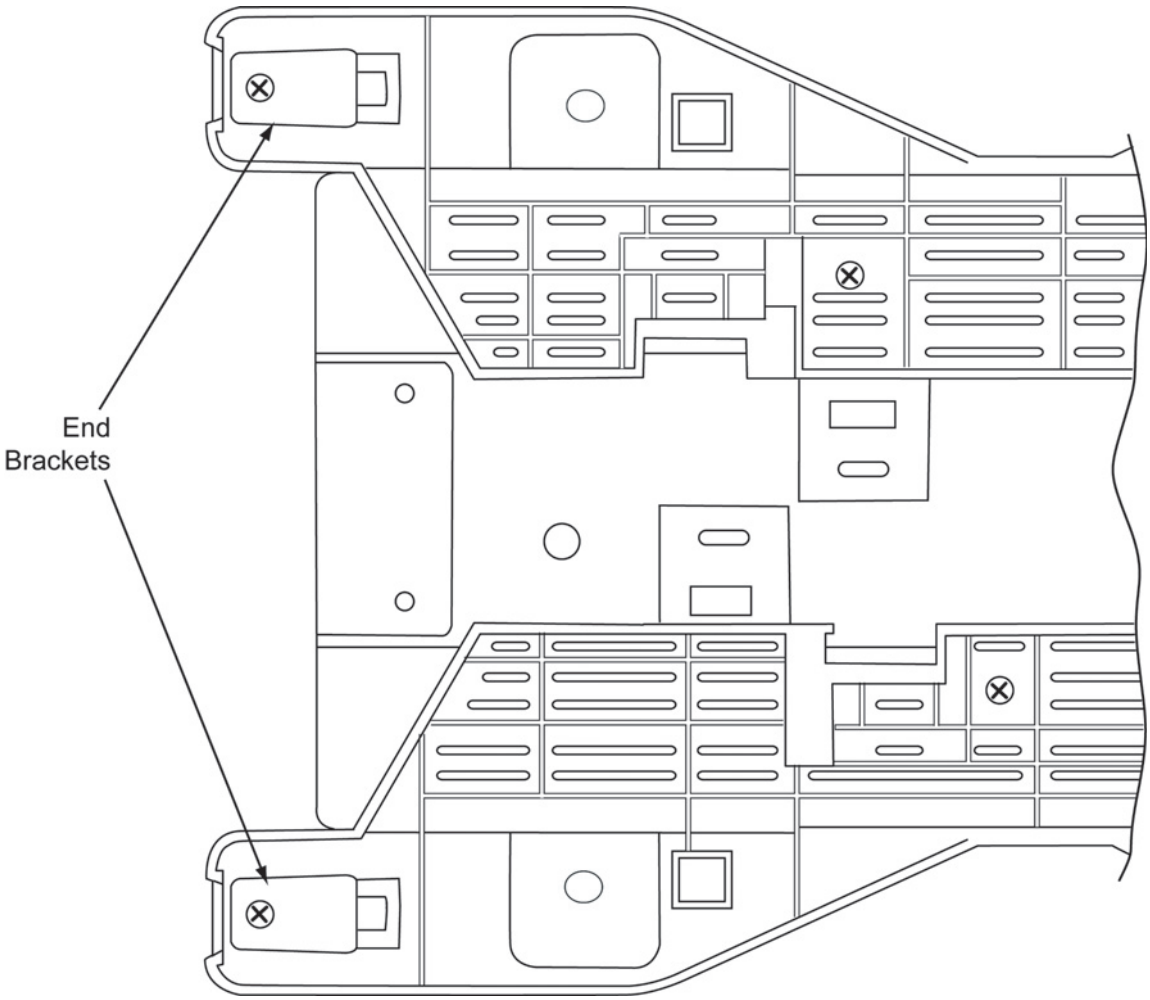
Brackets Secured in Mounting Position with Screws



(6) Rotate the brackets into the mounting position. Using the same screws, secure the metal brackets to the bracket assembly (refer to Brackets Secured in Mounting Position with Screws on page 1923).

(7) Remove the end brackets from the remaining two corners and set aside.

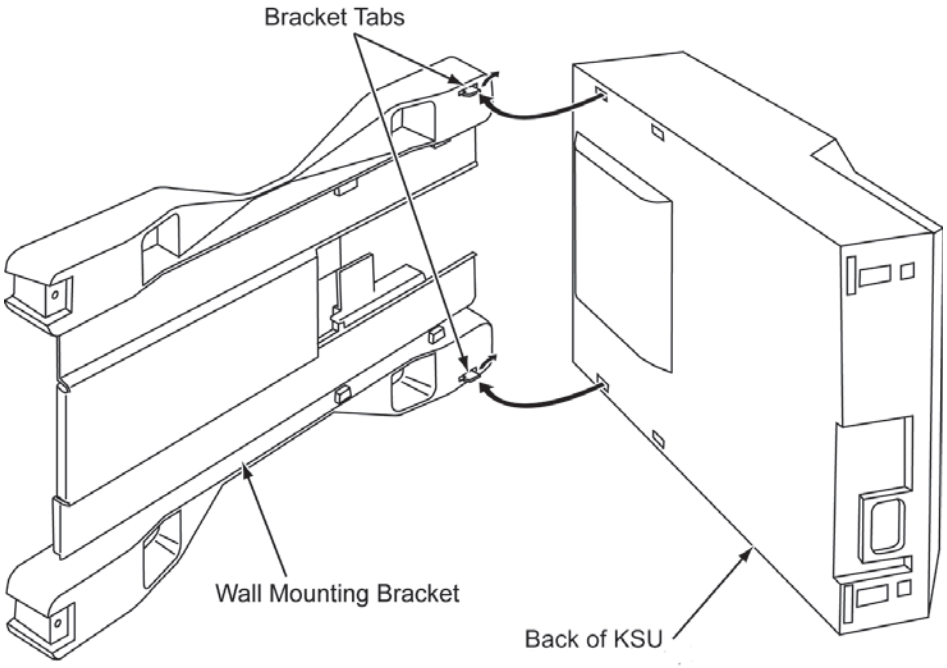
Remove End Brackets



(8) Using four screws, secure bracket assembly to the four pre-drilled holes in the wall.

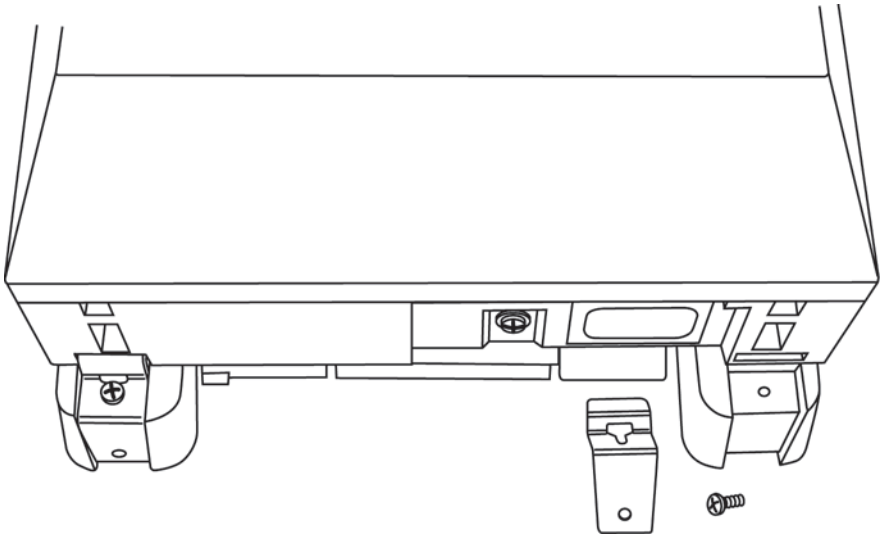
(9) Fit the precut holes on the 9.5” chassis over the metal tabs.

Attach 9.5” Chassis to Wall Mounting Bracket



(10) Using the screws removed earlier, install the end brackets to secure the 9.5” chassis to the mounted bracket assembly.

Install End Brackets



[Option 2 – Wall Mount Bracket (Keyhole) to Chassis]

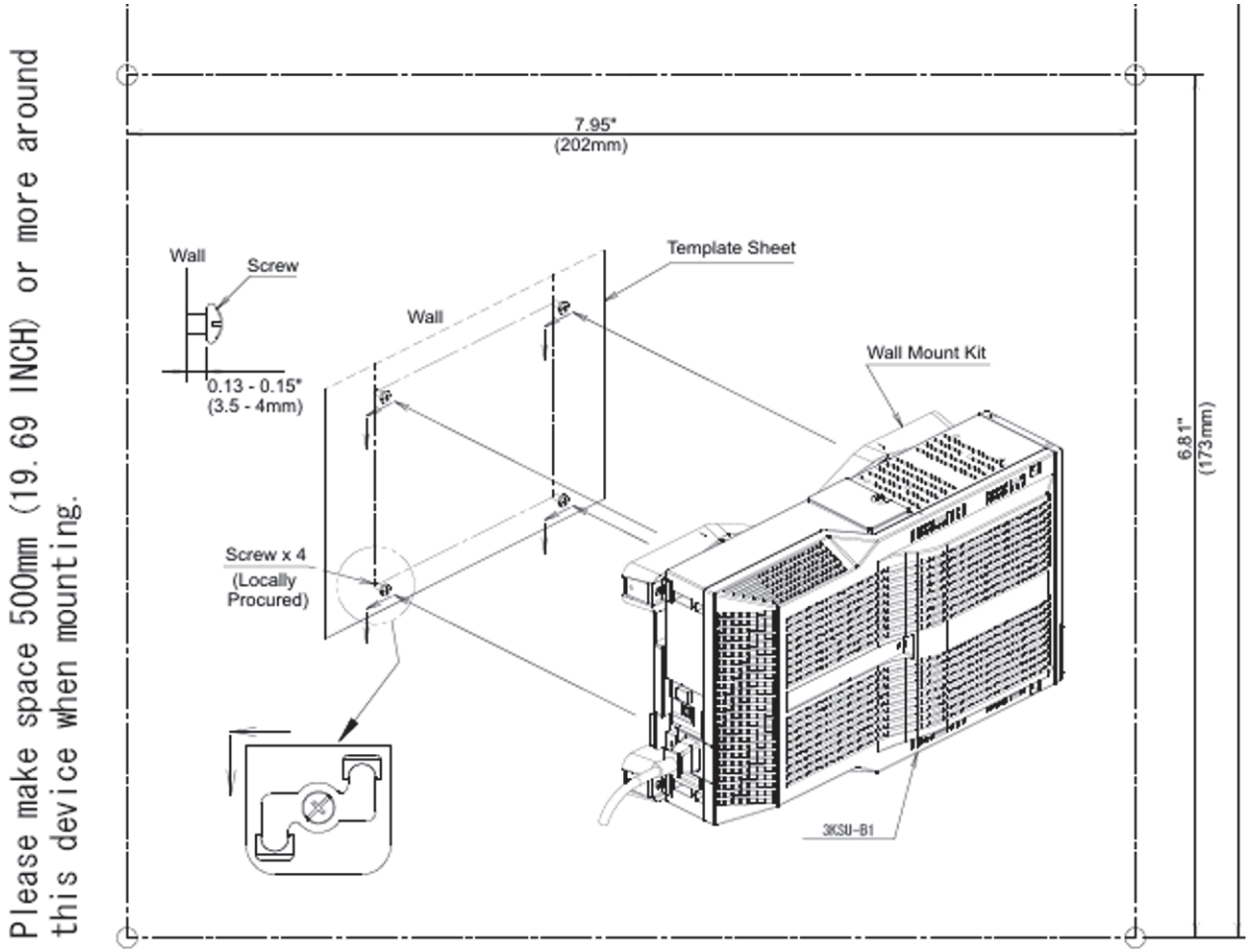
(1) Use the template shown in Wall Mount Spacing Guide (9.5" Chassis) on page 1920 for required spacing before drilling.

Note: Plywood should first be installed on the wall where the chassis will be positioned. This allows secure anchoring of the screws which support the weight of the chassis.

(2) Mark and drill four holes.

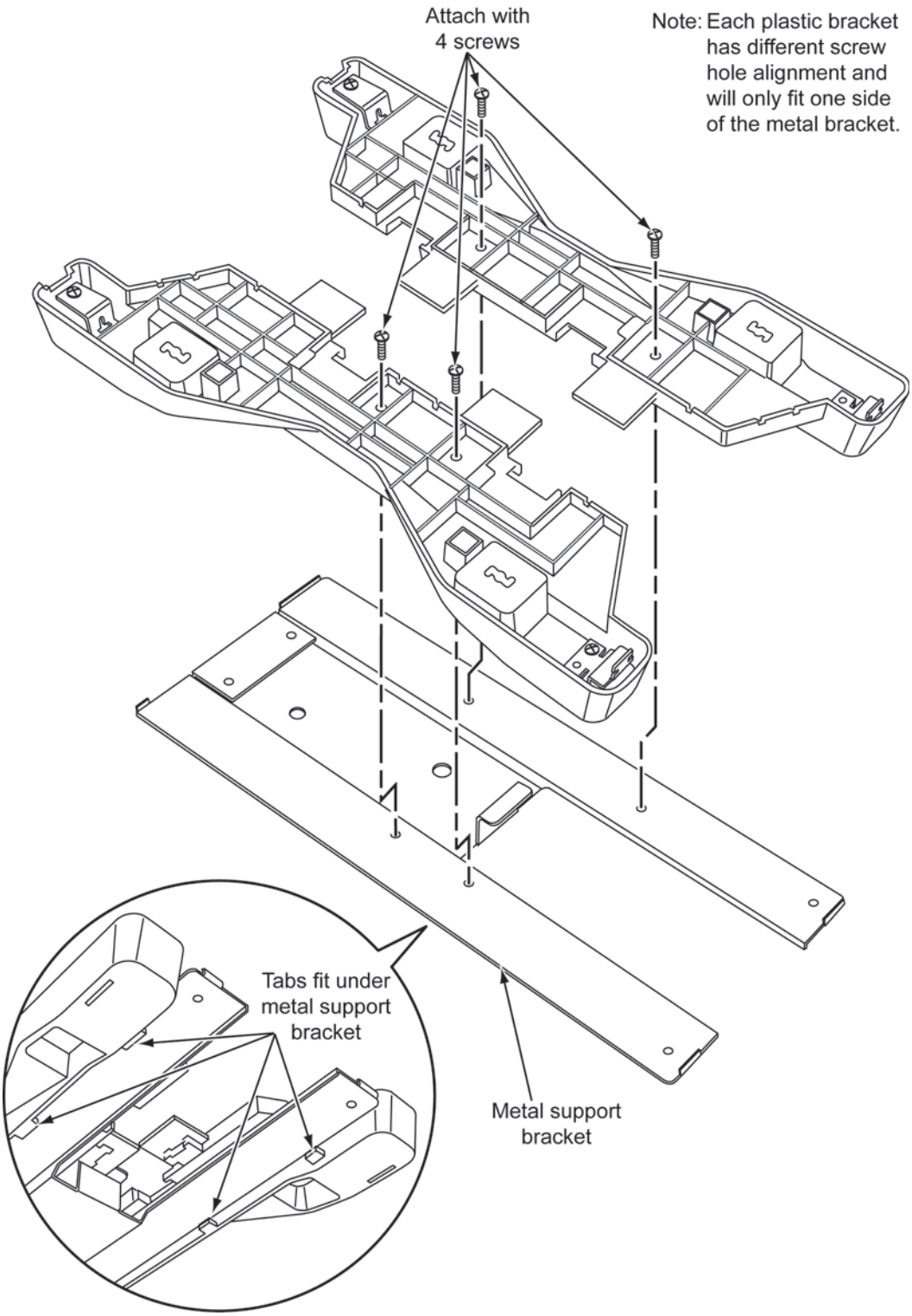
(3) Install four screws into the four drilled holes.

Install Screws (Option 2)



(4) Align the bracket halves with the precut holes in the metal expansion fitting provided.

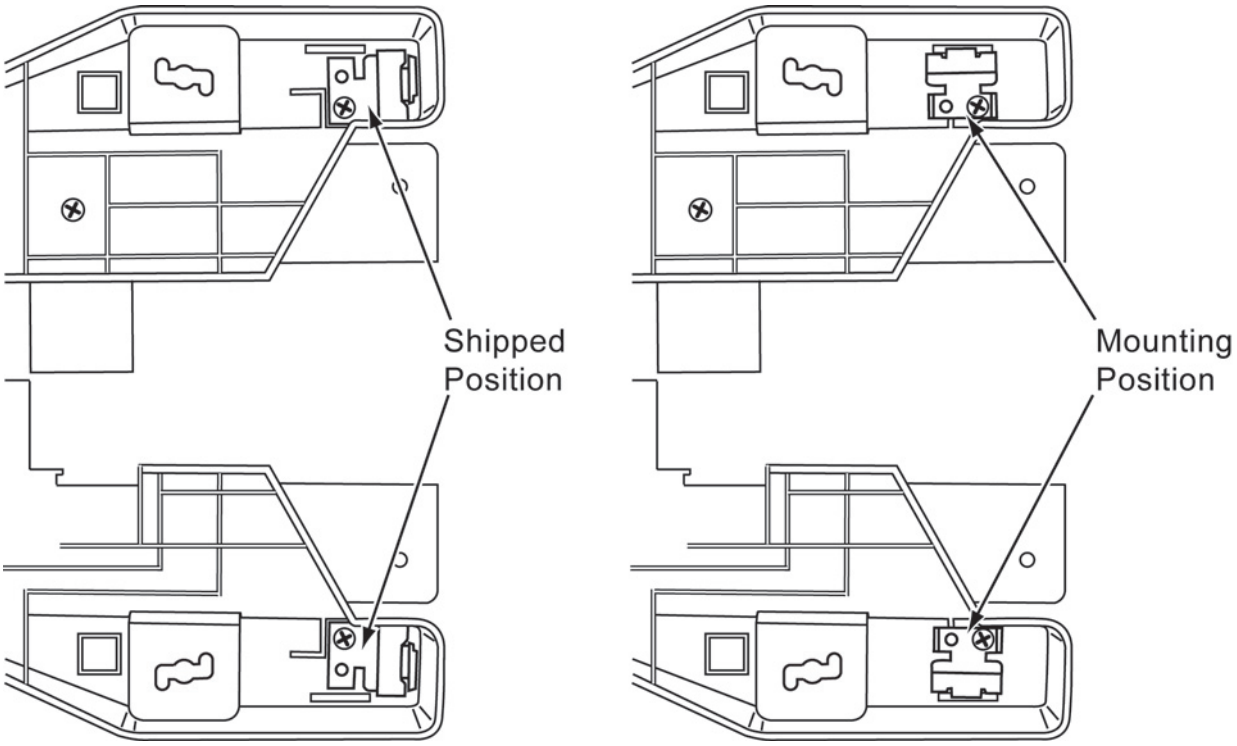
9.5” Mounting Brackets and Metal Expansion Fitting



(5) Secure the bracket halves to the expansion fitting using the four supplied screws (refer to 9.5" Mounting Brackets and Metal Expansion Fitting on page 1927).

(6) Turn bracket assembly over and remove the screws holding two brackets in the shipped position.

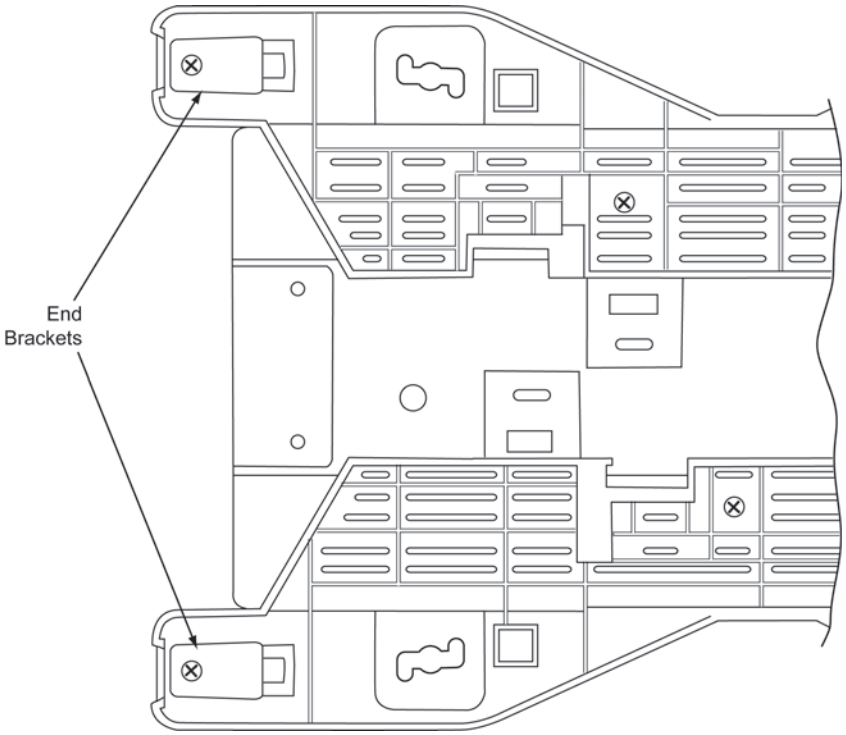
Brackets Secured in Mounting Position with Screws



(7) Rotate the brackets into the mounting position. Using the same screws, secure the metal brackets to the bracket assembly (refer to Brackets Secured in Mounting Position with Screws on page 1928).

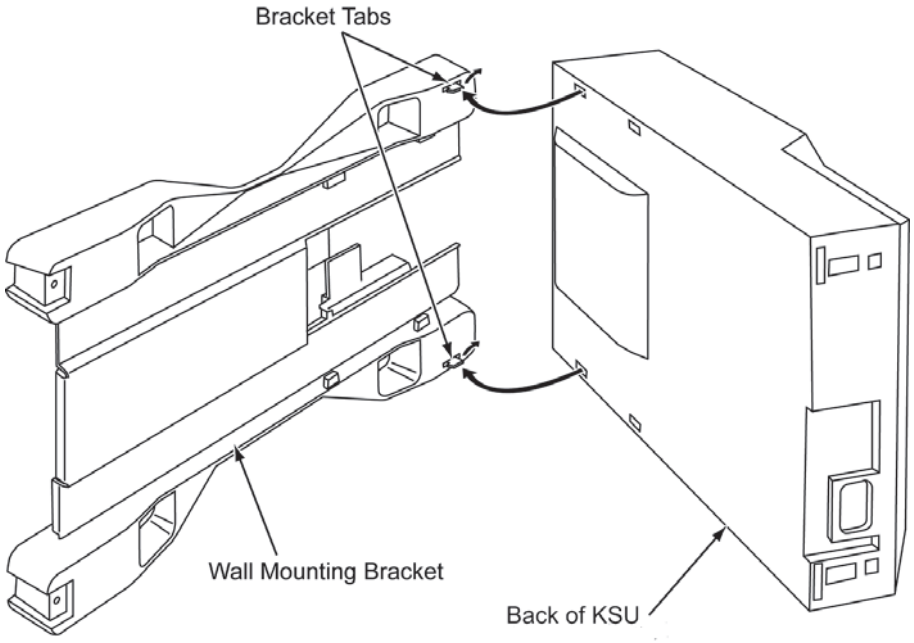
(8) Remove the end brackets from the remaining two corners and set aside.

Remove End Brackets



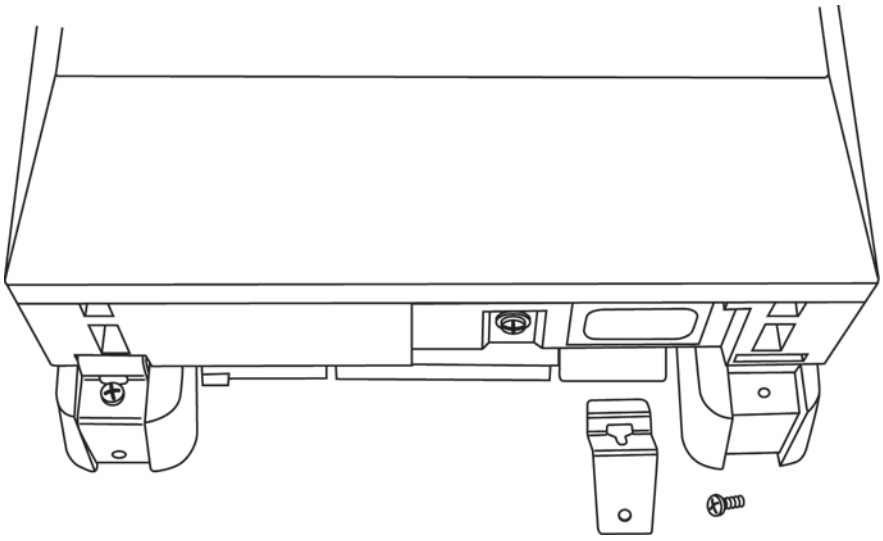
(9) Fit the precut holes on the 9.5” chassis over the metal tabs.

Attach 9.5” Chassis to Wall Mounting Bracket



(10) Using the screws removed earlier, install the end brackets to secure the 9.5” chassis to the mounted bracket assembly.

Install End Brackets



(11) Using the key-holes as a guide, slide the assembled unit over the screws previously installed in the wall (refer to Install Screws (Option 2) on page 1926).

3.4.2 Floor Mounting the Chassis

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

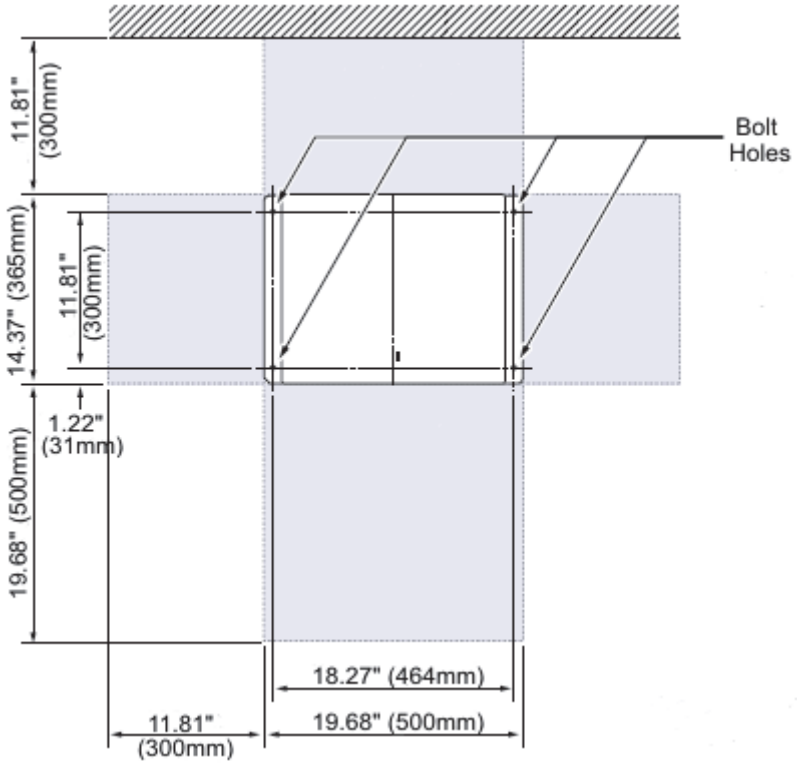
[Floor Mounting the 19” (CHS2U-US) Chassis]

[Single CHS2U-US Chassis Installation]

The CHS2U-US chassis can be mounted on the floor using the CHS BASE UNIT and the CHS2U JOINT BRACKET KIT.

(1) Use the template shown below for required spacing before drilling holes for 0.39” (10mm) anchor bolts (locally procured).

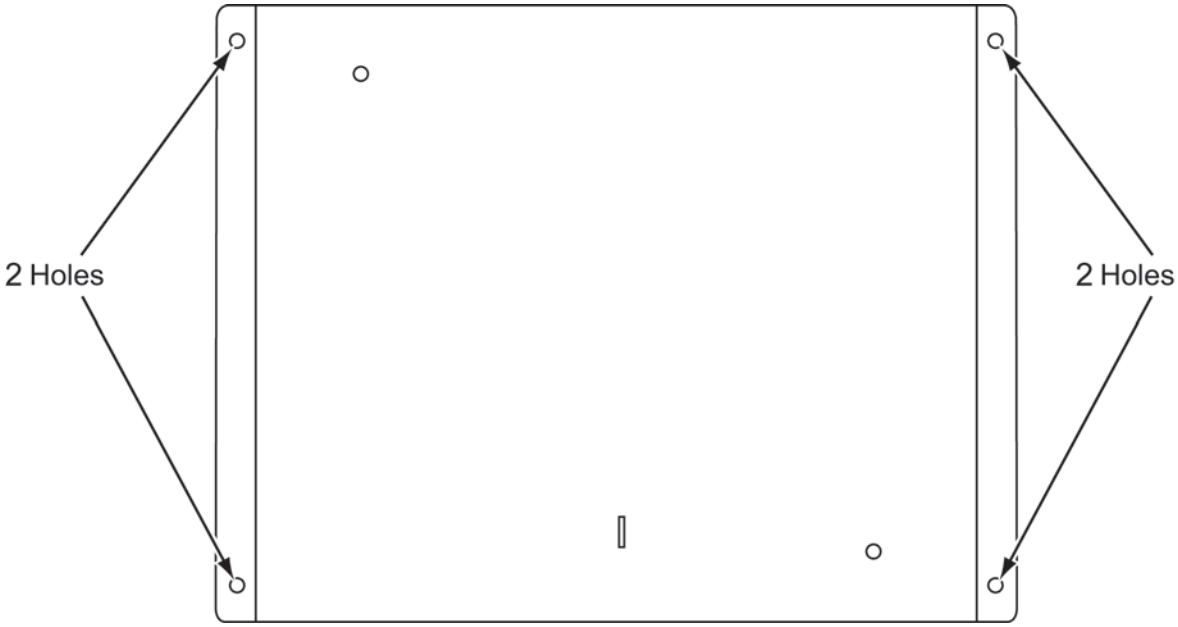
Floor Mount Spacing Guide



(2) Mark and drill the four holes required to install the CHS BASE UNIT.

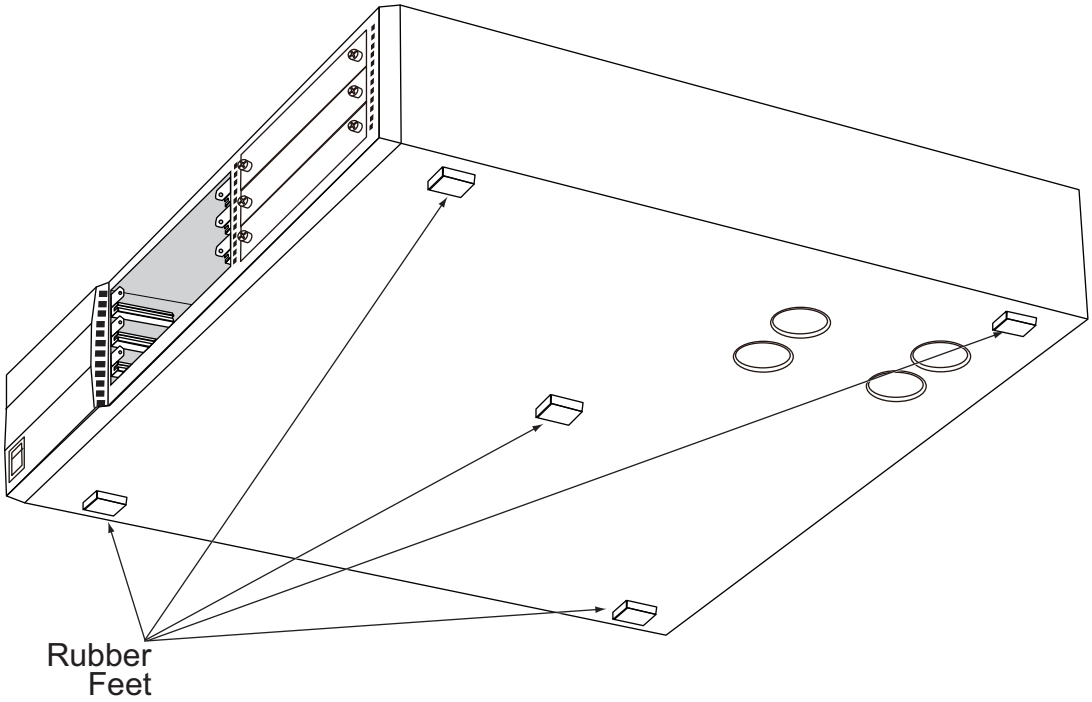
(3) Using anchor bolts, secure the CHS BASE UNIT to the floor.

Secure CHS BASE UNIT with Anchor Bolts



(4) Install the five rubber feet to the bottom of the chassis.

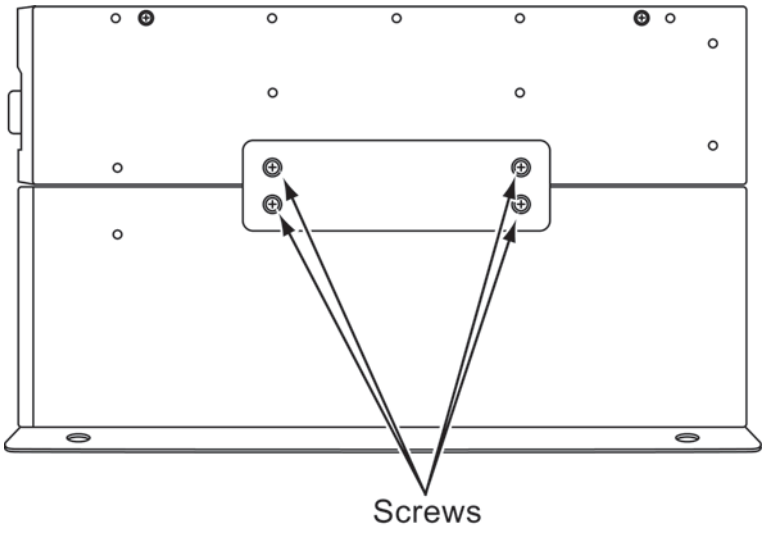
Install Rubber Feet (19” Chassis)



(5) Position the chassis on top of the CHS BASE UNIT.

(6) Secure the chassis to the CHS BASE UNIT using eight screws supplied with the CHS2U JOINT BRACKET KIT.

Secure CHS BASE UNIT with Anchor Bolts

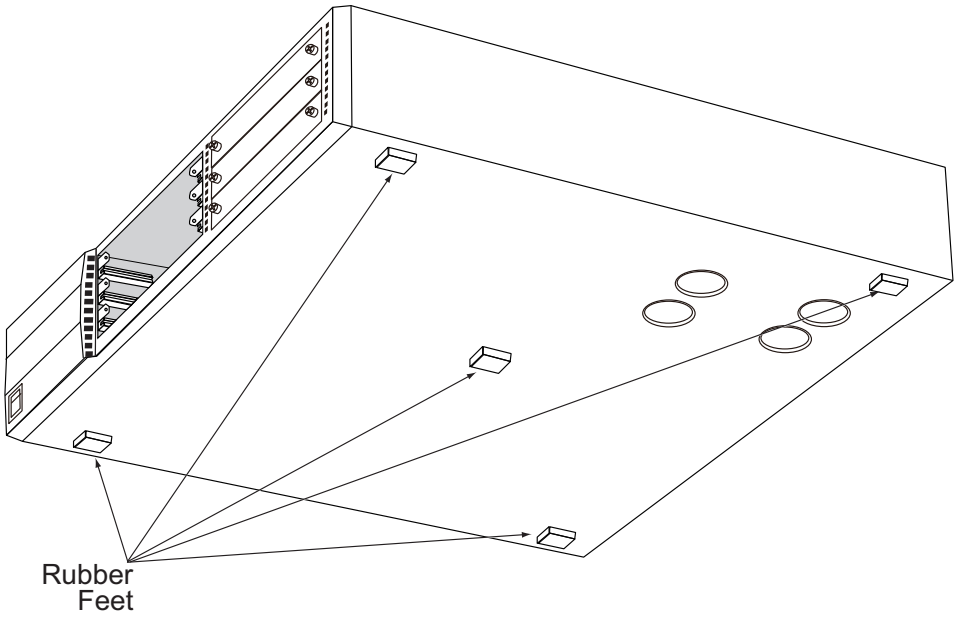


[Multiple CHS2U-US Chassis Installation]

Additional chassis can be secured to the CHS BASE UNIT and require an additional CHS2U JOINT BRACKET KIT per chassis.

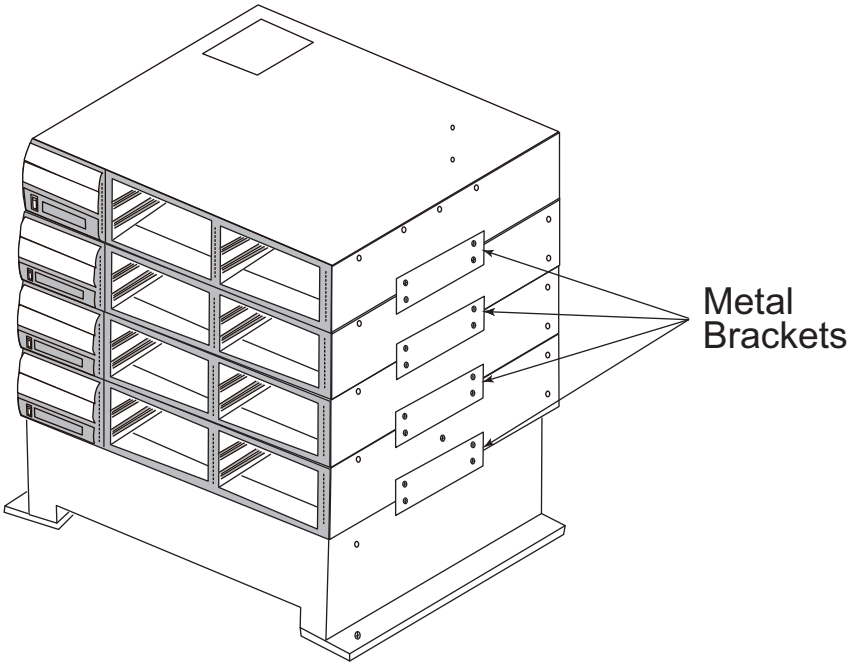
(1) Install the five rubber feet to the bottom of each chassis.

Install Rubber Feet for Multiple Chassis



(2) Using supplied screws in the CHS2U JOINT BRACKET KIT, attach metal brackets to both ends of the 19” chassis and the CHS BASE UNIT.

Install Metal Brackets with Screws



3.4.3 Stand Mounting the Chassis



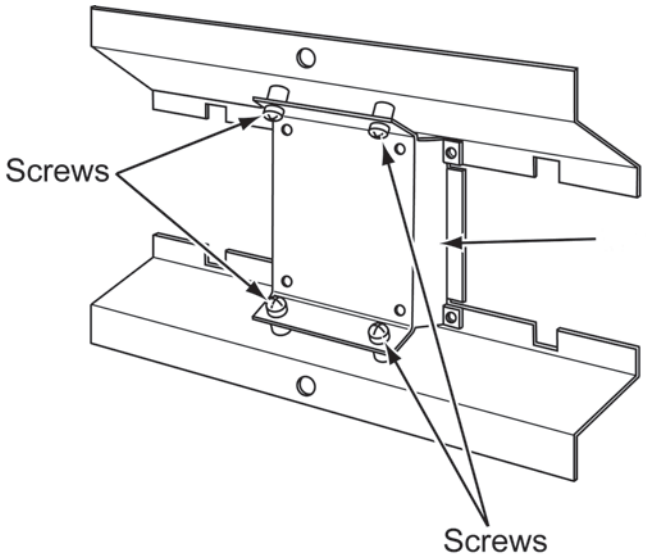
[Stand Mounting the 19” (CHS2U-US) Chassis

A single or multiple chassis can be stand mounted. Each chassis can be stand mounted using the CHS2U STAND KIT(K) and CHS2U STAND KIT (EXT).

[Single CHS2U-US Chassis Installation]

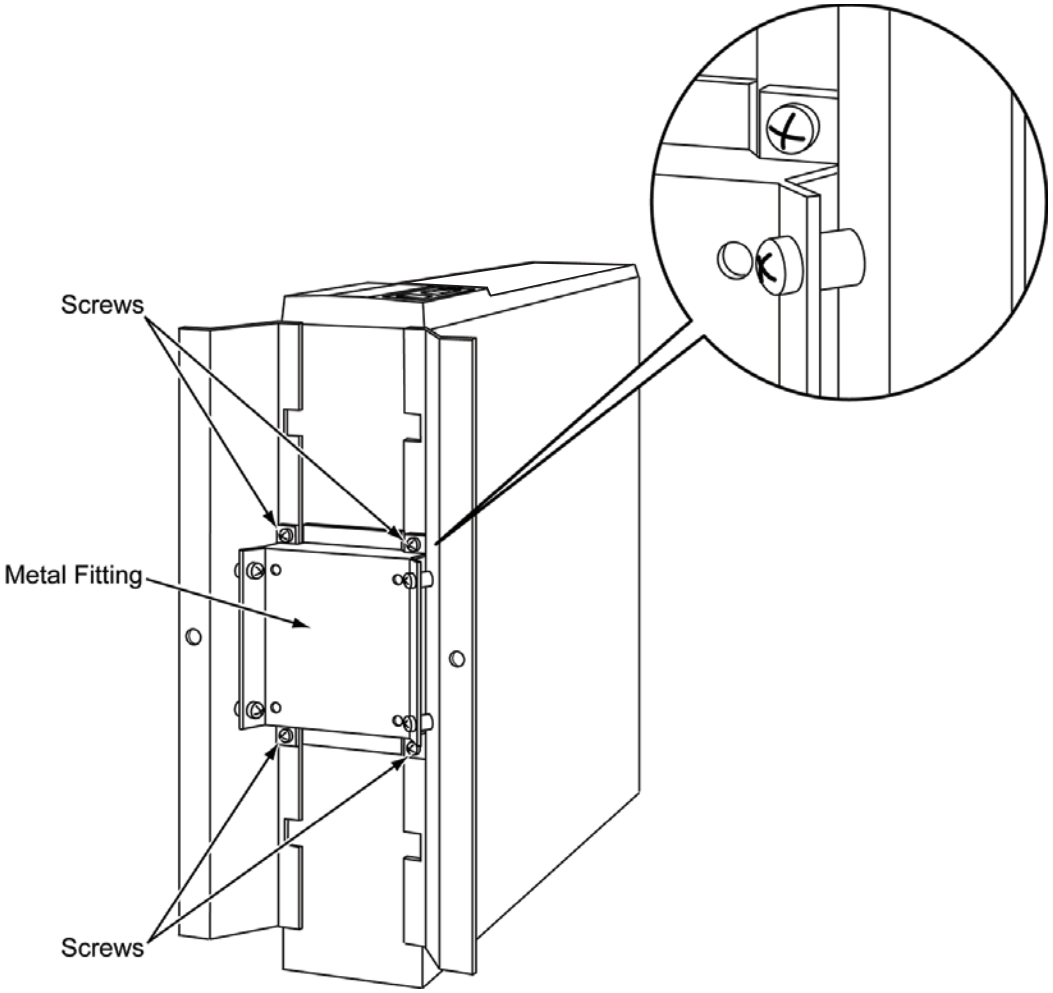
(1) Using the supplied screws, assemble the CHS2U STAND KIT(K).

Assemble Stand Mount with Screws



(2) Secure the CHS2U-US chassis to the assembled CHS2U STAND KIT.

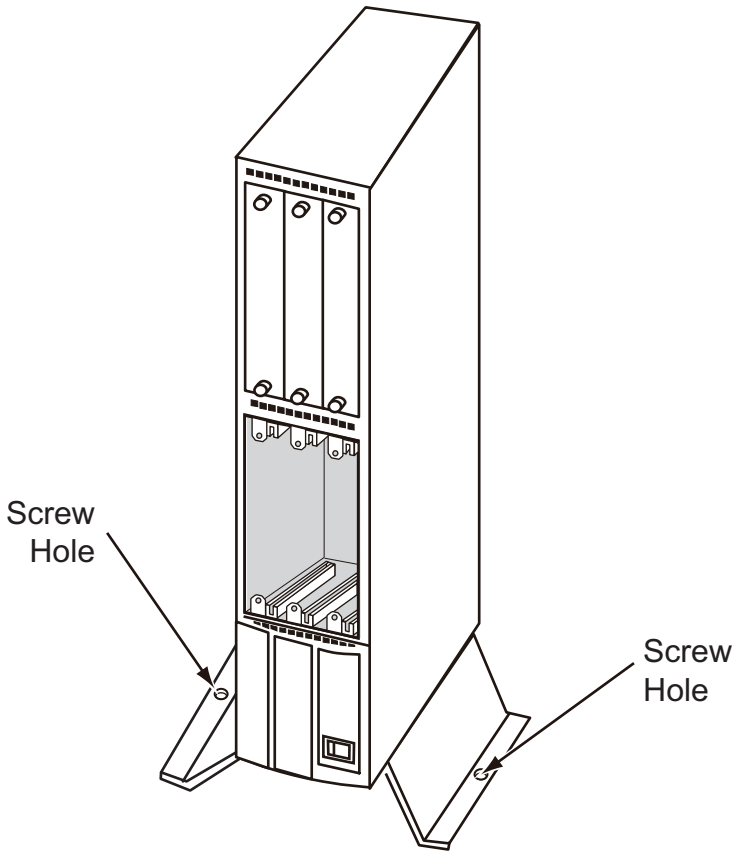
Secure CHS2U-US Chassis to CHS2U STAND KIT with Screws



(3) Using supplied screws, secure the CHS2U STAND KIT to the floor.

