

UNIVERGE SV9500

FP95-115 V5

Geographic Redundancy Configuration Manual

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UNIVERGE SV9500

Geographic Redundancy Configuration Manual

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CHAPTER 1 GENERAL

This chapter provides a feature overview of Geographic Redundancy.

1. General Description