Note: To prevent possible damage to the 19" chassis due to falling, NEC recommends screws be installed in the stand mount brackets as soon as possible.

Secure Stand Mount to Floor with Screws

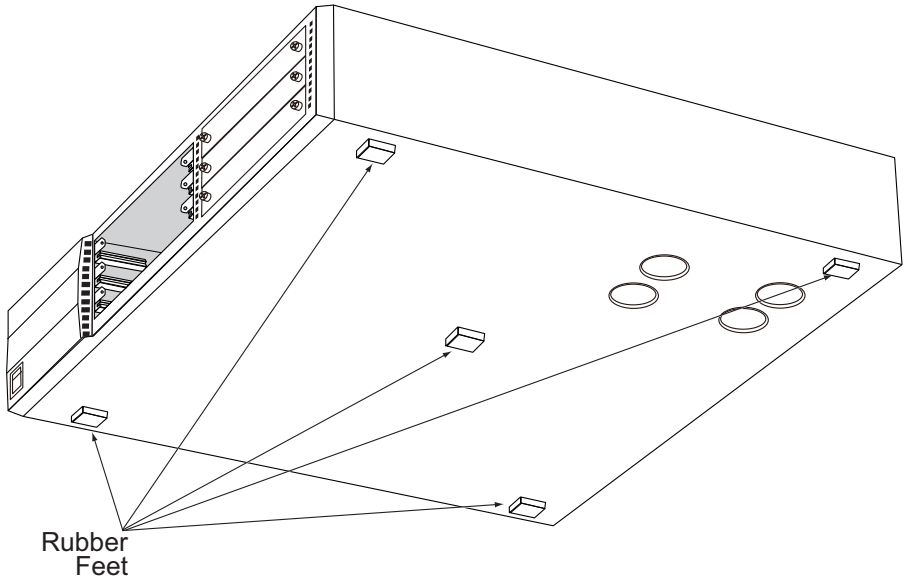


[Multiple CHS2U-US Chassis Installation]

An additional chassis (maximum of three) can be added to the CHS2U STAND KIT and require an additional CHS2U STAND KIT (EXT) per chassis.

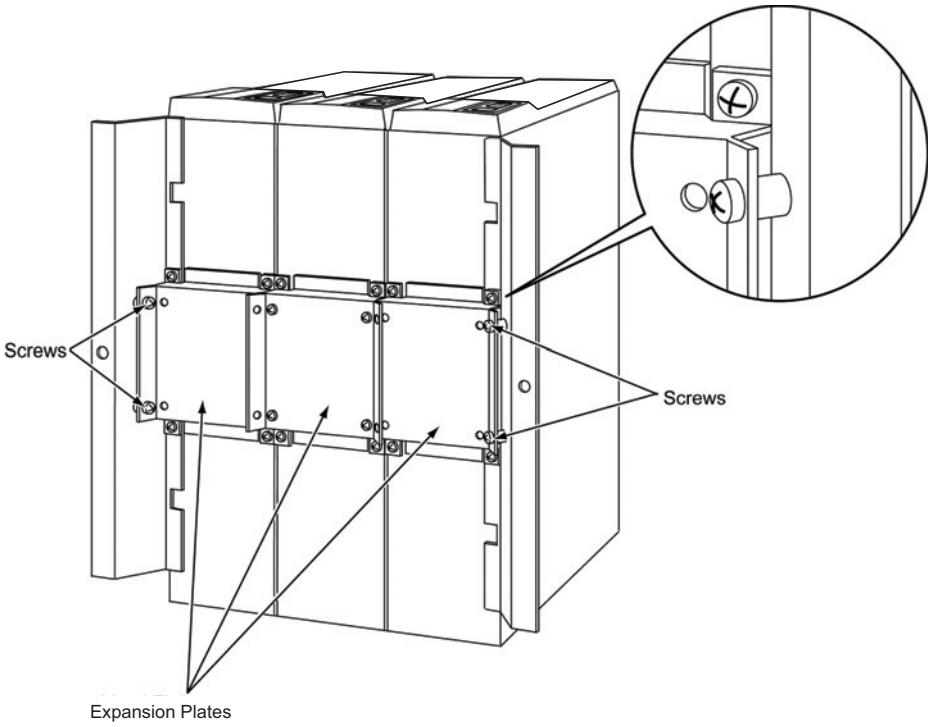
(1) Install the five rubber feet to the bottom of each chassis.

Attach Rubber Feet to CHS2U-US Chassis



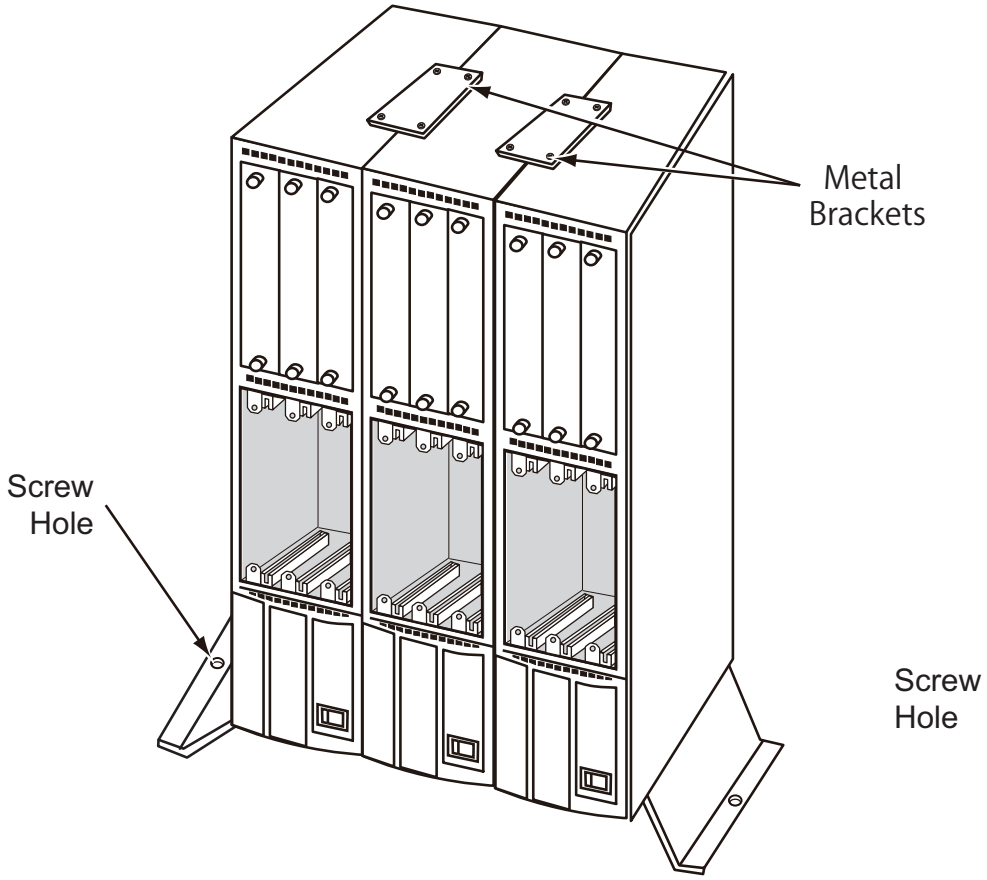
(2) Each additional chassis requires a CHS2U STAND KIT (EXT) to be installed.

Install Additional CHS2U STAND KIT (EXT)



(3) Metal brackets from the CHS2U JOINT BRACKET KITs are required to secure the top end of the chassis with screws.

Install Additional Brackets from CHS2U JOINT BRACKET KIT



(4) Using supplied screws, secure the CHS2U STAND KIT to the floor (refer to Install Additional Brackets from CHS2U JOINT BRACKET KIT).

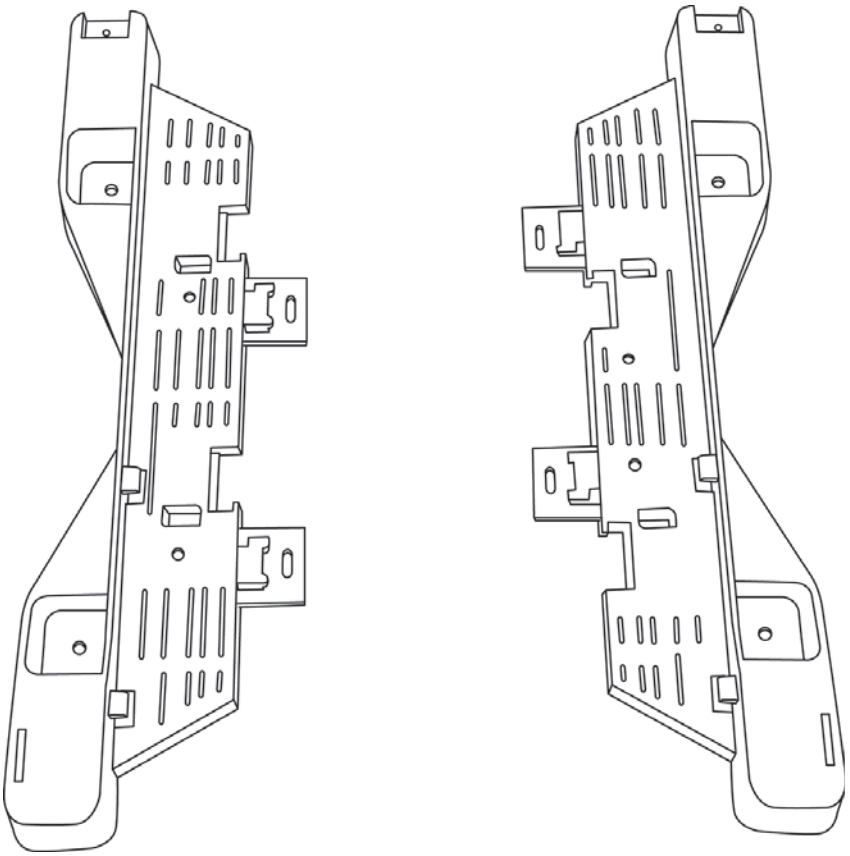
Note: To prevent possible damage to the 19" chassis due to falling, NEC recommends screws be installed in the stand mount brackets as soon as possible.

[Stand Mounting the 9.5" (CHS2U B-US) Chassis]

The 9.5" chassis can be stand mounted using the brackets supplied.

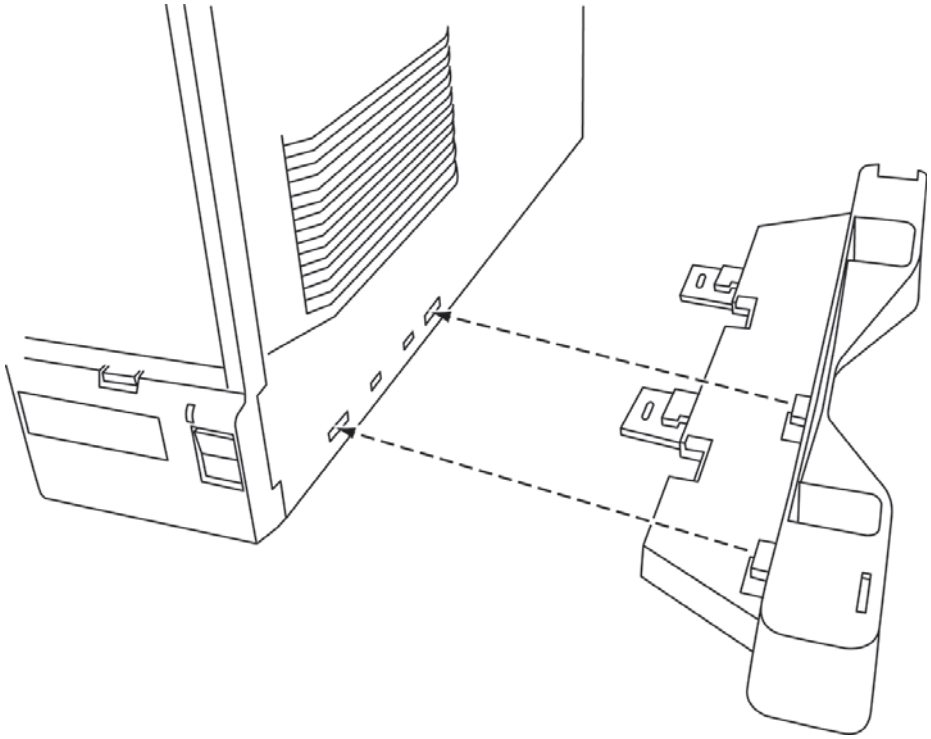
(1) Lay the two bracket halves on a flat surface.

Position the 9.5” Stand Mount Brackets

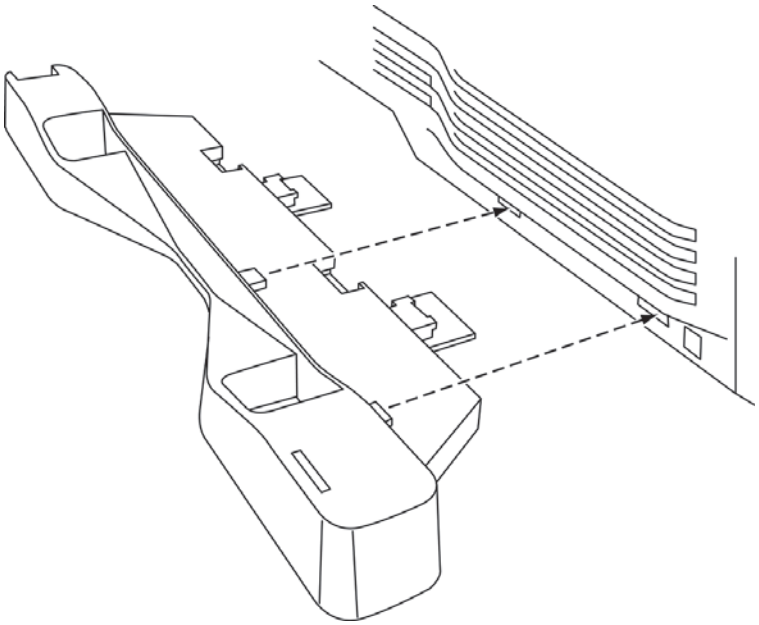


(2) Using the slots on the sides of the 9.5” chassis as guides, insert the stand mount brackets into the chassis.

Attach 9.5” Stand Mount Bracket

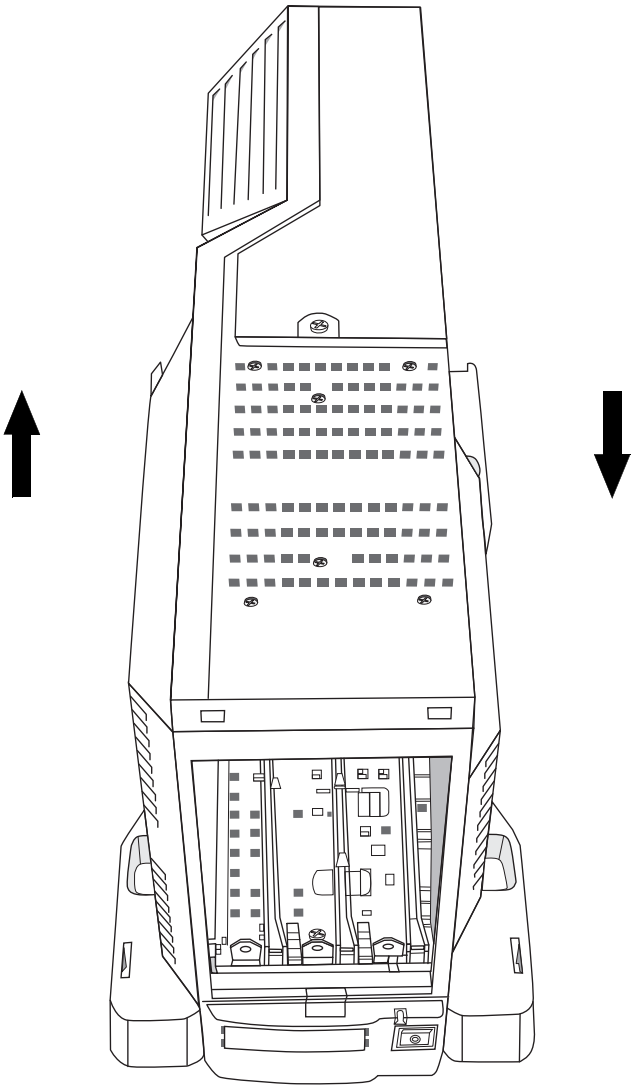


Attach Remaining 9.5” Stand Mount Bracket



(3) With brackets snug against the 9.5” chassis, carefully slide the brackets in opposite directions, until they snap into place.

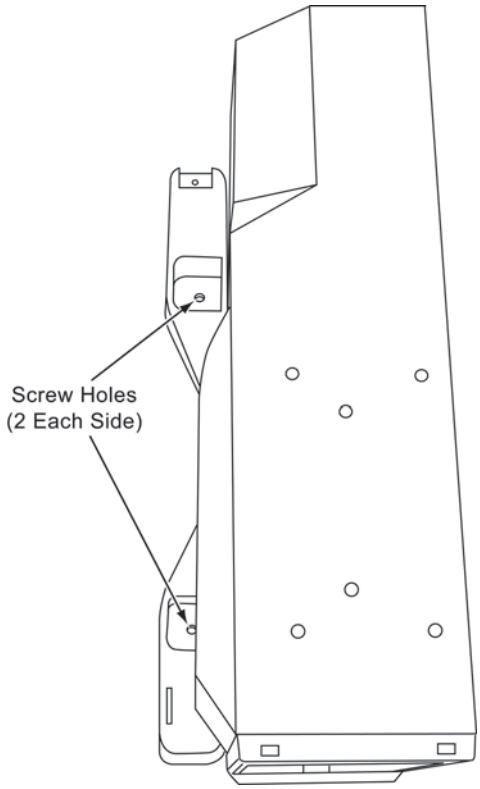
Stand Mount Brackets Installed



(4) Secure the 9.5” assembly to a flat surface with the four screws supplied.

Note: To prevent possible damage to the 9.5” chassis due to falling, NEC recommends the screws be installed in the stand mount brackets as soon as possible.

Secure the 9.5” Stand Mounting with Screws



3.4.4 Rack Mounting the Chassis



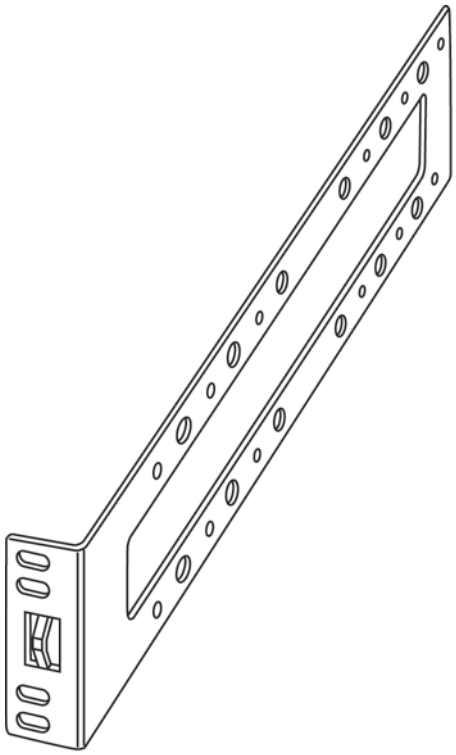
[Rack Mounting the 19” (CHS2U-US) Chassis]

The chassis can be rack mounted.

(1) The 19” chassis requires two rack mount brackets per chassis for mounting. Each 19" chassis requires its own set of rack mount bracket(s).

Note: Stacking additional chassis (without rack mount brackets) on top of one rack mounted chassis is not recommended.

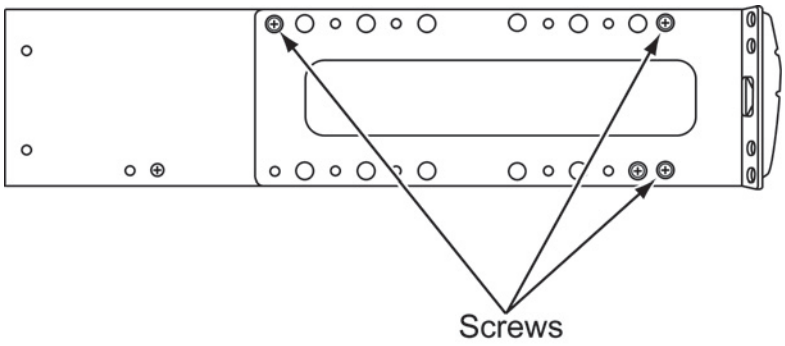
CHS2U-US Rack Mount Brackets



(2) Line up the Rack Mount Bracket(s) with the pre-drilled holes on each side of the 19” chassis.

(3) Secure the brackets to the chassis using the supplied screws. Refer to Rack Mount Bracket Installed 19” CHS2U-US on page 1946 for the 19” chassis.

Rack Mount Bracket Installed 19” CHS2U-US

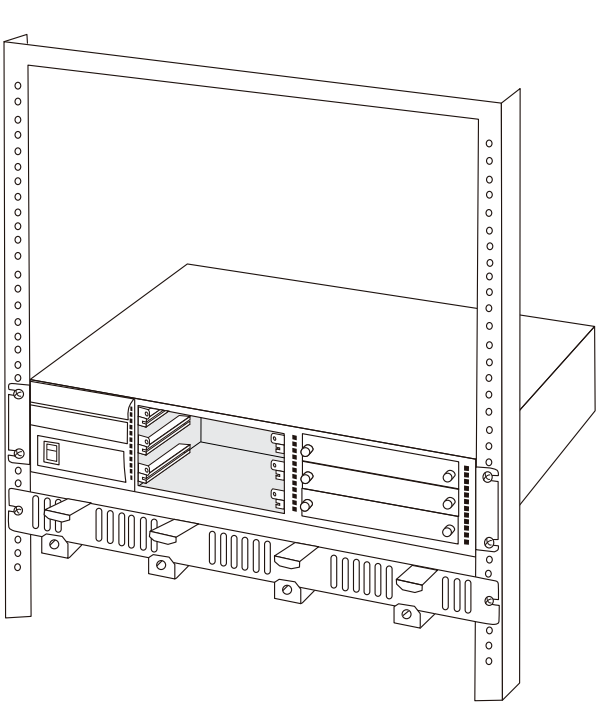


(4) Carefully slide the chassis into desired location in the rack. Make sure the hooks on the mounting bracket are inserted into the back of the chassis, securing it in place. Note that the cabling is run through the front of the rack for ease of access.

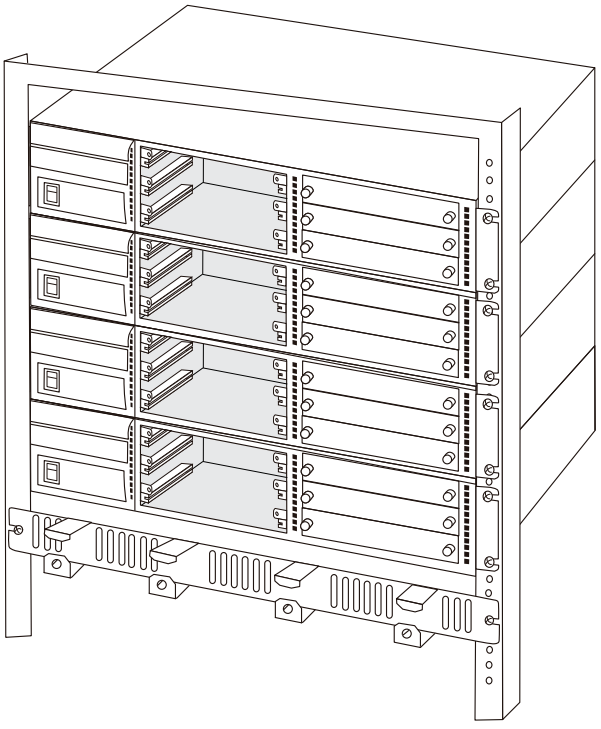
Note: Each CHS2U-US chassis will require approximately 3.5” of height within the rack.

(5) Secure the brackets to the rack using the screws supplied.

Rack Mount 19” CHS2U-US



Single CHS2U-US rack Mount



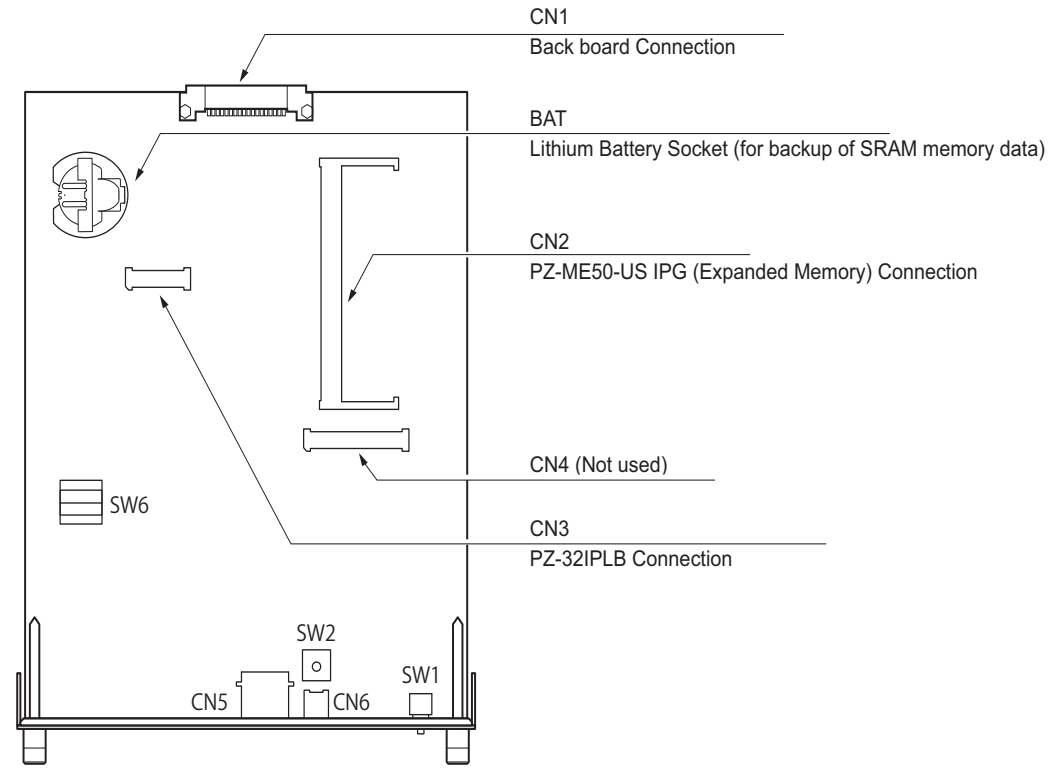
Multiple CHS2U-USs rack Mount

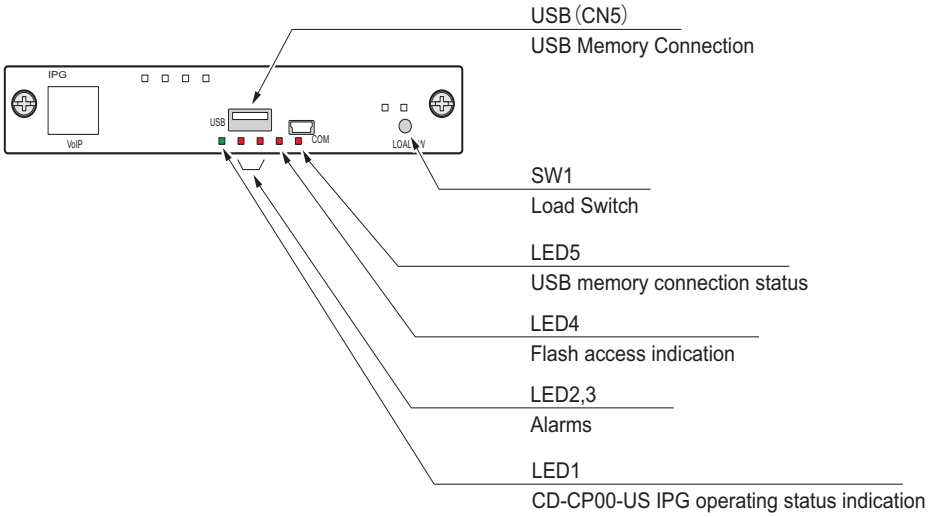
3.5 Blade Switch Setting

3.5.1 CD-CP00-US IPG (Central Processing Unit)

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

Common Control Blade (CD-CP00-US IPG)





Note:

- The chassis power must be off when installing or removing the CD-CP00-US IPG.

- After removing a previously installed CD-CP00-US IPG, handle the blade, carefully, from the edges. If certain solder points/resistors are touched on the back of the blade, some RAM/temporary memory may be lost (e.g., time, date, user-defined settings, etc.)

[Switch Settings]

Refer to the table below for system restart/system reset and with system power on. Figure: Common Control Blade (CD-CP00-US IPG) on page 1947 shows the location of the SW1 switch on the CD-CP00-US IPG blade.

- SW1: Load Switch

  The table shown below explains the switch settings of SW1.

	USB Memory Status	Operation
SW1 (Load Switch)	**With a system restart or a system reset while holding the SW1 switch:**	
	When USB Memory is not installed:	Cold Start occurs. . *Database default occurs*
	When USB Memory is installed:	USB Memory contents loaded.
	When an unauthorized USB device is installed:	System does not start and an Illegal USB device is connected alarm is recorded.

- SW2: Not used
- SW6: For tests (Not used)

Note: SW6 is used for tests. Do not change the following default settings.

	Configuration	Note
SW6-1	ON	Not Used
SW6-2	OFF	Test Mode ON = Test Mode OFF = Normal
SW6-3	OFF	RS232C Select ON = Use OFF = Not Used
SW6-4	ON	Reset Configuration ON = Normal OFF = ICE Mode

[LED Indications]

The LEDs on the CD-CP00-US IPG indicate the following:

- RUN (LED 1) = Running status of CD-CP00-US IPG (Green)
- LED 2, and 3 = Alarms (Red)
- LED 4 = Flash access indication (Red)
- LED 5 = The USB memory connection status (Red)
- (LED off when no USB memory installed)

The following table provides a list of each LED and associated operation and status indications. Refer to Figure: Common Control Blade (CD-CP00-US IPG) on page 1947 for the location of the LEDs on the CD-CP00-US

IPG.

CD-CP00-US IPG LED Indications

LED Indication					Status
RUN (LED1)	LED2	LED3	LED4	LED5	
Blinking	Off	Off	Off	On Steady When USB Memory is Installing	System operating normally
Off	Off	Off	Off	Blinking	Boot is starting
Off	On	Off	Off	Off	Initializing the disk or formatting
Blinking	Blinking	Off	Access Blink	On Steady When USB Memory is Installing	Boot program is initializing in the flash memory
Off	On	On	Access Blink	On Steady When USB Memory is Installing	Reading system software
Off	On	Off	Access Blink	On Steady When USB Memory is Installing	Upgrading system software
On	Blinking	Blinking	Blinking	On Steady When USB Memory is Installing	Finish formatting (SRAM, Flash)
Blinking	Off	Off	Off	Off	DRAM error
Blinking	Off	Off	On	On Steady When USB Memory is Installing	FPGA version error
Blinking	Off	On	Off	On Steady When USB Memory is Installing	SRAM error
Blinking	Off	On	On	On Steady When USB Memory is Installing	Flash memory booting error
Blinking	On	On	On	On Steady When USB Memory is Installing	Flash memory data error
Blinking	Blinking	Blinking	Blinking	On Steady When USB Memory is Installing	Reading error of system program
Blinking	On	Off	Off	On Steady When USB Memory is Installing	Error: Major alarm occurred
Blinking	Blinking	Off	Off	On Steady When USB Memory is Installing	Error: Minor alarm occurred
On	Off	Off	Off	Off	System starting up

[Connectors]

The table below describes each connector on the CD-CP00-US IPG. Refer to Figure: Common Control Blade (CD-CP00-US IPG) on page 1947 for the location of the connections on the CD-CP00-US IPG blade.

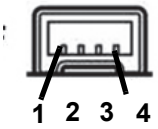
CD-CP00-US IPG Connections

Connector	Connector Description
CN1	Backboard Connection

Connector	Connector Description
CN2	PZ-ME50-US IPG (Expanded Memory) Connection
CN3	PZ-32IPLB Connection
CN4	Not used
CN5	USB Memory Connection (used for upgrading software or downloading system data)
CN6	Used for Debug
BAT	Lithium Battery Socket (for backup of SRAM memory data)

The table below describes the pin-outs for connectors on the CCPU-A.

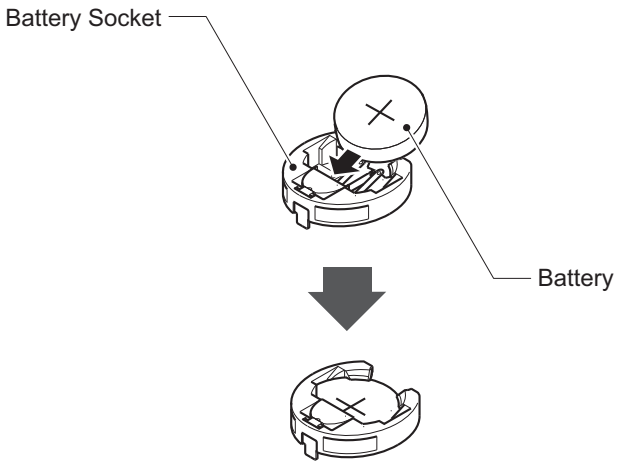
CD-LTA RJ45 Cable Connector Pin-Outs

USB Cable Connector – CN5 (Type A, Female) (USB 1.1/2.0 Standard)		
	**Pin No.**	**Signal**
	1	Vcc
	2	-D
	3	+D
	4	GND

[Battery Installation]

Install the battery on the CD-CP00-US IPG. The polarity + symbol must be on top as illustrated in the figure below.

CD-CP00-US IPG Battery Installation



3.5.2 PZ-ME50-US IPG (Memory Expansion Daughter Board)

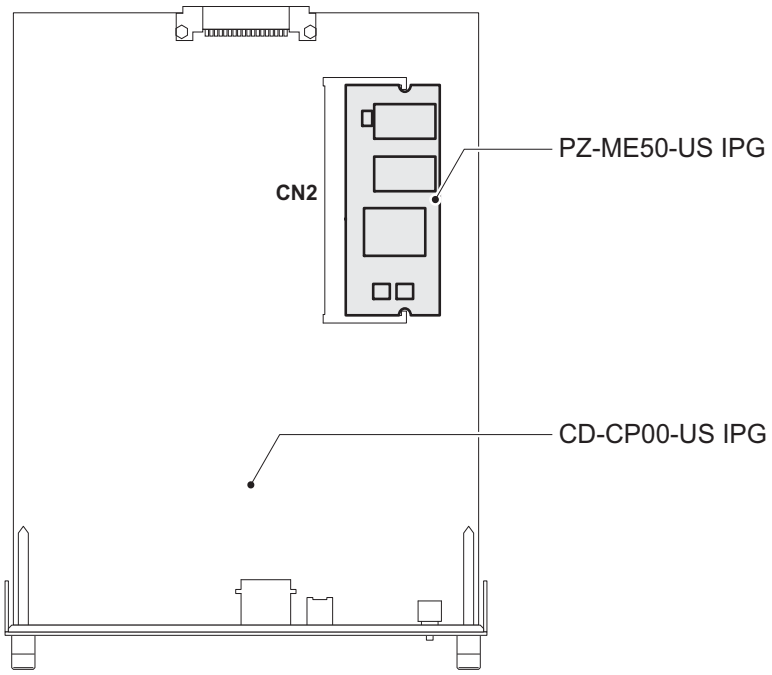


The Memory Expansion daughter board provides additional memory for the system. This daughter board is mounted on the CD-CP00-US IPG and provides the SDRAM, Flash Memory and SRAM.

This daughter board does not have any switch which needs to be set and does not require any hardware setting.

Note: This daughter board does not have any switch which needs to be set and does not require any hardware setting.

PZ-ME50-US IPG Daughter Board



The table below provides the memory capacities for the PZ-ME50-US IPG daughter board.

PZ-ME50-US IPG Memory Capacities

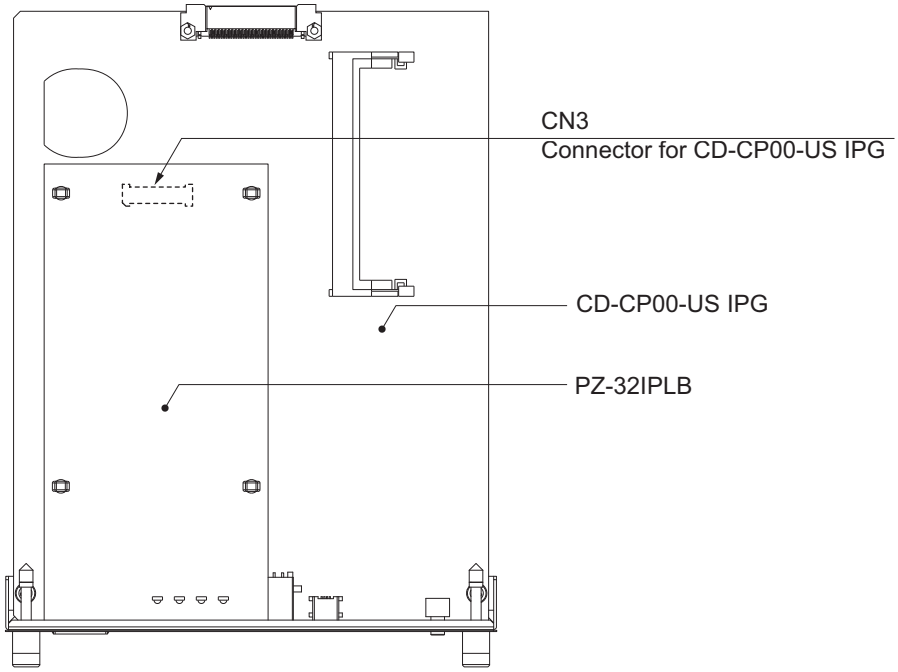
Description	Memory Capacity	Equipped Memory
SDRAM	128 MB	256 MB / 16-bit x 4 pcs
Flash Memory	32 MB	256 MB / 16-bit x 1 pc
SRAM	1 MB	4 MB / 16-bit x 2 pcs

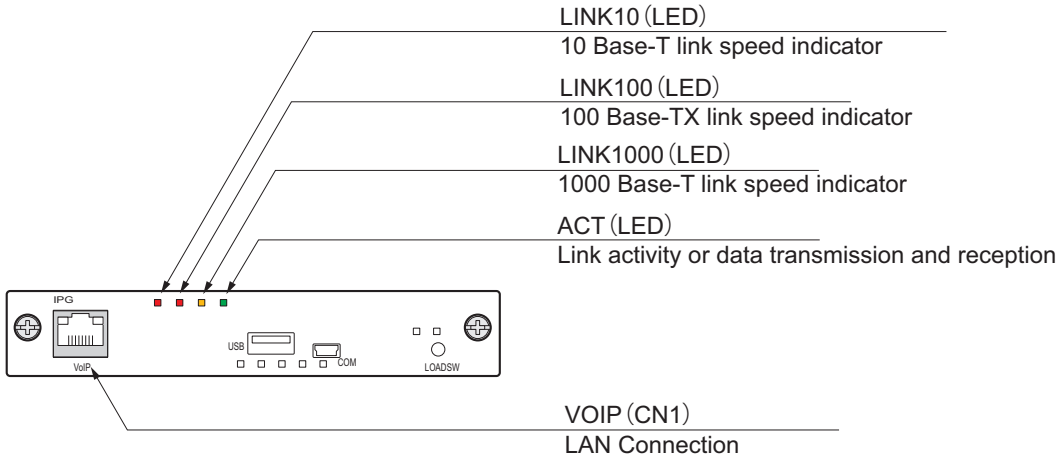
3.5.3 PZ-32IPLB (Voice over IP Daughter Board)



The PZ-32IPLB daughter board is used to convert the RTP (Real Time Transfer Protocol) packets via the IP network and PCM highway. The daughter board is installed on the CD-CP00-US IPG blade. PZ-32IPLB only supports duplex communication. If it is set to half-duplex communication, it will not be able to communicate.

PZ-32IPLB (VoIP Daughter Board)





[Switch Settings]

This daughter board does not have any switch that needs to be set and does not require any hardware setting.

[LED Indications]

The LEDs on the PZ-32IPLB indicate the following:

LED				Operation Status	Remarks
ACT (Green)	LINK1000 (Yellow)	LINK100 (Red)	LINK10 (Red)		
On	On	Off	Off	Establishing a link	
Flash	On	Off	Off	In data transmission and reception	
On	Off	On	Off	Establishing a link	
Flash	Off	On	Off	In data transmission and reception	
On	Off	Off	On	Establishing a link	
Flash	Off	Off	On	In data transmission and reception	
On	On	On	On	Canceling Reset	
Off	Off	Flash (Alternately)		Board is being started up.	
Off	Off	Flash	Flash	Internal Error 1	Board may be faulty. You need to replace the board.
Off	On	Flash	Flash	Internal Error 2	
On	On	Flash	Flash	Internal Error 3	
On	Off	Flash	Flash	Half-duplex communication	"Half-duplex" is set on the connected party. Change the communication mode to "Duplex."
Flash (Fast)	Flash (Sequentially) *1			Firmware is being updated.	

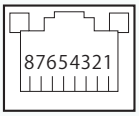
[Connectors]

The following explains about the connectors on IPLB daughter board.

Connector	Explanation
VOIP (CN 1)	For LAN cable connection (10 Base-T/100 Base-TX/1000 Base-T)
CN3	For connection with CD-CP00-US IPG

Note: LAN cable is only available for VOIP (CN 1) connector. Connecting other cables, such as RJ-61 cables connected to CD-8DLCA/CD-8LCA or analog lines, may cause a failure.

The table below describes the pin-outs for VIOP connector on IPLB daughter board.

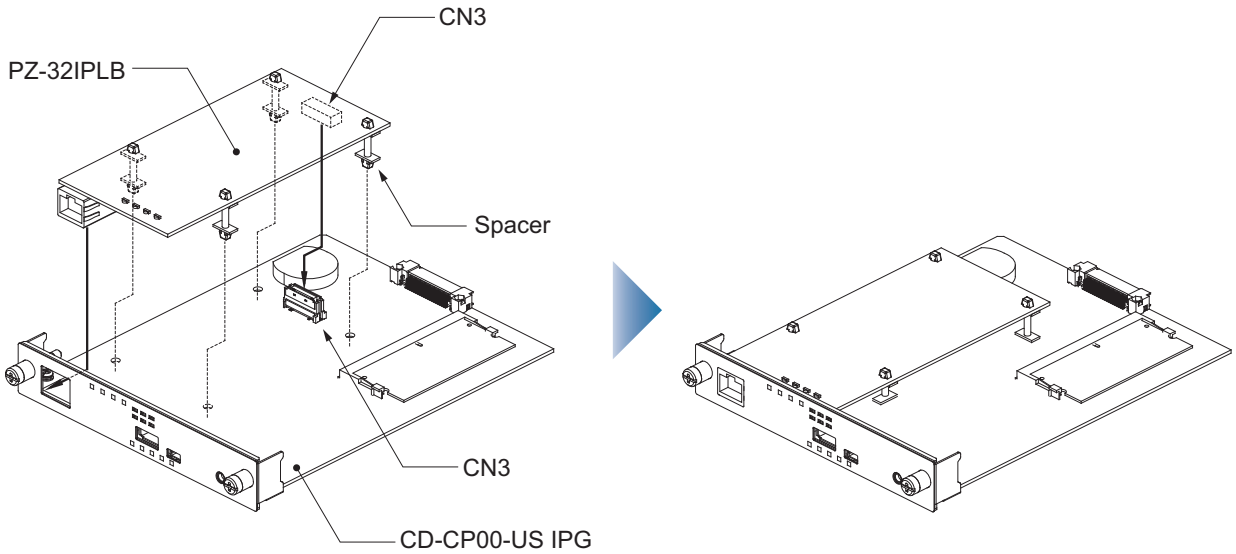
LAN Cable Connector - VOIP (CN1)		
	Pin No.	Signal
	1	Tx+
	2	Tx-
	3	Rx+
	4	
	5	
	6	Rx-
	7	
	8	

[Installation]

Install the PZ-32IPLB daughter board on the CD-CP00-US IPG as illustrated in the figure below.

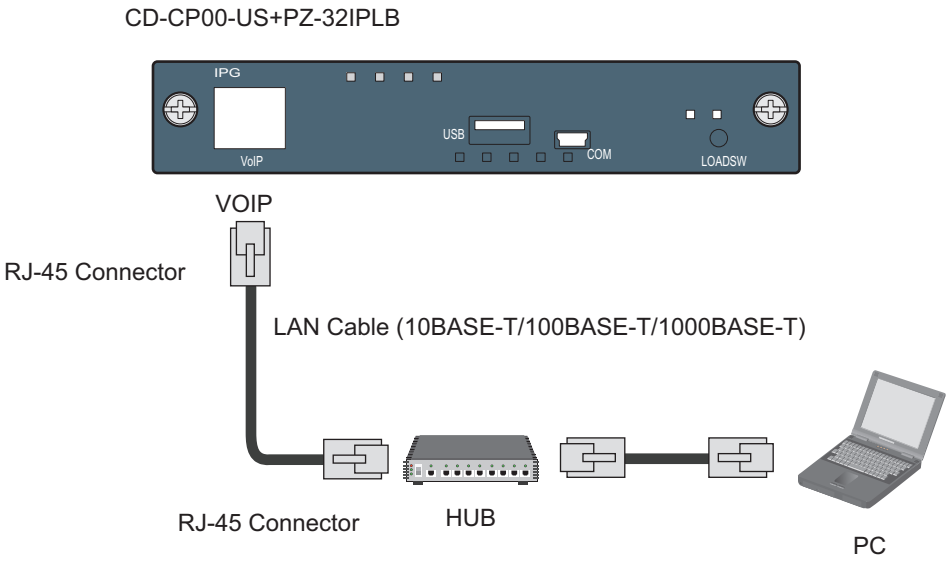
Note: Do not remove or install the CD-CP00-US IPG with the power on.

Install PZ-32IPLB daughter board on CD-CP00-US IPG



[Connection with WebPro]

Use LAN cables to connect WebPro PC to VOIP port through a hub.


CD-CP00-US+PZ-32IPLB
IPG
VoIP
USB
COM
LOADSW
VOIP
RJ-45 Connector
LAN Cable (10BASE-T/100BASE-T/1000BASE-T)
RJ-45 Connector
HUB
PC

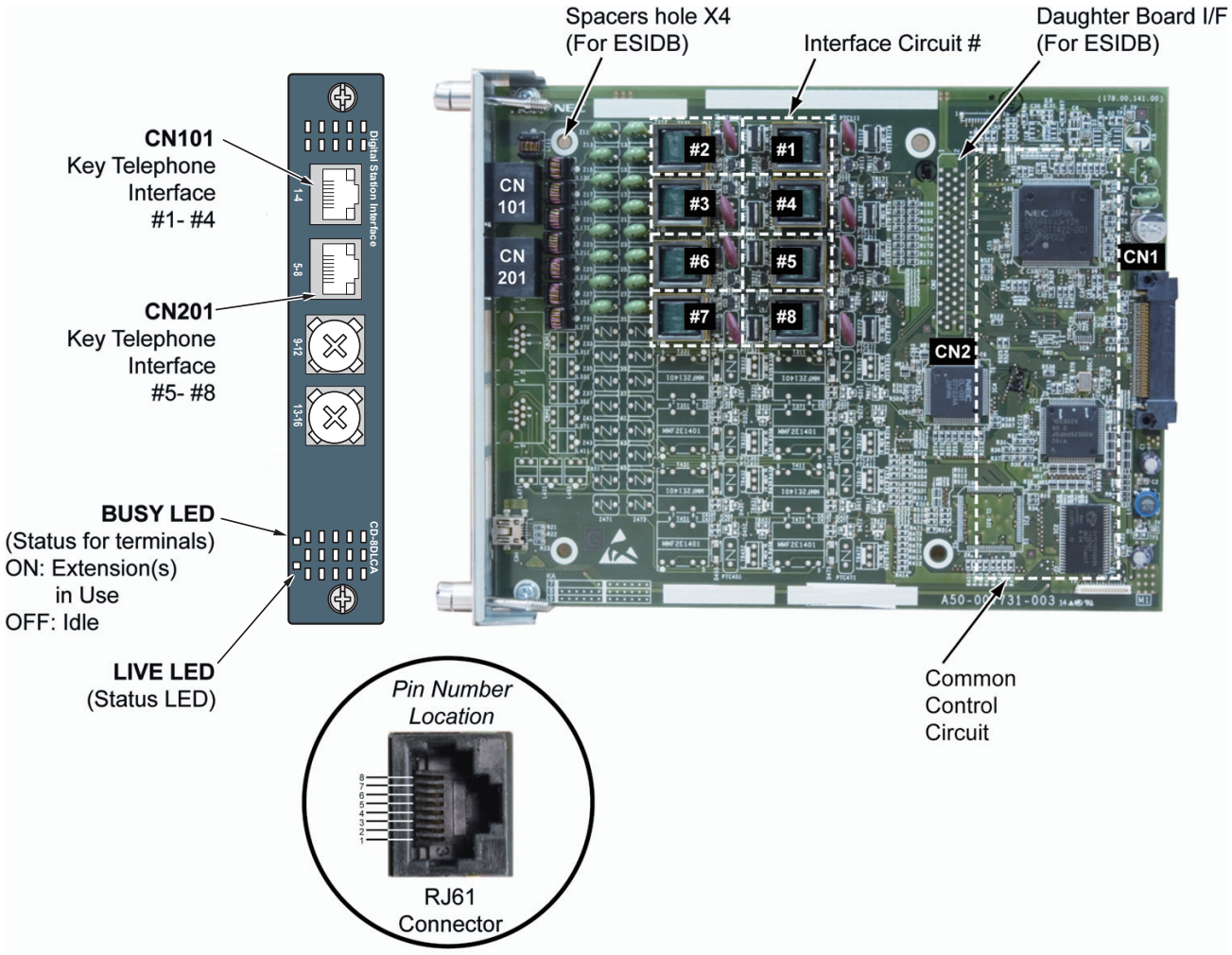
3.5.4 CD-8DLCA (Digital Station Interface)



The CD-8DLCA provide:

- 8 (CD-8DLCA) digital station circuits (used for digital telephones)
- These ports provide -48V feeding.
- The blade status LEDs – One Live LED, One Busy/Idle LED

CD-8DLCA Blade



[LED Indications]

The LEDs on the CD-8DLCA indicate the following:

CD-8DLCA LED Indications

LED Indication		Operation Status		Remarks
Live LED (Green)	**Busy LED (Red)**			
On	On	System Initializing		–
Flash (1s)	On	The assignment of the unit is refused.		When you exceed the system capacity. When the main software version is not matched.
	Flash (1s)	Trouble found during self-diagnostics.		–
Off	On	Unit Busy	A Channel is busy (use another from CH1 ~ CHx).	–
	Off		All channels are idle.	–
	Flash 80ms (On/Off) x 3/ 400ms Off	Downloading firmware.		–

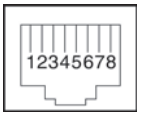
[Connectors]

The CNx01 connectors provide connection to four digital station ports. With the CD-8DLCA blade, the CN101 and CN201 connectors are available.

Note: Any cabling to the DLCA blade must be in the building - no outside cabling is permitted.

The table below shows the pin-outs for the RJ-61 connector.

RJ-61 Cable Connector
CD-8DLCA – CN101 (ports 1~4), CN201 (ports 5~8)



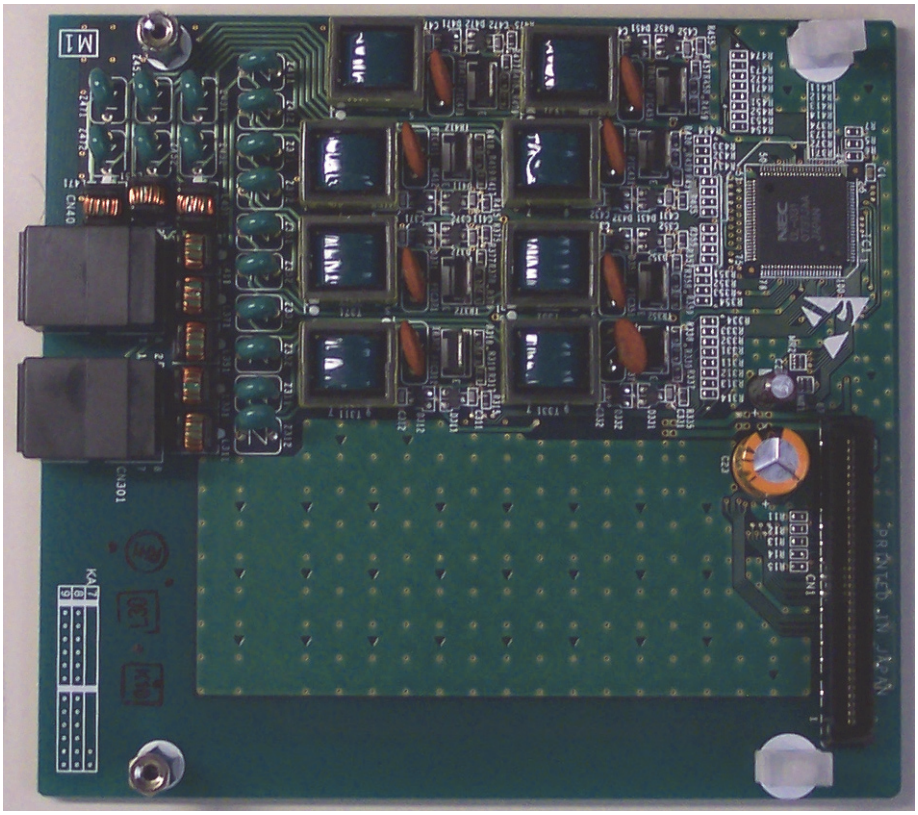
Pin No.	Connection
1	T4 (Tip for port 4)
2	T3 (Tip for port 3)
3	T2 (Tip for port 2)
4	R1 (Ring for port 1)
5	T1 (Tip for port 1)
6	R2 (Ring for port 2)
7	R3 (Ring for port 3)
8	R4 (Ring for port 4)

3.5.5 PZ-8DLCB (Digital Station Daughter Board)

The PZ-8DLCB daughter board provides eight digital stations. This daughter board is installed on the CD-8DLCA and expands the port capacity for the combined blades to 16.

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

PZ-8DLCB Blade



[Installation]

The PZ-8DLCB is installed on the CD-8DLCA.

To install:

(1) Connect the PZ-8DLCB to the CN2 connector on the CD-8DLCA blade. Refer to CD-8DLCA Blade on page 1956 for the location of the connectors on the blade.

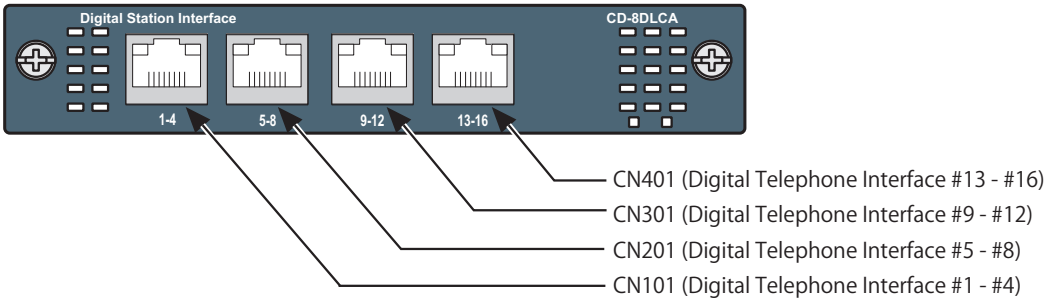
(2) Install the CD-8DLCA into a slot.

(3) Each CNx01 connector (CN101, CN201, CN301, CN401) is used to connect up to four digital extensions.

[PZ-8DLCB Daughter Board Cable Connection]

The PZ-8DLCB blade has connections for CN301 and CN401 Refer to the figure below for connector locations.

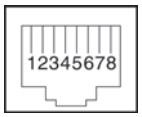
CD-8DLCA with PZ-8DLCB



The following tables show the cable connections of the two RJ-61 connectors on the PZ-8DLCB.

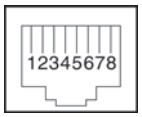
PZ-8DLCB RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector CN301 (ports 9~12)



Pin No.	Connection
1	(T4) Tip for port 12
2	(T3) Tip for port 11
3	(T2) Tip for port 10
4	(R1) Ring for port 9
5	(T1) Tip for port 9
6	(R2) Ring for port 10
7	(R3) Ring for port 11
8	(R4) Ring for port 12

RJ-61 Cable Connector CN401 (ports 13~16)



Pin No.	Connection
1	(T4) Tip for port 16
2	(T3) Tip for port 15
3	(T2) Tip for port 14
4	(R1) Ring for port 13
5	(T1) Tip for port 13
6	(R2) Ring for port 14
7	(R3) Ring for port 15
8	(R4) Ring for port 16

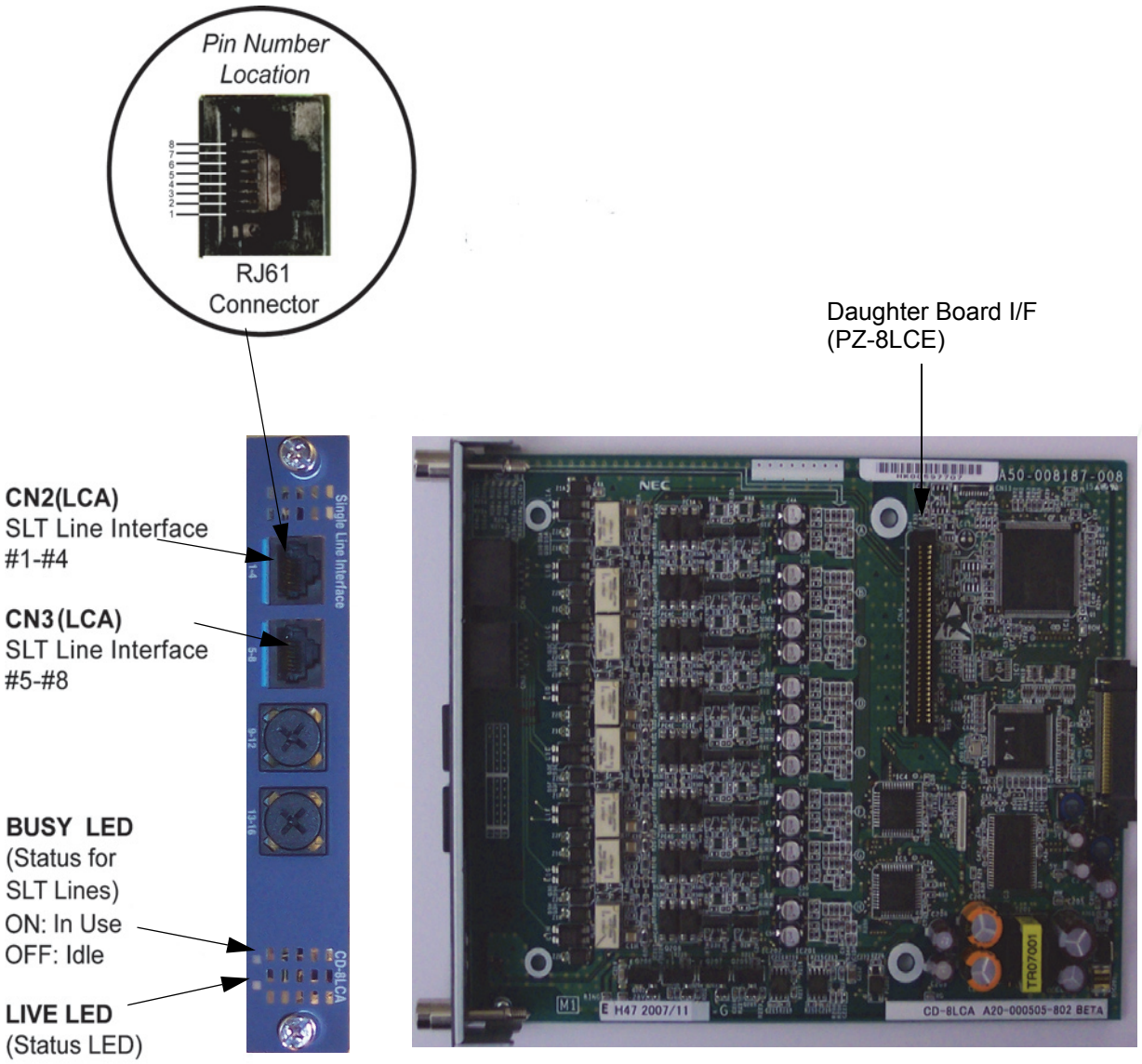
3.5.6 CD-8LCA (8-Port Single Line Interface)



The CD-8LCA blade provides eight analog (SLIU) extension ports (used for on-premise analog telephones and fax machines). This board provides:

- One extension status LED
- One blade status LEDs
- Constant current type battery feeding (25mA / -28Vdc)
- Feeding Polarity Reverse Ability
- Connector for PZ-8LCE Daughter Board
- Ring Generator
- Message Wait Lamp Ability

CD-8LCA Blade



[Installation]

Install the CD-8LCA blade in any available universal slot. If the PZ-8LCE is used, install it prior to inserting the CD-8LCA into the chassis.

Note:

- The CD-8LCA blade and the PZ-8LCE daughter board are categorized as TNV2. With this designation, off-premise wiring is not acceptable. Any cabling to this blade or daughter board must be in the building – no outside cabling is permitted.
- Branch connection is not acceptable.

[LED Indications]

LED indications for the CD-8LCA are listed in the table below. Each LED is listed with its associated function and LED and Operational status. Refer to CD-8LCA Blade on the previous page for the location of the LEDs on the blades.

CD-8LCA LED Indications

LED Indication		Operation Status
Live LED (Green)	Busy LED (Red)	
ON	ON	System initializing
Flash (1000ms ON/1000msOFF)	ON	The assignment of the unit is refused.
Flash (1000ms ON/1000msOFF)	Flash (1000ms ON/1000msOFF)	Initialization failure
Flash (100ms ON/100ms OFF)	ON	Normal Operation (Busy)
Flash (100ms ON/100ms OFF)	Flash (1000ms ON/1000msOFF)	DRS Registration **Note1 Note2**
Flash (100ms ON/100ms OFF)	Flash (500ms ON/500ms OFF)	Make-busy
Flash (100ms ON/100ms OFF)	OFF	Normal Operation (All channels are idle.)
OFF	Flash (Fast)	Firmware downloading

Note: LED indicates the status if at least one terminal is applied. The priority order for LED indications is as follows:
Normal Operation (Busy) > Make-busy > DRS Registration

LED lamp flashes at intervals of 500 milliseconds (500ms ON - 500ms OFF) for Make-busy and 1000 milliseconds (1000ms ON - 1000ms OFF) for DRS Registration.

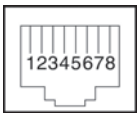
Note 1: When this LED pattern is repeated, check the current data programming on IPG (Page 5 - IPG DRS Server Setup). Also, you may need to check that MC-ID is set by the AISTL command on SV9500.

Note 2: This LED pattern applies also when a network failure occurs.

[Connectors]

The table below shows the pin-outs for the RJ-61 connector.

CD-8LCA RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector CD-8LCA – CN2 (ports 1~4), CN3 (ports 5~8)		
	**Pin No.**	**Connection**
	1	T4 (Tip for port 4)
	2	T3 (Tip for port 3)
	3	T2 (Tip for port 2)
	4	R1 (Ring for port 1)
	5	T1 (Tip for port 1)
	6	R2 (Ring for port 2
	7	R3 (Ring for port 3)
	8	R4 (Ring for port 4)

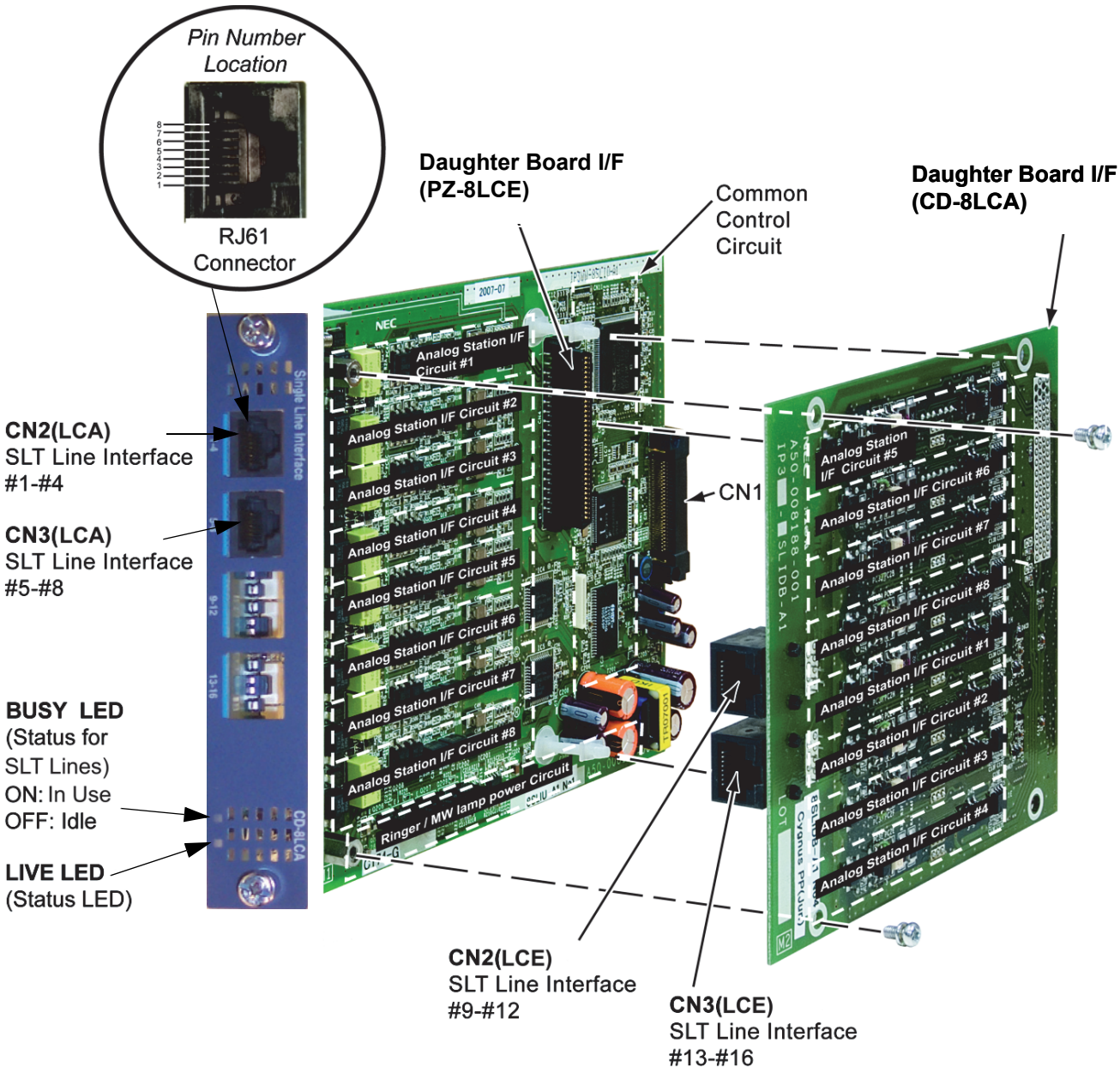
3.5.7 PZ-8LCE (8-Port SLI Daughter Board)



The PZ-8LCE daughter boards are mounted on the CD-8LCA. This board provides:

- 8-Port Single Line analog extension ports (used for on-premise analog telephones and fax machines).
- Connector for CD-8LCA Blades
- Ring Generator
- Message Wait Lamp Ability
- Constant current type battery feeding (25mA / -28Vdc)
- Feeding Polarity Reverse Ability

PZ-8LCE Daughter Board



[Installation]

This daughter board can be installed on the CD-8LCA blade.

To install the PZ-8LCE:

[1] Four plastic spacers are Included with the PZ-8LCE. Install the plastic spacers on either the CD-8LCA. Make sure to attach the spacers so that they extend out on the side of the daughter board which has the CN1 connector.

[2] Position the PZ-8LCE CN1 connector over the CN4 connector on the CD-8LCA blade. Press the blade and board together, ensuring the plastic spacers lock in place.

[3] Install the CD-8LCA blade in the slot in the chassis.

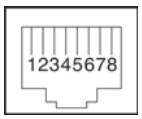
Note:

- The CD-8LCA blade and the PZ-8LCE daughter board are categorized as TNV2. With this designation, off-premise wiring is not acceptable. Any cabling to these blades or daughter boards must be in the building – no outside cabling is permitted.
- Branch connection is not acceptable.

[Connectors]

The table below shows the pin-outs for the RJ-61 connector.

CD-8LCA RJ-61 Cable Connector Pin-Outs

RJ-61 Cable Connector PZ-8LCE – CN2 (ports 9~12), CN3 (ports 13~16)		
	**Pin No.**	**Connection**
	1	T4 (Tip for port 4)
	2	T3 (Tip for port 3)
	3	T2 (Tip for port 2)
	4	R1 (Ring for port 1)
	5	T1 (Tip for port 1)
	6	R2 (Ring for port 2)
	7	R3 (Ring for port 3)
	8	R4 (Ring for port 4)

3.6 Installing the Blades

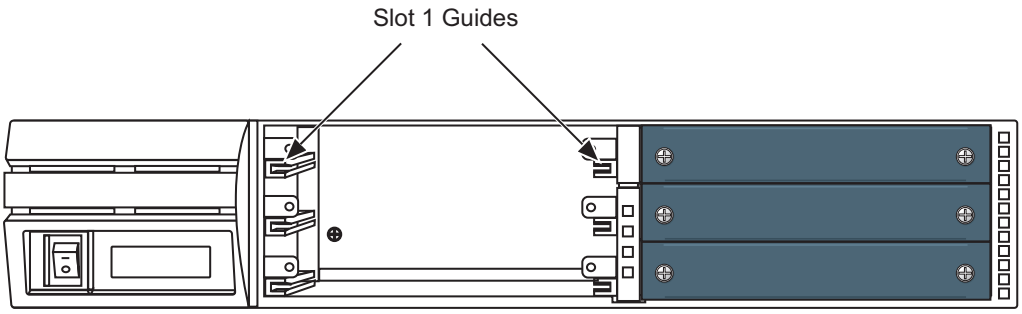
3.6.1 Installing the Controlling Blade (CD-CP00-US IPG)



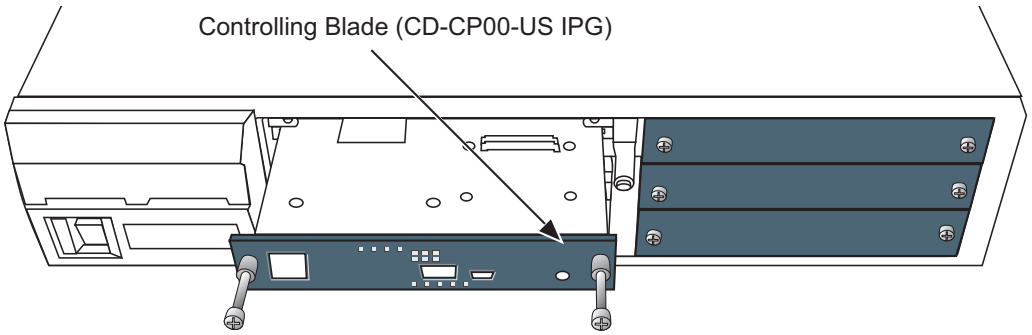
[Install CD-CP00-US IPG into 19” Chassis]

(1) Ensure the chassis is powered down.

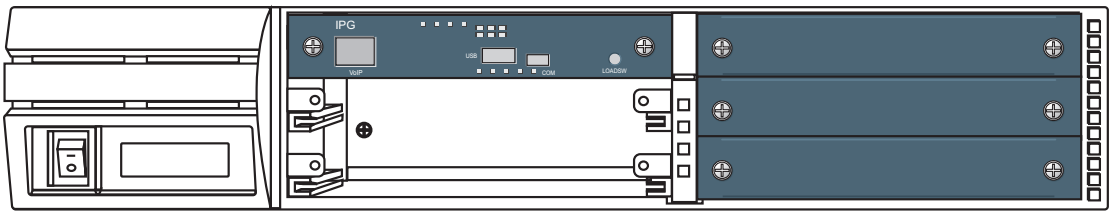
(2) Align the CD-CP00-US IPG blade with the Slot 1 guides of the chassis.



(3) Slide the CD-CP00-US IPG blade into the chassis until resistance (back plane) is felt.



(4) Gently push until the blade seats. Tighten the two retaining screws on front of the blade.

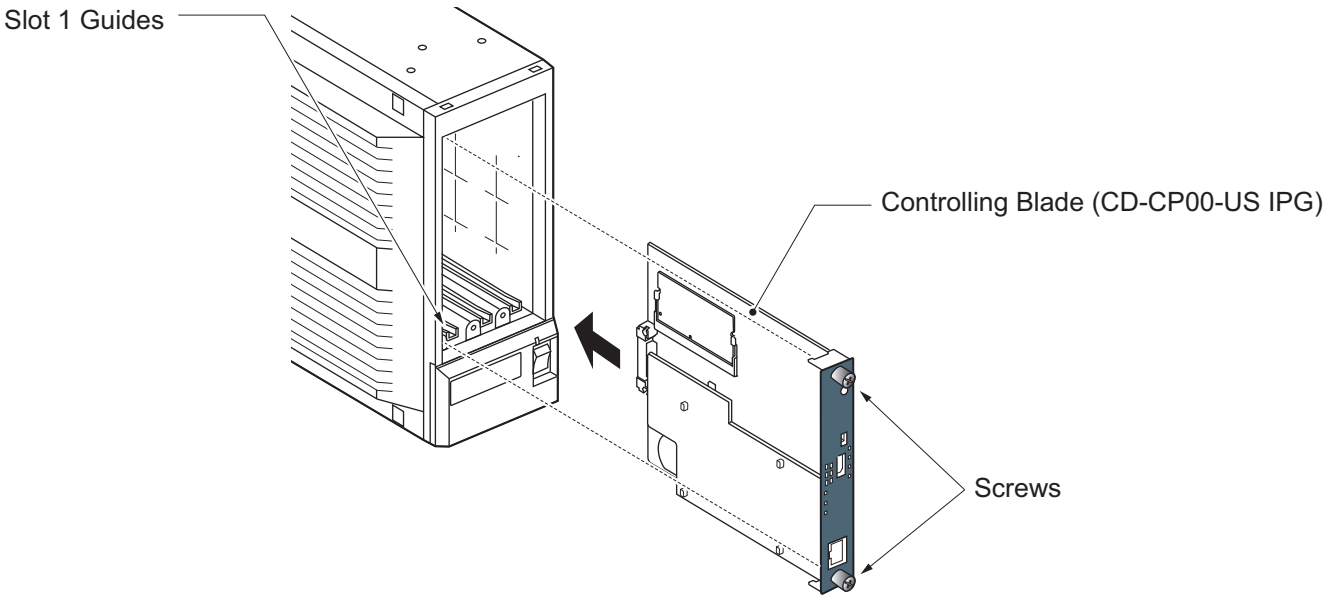


[Install CD-CP00-US IPG into 9.5” Chassis]

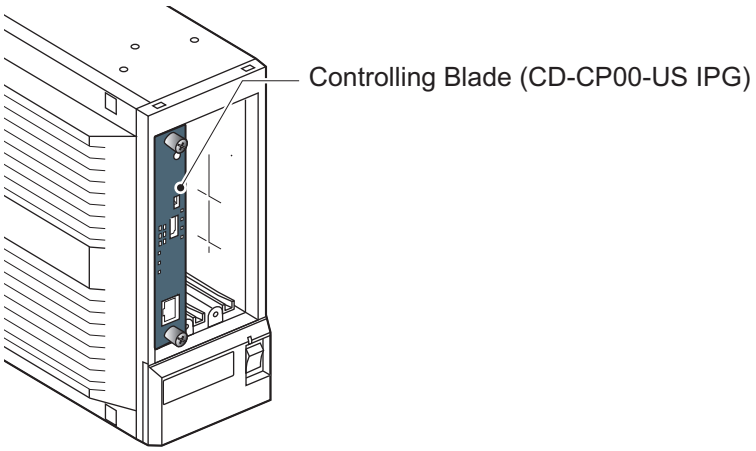
(1) Ensure the chassis is powered down.

(2) Align the CD-CP00-US IPG blade with the Slot 1 guides of the chassis.

(3) Slide the CD-CP00-US IPG blade into the chassis until resistance (back plane) is felt.



(4) Gently push until the blade seats. Tighten the two retaining screws on front of the blade.



3.6.2 Installing the Station Blade (CD-8DLCA/CD-8LCA)



Station Blades can be installed into Slot 2 or Slot 3. The following two kinds of Station Blades: CD-8DLCA (for digital stations) and CD-8LCA (for analog stations), and a daughter board: PZ-8DLCB/PZ-8LCE to be installed on CD-8DLCA/CD-8LCA, are available for the IPG.

Station blades are installed on the IPG with one of the following patterns.

Installation Patterns of CD-8DLCA and PZ-8DLCB

Pattern	Blade Slot Number	Blade	Number of Stations to be connected to each Blade	Number of Stations to be accommodated in IPG
1	2/3	CD-8DLCA with PZ-8DLCB	16	32
	2/3	CD-8DLCA with PZ-8DLCB	16	
2	2/3	CD-8DLCA with PZ-8DLCB	16	24
	2/3	CD-8DLCA	8	
3	2	CD-8DLCA with PZ-8DLCB	16	16
	3	Blank	-	
4	2	CD-8DLCA	8	8
	3	Blank	-	

Installation Patterns of CD-8LCA and PZ-8LCE

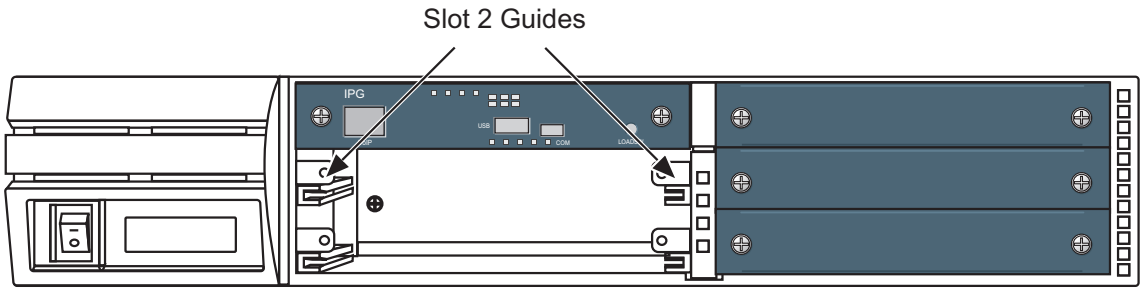
Pattern	Blade Slot Number	Blade	Number of Stations to be connected to each Blade	Number of Stations to be accommodated in IPG
1	2/3	CD-8LCA with PZ-8LCE	16	32
	2/3	CD-8LCA with PZ-8LCE	16	
2	2/3	CD-8LCA with PZ-8LCE	16	24
	2/3	CD-8LCA	8	
3	2	CD-8LCA with PZ-8LCE	16	16
	3	Blank	-	
4	2	CD-8LCA	8	8
	3	Blank	-	

[Install CD-8DLCA/CD-8LCA into 19” Chassis]

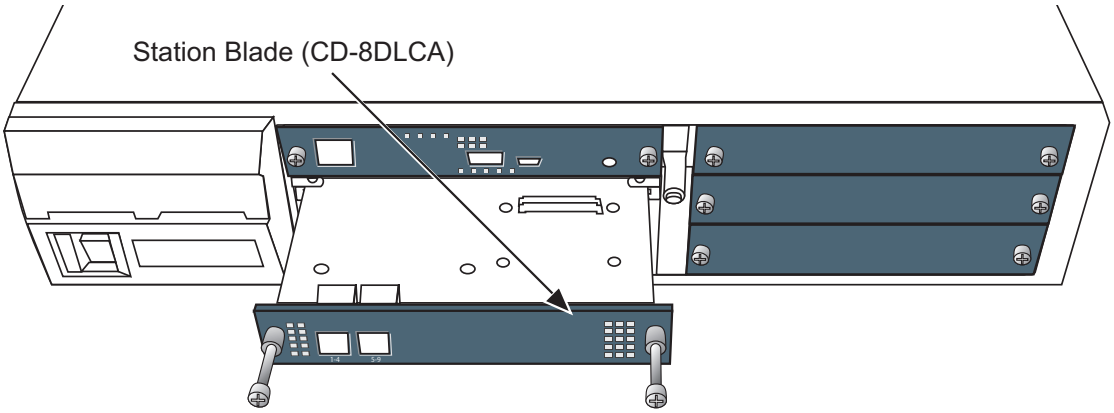
The following procedure explains how to install CD-8DLCA into 19” Chassis as an example.

(1) Ensure the chassis is powered down.

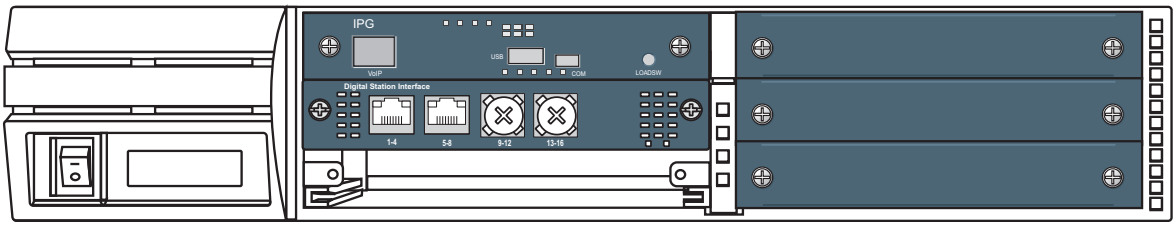
(2) Align the Station blade with the Slot 2/3 guides of the chassis.



(3) Slide the Station blade into the chassis until resistance (back plane) is felt. As an example, the figure below shows the case where CD-8DLCA blade is installed into Slot 2.



(4) Gently push until the blade seats. Tighten the two retaining screws on front of the blade.



(5) Repeat steps 2 to 4 if you need to install another blade into Slot 3.

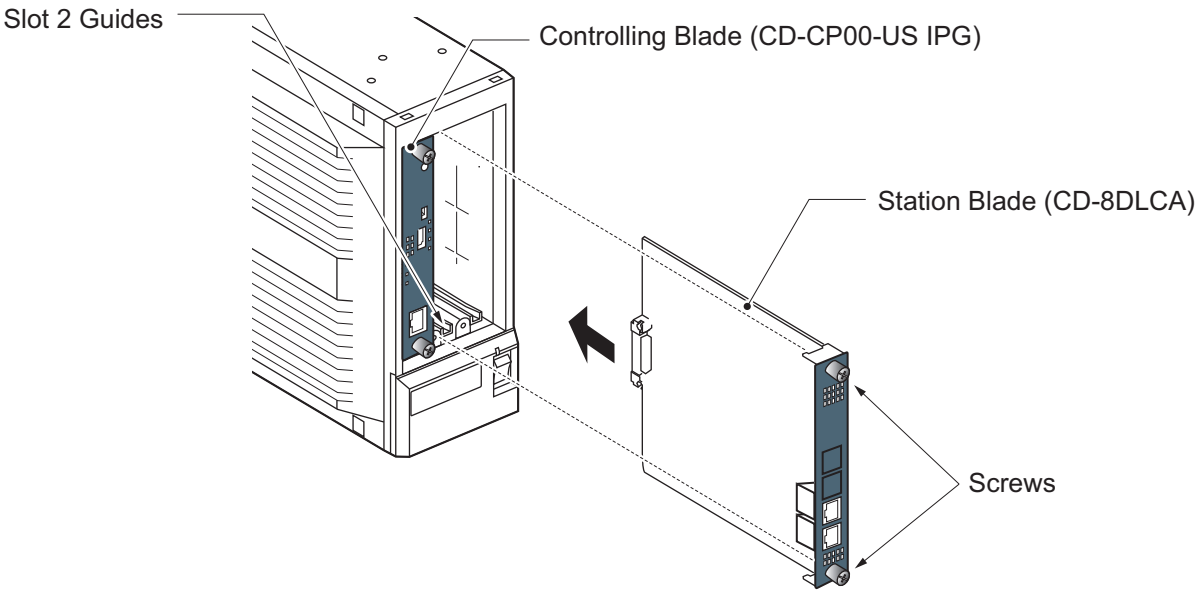
[Install CD-8DLCA/CD-8LCA into 9.5” Chassis]

The following procedure explains how to install CD-8DLCA into 9.5” Chassis as an example.

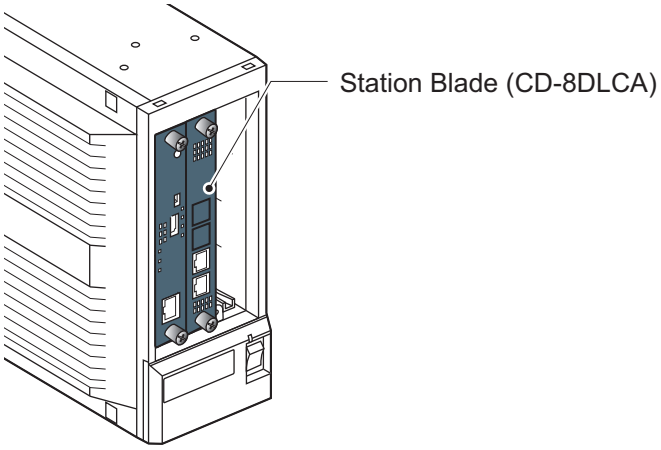
(1) Ensure the chassis is powered down.

(2) Align the Station blade with the Slot 2/3 guides of the chassis.

(3) Slide the Station blade into the chassis until resistance (back plane) is felt. As as example, the figure below shows the case where CD-8DLCA blade is installed into Slot 2.



(4) Gently push until the blade seats. Tighten the two retaining screws on front of the blade.



(5) Repeat steps 2 to 4 if you need to install another blade into Slot 3.

3.7 Cabling And MDF Connection

3.7.1 Connection Requirements



The chassis is connected to each multiline terminal and single line telephone by a separate twisted-pair cable through the Main Distribution Frame (MDF).

3.7.2 Cabling Precautions

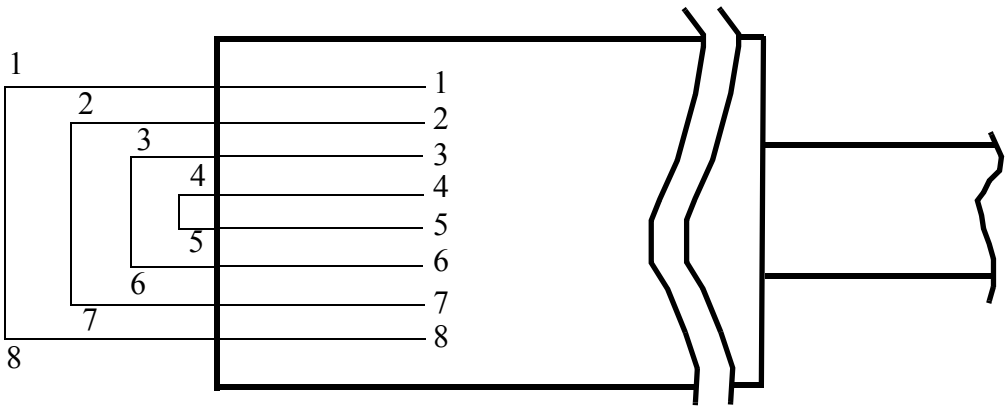
When selecting cables and the MDF, future expansion or assignment changes should be given due consideration. Avoid running cables in the following places:

- A place exposed to the wind or rain.
- A place near heat radiating equipment or where the PVC covering could be affected by gases or chemicals.
- An unstable place subject to vibration.

3.7.3 Wiring Between the Chassis and the MDF

The chassis is equipped with two MDF Cable Assemblies. NEC recommends that the MDF Cable Assembly be used to connect the multiline terminals, single line telephones (except PFT). Refer to MDF Pin-Out (Connectors 1~6) on page 1973 and MDF Cable Connections (Station) on page 1974.

MDF Pin-Out (Connectors 1~6)



MDF Cable Colors

Pin Outs	Cable Colors					
	1	2	3	4	5	6
1	BR–WH	GN–RD	BR–BK	BL–YL	SL–YL	BR–VI
2	GN–WH	OR–RD	BL–BK	SL–BK	BR–YL	GN–VI
3	OR–WH	BL–RD	SL–RD	BR–GN	GN–YL	OR–VI
4	WH–BL	WH–SL	RD–BR	BK–GN	YL–OR	VI–BL
5	BL–WH	SL–WH	BR–RD	GN–BK	OR–YL	BL–VI
6	WH–OR	RD–BL	RD–SL	GN–BR	YL–GN	VI–OR
7	WH–GN	RD–OR	BK–BL	BK–SL	YL–BR	VI–GN
8	WH–BR	RD–GN	BK–OR	YL–BL	YL–SL	VI–BR

MDF Cable Connections (Station)

Connector	MDF Pin No.	Running Cable	Station Cable DTL	DLCA		LCA	
				8	16	4	8
1	26 1	WH–BL BL–WH	GN RD	T R	T R	T R	T R
	27 2	WH–OR OR–WH	GN RD	T R	T R	T R	T R
	28 3	WH–GN GN–WH	GN RD	T R	T R	T R	T R
	29 4	WH–BR BR–WH	GN RD	T R	T R	T R	T R
2	30 5	WH–SL SL–WH	GN RD	T R	T R	T R	T R
	31 6	RD–BL BL–RD	GN RD	T R	T R	T R	T R
	32 7	RD–OR OR–RD	GN RD	T R	T R	T R	T R
	33 8	RD–GN GN–RD	GN RD	T R	T R	T R	T R

Connector	MDF Pin No.	Running Cable	Station Cable DTL	DLCA		LCA	
				8	16	4	8
3	34 9	RD–BR BR–RD	GN RD	T R	T R	T R	T R
	35 10	RD–SL SL–RD	GN RD	T R	T R	T R	T R
	36 11	BK–BL BL–BK	GN RD	T R	T R	T R	T R
	37 12	BK–OR OR–BK	GN RD	T R	T R	T R	T R
4	38 13	BK–GN GN–BK	GN RD	T R	T R	T R	T R
	39 14	BK–BR BR–BK	GN RD	T R	T R	T R	T R
	40 15	BK–SL SL–BK	GN RD	T R	T R	T R	T R
	41 16	YL–BL BL–YL	GN RD	T R	T R	T R	T R
5	42 17	YL–OR OR–YL	GN RD	T R	T R	T R	T R
	43 18	YL–GN GN–YL	GN RD	T R	T R	T R	T R
	44 19	YL–BR BR–YL	GN RD	T R	T R	T R	T R
	45 20	YL–SL SL–YL	GN RD	T R	T R	T R	T R
6	46 21	VI–BL BL–VI	GN RD	T R	T R	T R	T R
	47 22	VI–OR OR–VI	GN RD	T R	T R	T R	T R
	48 23	VI–GN GN–VI	GN RD	T R	T R	T R	T R
	49 24	VI–BR BR–VI	GN RD	T R	T R	T R	T R
	50	–	–	–	–	–	–
	25	–	–	–	–	–	–

3.8 Battery Connection

3.8.1 Installing the Internal Batteries on 19" (CHS2U-US) Chassis



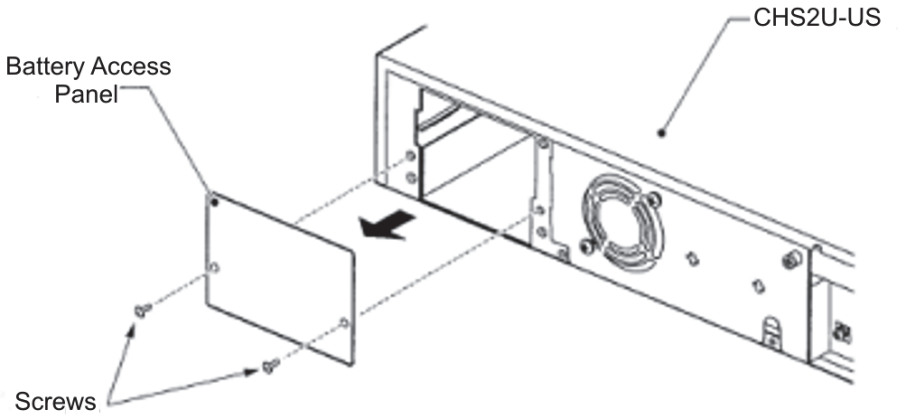
An internal battery source using two batteries can be installed using the CHS2U BATT MTG KIT (mounting kit) and CHS2U BATT CABLE INT (internal cabling).

CHS2U BATT MTG KIT (Backup time = 10 Minutes/24 Terminals)

(1) Ensure the chassis is powered down.

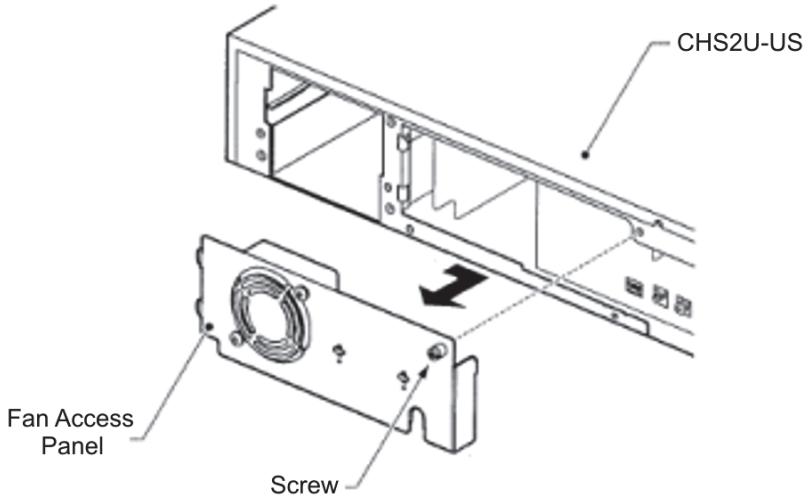
(2) Remove screws from battery access panel on rear of chassis.

Removing Battery Access Panel

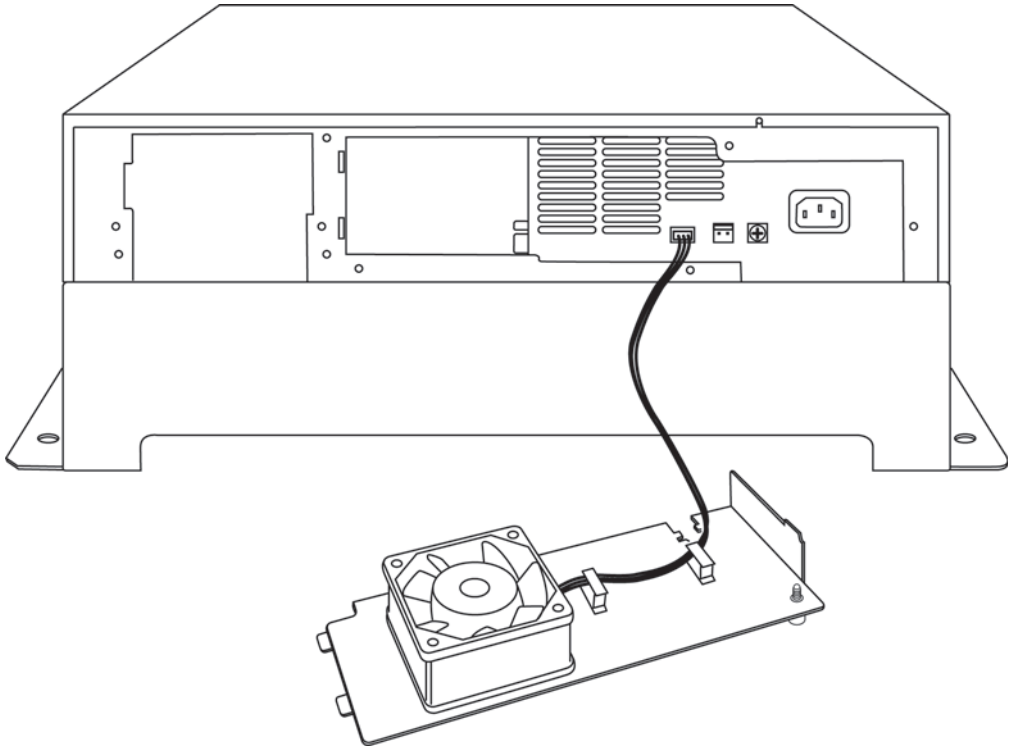


(3) Remove access panel containing the fan.

Removing Access Panel

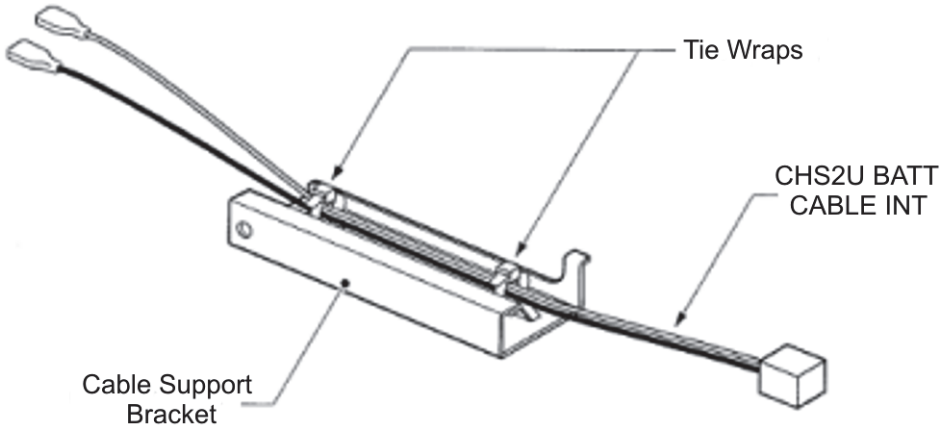


Access Panel Removed



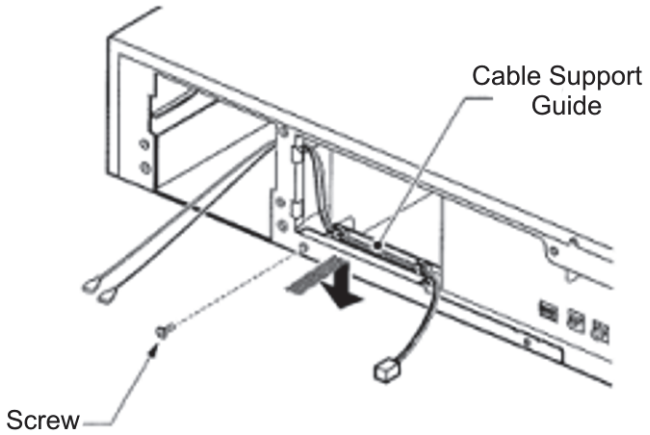
(4) Using tie wraps, secure CHS2U BATT CABLE INT in cable guide bracket.

Secure Cable in Support Bracket



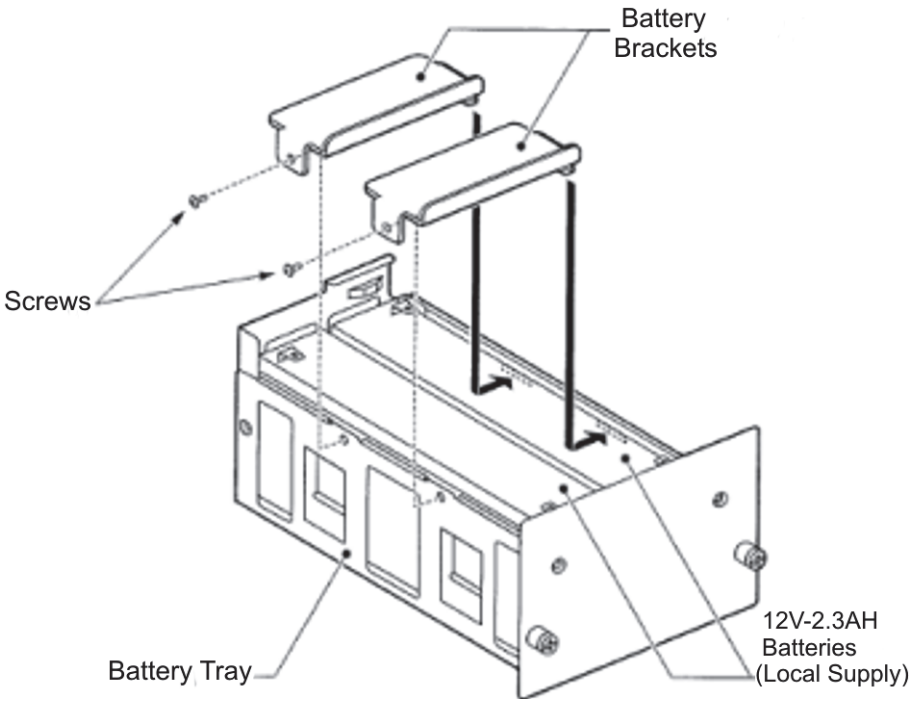
(5) With supplied screw, install cable guide in chassis.

Installing Cable Support Guide



(6) Install two 2.3 AH-12V batteries (locally procured) into the CHS2U BATT MTG KIT. The first battery must be installed on the left side, then slid to the right due to an installation tab on the mounting kit.

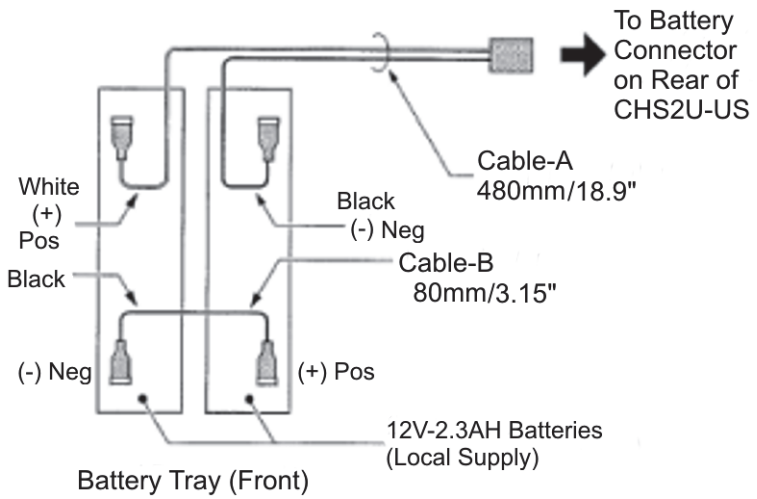
Installing Two Batteries



(7) Using the supplied screws, secure the brackets to the CHS2U BATT MTG KIT.

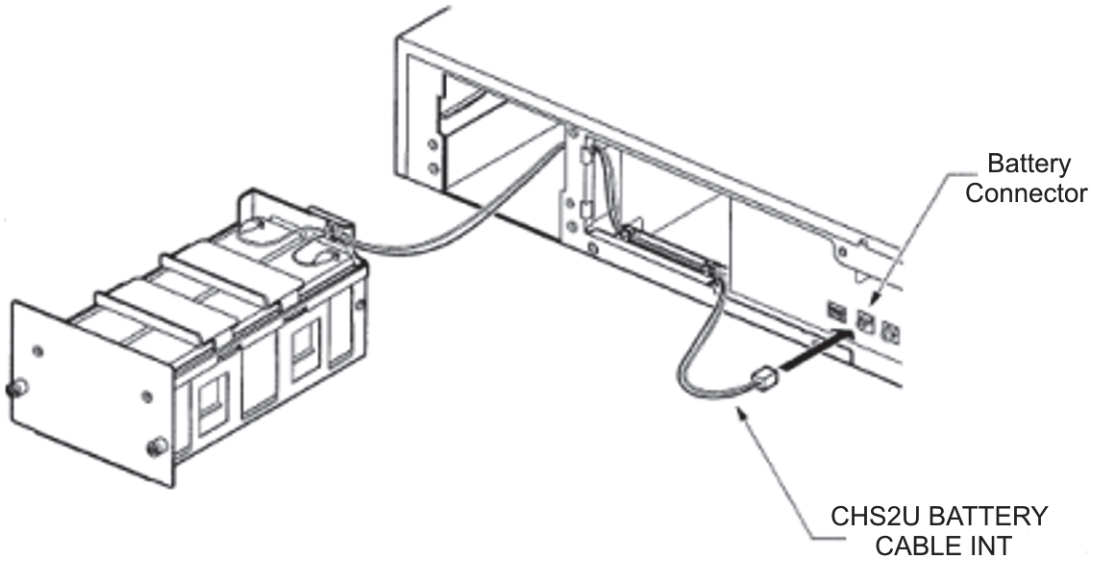
(8) Connect the provided battery cables to the batteries.

Installing Battery Cable



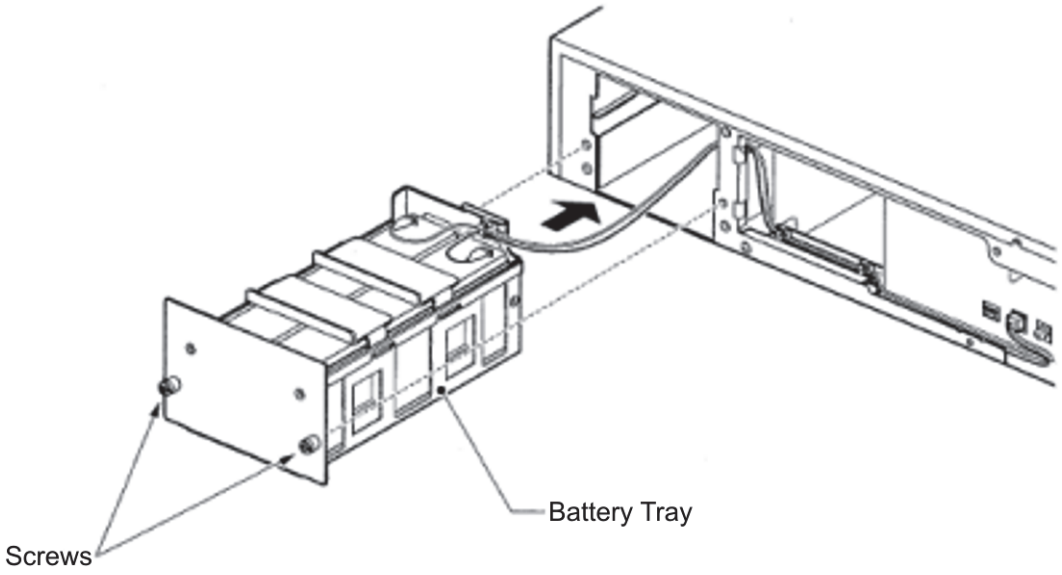
(9) Connect CHS2U BATT CABLE INT to battery connector.

Connecting CHS2U BATT CABLE INT



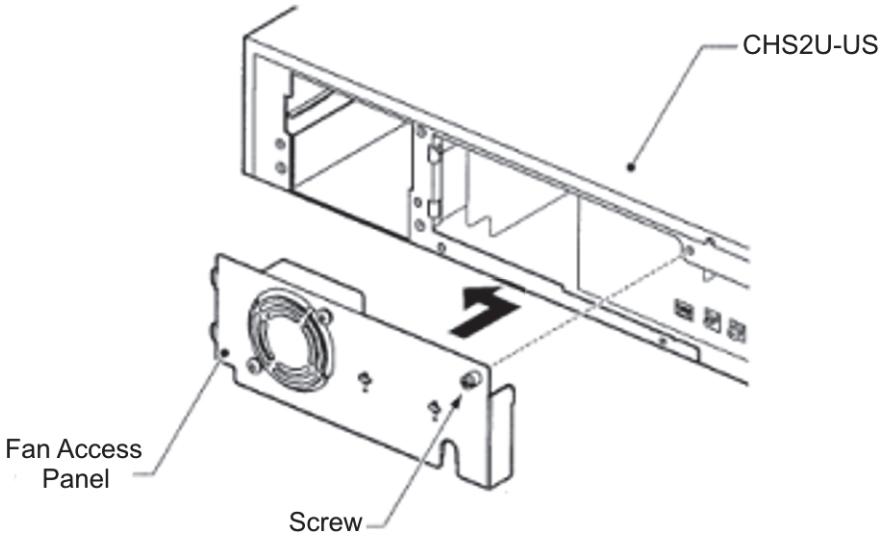
(10) Install CHS2U BATT MTG KIT into CHS2U-US chassis and tighten the retaining screws.

Installing Battery Tray into CHS2U-US Chassis



(11) Reinstall access panel containing the fan and secure with supplied screw.

Installing the Access Panel



3.8.2 Installing the External Batteries on 19" (CHS2U-US) Chassis



An optional (locally procured), external battery source can be used to provide power during a power failure.

CHS LARGE BATT BOX (Backup time = Three Hours for 30 Terminals)

CHS LARGE BATT BOX Capacity

Configuration SV8100	Battery Capacity (Number of Batteries)	Number of CHS LARGE BATT BOX
2U x 1	21AH (=3 sets of [2x12V-7AH])	1
2U x 2	42AH (=6 sets of [2x12V-7AH])	2
2U x 3	63AH (=9 sets of [2x12V-7AH])	3
2U x 4	84AH (=12 sets of [2x12V-7AH])	4

Note: One CHS LARGE BATT BOX can be used for 4 x 2U chassis for approximately 45 minutes.

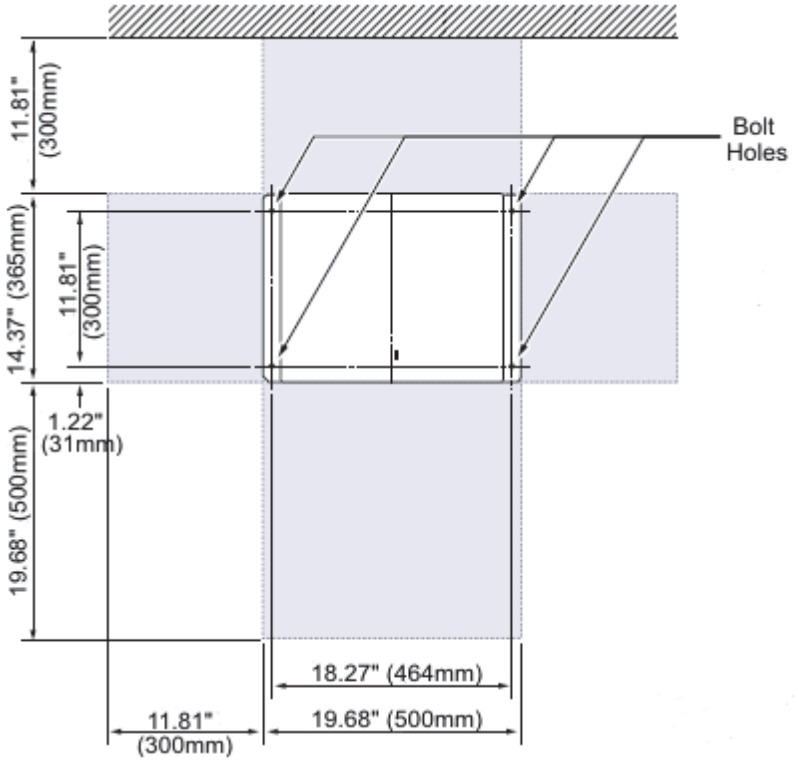
3.8.2.1 Floor Mounting the CHS LARGE BATT BOX

Note:

- Because of injury from falling equipment, wall mounting the CHS LARGE BATT BOX is not recommended.
- Mounting the CHS LARGE BATT BOX directly on the floor is not recommended.
- The CHS BASE UNIT raises the height of the CHS LARGE BATT BOX 120mm (4.72").
- When the CHS LARGE BATT BOX and CHS2U-US are connected for long term use, the CHS2U JOINT BRACKET KIT is used.

(1) Use the template shown below for required spacing before drilling holes for 0.39"(10mm) anchor bolts (locally procured).

Floor Mount Spacing Guide

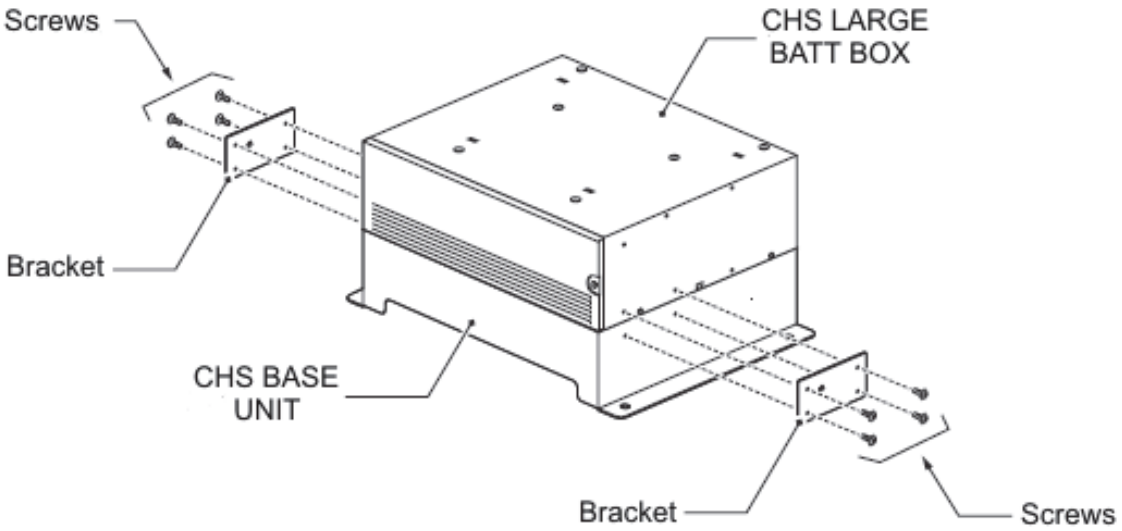


(2) Mark and drill the four holes required to install the CHS BASE UNIT.

(3) Align bolt holes in CHS BASE UNIT with holes drilled in floor and secure using four anchor bolts.

(4) Align and install the CHS LARGE BATT BOX on top of the CHS BASE UNIT.

Installing the CHS LARGE BATT BOX using the CHS2U JOINT BRACKET KIT

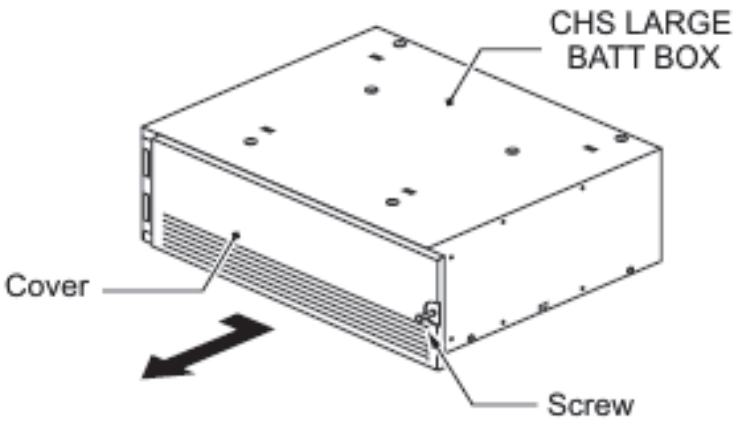


(5) Secure the CHS LARGE BATT BOX to the CHS BASE UNIT using the CHS2U JOINT BRACKET KIT.

3.8.2.2 Battery Installation

(1) Loosen screw on front of CHS LARGE BATT BOX.

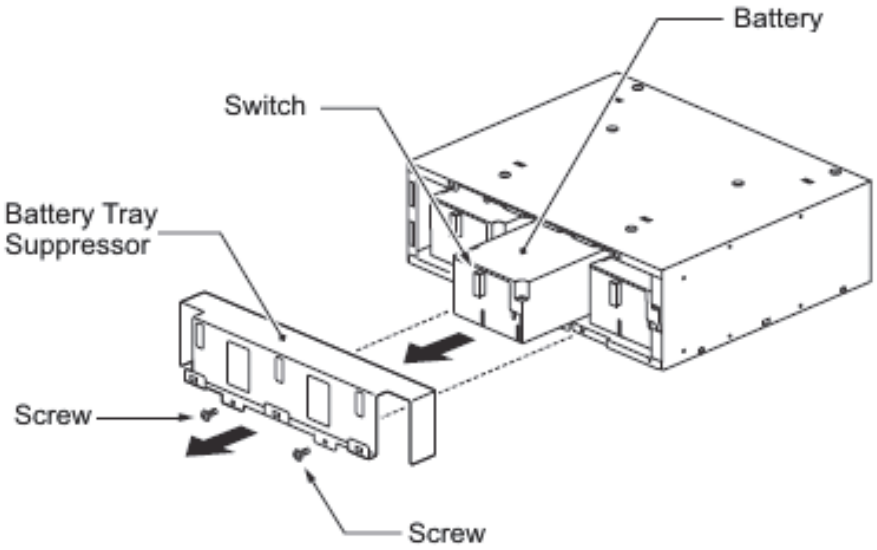
Removing CHS LARGE BATT BOX Cover



(2) Swing cover outward and detach from CHS LARGE BATT BOX.

(3) Remove two screws from front of Battery Tray Suppressor.

Removing Battery Tray Suppressor

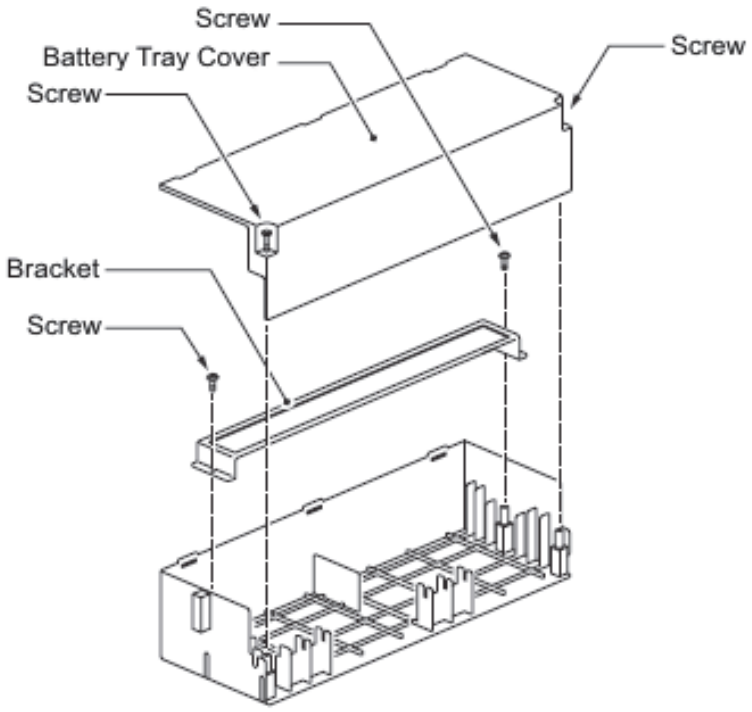


(4) Slide Battery Tray Suppressor outward to remove.

(5) Slide Battery Tray(s) out of CHS LARGE BATT BOX.

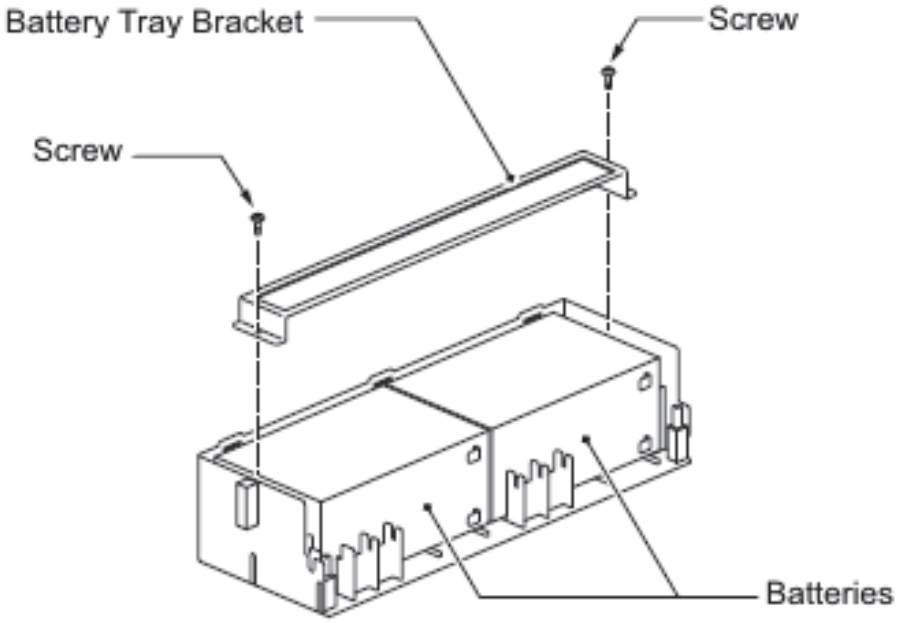
(6) Loosen two screws and remove the Battery Tray Cover.

Removing Battery Tray Cover



(7) Remove two screws and remove the Battery Tray Bracket.

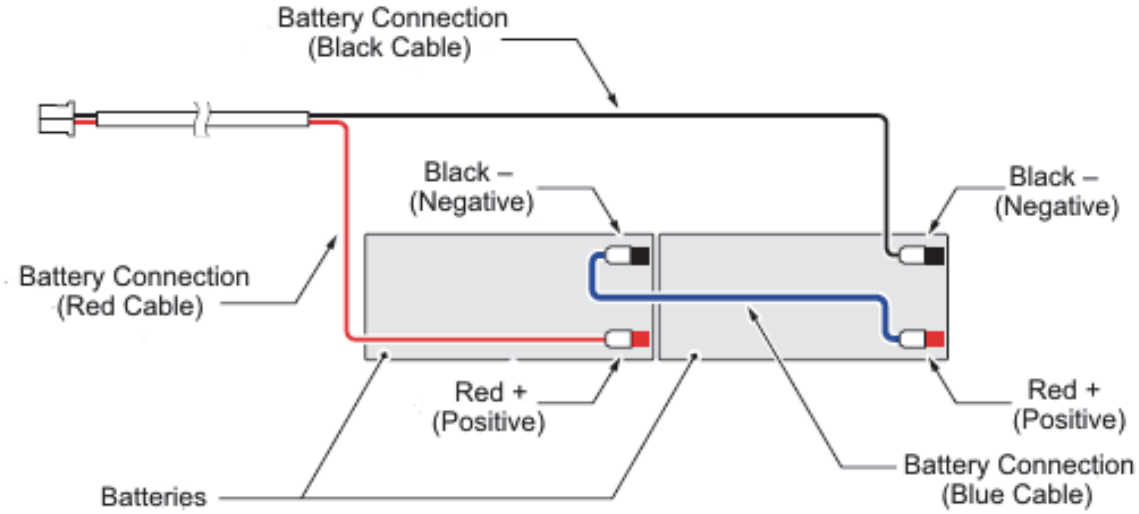
Removing Battery Tray Bracket



(8) Refer to the following figure for connection of battery cable to battery terminals. Repeat for additional battery connection.

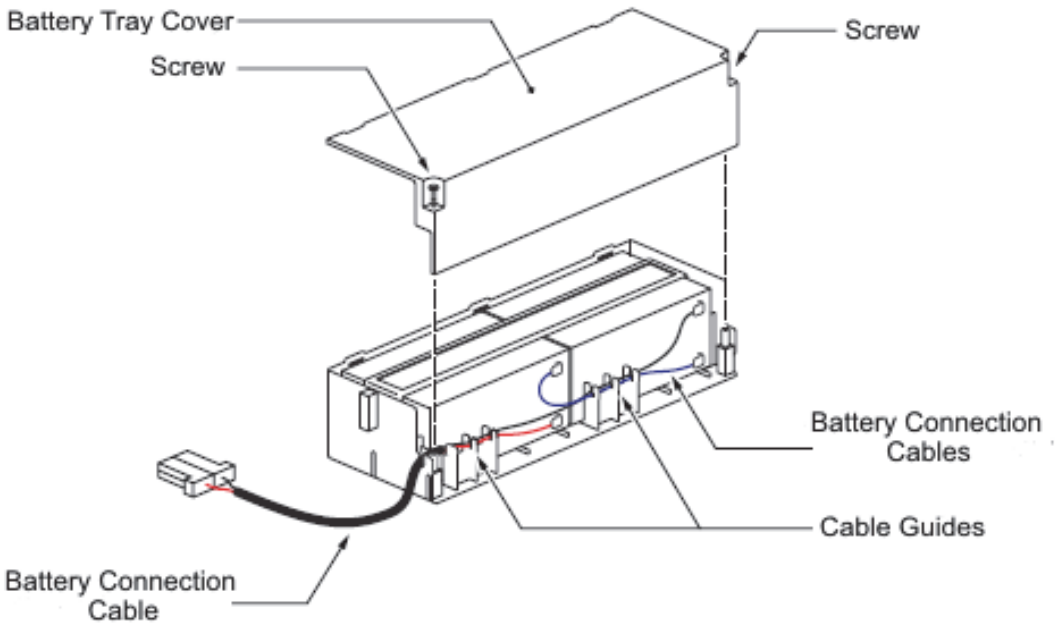
Note: Incorrect installation of batteries may damage the Fuse Unit or cause possible fire.

Battery Cable Connection Guide



(9) Install batteries into Battery Tray.

Installing Battery Connection Cable



(10) Install the Battery Tray Bracket by using two screws. Refer to Removing Battery Tray Bracket on page 1984 in step 7.

(11) Insert Battery Connection Cable into cable guides.

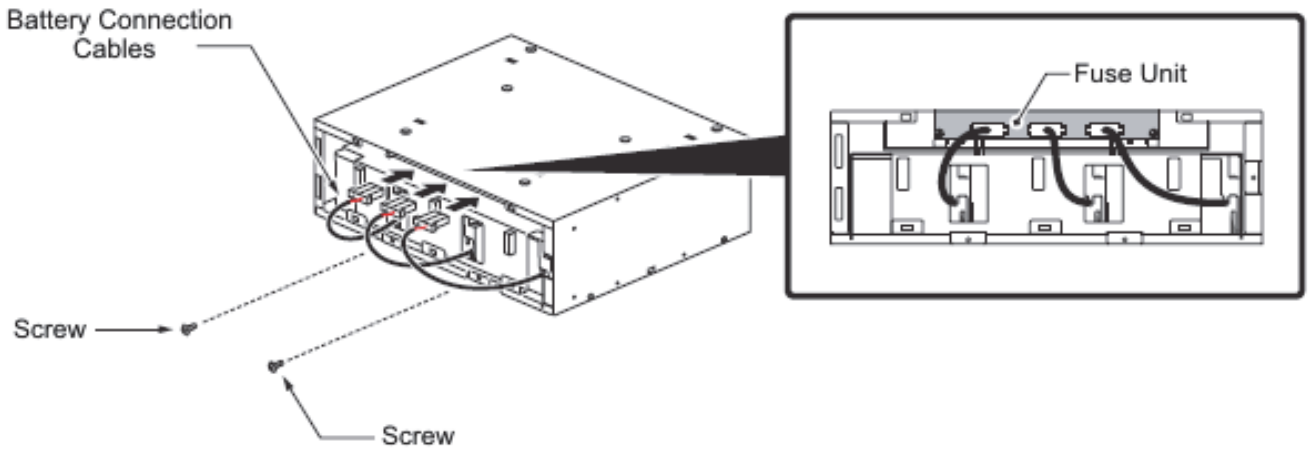
(12) Install the Battery Tray Cover and tighten the two screws.

(13) Slide the Battery Trays into the CHS LARGE BATT BOX.

(14) Install the Battery Tray Suppressor while pulling the Battery Connection Cable(s) through the cutouts provided. Refer to Connecting Battery Cables on page 1986.

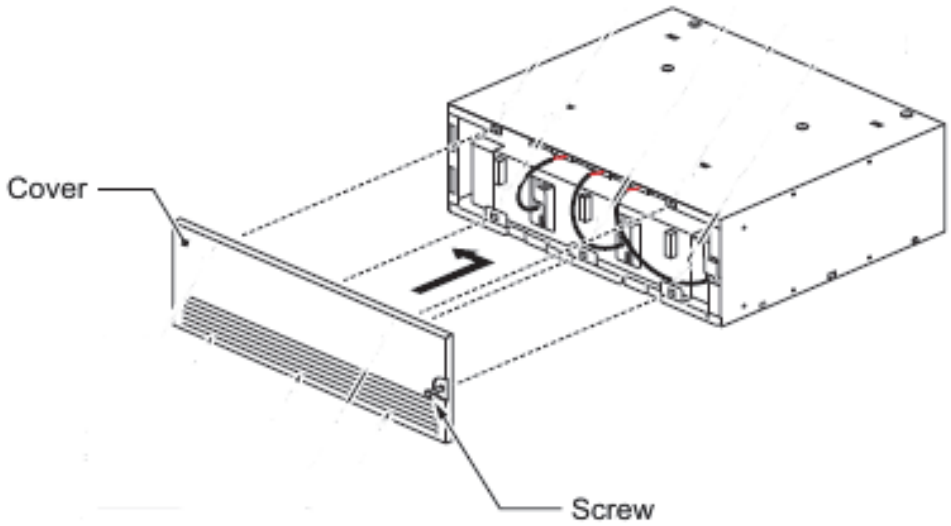
(15) Plug the Battery Connection Cable(s) into the Fuse Unit. Refer to Connecting Battery Cables on page 1986.

Connecting Battery Cables



(16) Insert tabs on cover into holes on CHS LARGE BATT BOX. Slide the cover left until seated and tighten the screw.

Installing Cover Battery



3.8.2.3 CHS LARGE BATT BOX to CHS2U-US Connection

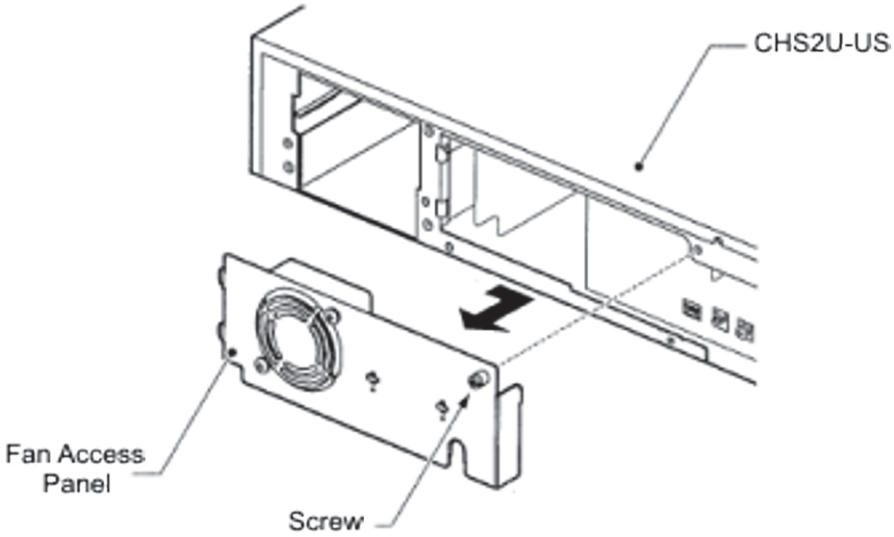
(1) Power down the CHS2U-US chassis.

Note: Ensure the CHS2U-US chassis is powered OFF.

(2) Disconnect AC power cable from rear of chassis.

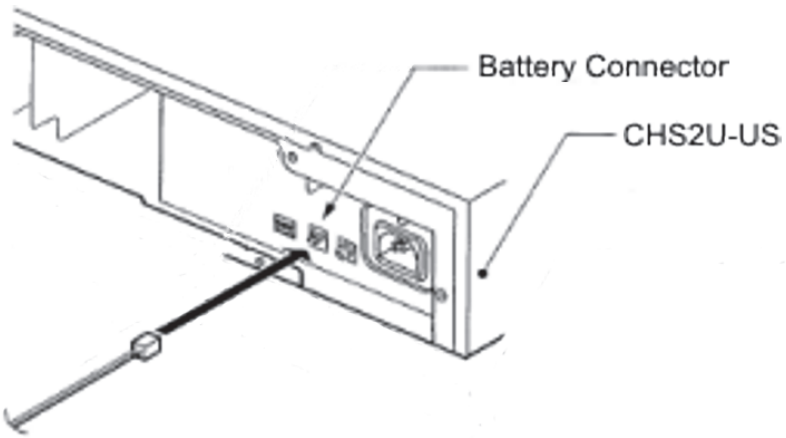
(3) Remove fan access panel from rear of CHS2U-US chassis.

Removing Fan Access Panel



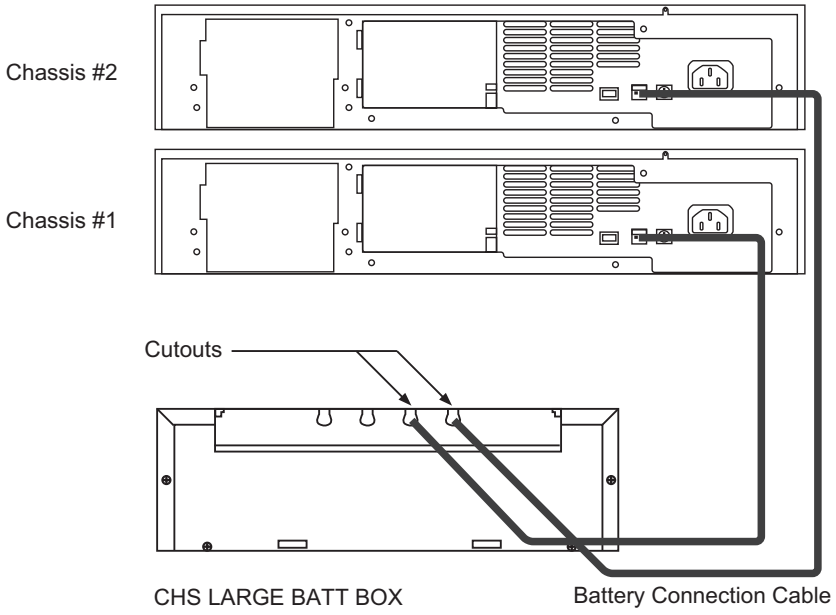
(4) Connect one end of Battery Connection Cable to Battery Connector on rear of CHS2U-US chassis.

Connecting External Battery to CHS2U-US

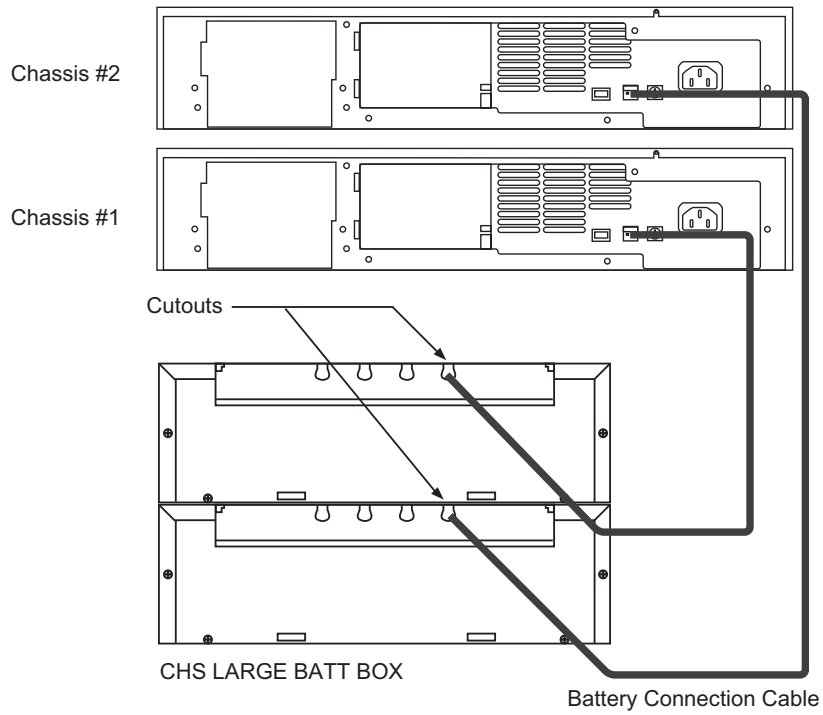


(5) Connect other end of cable to Battery Connector on rear of CHS LARGE BATT BOX chassis.

Single CHS LARGE BATT BOX Connection

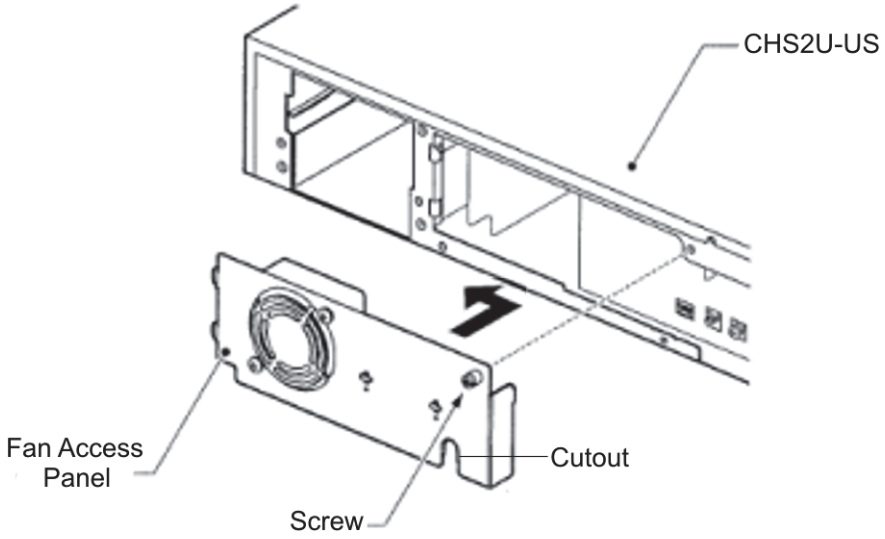


Dual CHS LARGE BATT BOX Connection



(6) Insert the access panel tab into the rear of the CHS1U-US chassis running the Battery Connection Cable through the cutout. Secure panel with the retaining screw.

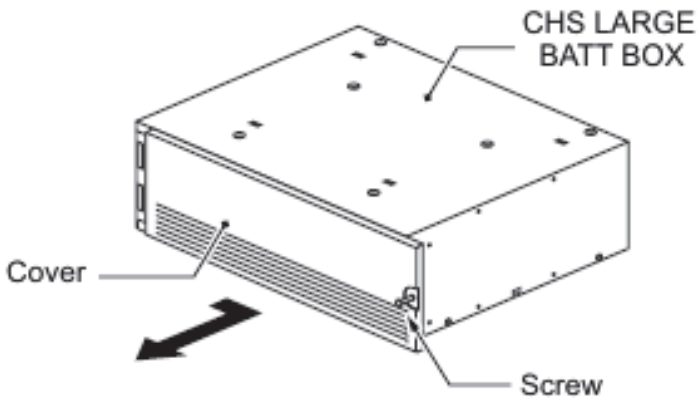
Install the Fan Access Panel



3.8.2.4 CHS LARGE BATT BOX Fuse Replacement

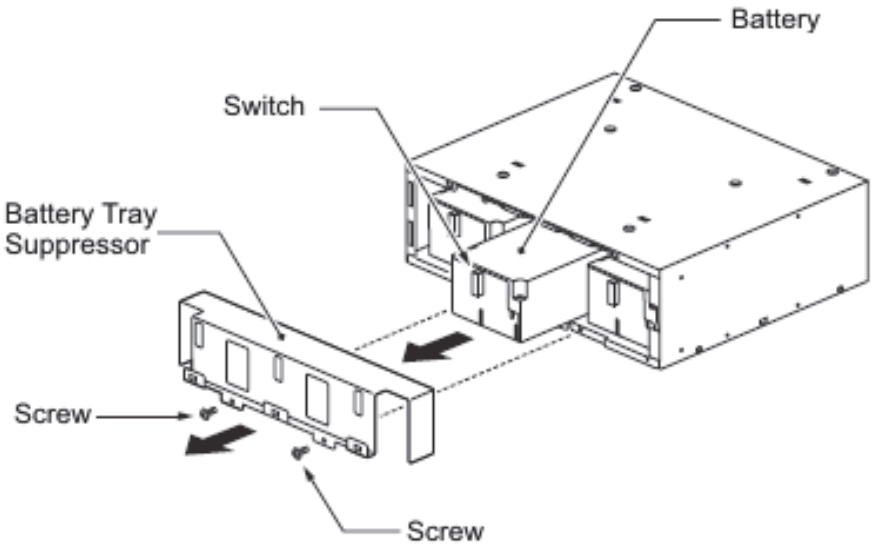
(1) Loosen screw on front of CHS LARGE BATT BOX.

Removing CHS LARGE BATT BOX Cover



(2) Remove two screws from front of Battery Tray Suppressor.

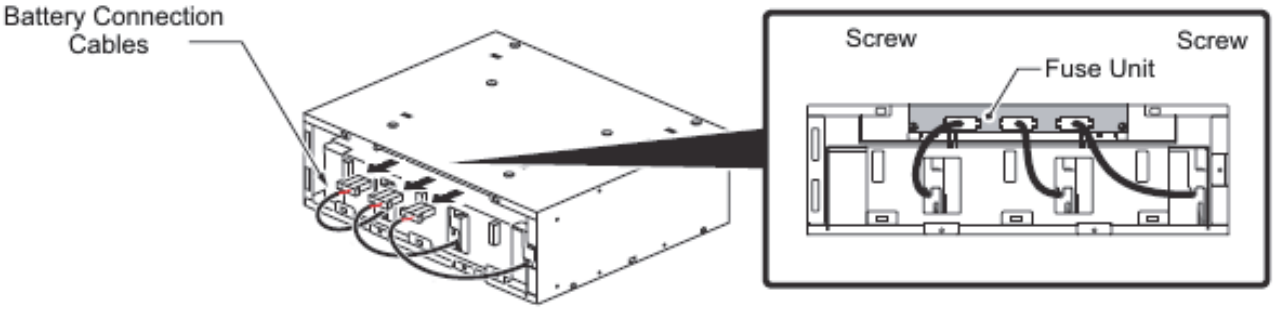
Removing Battery Tray Suppressor



(3) Slide Battery Tray Suppressor outward to remove.

(4) Disconnect the Battery Connection Cables from the Fuse Unit.

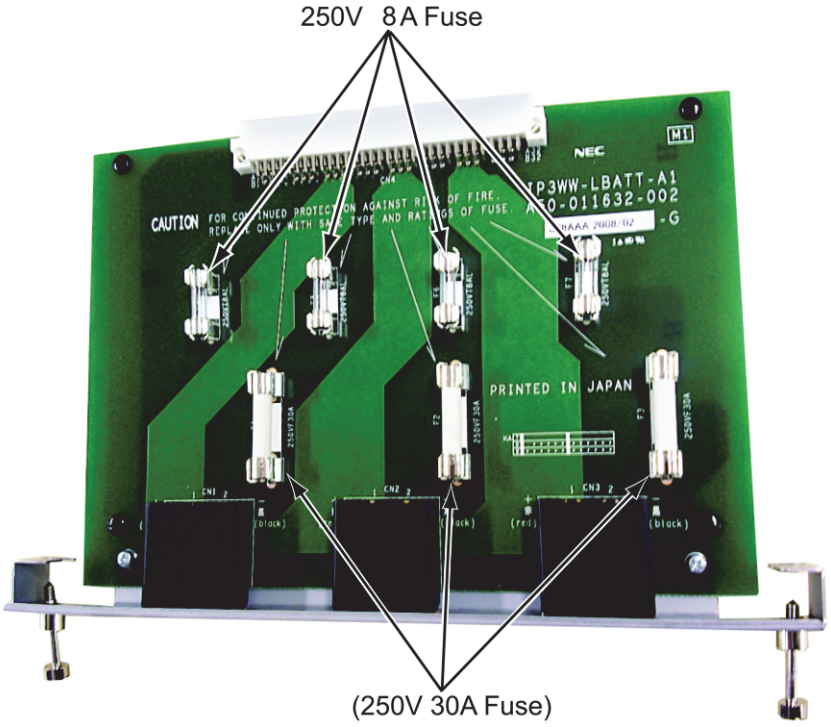
Disconnecting Battery Cables



(5) Loosen two screws and pull Fuse Unit out of the CHS LARGE BATT BOX.

(6) Refer to the figure below for replacement of 8A or 30A fuses.

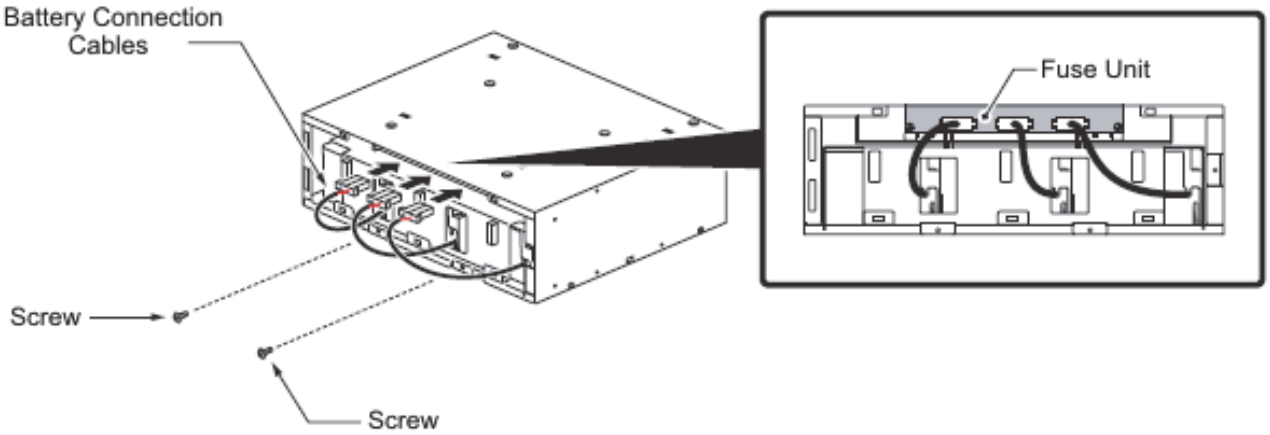
CHS LARGE BATT BOX Fuse Unit



(7) Slide the Fuse Unit into the and tighten the two screws (refer to Disconnecting Battery Cables on page 1990).

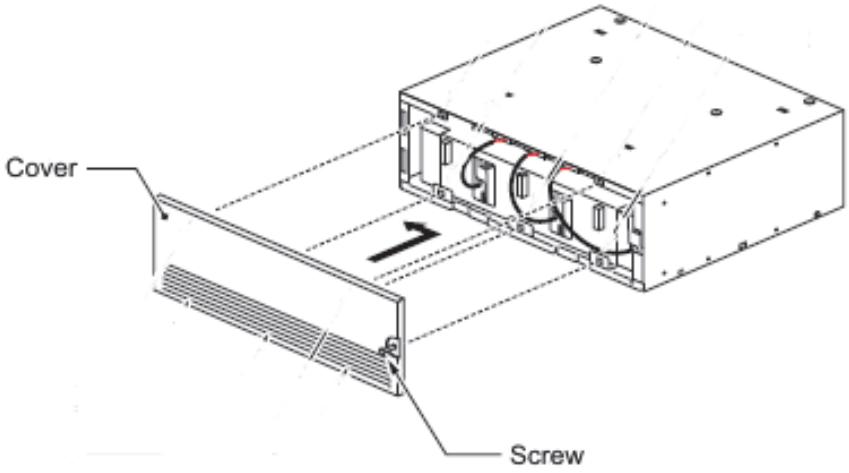
(8) Plug the Battery Connection Cables into the Fuse Unit.

Connecting Battery Cables



(9) Insert tabs on cover into holes on CHS LARGE BATT BOX. Slide the cover left until seated and tighten the screw.

Installing Cover Battery



3.8.3 Installing the External Batteries (CHSGW SMALL BATT BOX) on 9.5" (CHS2U B-US) Chassis

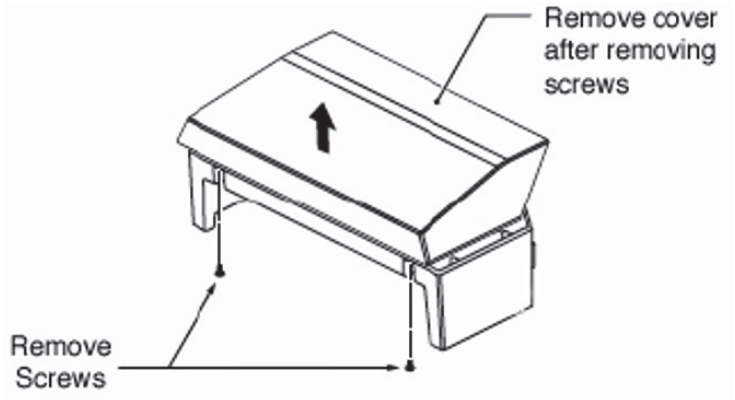


An optional, CHSGW SMALL BATT BOX can be installed to provide external battery power to the CHS2U B-US chassis during a power failure. The short-term battery box will power the system for approximately 10 minutes.

3.8.3.1 CHSGW SMALL BATT BOX Installation

(1) On the battery box compartment, remove the two screws then lift and set aside the top cover.

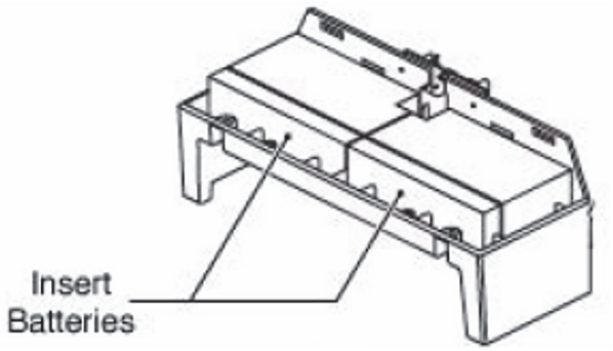
Remove Top Cover of Battery Compartment



(2) Remove the metal support bracket.

(3) Insert the two short-term batteries.

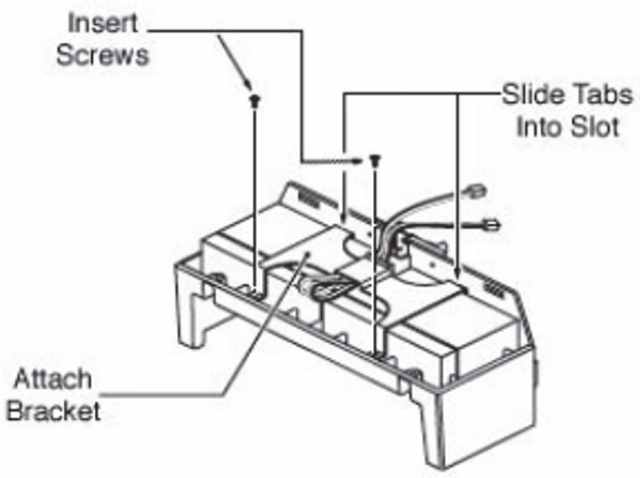
Installing the Batteries



(4) Place the battery cable on top of the batteries and adjust to take up the extra length. Allow enough length for the connections to be made to the equipment.

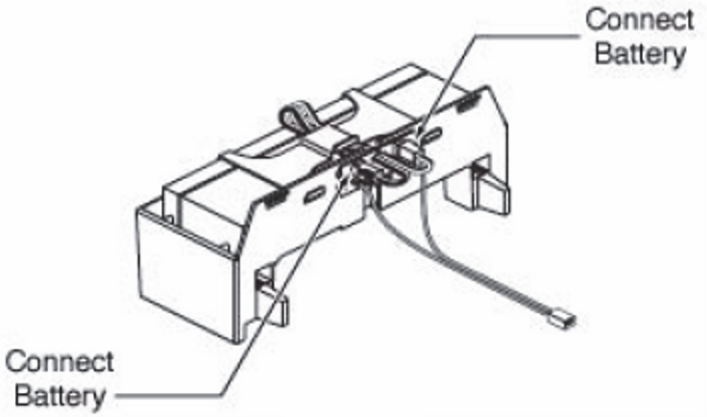
(5) The metal bracket is placed on top of the batteries and able to hold them in place. Insert the metal tabs of the bracket into the slots on the side of the battery compartment and lower into place. Using the two screws provided, attach the bracket to the battery compartment.

Installing the Bracket Using Screws



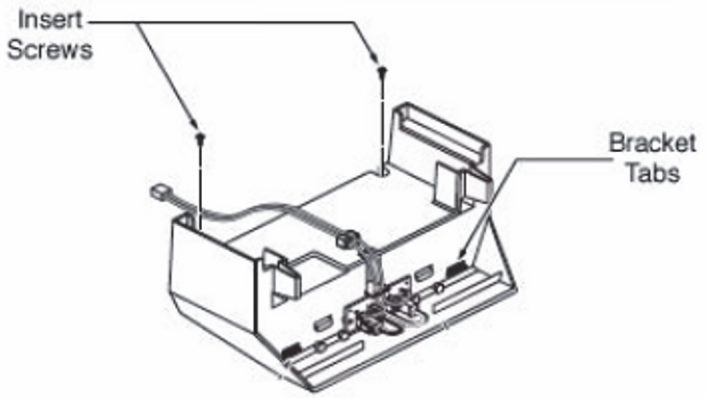
(6) Insert the battery cable through the slot on the battery compartment and connect the battery cable to the connection points on the battery compartment.

Installing the Battery Connection Cables



(7) Reattach the cover with the two screws previously removed.

Reattaching the Top Cover Using Screws

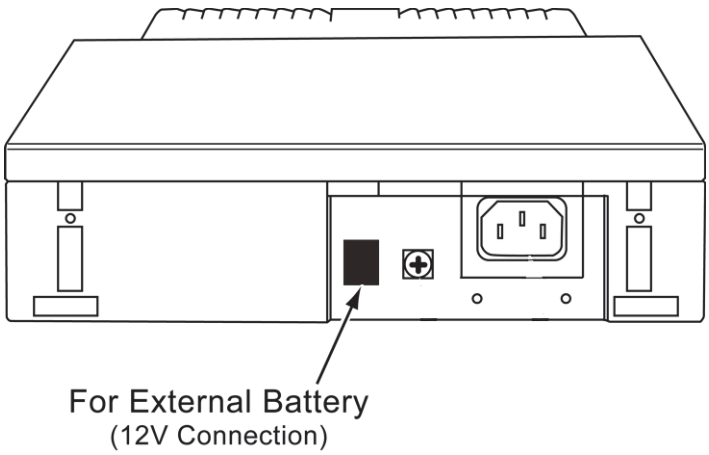


3.8.3.2 CHSGW SMALL BATT BOX to 9.5” Chassis (CHS2U B-US) Connection

(1) Ensure the CHS2U B-US chassis is powered OFF.

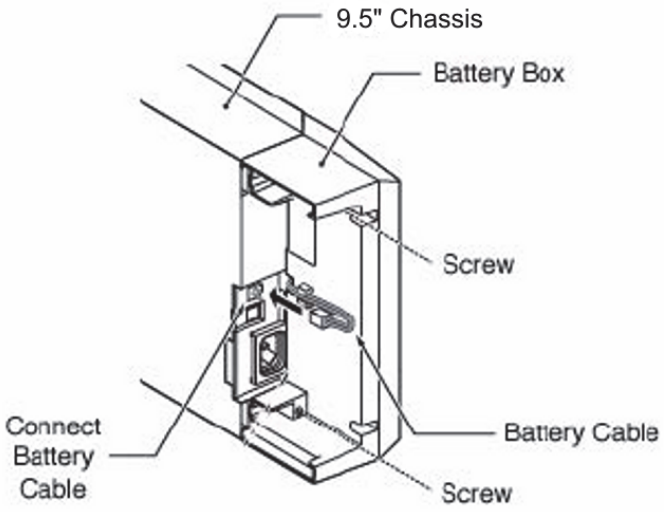
(2) From the back of the 9.5” chassis, remove the black plastic square covering the two-prong battery terminal leads.

9.5” Battery Terminal Cover



(3) Secure the battery compartment to the chassis using the two screws provided and attach the battery cable to the 9.5” chassis.

Attach to the Chassis and Connect Battery Cable



(4) Reconnect AC power cable to rear of chassis.

3.8.3.3 CHSGW SMALL BATT BOX Fuse Replacement

Note:

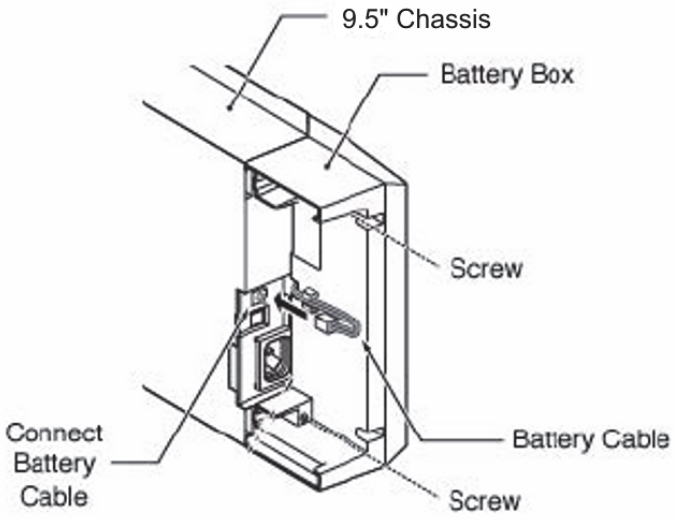
- Only replace fuses of the same rating.
- Fuses may be hot, use caution when replacing them.

(1) Correct the issue which caused the fuse problem. Replacing fuses without first correcting the issue could cause a fire and/or electric shock hazard.

(2) Disconnect AC power cable from rear of chassis. Make sure to unplug the unit from the electrical outlet prior to removing the connection cables in the battery box unit.

(3) Unplug all the cable connectors from the battery box.

Removing the CHSGW SMALL BATT BOX



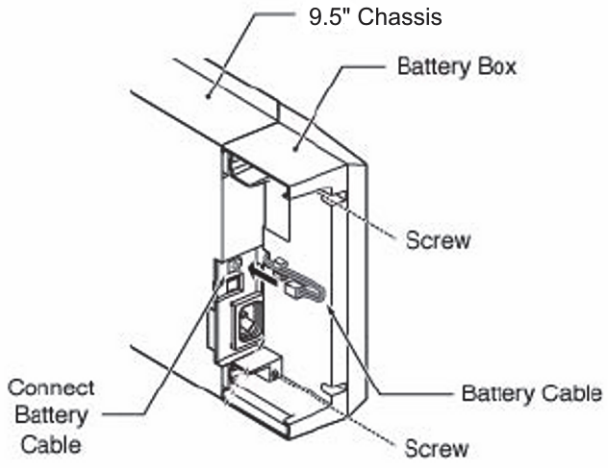
(4) Loosen the two thumb screws on the battery box and remove the box by pulling on the two thumb screws.

(5) Replace the fuse(s) as needed.

(6) Replace the battery box and tighten the thumb screw on either side of the box.

(7) Replace the battery connection cables to the battery box.

Replacing the CHSGW SMALL BATT BOX Fuse



3.8.4 Installing the External Batteries (CHS LARGE BATT BOX) to the 9.5” (CHS2U B-US) Chassis



An optional, CHS LARGE BATT BOX can be installed to provide external battery power to the chassis (CHS2U B-US) during a power failure. The long-term battery box powers the system for approximately three hours.

Note:

- Because of injury from falling equipment, wall mounting the CHS LARGE BATT BOX is not recommended.
- Mounting the CHS LARGE BATT BOX directly on the floor is not recommended.
- Due to possible water damage, floor mounting the 9.5” chassis is not recommended by NEC.
- The CHS BASE UNIT raises the height of the CHS LARGE BATT BOX 120mm (4.72”).

3.8.4.1 CHS LARGE BATT BOX Installation

To install the batteries in the CHS LARGE BATT BOX, refer to section 3.8.2.2Battery Installation.

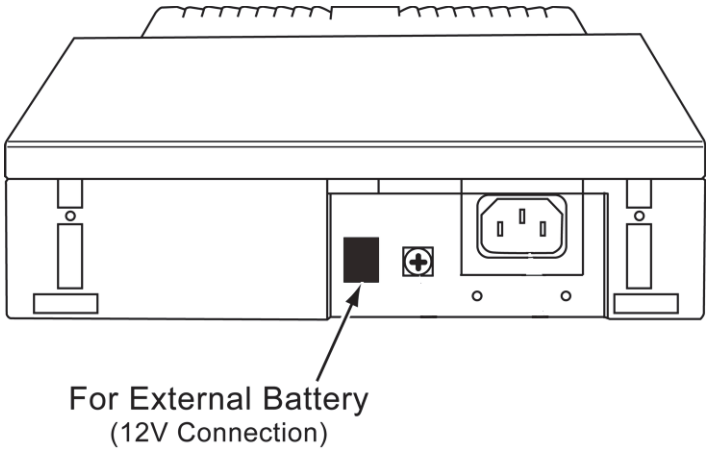
3.8.4.2 CHS LARGE BATT BOX to 9.5” Chassis (CHS2U B-US) Connection

(1) Ensure the chassis is powered down.

(2) Disconnect AC power cable from rear of chassis.

(3) From the back of the 9.5” chassis, remove the black plastic square covering the two-prong battery terminal leads/

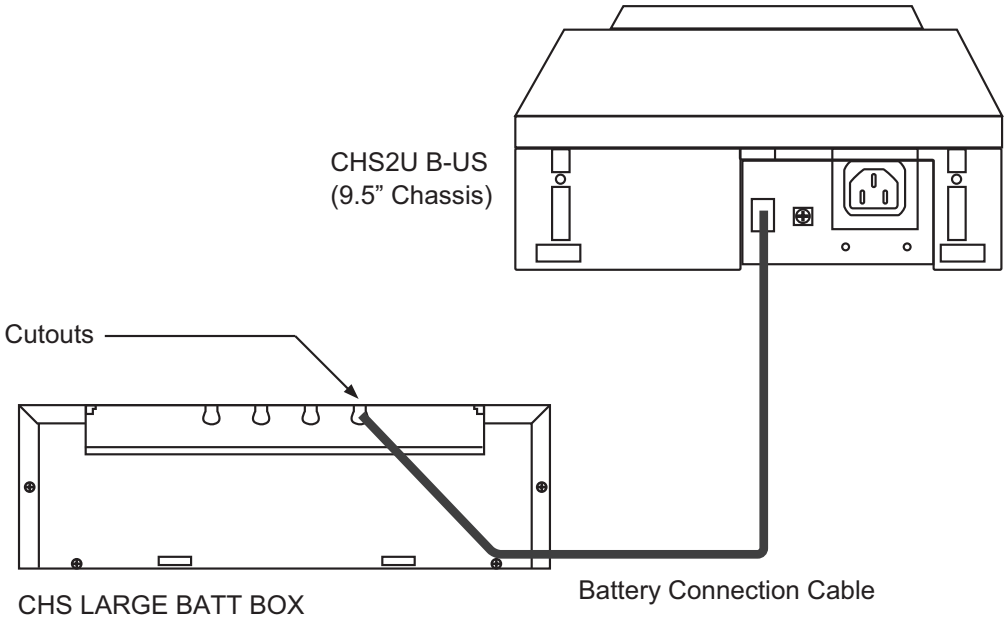
9.5” Battery Terminal Cover



(4) Connect one end of Battery Connection Cable to Battery Connector on rear of 9.5” chassis.

(5) Connect other end of cable to Battery Connector on rear of CHS LARGE BATT BOX chassis.

CHS LARGE BATT BOX to CHS2U B-US Connection



(6) Reconnect AC power cable to rear of 9.5” chassis.

3.8.4.3 CHS LARGE BATT BOX Fuse Replacement

To replace the fuse(s) in the CHS LARGE BATT BOX, refer to section 3.8.2.4CHS LARGE BATT BOX Fuse Replacement.

3.9 Installing Grounding on Chassis

From the factory, the SG, ETH and PBXG grounds are located inside the chassis and are connected to the FG ground (frame ground) on the back of the chassis.

3.9.1 Installing Grounding on 19" (CHS2U-US) Chassis

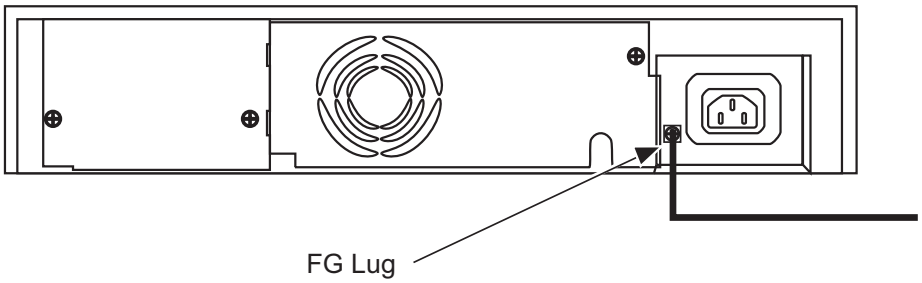


3.9.1.1 Install Grounding on Single 19" (CHS2U-US) Chassis

(1) Ensure the chassis is powered down and unplugged.

(2) Ground the chassis by connecting a 14 AWG wire from the FG lug on the back side of the chassis to an electrical service ground (such as a cold water pipe).

Chassis Grounding Lug (Single Chassis)



3.9.1.2 Install Grounding on Multiple 19" (CHS2U-US) Chassis

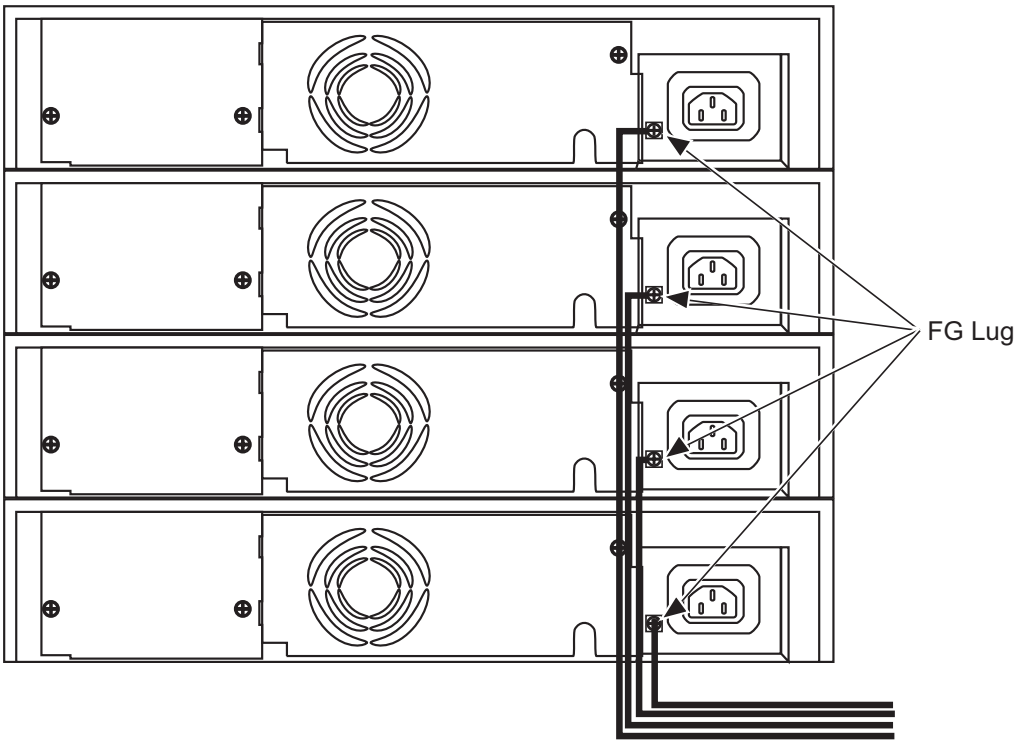
From the factory, the SG, ETH and PBXG grounds are located inside the chassis and are connected to the FG ground (frame ground) on the back of the chassis.

Each chassis (CHS2U-US) in the system must be grounded separately using the procedure listed below.

(1) Ensure all chassis are powered down and unplugged.

(2) Ground each chassis by connecting a 14 AWG wire from the FG lug on the back side of the chassis to an electrical service ground (such as a cold water pipe).

Chassis Grounding Lug (Multiple Chassis)



3.9.2 Installing Grounding on 9.5”(CHS2U B-US) Chassis

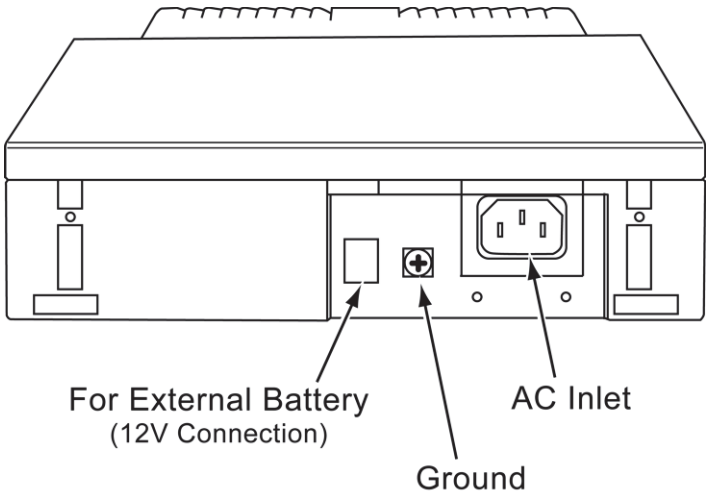
3.9.2.1 Installing Grounding on Single 9.5”(CHS2U B-US) Chassis



(1) Ensure the 9.5” chassis is powered off and the AC power cord is unplugged.

(2) Ground the chassis by connecting a 14 AWG wire from the FG lug on the back side of the chassis to an electrical service ground (such as a cold water pipe).

9.5” Base Chassis (Rear View)



3.9.2.2 Install Grounding on Multiple 9.5”(CHS2U B-US) Chassis

From the factory, the SG, ETH and PBXG grounds are located inside the chassis and are connected to the FG ground (frame ground) on the back of the chassis.

Each chassis (CHS2U B-US) in the system must be grounded separately using the procedure listed below.

(1) Ensure all chassis are powered down and unplugged.

(2) Ground **each** chassis [refer to 9.5” Base Chassis (Rear View) on page 2000] by connecting a 14 AWG wire from the FG lug on the back side of the chassis to an electrical service ground (such as a cold water pipe).

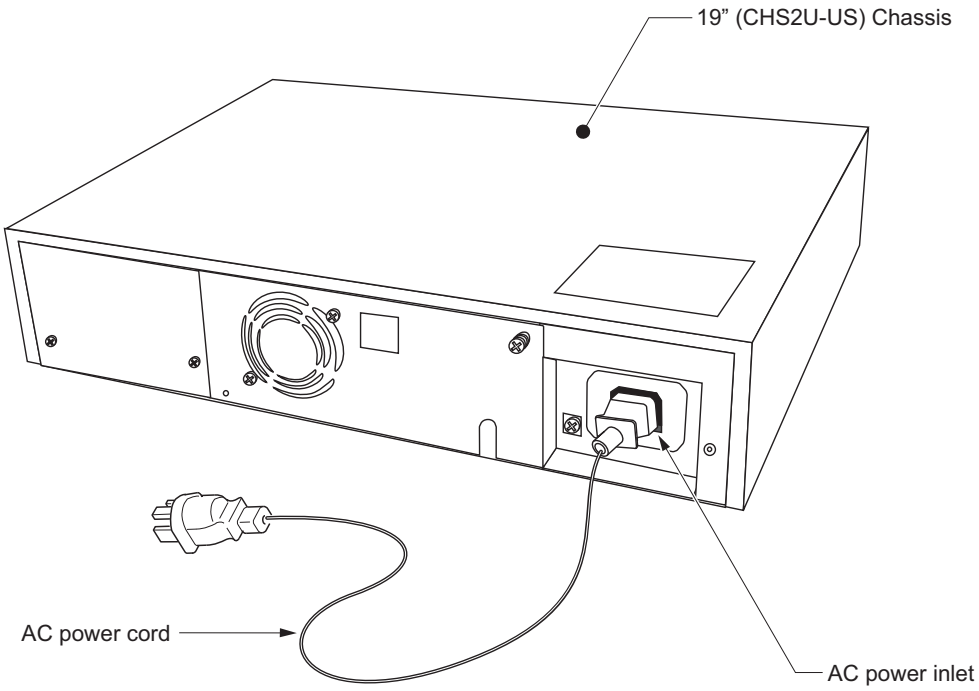
3.10 Installing AC Power Cords on Chassis

3.10.1 Installing AC Power Cords on 19” Chassis



(1) Locate the supplied AC power cord and attach to the AC Inlet located on the back of the 19” Chassis.

Install 19” AC Power Cords

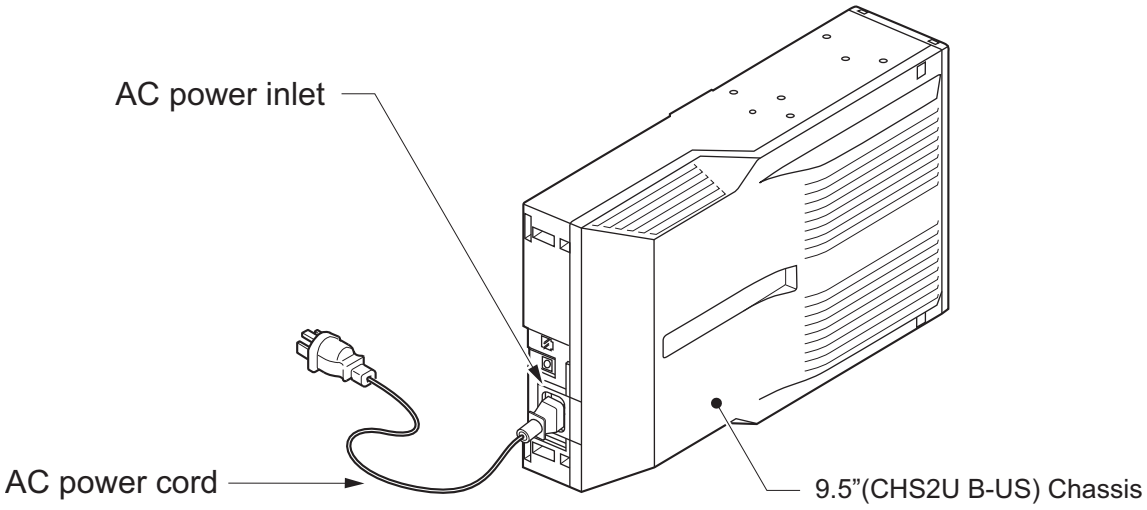


3.10.2 Installing AC Power Cord on 9.5” Chassis



Locate the supplied AC power cord and attach to the AC Inlet located on the back of the chassis.

Install 9.5” AC Power Cords



4 System Startup

4.1 General Information

This section explains the initial startup procedure; powering up the IPG, and data settings on SV9500 and IPG.

Initial Startup Procedure For IPG Digital Terminals

START

↓

1. Office Data Setting on SV9500 ⇒ Office Data Setting For Accommodating Digital Terminals (P.2005)

↓

2. Powering Up the IPG ⇒ Powering Up the IPG (P.2014)

↓

3. Data Programming on IPG ⇒ Data Programming For IPG Accommodating Digital Terminals (P.2016)

↓

4. Resetting the IPG ⇒ Resetting the IPG (P.2039)

↓

END

Initial Startup Procedure For IPG Accommodating Analog terminals

START

↓

1. Office Data Setting on SV9500 ⇒ Office Data Setting For Accommodating Analog terminals (P.2008)

↓

2. Powering Up the IPG ⇒ Powering Up the IPG (P.2014)

↓

3. Data Programming on IPG ⇒ Data Programming For IPG Accommodating Analog Terminals (P.2026)

↓

4. Resetting the IPG ⇒ Resetting the IPG (P.2039)

↓

END

4.2 Office Data Setting on SV9500

4.2.1 Office Data Setting For Accommodating Digital Terminals

The following data settings are required to accommodate digital terminals into IPG.

[1] ASYDL/ASYDN - System Data 1

Index 680, Bit 0 = 1 (IPG for Digital Terminal is enabled)

[2] ASYDL - System Data 1

Index 811: Tone Code by countries. For details, refer to SV9500 Command Manual.

Index 880, Bit 3 = 1 (Internal PHE is enabled)

Index 885, Bit 7 = 1 [SP (Signaling Processor) implementation]

[3] ANPD - Assign 1st Digit Code (1stDC) and Number of Necessary Digits (NND) for station numbers.

[4] ASPA - Assign the Access Code of station number using the 1stDC specified by ANPD.

TN: Tenant Number (1-63)

ACC: Access Code (maximum 6 digits)

CI: Connection Status Index

SRV: “STN: station number”

[5] ALIDL - LAN Information Data.

Note: For more details, refer to Appliance Model Installation Manual - Chapter 6 System Startup - 2. Additional information on System Startup - 2.1. Initial Data and "ALIDL" in Command Manual.

(Assignment of Internal PHE)

PH LENS: Specify an even-numbered Group No. other than those 24 through 31 (five digits).

Note: The LENS can be allocated on either a Virtual PIR or a Physical PIR.

PH TYPE: Select “Internal PHE”.

REGMAX: Number of ports registered by Internal PHE [1-6144]

(Assignment of MPH)

PH LENS: Specify an even-numbered Group No. other than those 24 through 31 (five digits).

Note: The LENS can be allocated on either a Virtual PIR or a Physical PIR.

TYPE: Select “MPH”.

MPH-ID: ID Number of MPH (1-4095)

- For Single CPU: MPH-ID = 1 (Fixed)
- For Dual CPU: MPH-ID = 1 and 2 (Fixed)

Note: Assign MPH-ID=1 for CPU #0 and MPH-ID=2 for CPU #1.

PH Kind: Select “PHD (SP-PHD)”.

Use this PH: Mark the checkbox.

LENS: Specify a Group (either odd-number Group or even-number Group) as SP-PHD accommodated location.

Note: When you want to decrease the value of the REGMAX parameter, delete the existing data and then reassign the new data. When you want to increase the value, reassign the new data without deleting the existing data.

MGC PORT: SP control port for TP [1-65535 (default = 64102)].

TREM PORT: SP control port for IP device [1-65535 (default = 60090)].

Note: The same port number cannot be assigned to both MGC PORT and TREM PORT.

[6] AISTL - Assign station data for digital terminals to be accommodated in IPG.

TN: Tenant Number (1-63)

IP STN: Station number of digital terminal (up to five digits)

KIND: DtermIP (DtermIP, IP Enabled Dterm)

TEC: Telephone Equipment Class (12 = Dterm/13 = Data Terminal via Dterm/16 = Data Terminal via Data Module)

RSC: Route Restriction Class (0-15)

SFC: Service Feature Restriction Class (0-15)

LENS: Allocate the terminal to vacant virtual LENS on which station/trunk is not mounted. LENS already used for other stations/trunks cannot be overwritten.

[7] ALOCL - Assign the Location ID data.

TYPE: Select “NETWORK ADDRESS”.

IP ADDRESS: Assign the IP Address. For the Telephony Server (i.e. IPPAD), assign“0.0.0.0.”

MASK BIT: Assign the Mask Bit in the range 1-31 except when IP ADDRESS 0.0.0.0 is determined. When IP ADDRESS = 0.0.0.0, MASK BIT = 32 is automatically assigned.

LOC-ID: Assign the Location ID in the range 0-4095, associated with the IP address assigned in the IP ADDRESS parameter. When 0.0.0.0 is assigned in the IP ADDRESS parameter, LOC-ID is automatically set to “0” (the value cannot be changed).

When you need to assign the following ToS for Signaling Packet data, select the Setting Type of Signaling Packet Service check box.

IP PRECEDENCE/DIFFSERV: Select either "IP PRECEDENCE" or "DIFFSERV".

<When IP PRECEDENCE is selected>

Priority: Specify the precedence in the range of 0-7 (low-high).

Low Delay: Place a checkmark to set Low Delay to ON.

Through Put: Place a checkmark to set High Throughput to ON.

Reliability: Place a checkmark to set High Reliability to ON.

Min Cost: Place a checkmark to set Cost Precedence to ON.

<When DIFFSERV is selected>

Priority: Specify the DiffServ Code Point in the range of 0-63.

[8] AIVCL - Assign the IP service voice control data.

A LOC-ID: Location ID of the Self Location. (0-4095)

B LOC-ID: Location ID of the Target Location. (0-4095)

Setting of Jitter Buffer

Select the Setting of Jitter Buffer check box to assign the following Jitter Buffer data.

Note: If the check box is not selected, the default setting (JB MIN = 1 (10ms), JB MAX = 30 (300ms)) will be used.

JB MIN: Jitter Buffer minimum value

JB MAX: Jitter Buffer maximum value

Setting Type of Voice Packet Service

Select the Setting Type of Voice Packet Service check box to assign the following ToS for Voice Packet data.

Note: If the check box is not selected, the default settings (IP PRECEDENCE, Priority (PRECEDENCE/DSCP) = 5, Low Delay = 0, Through Put = 0, Reliability = 0, Min Cost = 0) will be used.

Choose either IP PRECEDENCE or DIFFSERV from the drop-down list box.

When IP PRECEDENCE is chosen:

Priority (PRECEDENCE/DSCP): Specify the precedence in the range 0-7 (low-high).

Low Delay: Place a checkmark in the checkbox to set Low Delay to ON.

Through Put: Place a checkmark in the checkbox to set High Throughput to ON.

Reliability: Place a checkmark in the checkbox to set High Reliability to ON.

Min Cost: Place a checkmark in the checkbox to set Cost Precedence to ON.

When DIFFSERV is chosen:

Priority (PRECEDENCE/DSCP): Specify the DSCP in the range 0-63.

Setting of Payload

Select the check box to assign the Payload data. Specify a payload type (TYPE) and payload size (SIZE) in order of precedence (PRI1(high) → PRI4 (low)).

TYPE: Select a payload type from the combo box.

SIZE: Select a payload size from the combo box according to the payload type.

IP Device	PAYLOAD TYPE	PAYLOAD SIZE	REMARKS
IPG	G.711	10, 20, 30, 40ms	The setting of the system data (ASYD, System Data 1, Index 64, Bit 0) determines whether G.711a or G.711μ is used.
	G.723.1 (6.3k -> 5.3k)	30, 60ms	-
	G.729a	10, 20, 30, 40ms	-

Note: For a connection via IPPAD, "60 milliseconds" cannot be specified as payload size.

Note: For IPG, the same payload type cannot be assigned to different PRIs. Thus, IPG does not support a setting like the following:

PRI	PAYLOAD TYPE	PAYLOAD SIZE
PRI1	G.711	20ms
PRI2	G.711	40ms
PRI3	G.729a	20ms

In the above case, either PRI1 or PRI2 must be deleted.

[9] AKYD - Assign a desired feature to each Line/Feature Key of digital terminals.

[10] ADSL - Assign a desired feature to each Soft Key of digital terminals.

[11] ADKS - Assign the Soft key Pattern (which is assigned by the ADSL command) onto digital terminals.

4.2.2 Office Data Setting For Accommodating Analog terminals

The following data settings are required to accommodate analog terminals into IPG.

- Registration of Internal PHE

[1] ASYDL/ASYDN - System Data 1

Index 880, Bit 3 = 1 (Internal PHE is enabled)

[2] ALOCL - Assign the Location ID data.

Note: When LOC-ID is changed by this command, “Module Reset” or “Module Initialize” of the internal PHE must be executed with the ADPM command.

TYPE: Select “NETWORK ADDRESS”.

IP ADDRESS: Assign the IP Address. For the Telephony Server (i.e. IPPAD), assign“0.0.0.0.”

MASK BIT: Assign the Mask Bit in the range 1-31 except when IP ADDRESS 0.0.0.0 is determined. When IP ADDRESS = 0.0.0.0, MASK BIT = 32 is automatically assigned.

LOC-ID: Assign any number in the range 0-4095, associated with the IP address assigned in the IP AD-

DRESS parameter. When 0.0.0.0 is assigned in the IP ADDRESS parameter, LOC-ID is automatically set to "0" (the value cannot be changed).

When you need to assign the following ToS for Signaling Packet data, select the Setting Type of Signaling Packet Service check box.

Note: Any of the following operations is required for make the changed data effective after assigning ToS data for signaling packet.
- Initialization of Internal PHE (through ADPM command) or system initialization
- Initialization of IPPAD (through MB key on the card or MBPM command)
- Reregistration of IP stations

IP PRECEDENCE/DIFFSERV: Select either "IP PRECEDENCE" or "DIFFSERV".

<When IP PRECEDENCE is selected>

Priority: Specify the precedence in the range of 0-7 (low-high).

Low Delay: Place a checkmark to set Low Delay to ON.

Through Put: Place a checkmark to set High Throughput to ON.

Reliability: Place a checkmark to set High Reliability to ON.

Min Cost: Place a checkmark to set Cost Precedence to ON.

<When DIFFSERV is selected>

Priority: Specify the DiffServ Code Point in the range of 0-63.

[3] ADTM - Assign the TCP/IP Module data.

Assign the Port Number of Internal PHE.

Note: When the default port number (60130) is used, this setting is not required.

[4] ALIDL - LAN Information Data.

(Assignment of Internal PHE)

PH LENS: Specify an even-numbered Group No. other than those 24 through 31 (five digits).

Note: The LENS can be allocated on either a Virtual PIR or a Physical PIR.

PH TYPE: Select "Internal PHE".

REGMAX: Number of ports registered by Internal PHE [1-6144]

[5] ADPM - Initialize the Internal PHE. For further information, refer to the SV9500 Command Manual.

- Registration of IPG for Analog terminal

[1] ASYDL/ASYDN - System Data 1

Index 680, Bit 1 = 1 (IPG for Analog terminal is enabled)

[2] ASYDL - System Data 1

Index 811: Tone Code by countries. For details, refer to SV9500 Command Manual.

[3] ANPD - Assign 1st Digit Code (1stDC) and Number of Necessary Digits (NND) for station numbers.

[4] ASPA - Assign the Access Code of station number using the 1stDC specified by ANPD.

TN: Tenant Number (1-63)

ACC: Access Code (maximum 6 digits)

CI: Connection Status Index

SRV: "STN: station number"

[5] AISTL - Assign the station data of each analog terminal accommodated in IPG.

TN: Tenant Number (1-63)

IP STN: Station number of analog terminal accommodated in IPG (up to five digits)

KIND: Select "Analog MC" from the combo box.

TEC: Telephone Equipment Class [2 = PB/3 = DP/PB]

RSC: Route Restriction Class (0-15)

SFC: Service Feature Restriction Class (0-15)

LENS: Allocate the terminal to vacant virtual LENS on which station/trunk is not mounted.

MC-ID: Virtual MAC address for each port of IPG.

Note: Refer to the settings of **Page 7 - IPG MC-ID reference** on IPG side.

MC-CH: Channel Number for IPG. Assign "0" (Port 0) for each analog terminal connected to the Analog 2MC.

Note: Only Port 0 can be used for IPG for Analog terminal.

[6] AIVCL - Assign voice control data to Location IDs assigned by the ALOCL command.

A LOC-ID: Location ID of the Self Location. (0-4095)

B LOC-ID: Location ID of the Target Location. (0-4095)

Setting of Jitter Buffer

Select the Setting of Jitter Buffer check box to assign the following Jitter Buffer data.

Note: If the check box is not selected, the default setting (JB MIN = 1 (10ms), JB MAX = 30 (300ms)) will be used.

JB MIN: Jitter Buffer minimum value

JB MAX: Jitter Buffer maximum value

Setting Type of Voice Packet Service

Select the Setting Type of Voice Packet Service check box to assign the following ToS for Voice Packet data.

Note: Default settings (IP PRECEDENCE, Priority (PRECEDENCE/DSCP) = 5, Low Delay = OFF, Through Put = OFF, Reliability = OFF, Min Cost = OFF) is applied when the check box is not selected.

Choose either IP PRECEDENCE or DIFFSERV from the drop-down list box.

When IP PRECEDENCE is chosen:

Priority (PRECEDENCE/DSCP): Specify the precedence in the range 0-7 (low-high).

Low Delay: Place a checkmark in the checkbox to set Low Delay to ON.

Through Put: Place a checkmark in the checkbox to set High Throughput to ON.

Reliability: Place a checkmark in the checkbox to set High Reliability to ON.

Min Cost: Place a checkmark in the checkbox to set Cost Precedence to ON.

When DIFFSERV is chosen:

Priority (PRECEDENCE/DSCP): Specify the DSCP in the range 0-63.

Setting of Payload

Select the check box to assign the Payload data. Specify a payload type (TYPE) and payload size (SIZE) in order of precedence (PRI1(high) → PRI4 (low)).

TYPE: Select one of the payload type in the combo box.

SIZE: Select one of the payload size in the combo box according to the payload type.

Note: For selectable payload types and payload sizes, refer to SV9500 Data Programming Manual - Business - CHAPTER 2 ASSIGNMENT OF BASIC OFFICE DATA - IP Station Data.

IP Device	PAYLOAD TYPE	PAYLOAD SIZE	REMARKS
IPG	G.711	10, 20, 30, 40ms	The setting of the system data (ASYD, System Data 1, Index 64, Bit 0) determines whether G.711a or G.711μ is used.
	G.723.1 (6.3k -> 5.3k)	30, 60ms	-
	G.729a	10, 20, 30, 40ms	-
	G.722	10, 20, 30, 40ms	-

Note: For IPG, the same payload type cannot be assigned to different PRIs. Thus, IPG does not support a setting like the following:

PRI	PAYLOAD TYPE	PAYLOAD SIZE
PRI1	G.711	20ms
PRI2	G.711	40ms
PRI3	G.729a	20ms

In the above case, either PRI1 or PRI2 must be deleted.

4.2.3 Example of Office Data Setting

4.2.3.1 IPG For Digital Terminal

The example below explains the procedure to register a DT300 to be accommodated in IPG. The example assumes that the following dat is used to register the DT300.

Station number: 1000, Telephone Number: 51000

Tenant Number (TN)/Route Restriction Class (RSC)/Service Feature Restriction Class (SFC) = 1

Accommodated Location (LENS): 051000 (MG: 5, Unit: 1, Gr: 0, Lv: 0)

[Example]

[1] AISTL - Assignment of IP Station Data for LDM

PARAMETER		INPUT DATA
TN	Tenant Number	1
IP STN	Station Number of IP Station	1000
TEC	Telephone Equipment Class	12 (Dterm)
KIND	Kind of IP Station	DtermIP
RSC	Route Restriction Class	1
SFC	Service Feature Restriction Class	1
LENS	IP Station Equipment Numbers	051000

[2] ALGSL/ALGSN - Assignment of Telephone Station Data for LDM/NDM

PARAMETER		INPUT DATA
TYPE	Type	2: Station number
UGN	User Group Number	1
TELN	Telephone Number	51000
FPC	Fusion Point Code	1
TN	Tenant Number	1
STN	Station Number	1000

4.2.3.2 IPG For Analog Terminal

The example below explains the procedure to register an analog terminal to be accommodated in IPG. The example assumes that the following data is used to register the analog terminal.

Station number: 1000, Telephone Number: 11000

Tenant Number (TN)/Route Restriction Class (RSC)/Service Feature Restriction Class (SFC) = 1

Accommodated Location (LENS): 051000 (MG: 5, Unit: 1, Gr: 0, Lv: 0)

MC-ID (MAC Address of IPG): 00-1A-A0-76-A9-E4

MC-CH (Port Number): 0

[Example]

[1] AISTL - Assignment of IP Station Data for LDM

PARAMETER		INPUT DATA
TN	Tenant Number	1
IP STN	Station Number of IP Station	1000
TEC	**Telephone Equipment Class**	**PB**
KIND	Kind of IP Station	Analog MC
RSC	Route Restriction Class	1
SFC	Service Feature Restriction Class	1
LENS	IP Station Equipment Numbers	051000
MC-ID	MAC Address of IPG	00-1A-A0-76-A9-E4
MC-CH	Port Number	0

[2] ALGSL/ALGSN - Assignment of Telephone Station Data for LDM/NDM

PARAMETER		INPUT DATA
TYPE	Type	2: Station number
UGN	User Group Number	1
TELN	Telephone Number	11000
FPC	Fusion Point Code	1
TN	Tenant Number	1
STN	Station Number	1000

4.3 Powering Up the IPG



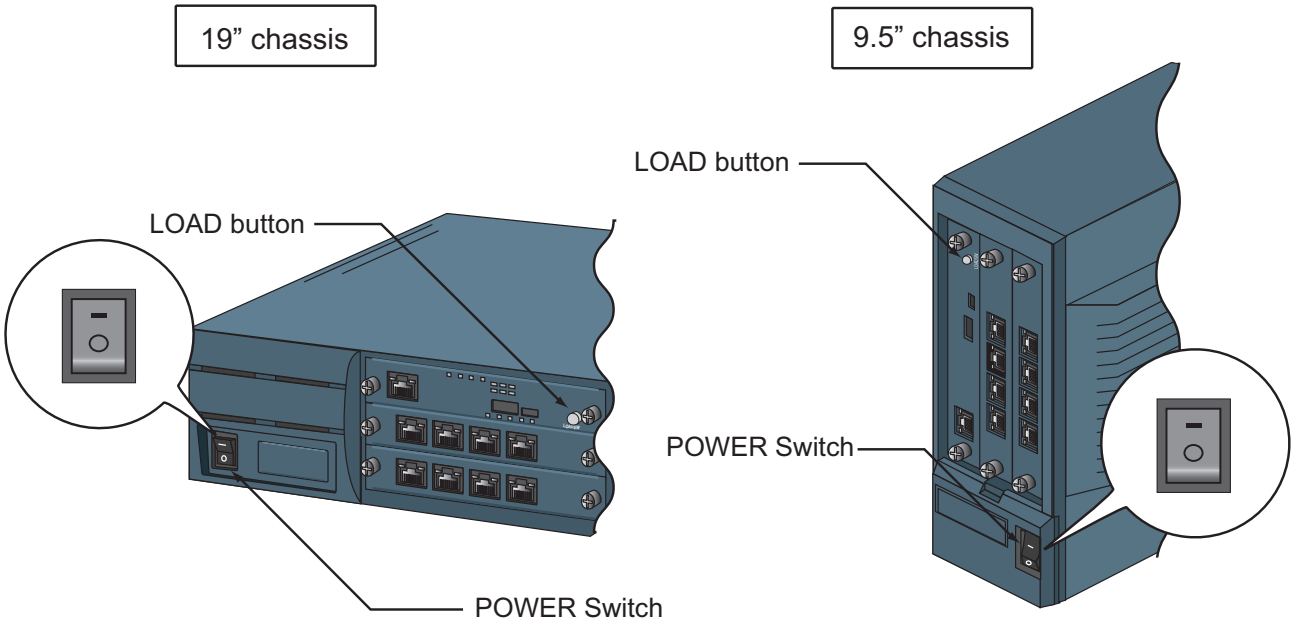
This section describes the process for starting the system (19" and 9.5" chassis) for the first time or starting a system that has been turned off.

[Performing a Cold Start]

Note: When a Cold Start is executed, initialization programs run at power-up.

[1] While holding down the LOAD button, flip the power switch to the ON position.

Note: System software is loaded from flash memory, and the customer data is loaded from RAM memory.



[2] Continue holding the Load button for approximately three seconds or until LED 2 starts flashing red.

[3] Release the Load button.

[4] When the system has completed loading the software (two minutes), the Status LED is flashing on the CD-CP00-US IPG.

[5] The time is displayed on the LCD of each digital terminal.

4.4 Data Programming on IPG

This section explains the necessary data to be programmed on IPG via Web Programming (WebPro). For infor-

mation on how to access and log in to WebPro, see Preparation of Web Programming in Chapter 2.

Programming menus in [View page in wizard] box are listed in the table below. The numbers enclosed in square brackets indicates the order of programming menu data.

Page	Menu Item	For IPG Accommodating Digital Terminals		For IPG Accommodating Analog Terminals	
		Basic Data	Additional Data	Basic Data	Additional Data
Page 1	Music On Hold Setup	–	[1]	–	[1]
Page 2	CD-CP00 Network Setup	[1]	–	[1]	–
Page 3	External Equipment LAN Setup	–	[2]	–	[2]
Page 4	IPG DRS Common Setup	[4]	–	[4]	–
Page 5	IPG DRS Server Setup	[3]	–	[3]	–
Page 6	IPG DRS Station Setup	[5]	–	–	–
Page 7	IPG MC-ID reference	–	–	[5]	–
Page 8	IPG Analog Common Setup	–	–	[6]	–
Page 9	IPG Analog Station Setup	–	–	[7]	–
Page 10	DTMF Tone Setup	–	–	–	[3]
Page 11	DTMF Tone Receiver Setup	–	–	–	[4]
Page 12	Reference Impedance Setup	–	–	–	[5]
Page 13	LCA Initial Setup	–	–	–	[6]
Page 14	Analog Extension Codec Filter Assignment	–	–	–	[7]
Page 15	Extension Codec Filter Type Setup	–	–	–	[8]
Page 16	VLAN Setup	–	[3]	–	[9]
Page 17	IPL DSP Basic Setup	[2]	–	[2]	–
Page 18	IPL Basic Setup	–	[4]	–	[10]
Page 19	IPLB Echo Canceller Setup	–	[5]	–	[11]
Page 20	Administrator Programming Password Setup	–	[6]	–	[12]
Page 21	System Alarm Setup	–	[7]	–	[13]
Page 22	System Alarm Report	–	[8]	–	[14]
Page 23	System Alarm Report Notification Time Setup	–	[9]	–	[15]
Page 24	System Alarm Report CC Mail Setup	–	[10]	–	[16]
Page 25	DIM Access Over Ethernet	–	[11]	–	[17]
Page 26	PCPro/WebPro Settings	–	[12]	–	[18]

4.4.1 Data Programming For IPG Accommodating Digital Terminals

4.4.1.1 Basic Data Programming

[1] Page 2 - CD-CP00 Network Setup

Set the IP Address, Subnet-Mask, and Default Gateway addresses.

Note: When any of IP address or NIC setting is changed, reset the IPG for the change to take effect.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Default Gateway	IP Address	0.0.0.0	
NIC Setting	Automatic Detection 100Mbps, Full Duplex 100Mbps, Half Duplex 10Mbps, Full Duplex 10Mbps, Half Duplex	Automatic Detection	
IPL IP Address	IP Address	172.16.0.10	Sets IP address of IP-LB. **Note1**
IPL Subnet Mask	Subnet Mask	255.255.0.0	Sets Subnet Mask for IPLB.
IPL NIC Setting	Automatic Detection 100Mbps, Full Duplex 100Mbps, Half Duplex 10Mbps, Full Duplex 10Mbps, Half Duplex	Automatic Detection	Sets NIC of IPLB.

Note 1: Set an IP address of IPG (for call control). This IP address is used for transmission of call control data between IPG and SV9500.

[2] Page 17 - IPL DSP Basic Setup

Set the IP address of IPL and the RTP port.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Slot	(Display only)	-	
VoIP Gateway	Fixed to “1” (Display only).	-	
IP Address	IP Address	Slot 1: 17216.0.20	**Note2**
RTP Port	0~65534	VoIP GW 1: 10021	Sets RTP Port Number. **Note3**

Note 2: Set an IP address of IPG (for voice packets). This IP address is used to transfer voice packets to and from the opposite party (IP terminal).

Note 3: Only VoIP GW 1 is available.

[3] Page 5 - IPG DRS Server Setup

Set IP address and port number of DRS server (SV9500).

Note: When this data is changed, all the terminals re-register. If the terminals are talking, the calls will be dropped.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Server Index	1-4		
DRS IP address	**Note4**	000.000.000.000	Sets IP address of destination SV9500.
DRS Port Number	0-65534 **Note5**	3456	Sets port number of SV9500.

Note 4: The range of the values which can be set here is as follows:
0.0.0.0 - 126.255.255.254
128.0.0.1 - 191.255.255.254
192.0.0.1 - 223.255.255.254

Note 5: Do not set Well-know port (0-1023).

[4] Page 4 - IPG DRS Common Setup

Set the common data for IPG functions.

Note: When this data is changed, all the terminals re-register. If the terminals are talking, the calls will be dropped.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
DRS Self 1st Port Number	0-65534 **Note6**, **Note7**	7001	
Digital Terminal Signaling Self 1st Port Number	0-65534 (*2) **Note7**	7201	
DRS ToS	0x 00-FF	0xC0	
DRS Password Omission	Unchecked: Disable Checked: Enable	Unchecked	When you want to use station numbers of each terminals as DRS authentication passwords, enable this parameter.

Note 6: Specifies a value of head port (port 1), and the value in which the increment is automatically done to the input value is set to following ports 2-32.
Example: When "7001" is entered, the data is set as follows: port1=7001, port2=7002, …, port32=7032.

Note 7: Do not set Well-know port (0-1023).

[5] Page 6 - IPG DRS Station Setup

Set station numbers and authentication passwords of terminals accommodated in IPG. Authentication passwords are necessary when terminals register to DRS (SV9500). When each station registers to DRS, its station number and password are required.

Note: Station numbers to be set here must be set in SV9500 beforehand.

Note: When this data is changed, the digital terminals whose data is changed re-register. If the terminals are talking, the calls will be dropped.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Port (1-32)	Enter the number of the first item which you want to display on the screen. 10 items can be displayed on each page.	-	
Station number	Up to 16 digits (0-9, #, *)	blank	
Password **Note8**	Up to 16 digits (0-9, #, *)	blank	

Note 8: When “DRS Password Omission” of IPG DRS Common Setup is enabled, the authentication password is treated as the same value as station number. Therefore, the input of the password can be omitted.

4.4.1.2 Additional Data Programming

[1] Page 1 - Music On Hold Setup

Terminals accommodated in IPG use one of IPG internal MOH resources. MOH is set on a IPG-wide basis. You can select one of the followings:

1. La Chanson de L'Adieu (Frédéric François Chopin)
2. Trout Quintet (Franz Peter Schubert)
3. Plaisir d'Amou (Jean Paul Egide Martini)
4. Menuet (Johann Sebastian Bach)

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Tone Selection	1~4	4 Menuet (Johann Sebastian Bach)	
Audio Gain Control	1~63 (-15.5 ~ +15.5dB)	32 (0dB)	

[2] Page 3 - External Equipment LAN Setup

Define the TCP port, etc. for communicating to external equipment DIM Output.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
DIM Output	(Display only)	-	
TCP Port	0~65535 **Note1**	0	
KeepAlive time	1~255 (sec)	30	

Note 1: Do not set Well-know port (1-1023).

[3] Page 16 - VLAN Setup

Set VLAN tag to the packet sent from LAN interface on VoIPDB (VoIPDB 32ch/64ch/128ch).

Note: After you change this data, you need to reset the system.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
VLAN Mode	Unchecked = Disable Checked = Enable	Unchecked	
VLAN ID	0~4094	0	
Priority	0~7	0	

[4] Page 18 - IPL Basic Setup

This program sets VoIPDB.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Slot	(Display only)	-	
H.245 Port	0~65535 **Note2**	10100	
Preparation Complete Port	0~65535 **Note2**	4000	

Note 2: Do not set Well-know port (0-1023).

[5] Page 19 - IPLB Echo Canceller Setup

Set Echo Canceller value for VoIPDB.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
TDM Echo Canceller mode **Note3**	Unchecked: Disable Checked: Enable	Checked	
TDM Echo Canceller NLP mode (2W)	Disable Enable Echo Path Mode Echo Path Auto Detect Mode	Enable	
Advanced setting	-	-	No required to set this parameter.
TDM Echo Canceller NLP Thresh-old	0-15	12	
Advanced setting	-	-	No required to set this parameter.
Advanced setting	-	-	No required to set this parameter.
Advanced setting	-	-	No required to set this parameter.
TDM Echo Canceller Echo Type	• Disable • Line E.C. • Acoustic E.C.	Line E.C.	
Advanced setting	-	-	No required to set this parameter.
TDM Tx Level Control	• Disable • TxLevelControl mode • TxAutomaticLevelControl mode • TxHLC(HighLevelCompensation) mode	TxHLC mode	

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
TDM Tx LevelControl Level	0-16 (-24~24db) 0: -24 db 1: -21 db 2: -18 db : 8: 0 db : 14: 18 db 15: 21 db 16: 24 db	8	
Advanced setting	-	-	No required to set this parameter.
TDM Tx HLC Threshold	0-42 (-42~0dBm) 0: -42 dBm 1: -41 dBm : 42: 0 dBm	41	
TDM Tx Gain Compression mode	Unchecked: Disable Checked: Enable	Checked	
TDM Tx Gain Compression Threshold	0: -42 dBm 1: -41 dBm : 42: 0 dBm	41	
Advanced setting	-	-	No required to set this parameter.
Advanced setting	-	-	No required to set this parameter.
Advanced setting	-	-	No required to set this parameter.
RTP Echo Canceller mode **Note3**	Unchecked: Disable Checked: Enable	Unchecked	
RTP Echo Canceller NLP mode	Unchecked: Disable Checked: Enable	Unchecked	
Advanced setting	-	-	No required to set this parameter.
RTP Echo Canceller NLP Threshold	0-15	12	
Advanced setting	-	-	No required to set this parameter.
Advanced setting	-	-	No required to set this parameter.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Advanced setting	-	-	No required to set this parameter.
RTP Echo Canceller Echo Type	• disable • Line echo canceller • Acoustic echo canceller	disable	
Advanced setting	-	-	No required to set this parameter.
RTP Tx Level Control	• disable • TxLevelControl mode • TxAutomaticLevelControl mode • TxHLC (HighLevelCompensation) mode	disable	
RTP Tx Level Control Level	0-16 (-24~24db) 0: -24 db 1: -21 db 2: -18 db : 8: 0 db : 14: 18 db 15: 21 db 16: 24 db	8	
Advanced setting	-	-	No required to set this parameter.
RTP Tx HLC Threshold	0-42 (-42dBm~0dBm) 0: -42 dBm 1: -41 dBm : 42: 0 dBm	42	
RTP Tx Gain Compression mode	Unchecked: Disable Checked: Enable	Unchecked	
RTP Tx Gain Compression Threshold	0-42 (-42dBm~0dBm) 0: -42 dBm 1: -41 dBm : 42: 0 dBm	42	
Advanced setting	-	-	No required to set this parameter.
Advanced setting	-	-	No required to set this parameter.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Advanced setting	-	-	No required to set this parameter.
TDM Echo Canceller NLP mode (4W)	• Disable • Enable • Echo Path Mode • Echo Path Auto Detect Mode	Enable	

Note 3: When “EC=OFF” is sent from SV9500, this data is set to DISABLE regardless of actual set value.

[6] Page 20 - Administrator Programming Password Setup

Change the password for Web Programming tool.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Account	1 (Display only)	-	
User Name	Unique alphanumeric name (up to 10 alphanumeric characters)	admin	
Password	Up to eight digits (using 0~9, # and *)	admin	

[7] Page 21 - System Alarm Setup

You can designate an alarm as Major or Minor. This program also assigns whether or not the alarm information is reported to the predefined destination.

Note: For details on each system alarm, see List of System Alarms (P.2044) in CHAPTER 6 APPENDIX.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Alarm (1-100)	Enter the number of the first item which you want to display on the screen.	-	
Alarm Type	• Not set • Major Alarm • Minor Alarm	See List of System Alarms (P.2044).	
Report	Unchecked: Not Report (No autodial) Checked: Report (autodial)	Unchecked	

[8] Page 22 - System Alarm Report

Define the details of the system alarm.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Report Method	• No Report • E-mail	No Report	
SMTP Host Name	Up to 255 Characters	No setting	
SMTP Host Port	0~65535	25	
To Address	Up to 255 Characters	No setting	
Reply Address	Up to 255 Characters	No setting	
From Address	Up to 255 Characters	No setting	
DNS Primary Address	0.0.0.0~255.255.255.255	0.0.0.0	
DNS Secondary Address	0.0.0.0~255.255.255.255	0.0.0.0	
Customer Name	Up to 255 Characters	No setting	

[9] Page 23 - System Alarm Report Notification Time Setup

Set the date and time for the alarm report to send with E-mail.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Notification No.	01-12 (Display only)	-	
Month	00~12 (0: No setting)	0	
Day	00~31 **Note4**	0	
Hour	00~23	0	
Minute	00~59	0	

Note 4: Setting “0” means “everyday”.

[10] Page 24 - System Alarm Report CC Mail Setup

Define the mail address to receive the system alarm report CC Mail setup.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
CC No.	1-5 (Display only)	-	
CC Mail Address	Up to 255 Characters	No setting	

[11] Page 25 - DIM Access Over Ethernet

Set the account to enable DIM (Diagnostic Information Maintenance) access over LAN.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Access Enabling	Unchecked: Disable Checked: Enable	Unchecked	

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
User Name	20 characters (alphanumeric)	admin	
Password	20 characters (alphanumeric)	admin	

[12] Page 26 - PCPro/WebPro Settings

Set parameters for Web Programming.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
WebPro HTTP TCP Port	1-65535 **Note5**	80	

Note 5: Do not set Well-know port (0-1023).

4.4.2 Data Programming For IPG Accommodating Analog Terminals

4.4.2.1 Basic Data Programming

[1] Page 2 - CD-CP00 Network Setup

Set the IP Address, Subnet-Mask, and Default Gateway addresses.

Note: When any of IP address or NIC setting is changed, reset the IPG for the change to take effect.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Default Gateway	IP Address	0.0.0.0	
NIC Setting	Automatic Detection 100Mbps, Full Duplex 100Mbps, Half Duplex 10Mbps, Full Duplex 10Mbps, Half Duplex	Automatic Detection	
IPL IP Address	IP Address	172.16.0.10	Sets IP address of IP-LB.
IPL Subnet Mask	Subnet Mask	255.255.0.0	Sets Subnet Mask for IPLB.
IPL NIC Setting	Automatic Detection 100Mbps, Full Duplex 100Mbps, Half Duplex 10Mbps, Full Duplex 10Mbps, Half Duplex	Automatic Detection	Sets NIC of IPLB.

[2] Page 17 - IPL DSP Basic Setup

Set the IP address of IPL and the RTP port.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Slot	(Display only)	-	
VoIP Gateway	Fixed to “1” (Display only).	-	
IP Address	IP Address	Slot 1: 17216.0.20	
RTP Port	0~65534	VoIP GW 1: 10021	Sets RTP Port Number. **Note1**

Note 1: Only VoIP GW 1 is available.

[3] Page 5 - IPG DRS Server Setup

Set IP address and port number of DRS server (SV9500).

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Server Index	Fixed to "1" (Display only).	-	
DRS IP address	**Note2**	000.000.000.000	Sets IP address of destination SV9500.
DRS Port Number	0-65534 **Note3**	3456	Sets port number of SV9500.

Note 2: The range of the values which can be set here is as follows:

0.0.0.0 - 126.255.255.254

128.0.0.1 - 191.255.255.254

192.0.0.1 - 223.255.255.254

Note 3: Do not set Well-know port (0-1023).

[4] Page 4 - IPG DRS Common Setup

Set the common data for IPG functions.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
DRS Self 1st Port Number	0-65534 **Note4**, **Note5**	7001	
Analog Terminal Signaling Self 1st Port Number	0-65534 (*2) **Note5**	50000	
DRS ToS	0x 00-FF	0xC0	

Note 4: Specifies a value of head port (port 1), and the value in which the increment is automatically done to the input value is set to following ports 2-32.
Example: When "7001" is entered, the data is set as follows: port1=7001, port2=7002, …, port32=7032.

Note 5: Do not set Well-know port (0-1023).

[5] Page 7 - IPG MC-ID reference

You can check MC-ID assigned to each port. You need to set MC-IDs for analog stations through the SV9500 office data setting (AISTL command).

Note: This option is read only.

ITEM	REFERENCE DATA	DEFAULT	DESCRIPTION
Port	1~32		
MC-ID	00-00-00-00-00-00~FF-FF-FF-FF-FF-FF	blank	

[6] Page 8 - IPG Analog Common Setup

Note: After you change this data, you need to reset the IPG.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Health Check timer	Timer (sec) 150~330	150	
Open/Reverse setting	0 = Open disable/Reverse enable 1 = Open enable/Reverse disable	0	When IPG receives “open/reverse” command, IPG will check the setting of "Open/Reverse setting". When "0" is set, IPG will reverse the polarity of the line. When "1" is set, IPG will momentary open the line.

[7] Page 9 - IPG Analog Station Setup

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Port	1~32		
Fax error detection timer	0 = always FAX disable 1~5 = FAX switching time (minute) 255 = always FAX disable	1	
STT DT	0 = STT DT disable 1 = STT DT enable	0	Stutter Dial Tone can be provided for terminals without Message Waiting Lamp. Sttuer Dial Tone provides automatic notification of incoming mail instead of Message Waiting Lamp. When "1" is set for "STT DT", Stutter Dial Tone service is enabled. It repeats 120msec ON/ 120ms OFF for six times.
Receive PAD adjustment **Note6**	1~63 (-15.5 ~ +15.5dB)	44 (6dB gain)	This is PAD for plus and minus. The direction is “receive”. This will be applied if the terminal speaks to port other than internal IPG terminal.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Transmit PAD adjustment **Note6**	1~63 (-15.5 ~ +15.5dB)	32 (0dB)	This is PAD for plus and minus. The direction is “send”. This will be applied if the terminal speaks to port other than internal IPG terminal.
Receive PAD adjustment(inside IPG) **Note6**	1~63 (-15.5 ~ +15.5dB)	32 (0dB)	This is PAD for plus and minus. The direction is “receive”. This will be applied if the terminal speaks to internal IPG terminal.
Transmit PAD adjustment(inside IPG) **Note6**	1~63 (-15.5 ~ +15.5dB)	32 (0dB)	This is PAD for plus and minus. The direction is “send”. This will be applied if the terminal speaks to internal IPG terminal.

Note 6: For both voice and fax communications, PAD is always corrected by this value.

4.4.2.2 Additional Data Programming

[1] Page 1 - Music On Hold Setup

Terminals accommodated in IPG use one of IPG internal MOH resources. MOH is set on a IPG-wide basis. You can select one of the followings:

1. La Chanson de L'Adieu (Frédéric François Chopin)
2. Trout Quintet (Franz Peter Schubert)
3. Plaisir d'Amou (Jean Paul Egide Martini)
4. Menuet (Johann Sebastian Bach)

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Tone Selection	1~4	4. Menuet (Johann Sebastian Bach)	
Audio Gain Control	1~63 (-15.5 ~ +15.5dB)	32 (0dB)	

[2] Page 3 - External Equipment LAN Setup

Define the TCP port, etc. for communicating to external equipment DIM Output.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
DIM Output	(Display only)	-	
TCP Port	0~65535 **Note1**	0	
KeepAlive time	1~255 (sec)	30	

Note 1: Do not set Well-know port (1-1023).

[3] Page 10 - DTMF Tone Setup

Define the duration (On time) and pause (Off time) for DTMF dialing. This option affects all trunk line calls system wide. Make separate entries for duration and pause. It is also possible to adjust the level of both high and low frequency tone.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Duration	1~255	5 (100ms)	
Pause	1~255	5 (100ms)	
Tone Level (Low) (dB)	1~97 (-45.0 ... +3)	65 (-13dB)	
Tone Level (High)	1~97 (-45.0 ... +3)	69 (-11dB)	

[4] Page 11 - DTMF Tone Receiver Setup

Define the various levels and timers for the DTMF Tone Receiver.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Detect Level	0 = 0dBm ~ -25dBm 1 = -5dBm ~ -30dBm 2 = -10dBm ~ -35dBm 3 = -15dBm ~ -40dBm 4 = -20dBm ~ -45dBm 5 = -25dBm ~ -50dBm 6 = -30dBm ~ -55dBm	0	
Start delay time	0~255 (0.25ms ~ 64ms)	0	
Min. detect level	0~15 Detect Level 0: -10dBm(0) to -25dBm(15) Detect Level 1: -15dBm(0) to -30dBm(15) Detect Level 2: -20dBm(0) to -35dBm(15) Detect Level 3: -25dBm(0) to -40dBm(15) Detect Level 4: -30dBm(0) to -45dBm(15) Detect Level 5: -35dBm(0) to -50dBm(15) Detect Level 6: -40dBm(0) to -55dBm(15)	10 (-20dBm)	

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Max. detect level	0~15 Detect Level 0: 0dBm(0) to -15dBm(15) Detect Level 1: -5dBm(0) to -20dBm(15) Detect Level 2: -10dBm(0) to -25dBm(15) Detect Level 3: -15dBm(0) to -30dBm(15) Detect Level 4: -20dBm(0) to -35dBm(15) Detect Level 5: -25dBm(0) to -40dBm(15) Detect Level 6: -30dBm(0) to -45dBm(15) Detect Level 7: -35dBm(0) to -50dBm(15) Detect Level 8: -40dBm(0) to -55dBm(15)	2 (-2dBm)	
Forward twist level	0~9 (1dB~10dB)	5 (6dBm)	
Backward twist level	0~9 (1dB~10dB)	0 (1dBm)	
ON detect time	1~255 (15+ 15ms~3825ms)	1 (30ms)	
OFF detect time	1~255 (15+ 15ms~3825ms)	1 (30ms)	

[5] Page 12 - Reference Impedance Setup

Perform the change of Reference Impedance (600 ohms or complex) in LCA blade.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
	0 = 600 ohm 1 = Complex	0 (600 ohm)	

[6] Page 13 - LCA Initial Setup

Set the basic data of the LCA.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Ringing frequency	0 = 25Hz 1 = 20Hz 2 = 16Hz	1 (20Hz)	
Minimum off-hook time	1~255 (5ms~1275ms)	21 (105ms)	

Note: The above data can be changed through the SV9500 office data setting.

[7] Page 14 - Analog Extension Codec Filter Assignment

Set the filter value of the CODEC (QSLAC) filter of each analog port.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Port	1~32		

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
CODEC Filter Type	0 = No filter 1 = Type 1 (Line loss 0dB: Short distance) 2 = Type 2 (Line loss 4dB: Middle distance) 3 = Type 3 (Line loss 8dB: Long distance) 4 = Type 4 (Special option)	3 (Type 3)	

[8] Page 15 - Extension Codec Filter Type Setup

Define the CODEC filter option data type.

Note: When you specify "Type 4" in step 7 (Page 14 - Analog Extension Codec Filter Assignment), the Codec (QSLAC) Filter table defined by this option (0-11) is used.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Option Type	0 = Type4 (Not used) 1 = Type 5 (Line loss 2dB) 2 = Type 6 (China standard) 3 = Type 7 (China seimense tel) 4 = Type 8 (Brazil) 5 = Type 9 (Line loss 10dB) 6 = Type 10 (TIA-464-C) 7 = Type 11 (Reserve) 8 = Type 12 (Reserve) 9 = Type 13 (Reserve) 10 = Type 14 (Reserve) 11 = Type 15 (Reserve)	0	

[9] Page 16 - VLAN Setup

Set VLAN tag to the packet sent from LAN interface on VoIPDB (VoIPDB 32ch/64ch/128ch).

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
VLAN Mode	Unchecked = Disable Checked = Enable	Unchecked	
VLAN ID	0~4094	0	
Priority	0~7	0	

[10] Page 18 - IPL Basic Setup

This program sets VoIPDB.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Slot	(Display only)	-	
H.245 Port	0~65535 **Note2**	10100	
Preparation Complete Port	0~65535 **Note2**	4000	

Note 2: Do not set Well-know port (0-1023).

[11] Page 19 - IPLB Echo Canceller Setup

Set Echo Canceller value for VoIPDB.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
TDM Echo Canceller mode **Note3**	Unchecked: Disable Checked: Enable	Checked	
TDM Echo Canceller NLP mode (2W)	Disable Enable Echo Path Mode Echo Path Auto Detect Mode	Enable	
Advanced setting	-	-	No required to set this parameter.
TDM Echo Canceller NLP Threshold	0-15	12	
Advanced setting	-	-	No required to set this parameter.
Advanced setting	-	-	No required to set this parameter.
Advanced setting	-	-	No required to set this parameter.
TDM Echo Canceller Echo Type	• Disable • Line E.C. • Acoustic E.C.	Line E.C.	
Advanced setting	-	-	No required to set this parameter.
TDM Tx Level Control	• Disable • TxLevelControl mode • TxAutomaticLevelControl mode • TxHLC(HighLevelCompensation) mode	TxHLC mode	

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
TDM Tx LevelControl Level	0-16 (-24~24db) 0: -24 db 1: -21 db 2: -18 db : 8: 0 db : 14: 18 db 15: 21 db 16: 24 db	8	
Advanced setting	-	-	No required to set this parameter.
TDM Tx HLC Threshold	0-42 (-42~0dBm) 0: -42 dBm 1: -41 dBm : 42: 0 dBm	41	
TDM Tx Gain Compression mode	Unchecked: Disable Checked: Enable	Checked	
TDM Tx Gain Compression Threshold	0: -42 dBm 1: -41 dBm : 42: 0 dBm	41	
Advanced setting	-	-	No required to set this parameter.
Advanced setting	-	-	No required to set this parameter.
Advanced setting	-	-	No required to set this parameter.
RTP Echo Canceller mode **Note3**	Unchecked: Disable Checked: Enable	Unchecked	
RTP Echo Canceller NLP mode	Unchecked: Disable Checked: Enable	Unchecked	
Advanced setting	-	-	No required to set this parameter.
RTP Echo Canceller NLP Threshold	0-15	12	
Advanced setting	-	-	No required to set this parameter.
Advanced setting	-	-	No required to set this parameter.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Advanced setting	-	-	No required to set this parameter.
RTP Echo Canceller Echo Type	• disable • Line echo canceller • Acoustic echo canceller	disable	
Advanced setting	-	-	No required to set this parameter.
RTP Tx Level Control	• disable • TxLevelControl mode • TxAutomaticLevelControl mode • TxHLC (HighLevelCompensation) mode	disable	
RTP Tx Level Control Level	0-16 (-24~24db) 0: -24 db 1: -21 db 2: -18 db : 8: 0 db : 14: 18 db 15: 21 db 16: 24 db	8	
Advanced setting	-	-	No required to set this parameter.
RTP Tx HLC Threshold	0-42 (-42dBm~0dBm) 0: -42 dBm 1: -41 dBm : 42: 0 dBm	42	
RTP Tx Gain Compression mode	Unchecked: Disable Checked: Enable	Unchecked	
RTP Tx Gain Compression Threshold	0-42 (-42dBm~0dBm) 0: -42 dBm 1: -41 dBm : 42: 0 dBm	42	
Advanced setting	-	-	No required to set this parameter.
Advanced setting	-	-	No required to set this parameter.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Advanced setting	-	-	No required to set this parameter.
TDM Echo Canceller NLP mode (4W)	• Disable • Enable • Echo Path Mode • Echo Path Auto Detect Mode	Enable	

Note 3: When “EC=OFF” is sent from SV9500, this data is set to DISABLE regardless of actual set value.

[12] Page 20 - Administrator Programming Password Setup

Change the password for Web Programming tool.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Account	1 (Display only)	-	
User Name	Unique alphanumeric name (up to 10 alphanumeric characters)	admin	
Password	Up to eight digits (using 0~9, # and *)	admin	

[13] Page 21 - System Alarm Setup

You can designate an alarm as Major or Minor. This program also assigns whether or not the alarm information is reported to the predefined destination.

Note: For details on each system alarm, see List of System Alarms (P.2044) in CHAPTER 6 APPENDIX.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Alarm (1-100)	Enter the number of the first item which you want to display on the screen.	-	
Alarm Type	• Not set • Major Alarm • Minor Alarm	See List of System Alarms (P.2044).	
Report	Unchecked: Not Report (No autodial) Checked: Report (autodial)	Unchecked	

[14] Page 22 - System Alarm Report

Define the details of the system alarm.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Report Method	• No Report • E-mail	No Report	
SMTP Host Name	Up to 255 Characters	No setting	
SMTP Host Port	0~65535	25	
To Address	Up to 255 Characters	No setting	
Reply Address	Up to 255 Characters	No setting	
From Address	Up to 255 Characters	No setting	
DNS Primary Address	0.0.0.0~255.255.255.255	0.0.0.0	
DNS Secondary Address	0.0.0.0~255.255.255.255	0.0.0.0	
Customer Name	Up to 255 Characters	No setting	

[15] Page 23 - System Alarm Report Notification Time Setup

Set the date and time for the alarm report to send with E-mail.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Notification No.	01-12 (Display only)	-	
Month	00~12 (0: No setting)	0	
Day	00~31 **Note4**	0	
Hour	00~23	0	
Minute	00~59	0	

Note 4: Setting “0” means “everyday”.

[16] Page 24 - System Alarm Report CC Mail Setup

Define the mail address to receive the system alarm report CC Mail setup.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
CC No.	1-5 (Display only)	-	
CC Mail Address	Up to 255 Characters	No setting	

[17] Page 25 - DIM Access Over Ethernet

Set the account to enable DIM (Diagnostic Information Maintenance) access over LAN.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
Access Enabling	Unchecked: Disable Checked: Enable	Unchecked	
User Name	20 characters (alphanumeric)	admin	
Password	20 characters (alphanumeric)	admin	

[18] Page 26 - PCPro/WebPro Settings

Set parameters for Web Programming.

ITEM	INPUT DATA	DEFAULT	DESCRIPTION
WebPro HTTP TCP Port	1-65535 **Note5**	80	

Note 5: Do not set Well-know port (0-1023).

4.5 Resetting the IPG



After all the settings are completed, reset the IPG to start the operation. IPG can be reset through either of the following two ways.

- Hot Start
- Resetting form Web Programming

[Performing a Hot Start]

Note: System software is loaded from flash memory, and the customer data is loaded from RAM memory.

[1] Flip the power switch to the OFF position.

[2] After it has powered down, press the button again to power the system back up. Wait approximately two minutes.

[3] When the system has completed reloading the software, the Status LED is flashing on the CD-CP00-US IPG.

Note: For instructions to clear IPG alarm, see How to Check and Clear System Alarms (P.2043) in 6.2APPENDIX.

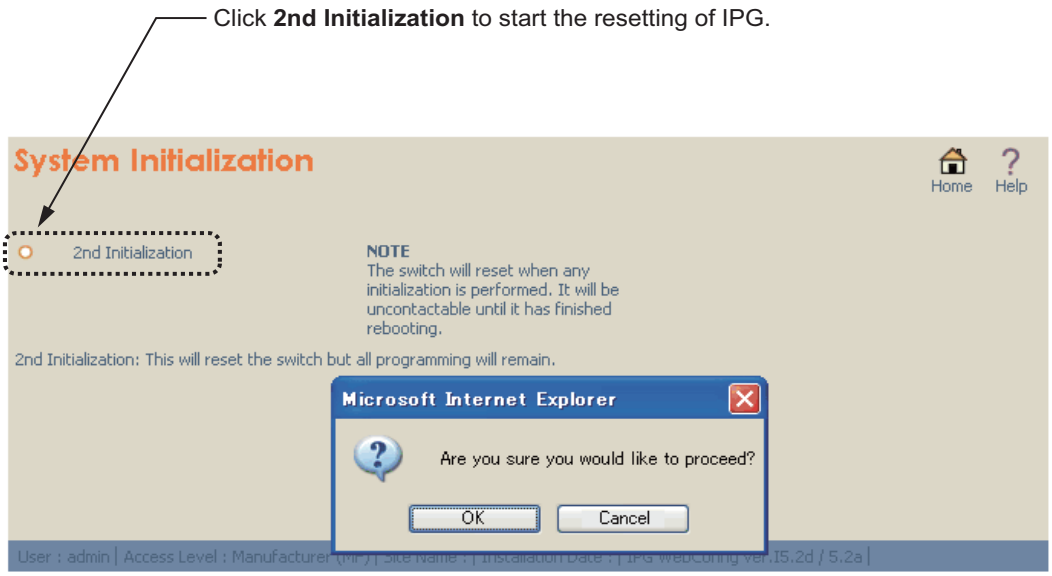
[Resetting the IPG from the Web Programming]

Note: When you change any data on the WebPro, log out and log in again before resetting the IPG. Logout is required to save the changes.

[1] Open the **WebPro Login** screen and log in to the WebPro. For information on how to access the WebPro, see Preparation of Web Programming in CHAPTER 2 BEFORE INSTALLATION.

[2] After you log in to the WebPro, the **Home** screen appears. Click the **System Initialization** icon to open the **System Initialization** screen.

[3] Click **2nd Initialization** in the **System Initialization** screen. The confirmation message appears. Click **OK** button to start the resetting.



5 Installation Test and Work After Installation Test

5.1 Installation Test

After the system startup, some installation tests, such as system initialization test, DT/station-to-station connection test, etc., are absolutely necessary to avoid the system trouble. For the installation test procedure, refer to the Appliance Model Installation Manual.

5.2 Work After Installation Test

After completing the installation tests, the following sundry tasks and site cleaning must be performed. For details on each tasks, refer to the SV9500 Appliance Model Installation Manual.

[1] Manage the Office Data

[2] Prepare the Test Results Report

[3] Mount the Front, Side and Rear Covers

[4] Clean the Site

6 Appendix

6.1 Remove and Install Cooling Fan



If required, the cooling fan installed in the CHS2U-US chassis can be removed and replaced. Follow the procedure below for the CHS2U-US chassis.

[CHS2U-US Chassis]

6.1.1 Remove Cooling Fan

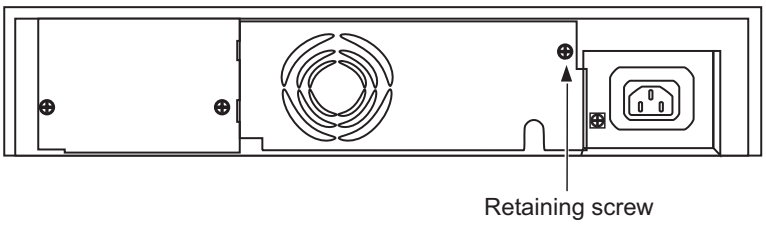
Note: To reduce the possibility of electrical shock or damage to equipment, NEC recommends powering off the chassis and disconnecting the AC cable from the power source before removing the chassis cover.

[1] Ensure the chassis is powered down.

Note: To reduce the possibility of damage to equipment, the installer must wear a grounded wrist strap to protect the equipment from static electricity.

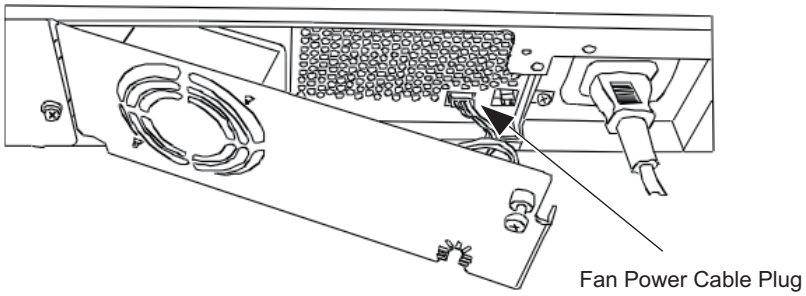
[2] Loosen retaining screw from chassis access panel.

19" Chassis Access Panel



[3] Swing access panel outward and unplug fan power cable.

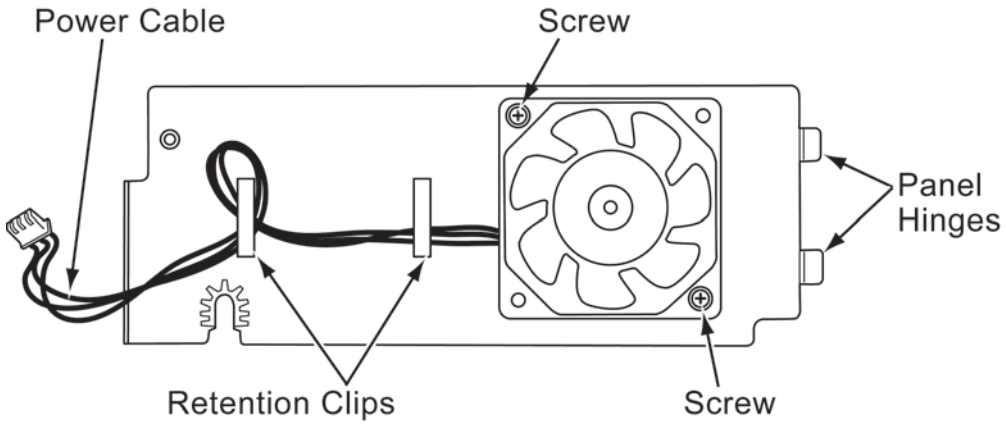
Opening Chassis Access Panel (19" Chassis)



[4] Remove chassis access panel from rear of chassis.

[5] Remove cabling from retention clips

Chassis Access Panel Removed (19" Chassis)



[6] Remove two screws securing fan to access cover. Keep screws for use when installing replacement fan [refer to Chassis Access Panel Removed (19" Chassis)].

6.1.2 Install Cooling Fan

[1] Align replacement fan with holes and secure with two screws [refer to Chassis Access Panel Removed (19" Chassis)].

[2] Install cabling into retention clips [refer to Chassis Access Panel Removed (19" Chassis)].

[3] Insert access panel hinges into slots on rear of chassis.

[4] Plug fan power cable into three prong plug [refer to Opening Chassis Access Panel (19" Chassis)].

[5] Reinstall access cover and secure with retaining screw (refer to 19" Chassis Access Panel).

6.2 How to Check and Clear System Alarms

You can check and clear system alarms in IPG from a maintenance PC (hereinafter referred to as the "DIM console") via a telnet connection.

6.2.1 WebPro Setting for Accessing DIM

Step1: Connect to IP address of IPG by Web browser and log in to WebPro.

Step2: Enter as follows and apply the setting.

Page3 - External Equipment LAN Setup
06 - DIM Output TCP Port -> arbitrary port number (default=0)

Step3: Enter as follows.

Page25 - DIM Access Over Ethernet

01 - Access Enabling ->ON (default OFF)

02 - User Name -> arbitrary user name (default=admin)

03 - Password -> arbitrary password (default=admin)

Step4: Apply the setting, and log out of WebPro.

A telnet connection is established between your maintenance PC and IPG.

6.2.2 Log in to DIM Console

Step1: TCP Access to the IPG's IP address and port number (set by Page 3) by telnet client.

Step2: Enter user name and password (set by Page16).

Step3: When the following message appears, DIM console login is completed.

```
[Welcome to Aspire remote dim service. VerX.XX] 08/01/01 00:09 0:10:02
>>
```

6.2.3 DIM Command (Checking/Clearing System Alarms)

Step1: In the DIM console, enter the following command.

- To check alarms

  ```
  alminfo
  ```

- To clear alarms

  ```
  almclr
  ```

6.3 List of System Alarms

The table shown below lists system alarms used in IPG system.

Note: Do not set any system alarms other than those described in the table below because they are not used in IPG system.

Alarm No.	Name	Content of Alarm	Action	Recovery	Alarm Status (Default)
1	PKG Initialize Error	• The blade failed to initialize. • The blade did not start normally.	• Insert the blade firmly. • Delete slot information and insert the blade again.	The error is not cleared automatically. The error is cleared when the blade is recognized.	Minor Alarm

Alarm No.	Name	Content of Alarm	Action	Recovery	Alarm Status (Default)
2	PKG Mounting Error	• The blade is pulled out improperly. • The blade is not inserted properly.	• Insert the blade firmly. • Try again after initializing the system data once when LED doesn't blink normally. • Exchange the blade.	The error is cleared when the blade is recognized.	Minor Alarm
3	Connection fault between CCPU and other PKGs	An error occurs in a communication between CCPU blade and other blade. Even when a blade is broken, the IPG recognizes it as a communication error.	• Insert the blade firmly. • The power-supply voltage must use another power supply when is in the range of ratings or measuring with the voltmeter, and deviating from the rated range. • Use the power supply besides the equipment with the possibility of the noise source. • Separate as much as possible and use a main device from the equipment by which you seem may generate the radiation noise. • Ground the chassis correctly.	The error is cleared when the blade is recognized.	Minor Alarm
4	PKG S/W Download Error	• The blade program could not be downloaded normally. • The blade unit could not be started normally.	• Delete slot information that was installed before. • There is a possibility that the blade program is broken though an external factor of the noise, etc. • Load into the USB memory and try again when you back up the blade program. • Check with maker on uncertain points.	Exchange the blade with new one, though it is likely to restore by mounting the blade again. When the blade program is normally downloaded, the error is recovered.	Minor Alarm

Alarm No.	Name	Content of Alarm	Action	Recovery	Alarm Status (Default)
6	Blocking <Default=OFF>	The link of terminals connected with the ESI blade came off.	• Confirm the terminal connected with the ESI. If they work normally, confirm the breakdown or the wiring for the terminal. • Exchange the terminal that doesn't work and the working terminal, and confirm it's working. An external factor of the noise etc. is thought. • Confirm wiring and the installation,etc. • Check with manufacturer if the problem occurs again.	The error is cleared by reconnecting or exchanging the blade.	Not Set
7	Power failure	The supply of the commercial power stopped.	• Confirm the power supply outlet when the commercial power has not stopped. • Check with the manufacturer if the problem occurs again.	When the commercial power is restored, the error is cleared.	Major Alarm
8	RAM Backup Battery Error	RAM backup battery on the CCPU blade is unplugged or defective.	Check the battery connector. If it is connected correctly, replace the battery.	The error is cleared once the battery is replaced.	Major Alarm
14	LAN Link Error <Default=OFF>	The link with LAN on CCPU came off.	Confirm the operation of LAN connector, LAN cable, and HUB again.	When the connection returns to normal, the error is cleared.	Not Set
17	Denial of service	CCPU or VoIPDB blade received 3000 or more IP packets in a second.	A failure equivalent to Denial of Service attack may occurs in the IP network. Eliminate the cause of the receipt of unnecessary packets.	Stop reception of packets once. After a minute, start the reception again.	Major Alarm
50	System Start Notification	IPG started.	No action needed.	-	Major Alarm
51	System Data change <Default=OFF>	CCPU upgrade is performed or programming change is made.	No action needed.	-	Not Set

Alarm No.	Name	Content of Alarm	Action	Recovery	Alarm Status (Default)
55	Regular maintenance exchange notification	The regular maintenance exchange day has passed.	Do the maintenance exchanges of pertinent parts, and set the next regular maintenance exchange day.	The error is cleared by changing or canceling the regular maintenance exchange day configured by the system data.	Minor Alarm
57	IP Collision Error	IP address programmed in IPLB IP address has been duplicated. Collision (02) indicates the address programmed in IPLB IP address has been duplicated. Collision(03) - Collision(10) indicates the addresses programmed in IPLB DSP IP address have been duplicated. (03) is GW1 - (10) is GW8.	Confirm that the addresses assigned for IPLB/DSP are not duplicated anywhere else on the network.	The error is cleared by canceling the duplication of IP address.	Minor Alarm
64	VoIPDB LAN Link Error	The link of LAN of VoIPDB (PZ-32IPLB) came off.	• Confirm LAN connector and wiring. • Check with maker on uncertain points.	When the connection returns to normal, the error is cleared.	Major Alarm
65	VoIPDB trouble information <Default=OFF>	DSP of VoIPDB (PZ-32IPLB) notifies an error.	• Possibility of defective hardware. • Check with maker on uncertain points.	-	Not Set

6.4 Maintenance

This section explains instructions on how to solve troubles including errors.

6.4.1 When Starting Up IPG

Check the followings if you cannot start up IPG, or cannot perform functional operation tests properly.

Confirmation Items		Check
Grounding	The grounding terminal is connected to a proper ground?	
Power Source	The power cord is plugged into an AC outlet?	
	The voltage of AC power source is at the proper level?	
	Power is supplied to IPG?	
	LIVE LED on the blade is flashing green?	
Terminal/equipment connection	Blades are securely inserted into the slots?	
	Modular jacks are wired properly?	
	Recommended cables are used?	
	Cables for the terminals/equipment are properly connected?	
	LED on the blade indicates that IPG is in normal operation?	

6.4.2 When IPG is Down

6.4.2.1 Checking Power Supply

Check the status of power source through the following procedure.

[1] Make sure the power cord plug of IPG is inserted into the receptacle.

[2] Check the Voltage of AC Power.

Check that the voltage of the power source is AC100V±10V with taster. If IPG is connected to any AC power source other than AC100V±10V, the power unit may be faulty.

[3] Check that Power lamp of IPG is steady ON.

When there is nothing wrong with the AC power source and the power cord, the power unit built into IPG may be faulty.

6.4.2.2 Checking the Blade

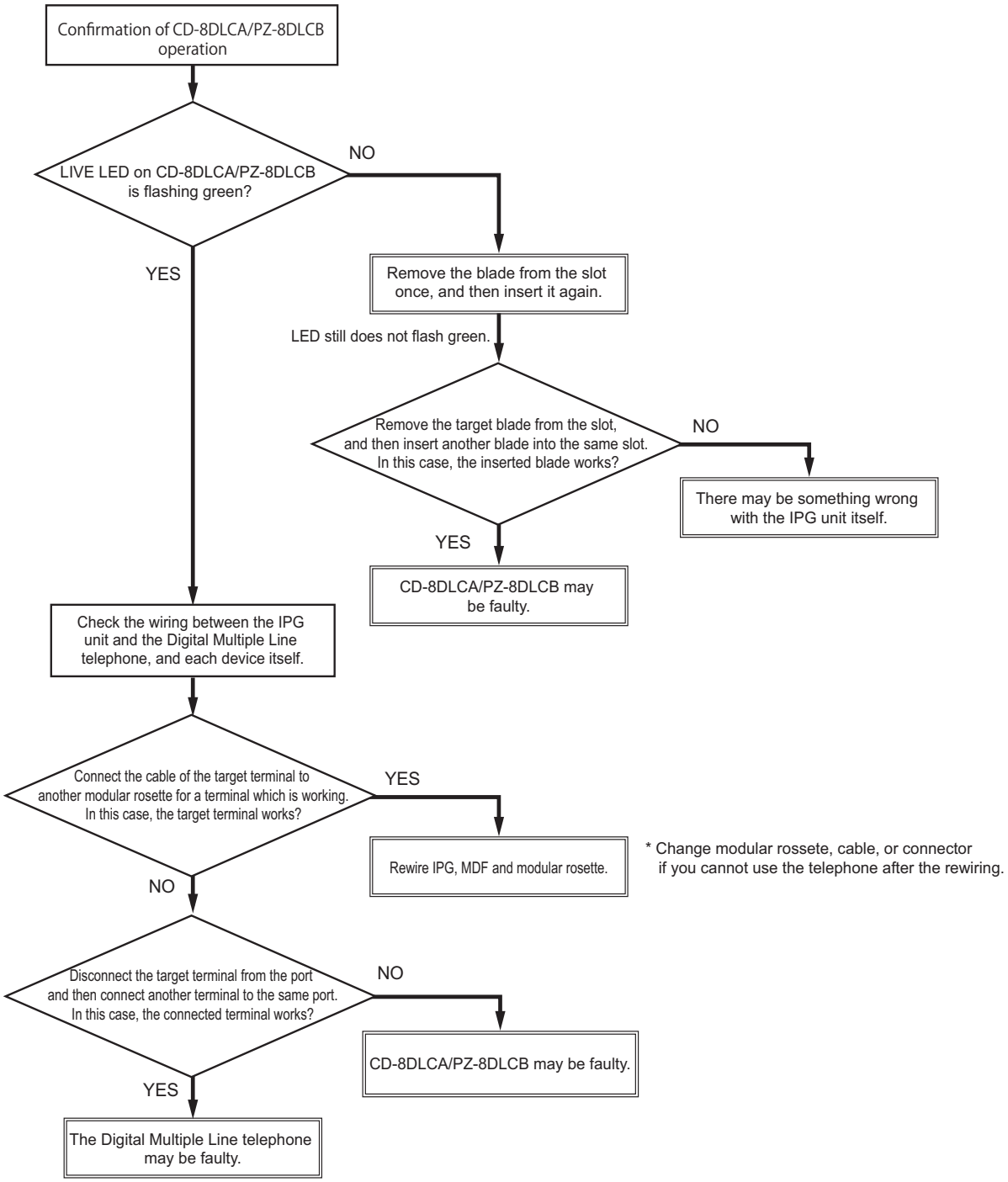
Check the status of the blade with the following procedure.

[1] RUN LED on CCPU-B1 flashes?

[2] LIVE LED on each blade flashes green?

6.4.3 Fault Isolation

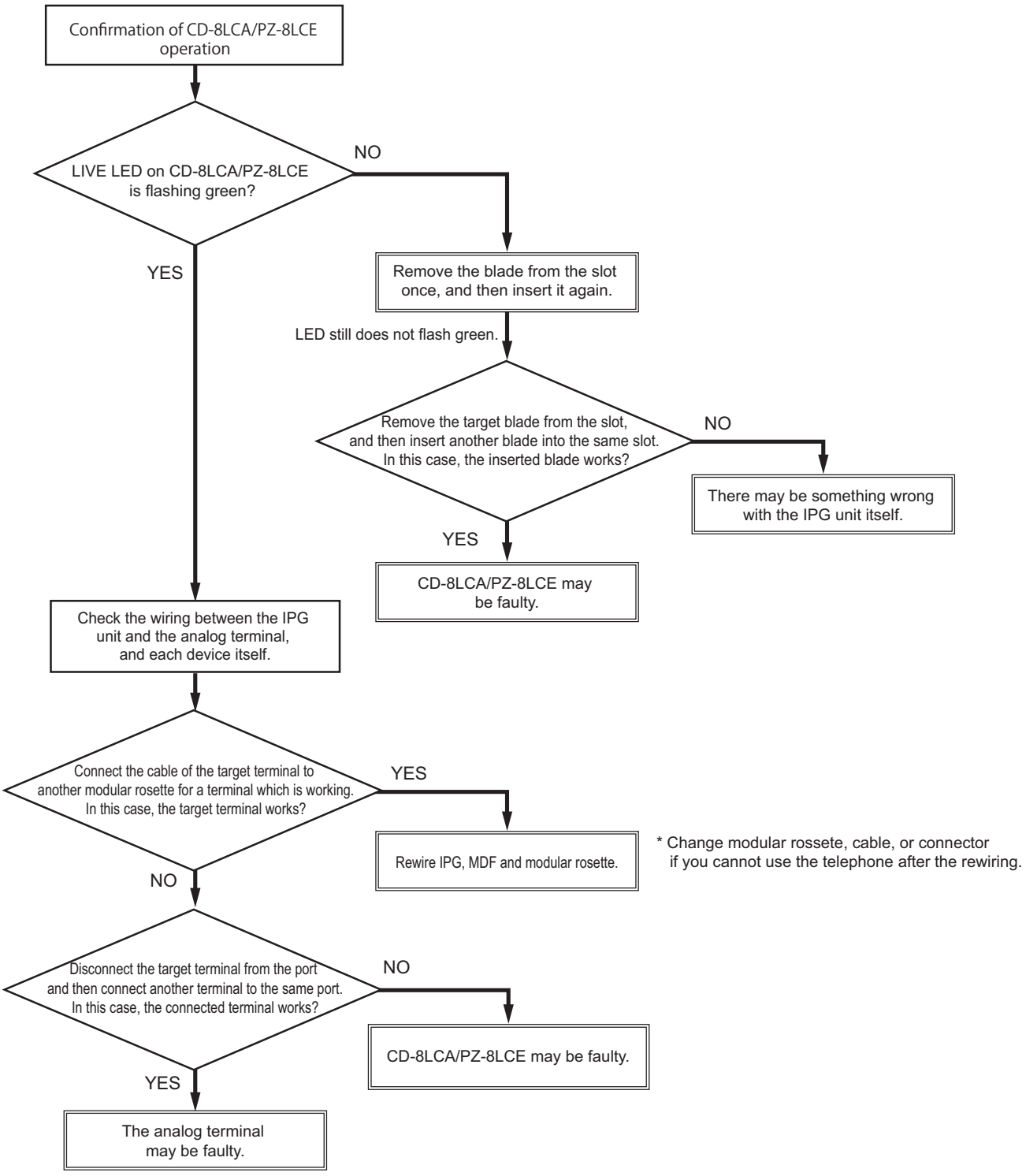
6.4.3.1 When Digital Multiple Line Telephone Cannot be Used



* Change modular rossete, cable, or connector if you cannot use the telephone after the rewiring.

* When the speech path is not available, check the settings of Page 17 - IPL DSP Basic Setup.

6.4.3.2 When Analog Terminal Cannot be Used



* When the speech path is not available, check the settings of Page 17 - IPL DSP Basic Setup.

6.4.4 Initialization of IPG

When you still cannot solve the problem, initialize the IPG with the following procedure.

Note: When the IPG is initialized, the all settings of the IPG system data are disabled. After the initialization, all the system data must be set again.

[1] Turn off IPG.

Power lamp of IPG turns off.

[2] Make sure that no USB memory/USB device is connected to CN 5 (USB port) on CCPU-B1.

[3] Turn the power switch to the ON position while holding SW1 (LOAD switch) on CCPU-B1 down.

Power lamp of IPG turns ON.

[4] Release SW1 (LOAD switch) three seconds later.

[5] The LED on CCPU-B1 indicates that IPG is initialized.

For details on the LED indications, see 3.5.1CD-CP00-US IPG (Central Processing Unit) in CHAPTER 3.

1U-MPC [SN8104 MGCEJ-B/SN8104 MGCEJ-A]

1 Installation of 1U-MPC

1.1 How to Mount 1U-MPC on 19-inch Rack

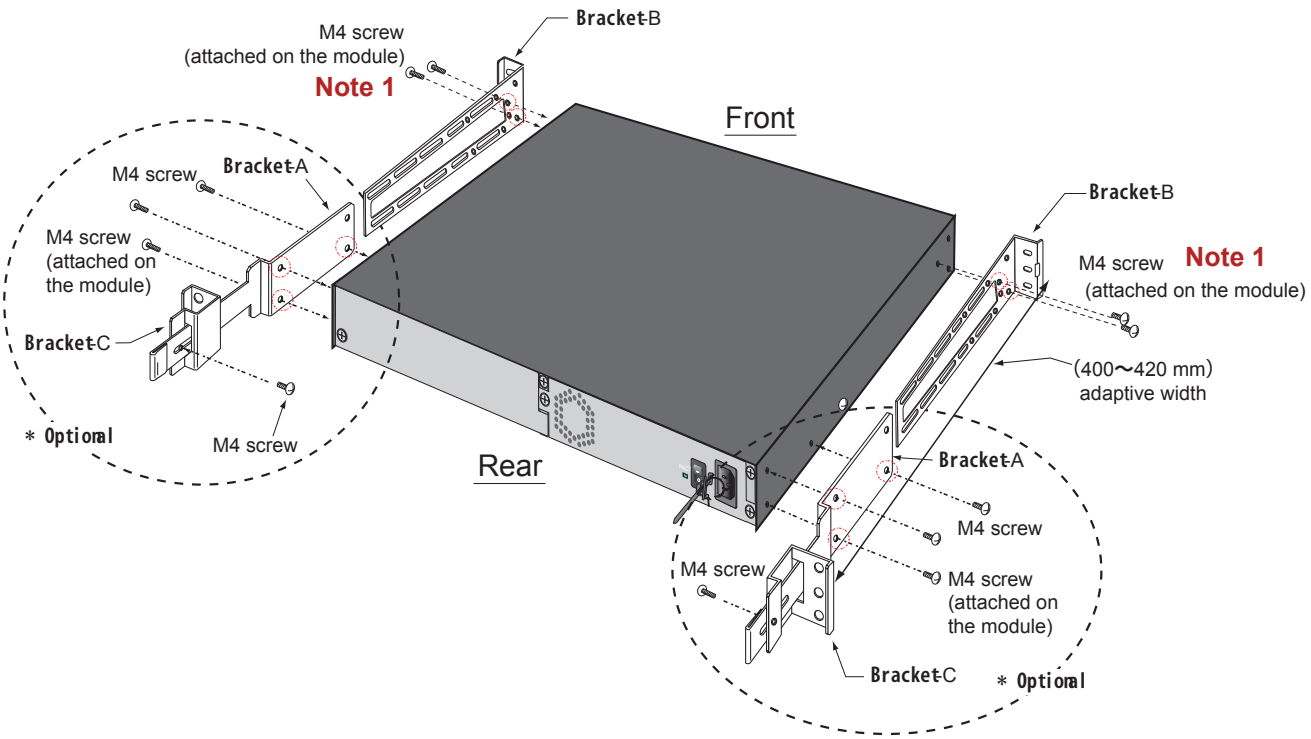
The following describes how to mount a 1U-MPC on a 19-inch rack.

Note: Make sure of the following for your safety:

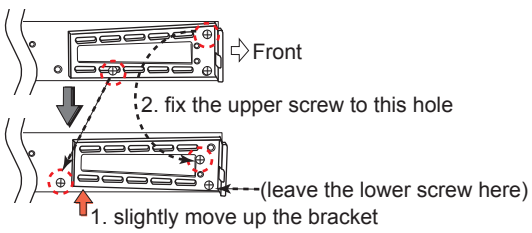
- Perform the procedure by two or more people.
- A fastening screw attached on the front side of a 1U-MPC has 0.5G of quake-proof strength; to add the optional brackets ensures 1.1G. **Note 1**

STEP 1: Attach the brackets to both sides of 1U-MPC by using a Phillips screw driver.

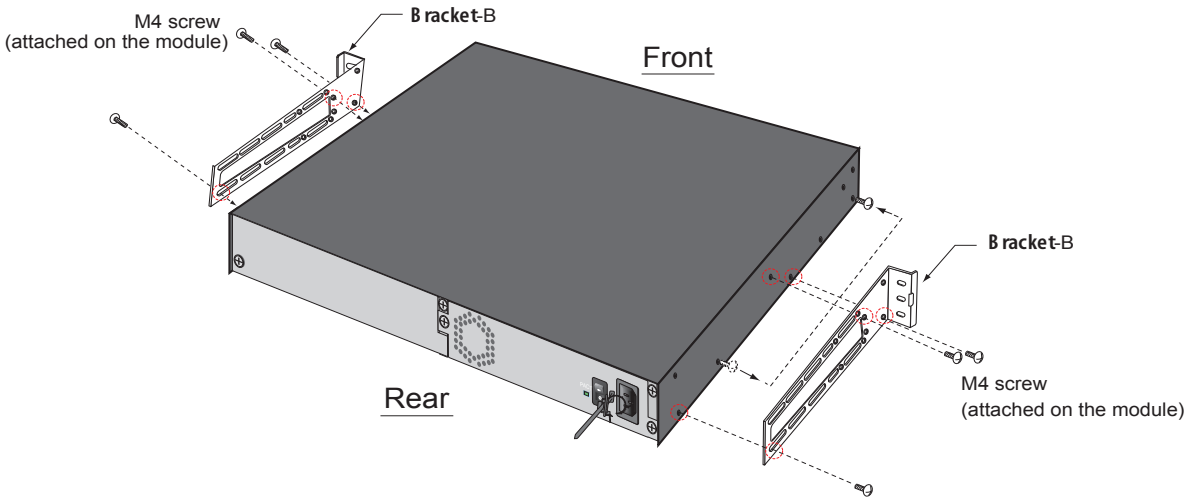
Fixing Bracket



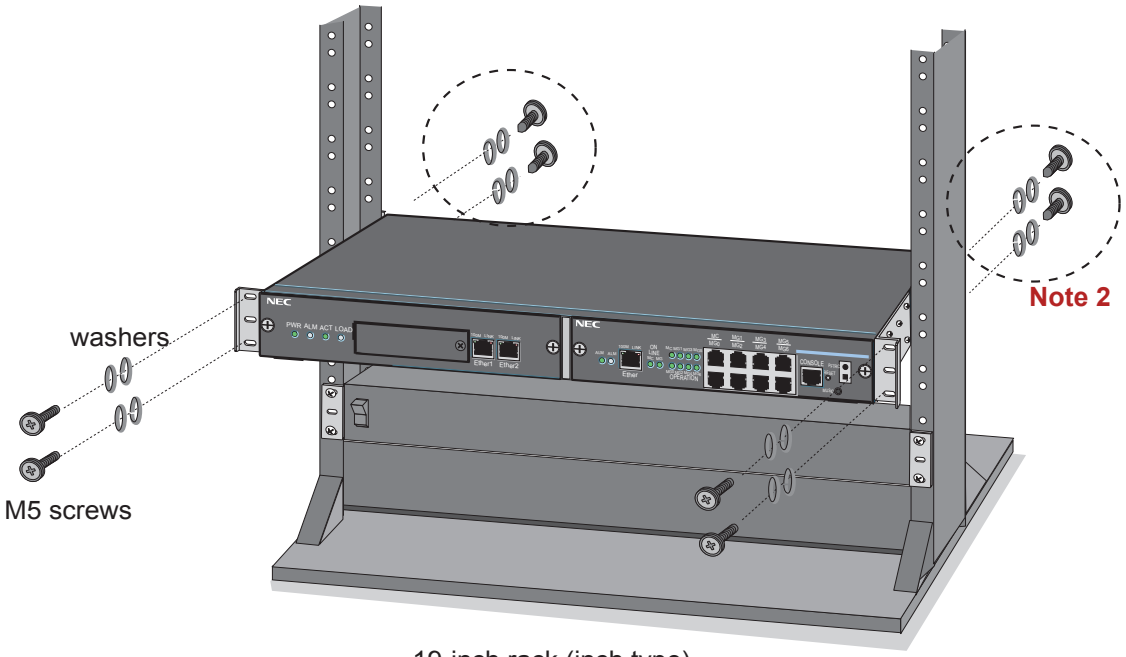
Note 1: A 1U-MPC is shipped with the Bracket-B attached on its front side. To add the optional brackets, first change the fixing position of the Bracket-B as shown below:



Fixing Bracket to Mount on Open Rack



STEP 2: Mount the 1U-MPC onto a 19-inch rack.



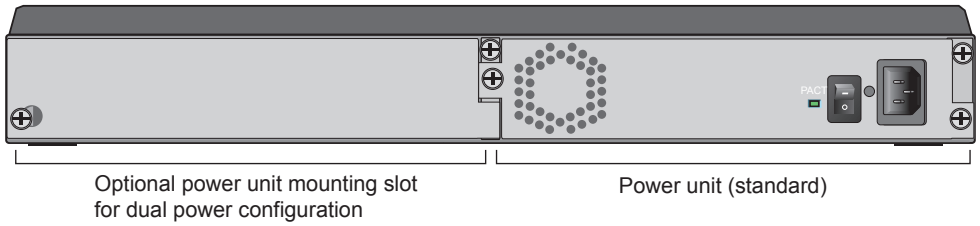
19-inch rack (inch type)

Note 2: To add the optional brackets, fix screws (included in a 1U-MPC package) pushing into the holes.

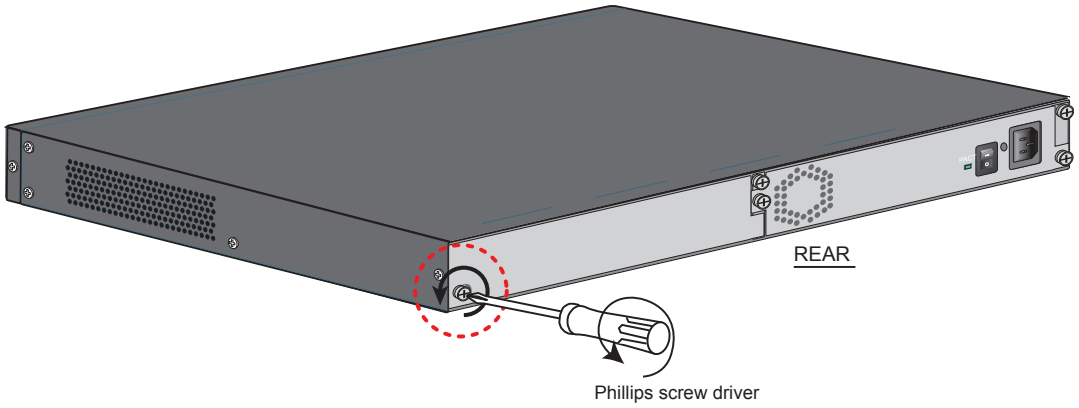
1.2 How to Insert Additional Power Unit (Dual Power Unit, optional)

A 1U-MPC is equipped with a power unit on the right slot of its back plane before shipment. You can add another power unit on the left slot, making the system a dual power configuration.

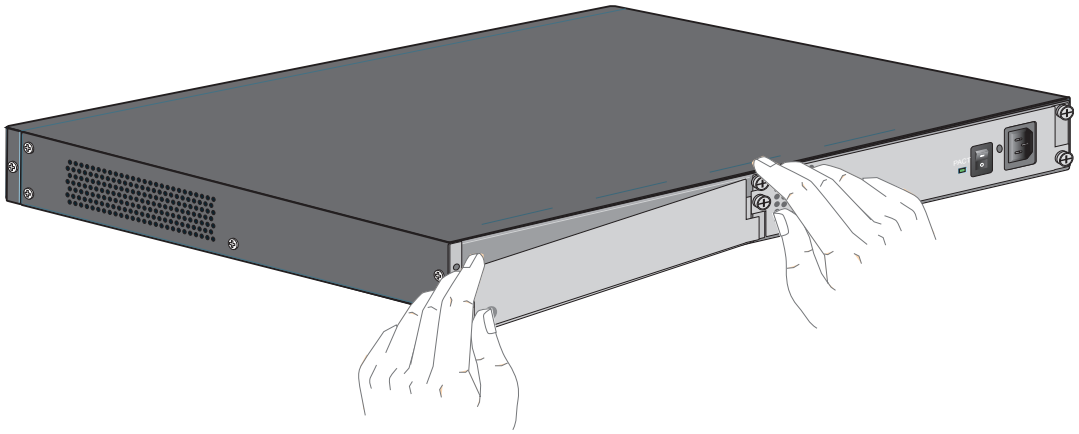
Note: You can mount an additional power unit even while the existing power unit is operating.



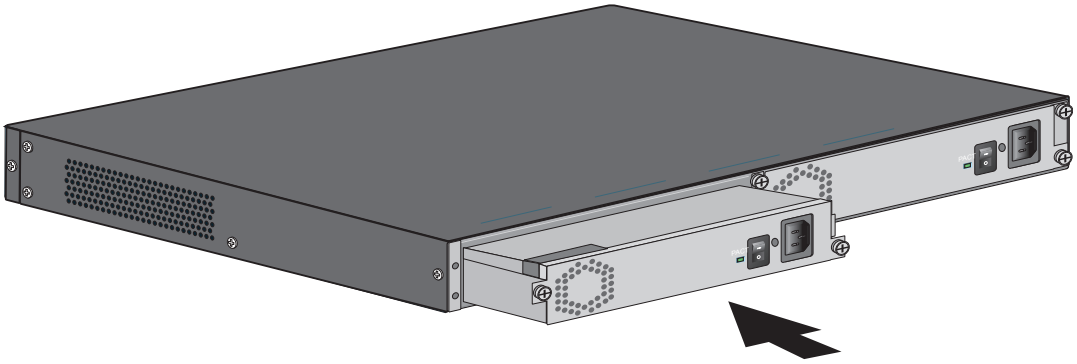
STEP 1: Unfasten the left screw.



STEP 2: Take off the blank plate.

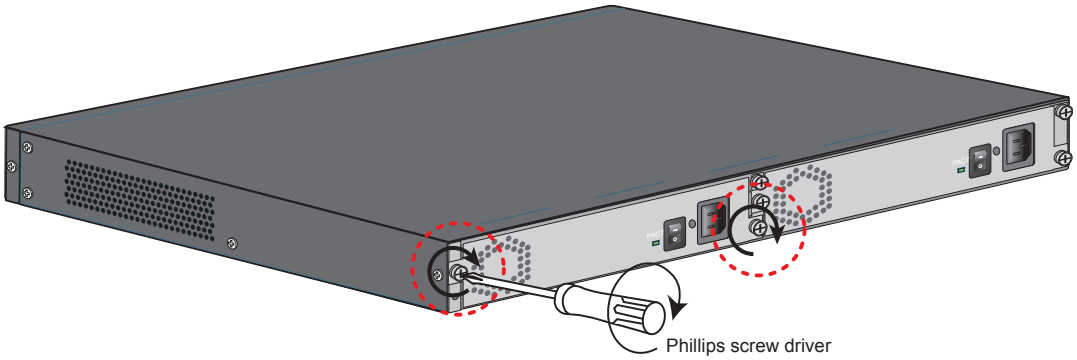


STEP 3: Insert an optional power unit.



STEP 4: Fasten screws on both sides to fix the power unit; plug an AC power cable into an AC power inlet and fix the cable with the supplied AC power cable stopper.

Note: After you connect the AC power cable (both sides of the AC power inlet and outlet), turn on the power switch on the added power unit.



STEP 5: Check the power unit if it works properly; turn on the power unit; make sure that the PACT lamp lights up.

Note: Dual power configuration:

- Does not operate in ACT-Standby switching method.
- Supplies mounted cards with power properly unless both units stop working (PACT lamps go OFF).
- Has an AC input on each of units.
- Should have its AC power cords connected to different AC power sources respectively.

APPENDIX A
MG-SIP config_template Data

By executing configuration command “set config_template”, the standard data of MG-SIP can be assigned.

The following list shows the values set by “set config_template” command.

1.“config_template” Data for MG-SIP128 [MG-128SIPMGL-A]

2.“config_template” Data for MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

3.“config_template” Data for MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

4.“config_template” Data for MG-SIP16 [SCA-16SIPMG (US)/SCA-16SIPMG (US)-B]

Note: The Halftone cells in the following table are the parameters that are not used for MG-SIP even if “set config_template” command is executed.

1. "config_template" Data for MG-SIP128 [MG-128SIPMGL-A]

-: Not changed by executing "set config_template"

Sub Command	Parameter	Value								
		0 (default)	1	2	3	4	5	6	7	8 Note 1
183rbt		enable	enable	enable	enable	enable	enable	enable	enable	enable
184toprivacy		disable	disable	disable	disable	disable	disable	disable	disable	disable
another_key-number	Another Keynumber 1	0	0	0	0	0	0	0	0	0
	Another Keynumber 2	0	0	0	0	0	0	0	0	0
	Another Keynumber 3	0	0	0	0	0	0	0	0	0
auth	User ID	0	0	0	0	0	0	0	0	0
	Password	0	0	0	0	0	0	0	0	0
auth_header		enable	enable	enable	disable	disable	disable	disable	enable	enable
call_hold		disable	disable	disable	disable	disable	disable	disable	disable	disable
	RTP detect timer value									
	Response code to reject									
call_id_relay		disable	disable	disable	disable	disable	disable	disable	disable	disable
cause_table		normal	Route Advance	normal	normal	normal	normal	normal	normal	Route Advance
cc_convert	Country Code Convert function	disable	disable	disable	disable	disable	disable	disable	disable	disable
	Country Code									
	National Prefix and National Destination Code									
	National Prefix									
	National Destination Code									
	International Prefix									
	Number of Local Number digits									

Sub Command	Parameter	Value								
		0 (default)	1	2	3	4	5	6	7	8 Note 1
cdn_pattern		To [userinfo]	Request-URI [userinfo]	To [userinfo]	To [userinfo]	To [userinfo]	To [userinfo]	To [userinfo]	To [userinfo]	Request-URI [userinfo]
check_number		disable	disable	disable	disable	disable	disable	disable	disable	disable
codec_change		disable	enable	disable	disable	disable	disable	disable	disable	enable
	G711 Fax renegotiation	disable	enable	disable	disable	disable	disable	disable	disable	enable
cpn_pattern		DisplayName	P-Asserted-ID	Userinfo	DisplayName	P-Asserted-ID	Userinfo	P-Asserted-ID	DisplayName	P-Asserted-ID
dnsaddress		0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0
dns_option	DNS type	A Record resolve (single IP Address)	Locating SIP servers function (RFC3263)	A Record resolve (single IP Address)	A Record resolve (single IP Address)	A Record resolve (single IP Address)	A Record resolve (single IP Address)	A Record resolve (single IP Address)	A Record resolve (single IP Address)	Locating SIP servers function (RFC3263)
	DNS cache		enable							enable
domain		0	0	0	0	0	0	0	0	0
drsaddress	Primary DRS Address	-	-	-	-	-	-	-	-	-
	Primary DRS Port No	-	-	-	-	-	-	-	-	-
	Secondary DRS Address	-	-	-	-	-	-	-	-	-
	Secondary DRS Port No	-	-	-	-	-	-	-	-	-
	Tertiary DRS Address	-	-	-	-	-	-	-	-	-
	Tertiary DRS Port No	-	-	-	-	-	-	-	-	-
	Quaternary DRS Address	-	-	-	-	-	-	-	-	-
	Quaternary DRS Port No	-	-	-	-	-	-	-	-	-
drs_qos	DRS QoS	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0
	PRECEDENCE	5	5	5	5	5	5	5	5	5
	DELAY	0	0	0	0	0	0	0	0	0
	THROUGHPUT	0	0	0	0	0	0	0	0	0
	RELIABILITY	0	0	0	0	0	0	0	0	0
	COST	0	0	0	0	0	0	0	0	0

Sub Command	Parameter	Value								
		0 (default)	1	2	3	4	5	6	7	8 Note 1
dtmf_mode		Negotiation (SIP/SDP)	Negotiation (SIP/SDP)	Negotiation (SIP/SDP)	Out-Band (RFC2833)	Out-Band (RFC2833)	Out-Band (RFC2833)	In-Band (G.711)	Negotiation (SIP/SDP)	Negotiation (SIP/SDP)
	DTMF Duration	120 ms	120 ms	120 ms	120 ms	120 ms	120 ms	120 ms	120 ms	120 ms
	DTMF Pause	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms
	Payload type	101	101	101	101	101	101		101	101
enc Note 2		disable	disable	disable	disable	disable	disable	disable	disable	disable
h245_base_port_no		40000	40000	40000	40000	40000	40000	40000	40000	40000
hc_alarm		IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable
hc_timer		240 sec	240 sec	240 sec	240 sec	240 sec	240 sec	240 sec	240 sec	240 sec
interface	Ether[1] speed	-	-	-	-	-	-	-	-	-
	Ether[1] duplex	-	-	-	-	-	-	-	-	-
	Ether[2] speed	-	-	-	-	-	-	-	-	-
	Ether[2] duplex	-	-	-	-	-	-	-	-	-
ipaddress	one-port only	-	-	-	-	-	-	-	-	-
	Ether[1] IP Address	-	-	-	-	-	-	-	-	-
	Ether[1] Subnet mask	-	-	-	-	-	-	-	-	-
	Ether[2] IP Address	-	-	-	-	-	-	-	-	-
	Ether[2] Subnet mask	-	-	-	-	-	-	-	-	-
ip_version		IPv4	IPv4	IPv4	IPv4	IPv4	IPv4	IPv4	IPv4	IPv4
ipx_media_port_no		Video: 55000 T.38: 56000	Video: 55000 T.38: 56000	Video: 55000 T.38: 56000	Video: 55000 T.38: 56000	Video: 55000 T.38: 56000	Video: 55000 T.38: 56000	Video: 55000 T.38: 56000	Video: 55000 T.38: 56000	Video: 55000 T.38: 56000
ipx_route	Route type	-	-	-	-	-	-	-	-	-
ipx_rtp_port_no		51000	51000	51000	51000	51000	51000	51000	51000	51000
keynumber		-	-	-	-	-	-	-	-	-

Sub Command	Parameter	Value								
		0 (default)	1	2	3	4	5	6	7	8 Note 1
multi_regist		disable	disable	disable	disable	disable	disable	disable	disable	disable
	Transmitting interval timer									
	Standby timer value									
	Contact Header type									
musictype		Type1	Type1	Type1	Type1	Type1	Type1	Type1	Type1	Type1
nataddress		-	-	-	-	-	-	-	-	-
no_media_code		488	415	488	488	488	488	488	488	415
out_of_area_code		408	408	408	408	408	408	408	408	408
ppi_to_pai		disable	enable	enable	disable	disable	disable	disable	enable	enable
prack	Supported 100rel	enable	disable	enable	disable	disable	enable	disable	enable	disable
	Stop cyclical-send of 18x	disable		disable			disable		disable	
pre_negotiation_port_no		61014	61014	61014	61014	61014	61014	61014	61014	61014
privacy_pattern	Privacy pattern	DisplayName	DisplayName	RFC3325 (TEL-URI)	DisplayName	DisplayName	Remote-Party-ID	RFC3325 (SIP-URI)	SIP-URI (no privacy)	DisplayName
	Dummy string						anonymous			
registration_port_no		3456	3456	3456	3456	3456	3456	3456	3456	3456
reg_interval		5 min	5 min	5 min	5 min	5 min	5 min	5 min	5 min	5 min
response_table		normal	normal	normal	normal	normal	normal	normal	normal	normal
rfc2833_pass		disable	disable	disable	disable	disable	disable	disable	disable	enable
rtp_pathon		disable	disable	enable	enable	enable	enable	enable	disable	disable
rtp_qos	RTP QoS	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xb8	0xa0
	PRECEDENCE	5	5	5	5	5	5	5	5	5
	DELAY	0	0	0	0	0	0	0	1	0
	THROUGHPUT	0	0	0	0	0	0	0	1	0
	RELIABILITY	0	0	0	0	0	0	0	0	0
	COST	0	0	0	0	0	0	0	0	0
sdp_style		normal	RFC4566	RFC4566	normal	normal	normal	normal	normal	RFC4566
	G729 annexb=no	disable	enable	enable	disable	disable	disable	disable	disable	enable

Sub Command	Parameter	Value								
		0 (default)	1	2	3	4	5	6	7	8 Note 1
self_sip_domain		disable	disable	disable	disable	disable	disable	enable	disable	disable
	Self SIP Domain string							0		
session_timer		enable	enable	enable	enable	enable	enable	enable	enable	enable
	Session-expires	180 sec	180 sec	180 sec	3600 sec	3600 sec	3600 sec	3600 sec	180 sec	180 sec
	Refresher	UAC	UAC	UAC	UAS	UAS	UAC	UAS	UAC	UAC
	Invite Refresher	disable	enable	disable	disable	disable	disable	disable	disable	disable
	Forced mode	disable	disable	disable	disable	disable	disable	disable	disable	disable
	reINVITE Refresher	disable	disable	disable	disable	disable	disable	disable	disable	disable
signaling_port_no		61012	61012	61012	61012	61012	61012	61012	61012	61012
sip_accfilter	SIP Access Filter	disable	disable	enable	disable	disable	disable	disable	disable	disable
	SIP Access Filter mask			-						
	Burst Access Filter	disable	disable	disable	disable	disable	disable	disable	disable	disable
	Burst Access limit timer value									
	Adjustment for PBX indication									
	Fixed wait timer value									
	Random maximum wait timer value									
	Burst Access limit number value									
	Burst Access reject response code									
sip_media_port_no		Video: 53000 T.38: 54000	Video: 53000 T.38: 54000	Video: 53000 T.38: 54000	Video: 53000 T.38: 54000	Video: 53000 T.38: 54000	Video: 53000 T.38: 54000	Video: 53000 T.38: 54000	Video: 53000 T.38: 54000	Video: 53000 T.38: 54000
sip_port_no		5060	5060	5060	5060	5060	5060	5060	5060	5060

Sub Command	Parameter	Value								
		0 (default)	1	2	3	4	5	6	7	8 Note 1
sip_qos	SIP QoS	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0x68	0xa0
	PRECEDENCE	5	5	5	5	5	5	5	3	5
	DELAY	0	0	0	0	0	0	0	0	0
	THROUGHPUT	0	0	0	0	0	0	0	1	0
	RELIABILITY	0	0	0	0	0	0	0	0	0
	COST	0	0	0	0	0	0	0	0	0
sip_register	SIP register type	-	-	-	-	-	-	-	-	-
	SIP register IP Address	-	-	-	-	-	-	-	-	-
	SIP register FQDN	-	-	-	-	-	-	-	-	-
	SIP register Port Number	-	-	-	-	-	-	-	-	-
	SIP register Expires time	-	-	-	-	-	-	-	-	-
sip_route	Route type	-	-	-	-	-	-	-	-	-
sip_rtp_port_no		50000	50000	50000	50000	50000	50000	50000	50000	50000
sip_server	SIP server type	-	-	-	-	-	-	-	-	-
	SIP server IP Address	-	-	-	-	-	-	-	-	-
	SIP server FQDN	-	-	-	-	-	-	-	-	-
	SIP server Port Number	-	-	-	-	-	-	-	-	-
	SIP server Router type	-	-	-	-	-	-	-	-	-
	rport (RFC3581) function	-	-	-	-	-	-	-	-	-
	Domain Name	-	-	-	-	-	-	-	-	-
sip_tel_service		disable	enable	disable	enable	enable	enable	enable	enable	enable
	Replaces function		enable		disable	disable	disable	disable	enable	enable
	Hold [a=inactive] function		enable		enable	enable	enable	enable	enable	enable
	Hold [put off hold] function		enable		disable	disable	disable	disable	disable	enable
	REFER/NOTIFY function		enable		disable	disable	disable	disable	disable	enable
	3PCC function		enable		disable	enable	disable	disable	disable	enable
	3PCC function (codec)		AUTO			AUTO				AUTO
	Unhold w/o SDP function		disable			enable				disable

Sub Command	Parameter	Value								
		0 (default)	1	2	3	4	5	6	7	8 Note 1
sip_transport		UDP	UDP	UDP	UDP	UDP	UDP	UDP	UDP	UDP
slipresp		488	503	503	488	488	488	488	488	503
softdsp	Codec convert mode	disable	disable	disable	disable	disable	disable	disable	disable	disable
	PAD setting	disable	disable	disable	disable	disable	disable	disable	disable	disable
	PAD reception (voice)	0	0	0	0	0	0	0	0	0
	PAD transmission (voice)	0	0	0	0	0	0	0	0	0
	PAD reception (FAX)	0	0	0	0	0	0	0	0	0
	PAD transmission (FAX)	0	0	0	0	0	0	0	0	0
update		disable	disable	enable	disable	disable	disable	disable	disable	disable
country_code		0 (AUTO)	0 (AUTO)	0 (AUTO)	0 (AUTO)	0 (AUTO)	0 (AUTO)	0 (AUTO)	0 (AUTO)	0 (AUTO)
name_display		disable	enable	disable	disable	disable	disable	disable	disable	enable

Note 1: When using MCU, the template pattern 8 setting is required by using “set config_template” command.

Note 2: This parameter is available for SP-4089 MGSIP(MM) PROG-A Issue 3 or later.

2. "config_template" Data for MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG]

-: Not changed by executing "set config_template"

Sub Command	Parameter	Value							
		0 (default)	1	2	3	4	5	6	7 Note 1
183rbt		enable	enable	enable	enable	enable	enable	enable	enable
184toprivacy		disable	disable	disable	disable	disable	disable	disable	disable
another_key-number	Another Keynumber 1	0	0	0	0	0	0	0	0
	Another Keynumber 2	0	0	0	0	0	0	0	0
	Another Keynumber 3	0	0	0	0	0	0	0	0
auth	User ID	0	0	0	0	0	0	0	0
	Password	0	0	0	0	0	0	0	0
auth_header		enable	enable	enable	disable	disable	disable	disable	enable
call_hold		disable	disable	disable	disable	disable	disable	disable	disable
	RTP detect timer value								
	Response code to reject								
call_id_relay		disable	disable	disable	disable	disable	disable	disable	disable
cause_table		normal	Route Advance	normal	normal	normal	normal	normal	normal
cc_convert	Country Code Convert function	disable	disable	disable	disable	disable	disable	disable	disable
	Country Code Note 2								
	National Prefix and National Destination Code Note 2								
	National Prefix Note 2								
	National Destination Code Note 2								
	International Prefix Note 2								
	Number of Local Number digits Note 2								

Sub Command	Parameter	Value							
		0 (default)	1	2	3	4	5	6	7 Note 1
cdn_pattern		To [userinfo]	Request-URI [userinfo]	To [userinfo]	To [userinfo]	To [userinfo]	To [userinfo]	To [userinfo]	To [userinfo]
check_number		disable	disable	disable	disable	disable	disable	disable	disable
codec_change		disable	enable	disable	disable	disable	disable	disable	disable
	G711 Fax renegotiation	disable	enable	disable	disable	disable	disable	disable	disable
cpn_pattern		DisplayName	P-Asserted-ID	Userinfo	DisplayName	P-Asserted-ID	Userinfo	P-Asserted-ID	DisplayName
dnsaddress		0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0
dns_option	DNS type	A Record resolve (single IP Address)	Locating SIP servers function (RFC3263)	A Record resolve (single IP Address)	A Record resolve (single IP Address)	A Record resolve (single IP Address)	A Record resolve (single IP Address)	A Record resolve (single IP Address)	A Record resolve (single IP Address)
	DNS cache		enable						
domain		0	0	0	0	0	0	0	0
drsaddress	Primary DRS Address	-	-	-	-	-	-	-	-
	Primary DRS Port No	-	-	-	-	-	-	-	-
	Secondary DRS Address	-	-	-	-	-	-	-	-
	Secondary DRS Port No	-	-	-	-	-	-	-	-
	Tertiary DRS Address	-	-	-	-	-	-	-	-
	Tertiary DRS Port No	-	-	-	-	-	-	-	-
	Quaternary DRS Address	-	-	-	-	-	-	-	-
	Quaternary DRS Port No	-	-	-	-	-	-	-	-
drs_qos	DRS QoS	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0
	PRECEDENCE	5	5	5	5	5	5	5	5
	DELAY	0	0	0	0	0	0	0	0
	THROUGHPUT	0	0	0	0	0	0	0	0
	RELIABILITY	0	0	0	0	0	0	0	0
	COST	0	0	0	0	0	0	0	0

Sub Command	Parameter	Value							
		0 (default)	1	2	3	4	5	6	7 Note 1
dtmf_mode		Negotiation (SIP/SDP)	Negotiation (SIP/SDP)	Negotiation (SIP/SDP)	Out-Band (RFC2833)	Out-Band (RFC2833)	Out-Band (RFC2833)	In-Band (G.711)	Negotiation (SIP/SDP)
	DTMF Duration	120 ms	120 ms	120 ms	120 ms	120 ms	120 ms	120 ms	120 ms
	DTMF Pause	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms
	Payload type	101	101	101	101	101	101		101
h245_base_port_no		40000	40000	40000	40000	40000	40000	40000	40000
hc_alarm		IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable
hc_timer		240 sec	240 sec	240 sec	240 sec	240 sec	240 sec	240 sec	240 sec
interface	Ether[1] speed	-	-	-	-	-	-	-	-
	Ether[1] duplex	-	-	-	-	-	-	-	-
	Ether[2] speed	-	-	-	-	-	-	-	-
	Ether[2] duplex	-	-	-	-	-	-	-	-
ipaddress	one-port only	-	-	-	-	-	-	-	-
	Ether[1] IP Address	-	-	-	-	-	-	-	-
	Ether[1] Subnet mask	-	-	-	-	-	-	-	-
	Ether[2] IP Address	-	-	-	-	-	-	-	-
	Ether[2] Subnet mask	-	-	-	-	-	-	-	-
ip_version		IPv4	IPv4	IPv4	IPv4	IPv4	IPv4	IPv4	IPv4
ipx_route	Route type	-	-	-	-	-	-	-	-
ipx_rtp_port_no		51000	51000	51000	51000	51000	51000	51000	51000
keynumber		-	-	-	-	-	-	-	-
multi_regist		disable	disable	disable	disable	disable	disable	disable	disable
	Transmitting interval timer								
	Standby timer value								
	Contact Header type								
musictype		Type1	Type1	Type1	Type1	Type1	Type1	Type1	Type1
no_media_code		488	415	488	488	488	488	488	488

Sub Command	Parameter	Value							
		0 (default)	1	2	3	4	5	6	7 Note 1
out_of_area_code		408	408	408	408	408	408	408	408
ppi_to_pai		disable	enable	enable	disable	disable	disable	disable	enable
prack	Supported 100rel	enable	disable	enable	disable	disable	enable	disable	enable
	Stop cyclical-send of 18x	disable		disable			disable		disable
pre_negotiation_port_no		61014	61014	61014	61014	61014	61014	61014	61014
privacy_pattern	Privacy pattern	DisplayName	DisplayName	RFC3325 (TEL-URI)	DisplayName	DisplayName	Remote-Party-ID	RFC3325 (SIP-URI)	SIP-URI (no privacy)
	Dummy string						anonymous		
registration_port_no		3456	3456	3456	3456	3456	3456	3456	3456
reg_interval		5 min	5 min	5 min	5 min	5 min	5 min	5 min	5 min
response_table		normal	normal	normal	normal	normal	normal	normal	normal
rtp_pathon		disable	disable	enable	enable	enable	enable	enable	disable
rtp_qos	RTP QoS	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xb8
	PRECEDENCE	5	5	5	5	5	5	5	5
	DELAY	0	0	0	0	0	0	0	1
	THROUGHPUT	0	0	0	0	0	0	0	1
	RELIABILITY	0	0	0	0	0	0	0	0
	COST	0	0	0	0	0	0	0	0
sdp_style		normal	RFC4566	RFC4566	normal	normal	normal	normal	normal
	G729 annexb=no	disable	enable	enable	disable	disable	disable	disable	disable
self_sip_domain		disable	disable	disable	disable	disable	disable	enable	disable
	Self SIP Domain string							0	
session_timer		enable	enable	enable	enable	enable	enable	enable	enable
	Session-expires	180 sec	180 sec	180 sec	3600 sec	3600 sec	3600 sec	3600 sec	180 sec
	Refresher	UAC	UAC	UAC	UAS	UAS	UAC	UAS	UAC
	Invite Refresher	disable	enable	disable	disable	disable	disable	disable	disable
	Forced mode	disable	disable	disable	disable	disable	disable	disable	disable
signaling_port_no		61012	61012	61012	61012	61012	61012	61012	61012

Sub Command	Parameter	Value							
		0 (default)	1	2	3	4	5	6	7 Note 1
sip_accfilter	SIP Access Filter	disable	disable	enable	disable	disable	disable	disable	disable
	SIP Access Filter mask			-					
	Burst Access Filter	disable	disable	disable	disable	disable	disable	disable	disable
	Burst Access limit timer value								
	Adjustment for PBX indication Note 2								
	Fixed wait timer value Note 2								
	Random maximum wait timer value Note 2								
	Burst Access limit number value								
	Burst Access reject response code								
sip_port_no		5060	5060	5060	5060	5060	5060	5060	5060
sip_qos	SIP QoS	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0x68
	PRECEDENCE	5	5	5	5	5	5	5	3
	DELAY	0	0	0	0	0	0	0	0
	THROUGHPUT	0	0	0	0	0	0	0	1
	RELIABILITY	0	0	0	0	0	0	0	0
	COST	0	0	0	0	0	0	0	0
sip_register	SIP register type	-	-	-	-	-	-	-	-
	SIP register IP Address	-	-	-	-	-	-	-	-
	SIP register FQDN	-	-	-	-	-	-	-	-
	SIP register Port Number	-	-	-	-	-	-	-	-
	SIP register Expires time	-	-	-	-	-	-	-	-
sip_route	Route type	-	-	-	-	-	-	-	-
sip_rtp_port_no		50000	50000	50000	50000	50000	50000	50000	50000

Sub Command	Parameter	Value							
		0 (default)	1	2	3	4	5	6	7 Note 1
sip_server	SIP server type	-	-	-	-	-	-	-	-
	SIP server IP Address	-	-	-	-	-	-	-	-
	SIP server FQDN	-	-	-	-	-	-	-	-
	SIP server Port Number	-	-	-	-	-	-	-	-
	SIP server Router type	-	-	-	-	-	-	-	-
	rport (RFC3581) function	-	-	-	-	-	-	-	-
	Domain Name	-	-	-	-	-	-	-	-
sip_tel_service		disable	enable	disable	enable	enable	enable	enable	enable
	Replaces function		enable		disable	disable	disable	disable	enable
	Hold [a=inactive] function		enable		enable	enable	enable	enable	enable
	Hold [put off hold] function		enable		disable	disable	disable	disable	disable
	REFER/NOTIFY function		enable		disable	disable	disable	disable	disable
	3PCC function		enable		disable	enable Note 3	disable	disable	disable
	3PCC function (codec)		AUTO			AUTO			
	Unhold w/o SDP function Note 4		disable			enable			
sip_transport		UDP	UDP	UDP	UDP	UDP	UDP	UDP	UDP
slipresp		488	503	503	488	488	488	488	488
softdsp Note 1	Codec convert mode	disable	disable	disable	disable	disable	disable	disable	disable
	PAD setting	disable	disable	disable	disable	disable	disable	disable	disable
	PAD reception (voice)	0	0	0	0	0	0	0	0
	PAD transmission (voice)	0	0	0	0	0	0	0	0
	PAD reception (FAX)	0	0	0	0	0	0	0	0
	PAD transmission (FAX)	0	0	0	0	0	0	0	0

Sub Command	Parameter	Value							
		0 (default)	1	2	3	4	5	6	7 Note 1
update		disable	disable	enable	disable	disable	disable	disable	disable
country_code		0 (AUTO)	0 (AUTO)	0 (AUTO)	0 (AUTO)	0 (AUTO)	0 (AUTO)	0 (AUTO)	0 (AUTO)
name_display		disable	enable	disable	disable	disable	disable	disable	disable

Note 1: This parameter is available since SP-4051 MGSIP PROG-G Issue 2.

Note 2: This parameter is available since SP-4058 MGSIP PROG-J Issue 2.

Note 3: Disable for SP-4058 MGSIP PROG-J Issue 2 or earlier.

Note 4: This parameter is available since SP-4058 MGSIP PROG-J Issue 3.

3. “config_template” Data for MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ]

-: Not changed by executing “set config_template”

Sub Command	Parameter	Value			
		0 (default)	1 (template)	2 (nurse call - pattern 1) Note 2	3 (PBX multipoint connection) Note 3
183rbt		enable	enable	enable	enable
184toprivacy		disable	disable	disable	disable
another_keynumber	Another Keynumber 1	0	0	0	0
	Another Keynumber 2	0	0	0	0
	Another Keynumber 3	0	0	0	0
auth	User ID	0	0	0	0
	Password	0	0	0	0
auth_header		enable	enable	disable	enable
call_hold		disable	disable	disable	disable
	RTP detect timer value				
	Response code to reject				
call_id_relay		disable	disable	disable	disable
cause_table		normal	Route Advance	normal	tieline(customized pattern)

Sub Command	Parameter	Value			
		0 (default)	1 (template)	2 (nurse call - pattern 1) Note 2	3 (PBX multipoint connection) Note 3
cc_convert	Country Code Convert function	disable	disable	disable	disable
	Country Code Note 2				
	National Prefix and National Destination Code Note 2				
	National Prefix Note 2				
	National Destination CodeNote 2				
	International Prefix Note 2				
	Number of Local Number digits Note 2				
cdn_pattern		To [userinfo]	To [userinfo]	To [userinfo]	Request-UR[userinfo]
check_number		disable	disable	disable	disable
country_code		0 (AUTO)	0 (AUTO)	0 (AUTO)	0 (AUTO)
cpn_pattern		DisplayName	DisplayName	Userinfo	DisplayName
dnsaddress		0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0
domain		0	0	0	0
drsaddress	Primary DRS Address	-	-	-	-
	Primary DRS Port No	-	-	-	-
	Secondary DRS Address	-	-	-	-
	Secondary DRS Port No	-	-	-	-
	Tertiary DRS Address	-	-	-	-
	Tertiary DRS Port No	-	-	-	-
	Quaternary DRS Address	-	-	-	-
	Quaternary DRS Port No	-	-	-	-

Sub Command	Parameter	Value			
		0 (default)	1 (template)	2 (nurse call - pattern 1) Note 2	3 (PBX multipoint connection) Note 3
drs_qos	DRS QoS	0xa0	0xa0	0xa0	0xa0
	PRECEDENCE	5	5	5	5
	DELAY	0	0	0	0
	THROUGHPUT	0	0	0	0
	RELIABILITY	0	0	0	0
	COST	0	0	0	0
dtmf_mode		Negotiation (SIP/SDP)	Negotiation (SIP/SDP)	In-Band (G.711)	inband
	DTMF Duration	120 ms	120 ms	120 ms	120 ms
	DTMF Pause	100 ms	100 ms	100 ms	100 ms
	Payload type	101	101		
enc Note 4		disable	disable	disable	disable
h245_base_port_no		40000	40000	40000	40000
hc_alarm		IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	disable
hc_timer		240 sec	240 sec	240 sec	130 sec
interface	Ether[1] speed	-	-	-	-
	Ether[1] duplex	-	-	-	-
	Ether[2] speed	-	-	-	-
	Ether[2] duplex	-	-	-	-

Sub Command	Parameter	Value			
		0 (default)	1 (template)	2 (nurse call - pattern 1) Note 2	3 (PBX multipoint connection) Note 3
ipaddress	one-port only	-	-	-	-
	Ether[1] IP Address	-	-	-	-
	Ether[1] Subnet mask	-	-	-	-
	Ether[2] IP Address	-	-	-	-
	Ether[2] Subnet mask	-	-	-	-
ipx_route	Route type	-	-	-	-
ipx_rtp_port_no		51000	51000	51000	51000
keynumber		-	-	-	-
mp_data		-	-	-	-
mp_mode	Multipoint mode	disable	enable	disable	disable
	mode by PBX indication Note 3				enable
	Search Number Digits		7		
	Server Select priority		Fixed		
mp_refresh		-	-	-	-
multi_regist		disable	disable	disable	disable
	Transmitting interval timer				
	Standby timer value				
	Contact Header type				
musictype		Type1	Type1	Type1	Type1
options Note 3	OPTIONS method request mode				enable
	OPTIONS request timer value				35s
out_of_area_code		408	408	408	408

Sub Command	Parameter	Value			
		0 (default)	1 (template)	2 (nurse call - pattern 1) Note 2	3 (PBX multipoint connection) Note 3
prack	Supported 100rel	enable	enable	enable	enable
	Stop cyclical-send of 18x	disable	disable	disable	enable
pre_negotiation_port_no		61014	61014	61014	61014
privacy_pattern	Privacy pattern	DisplayName		disable	DisplayName
	Dummy string				
	Tel number				
registration_port_no		3456	3456	3456	3456
reg_interval		5 min	5 min	5 min	5 min
response_table		normal	normal	normal	tieline(customized pattern)
rtp_pathon		disable	enable	disable	enable
rtp_qos	RTP QoS	0xa0	0xa0	0xa0	0xa0
	PRECEDENCE	5	5	5	5
	DELAY	0	0	0	0
	THROUGHPUT	0	0	0	0
	RELIABILITY	0	0	0	0
	COST	0	0	0	0
sdp_style		normal	normal	normal	normal
self_sip_domain		disable	disable	disable	disable
	Self SIP Domain string				

Sub Command	Parameter	Value			
		0 (default)	1 (template)	2 (nurse call - pattern 1) Note 2	3 (PBX multipoint connection) Note 3
session_timer		enable	enable	enable	enable
	Session-expires	180 sec	180 sec	60 sec	300 sec
	Refresher	UAC	UAC	UAC	UAS
	Invite Refresher	disable	enable	disable	disable
	Forced mode	disable	disable	disable	enable
signaling_port_no		61012	61012	61012	61012
sip_accfilter	SIP Access Filter	disable	disable	disable	disable
	SIP Access Filter mask				
	Burst Access Filter	disable	disable	disable	disable
	Burst Access limit timer value				
	Adjustment for PBX indication Note 2				
	Fixed wait timer value Note 2				
	Random maximum wait timer value Note 2				
	Burst Access limit number value				
	Burst Access reject response code				
sip_domain		-	-	-	-
sip_port_no		5060	5060	5060	5060

Sub Command	Parameter	Value			
		0 (default)	1 (template)	2 (nurse call - pattern 1) Note 2	3 (PBX multipoint connection) Note 3
sip_qos	SIP QoS	0xa0	0xa0	0xa0	0x40
	PRECEDENCE	5	5	5	2
	DELAY	0	0	0	0
	THROUGHPUT	0	0	0	0
	RELIABILITY	0	0	0	0
	COST	0	0	0	0
sip_register	SIP register type	IP Address	IP Address	IP Address	IP Address
	SIP register IP Address	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0
	SIP register FQDN	0	0	0	0
	SIP register Port Number	5060	5060	5060	5060
	SIP register Expires time	-	-	600 sec	-
sip_route	Route type	-	-	-	-
sip_rtp_port_no		50000	50000	50000	50000
sip_server	SIP server type	-	-	-	-
	SIP server IP Address	-	-	-	-
	SIP server FQDN	-	-	-	-
	SIP server Port Number	-	-	-	-
	SIP server Router type	-	-	-	-
	Domain Name	-	-	-	-
sip_tel_service		disable	enable	enable	enable
	Replaces function		disable	disable	disable
	Hold [a=inactive] function		enable	enable	enable
slipresp		488	488	488	488

Sub Command	Parameter	Value			
		0 (default)	1 (template)	2 (nurse call - pattern 1) Note 2	3 (PBX multipoint connection) Note 3
softdsp Note 1	codec convert mode	disable	disable	disable	disable
	PAD setting	disable	disable	disable	disable
	PAD reception (voice)	0	0	0	0
	PAD transmission (voice)	0	0	0	0
	PAD reception (FAX)	0	0	0	0
	PAD transmission (FAX)	0	0	0	0
update		disable	disable	disable	enable

Note 1: This parameter is available for SP-4032 MGSIP PROG-E Issue 2 or later.

Note 2: This parameter is available for SP-4060 MGSIP PROG-L Issue 2 or later.

Note 3: This parameter is available for SP-4060 MGSIP PROG-L Issue 3 or later.

Note 4: This parameter is available for SP-4060 MGSIP PROG-L Issue 4 or later.

4. “config_template” Data for MG-SIP16 [SCA-16SIPMG (US)/SCA-16SIPMG (US)-B]

-: Not changed by executing “set config_template”

Sub Command	Parameter	Value							
		0 (default)	1	2	3 Note 1	4 Note 1	5 Note 1	6 Note 1	7 Note 2
drsaddress	Primary DRS Address	-	-	-	-	-	-	-	-
	Primary DRS Port No	-	-	-	-	-	-	-	-
	Secondary DRS Address	-	-	-	-	-	-	-	-
	Secondary DRS Port No	-	-	-	-	-	-	-	-
	Tertiary DRS Address	-	-	-	-	-	-	-	-
	Tertiary DRS Port No	-	-	-	-	-	-	-	-
	Quaternary DRS Address	-	-	-	-	-	-	-	-
	Quaternary DRS Port No	-	-	-	-	-	-	-	-
signaling_port_no		61012	61012	61012	61012	61012	61012	61012	61012
registration_port_no		3456	3456	3456	3456	3456	3456	3456	3456
pre_negotiation_port_no		61014	61014	61014	61014	61014	61014	61014	61014
ipx_rtp_port_no		51000	51000	51000	51000	51000	51000	51000	51000
sip_rtp_port_no		50000	50000	50000	50000	50000	50000	50000	50000
h245_base_port_no		40000	40000	40000	40000	40000	40000	40000	40000
drs_qos	DRS QoS	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0
	PRECEDENCE	5	5	5	5	5	5	5	5
	DELAY	0	0	0	0	0	0	0	0
	THROUGHPUT	0	0	0	0	0	0	0	0
	RELIABILITY	0	0	0	0	0	0	0	0
	COST	0	0	0	0	0	0	0	0

Sub Command	Parameter	Value							
		0 (default)	1	2	3 Note 1	4 Note 1	5 Note 1	6 Note 1	7 Note 2
rtp_qos	RTP QoS	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xb8
	PRECEDENCE	5	5	5	5	5	5	5	5
	DELAY	0	0	0	0	0	0	0	1
	THROUGHPUT	0	0	0	0	0	0	0	1
	RELIABILITY	0	0	0	0	0	0	0	0
	COST	0	0	0	0	0	0	0	0
sip_qos	SIP QoS	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0xa0	0x68
	PRECEDENCE	5	5	5	5	5	5	5	3
	DELAY	0	0	0	0	0	0	0	0
	THROUGHPUT	0	0	0	0	0	0	0	1
	RELIABILITY	0	0	0	0	0	0	0	0
	COST	0	0	0	0	0	0	0	0
domain		0	0	0	0	0	0	0	0
dnsaddress		0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0
hc_alarm		IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable	IPX and SIP side enable
hc_timer		240 sec	240 sec	240 sec	240 sec	240 sec	240 sec	240 sec	240 sec
musictype		Type1	Type1	Type1	Type1	Type1	Type1	Type1	Type1
nataddress Note 3		-	-	-	-	-	-	-	-
call_hold		disable	disable	disable	disable	disable	disable	disable	disable
	RTP detect timer value								
	Response code to reject								
name_display		disable	enable	disable	disable	disable	disable	disable	disable

Sub Command	Parameter	Value							
		0 (default)	1	2	3 Note 1	4 Note 1	5 Note 1	6 Note 1	7 Note 2
ipaddress	one-port only	-	-	-	-	-	-	-	-
	Ether [1] IP Address	-	-	-	-	-	-	-	-
	Ether [1] Subnet mask	-	-	-	-	-	-	-	-
	Ether [2] IP Address	-	-	-	-	-	-	-	-
	Ether [2] Subnet mask	-	-	-	-	-	-	-	-
interface	Ether [1] speed	-	-	-	-	-	-	-	-
	Ether [1] duplex	-	-	-	-	-	-	-	-
	Ether [2] speed	-	-	-	-	-	-	-	-
	Ether [2] duplex	-	-	-	-	-	-	-	-
sip_server	SIP server type	-	-	-	-	-	-	-	-
	Server IP Address	-	-	-	-	-	-	-	-
	Server FQDN	-	-	-	-	-	-	-	-
	Server port number	-	-	-	-	-	-	-	-
	Strict or Loose	-	-	-	-	-	-	-	-
	rport (RFC3581) function	-	-	-	-	-	-	-	-
	Domain Name	-	-	-	-	-	-	-	-
sip_register	SIP register type	-	-	-	-	-	-	-	-
	Register IP Address	-	-	-	-	-	-	-	-
	Register FQDN	-	-	-	-	-	-	-	-
	Register port number	-	-	-	-	-	-	-	-
	Expires time	-	-	-	-	-	-	-	-
keynumber		-	-	-	-	-	-	-	-
auth	User ID	0	0	0	0	0	0	0	0
	Password	0	0	0	0	0	0	0	0
privacy_pattern	Privacy pattern	Display Name	Display Name	RFC3325 (TEL-URI)	Display Name	Display Name	Remote-Party-ID	RFC3325 (SIP-URI)	SIP-URI(no privacy)
	Dummy string						anonymous		

Sub Command	Parameter	Value							
		0 (default)	1	2	3 Note 1	4 Note 1	5 Note 1	6 Note 1	7 Note 2
session_timer		enable	enable	enable	enable	enable	enable	enable	enable
	Session-expires	180 sec	180 sec	180 sec	3600 sec	3600 sec	3600 sec	3600 sec	180 sec
	Refresher	UAC	UAC	UAC	UAS	UAS	UAC	UAS	UAC
	Invite Refresher	disable	enable	disable	disable	disable	disable	disable	disable
	Forced	disable	disable	disable	disable	disable	disable	disable	disable
prack	100rel	enable	disable	enable	disable	disable	enable	disable	enable
	Stop cyclical-send of 18x	disable		disable			disable		disable
cdn_pattern		To:userinfo	Request-URI:userinfo	To:userinfo	To:userinfo	To:userinfo	To:userinfo	To:userinfo	To:userinfo
sip_port_no		5060	5060	5060	5060	5060	5060	5060	5060
184 to privacy		disable	disable	disable	disable	disable	disable	disable	disable
slipresp		488	503	503	488	488	488	488	488
self_sip_domain		disable	disable	disable	disable	disable	disable	enable	disable
	Self SIP Domain string							0	
dtmf_mode		Negotiation (SIP/SDP)	Negotiation (SIP/SDP)	Negotiation (SIP/SDP)	Out-Band (RFC2833)	Out-Band (RFC2833)	Out-Band (RFC2833)	In-Band (G.711)	Negotiation (SIP/SDP)
	DTMF Duration	120 ms	120 ms	120ms	120ms	120ms	120ms	120ms	120ms
	DTMF Pause	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms
	DTMF Payload type	101	101	101	101	101	101		101
183rbt		enable	enable	enable	enable	enable	enable	enable	enable
rtp_pathon		disable	disable	enable	enable	enable	enable	enable	disable
another_keynumber	Another Keynumber 1	0	0	0	0	0	0	0	0
	Another Keynumber 2	0	0	0	0	0	0	0	0
	Another Keynumber 3	0	0	0	0	0	0	0	0

Sub Command	Parameter	Value							
		0 (default)	1	2	3 Note 1	4 Note 1	5 Note 1	6 Note 1	7 Note 2
multi_regist		disable	disable	disable	disable	disable	disable	disable	disable
	Transmitting interval timer								
	Standby timer value								
	Contact Header type								
sip_tel_service		disable	enable	disable	enable	enable	enable	enable	enable
	Replaces function		enable		disable	disable	disable	disable	enable
	Hold [a=inactive] function		enable		enable	enable	enable	enable	enable
	Hold [put off hold] function		enable		disable	disable	disable	disable	disable
	REFER/NOTIFY function		enable		disable	disable	disable	disable	disable
	3PCC function		enable		disable	enable Note 4	disable	disable	disable
	3PCC function (codec)		AUTO			AUTO			
	Unhold w/o SDP function Note 5		disable			enable			
reg_interval		5 min	5 min	5 min	5 min	5 min	5 min	5 min	5 min
rfc2833_pass Note 3		disable	disable	disable	disable	disable	disable	disable	disable
update		disable	disable	enable	disable	disable	disable	disable	disable
auth_header		enable	enable	enable	disable	disable	disable	disable	enable
cause_table		normal	Route Advance	normal	normal	normal	normal	normal	normal
response_table		normal	normal	normal	normal	normal	normal	normal	normal
cpn_pattern		Display Name	P-Asserted-ID	Userinfo	DisplayName	P-Asserted-ID	Userinfo	P-Asserted-ID	DisplayName

Sub Command	Parameter	Value							
		0 (default)	1	2	3 Note 1	4 Note 1	5 Note 1	6 Note 1	7 Note 2
cc_convert	Country Code Convert function	disable	disable	disable	disable	disable	disable	disable	disable
	Country Code Note 1								
	National Prefix and National Destination Code Note 1								
	National Prefix Note 1								
	National Destination Code Note 1								
	International Prefix Note 1								
	Number of Local Number digits Note 1								
check_number		disable	disable	disable	disable	disable	disable	disable	disable
out_of_area_code		408	408	408	408	408	408	408	408
sdp_style		normal	RFC4566	RFC4566	normal	normal	normal	normal	normal
	G729 annexb=no	disable	enable	enable	disable	disable	disable	disable	disable
call_id_relay		disable	disable	disable	disable	disable	disable	disable	disable

Sub Command	Parameter	Value							
		0 (default)	1	2	3 Note 1	4 Note 1	5 Note 1	6 Note 1	7 Note 2
sip_accfilter		disable	disable	enable	disable	disable	disable	disable	disable
	SIP Access Filter mask			-					
	Burst Access Filter	disable	disable	disable	disable	disable	disable	disable	disable
	Burst Access limit timer value								
	Adjustment for PBX indication Note 1								
	Fixed wait timer value Note 1								
	Random maximum wait timer value Note 1								
	Burst Access limit number value								
	Burst Access reject response code								
sip_transport		UDP	UDP	UDP	UDP	UDP	UDP	UDP	UDP
dns_option	DNS type	A Record resolve (single IP Address)	Locating SIP servers function (RFC3263)	A Record resolve (single IP Address)	A Record resolve (single IP Address)	A Record resolve (single IP Address)	A Record resolve (single IP Address)	A Record resolve (single IP Address)	A Record resolve (single IP Address)
	DNS cache		enable						
codec_change		disable	enable	disable	disable	disable	disable	disable	disable
	G711 Fax renegotiation	disable	enable	disable	disable	disable	disable	disable	disable
no_media_code		488	415	488	488	488	488	488	488
ppi_to_pai		disable	enable	enable	disable	disable	disable	disable	enable

Sub Command	Parameter	Value							
		0 (default)	1	2	3 Note 1	4 Note 1	5 Note 1	6 Note 1	7 Note 2
ipx_route	Route type	-	-	-	-	-	-	-	-
sip_route	Route type	-	-	-	-	-	-	-	-

Note 1: This parameter can be assigned for SP-3988 MGSIP PROG-G Issue 8 or later.

Note 2: This parameter can be assigned for SP-3988 MGSIP PROG-G Issue 5 or later.

Note 3: This parameter can be assigned for SP-3988 MGSIP PROG-G Issue 10 or later.

Note 4: Disable for SP-3988 MGSIP PROG-G Issue 8 or earlier.

Note 5: This parameter is available since SP-3988 MGSIP PROG-G Issue 9.

UNIVERGE SV9500
Peripheral Equipment Description (IP Devices)

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1688,1692,1694,1695,1701,
1708,1709,1711,1714,1778,
1831,1833,1834,1835,1836,
1837,1838,1854,1867,1878

APPENDIX A

2,3,6,7,8,9,10,11,12,13,14,15,16,
17,18,19,20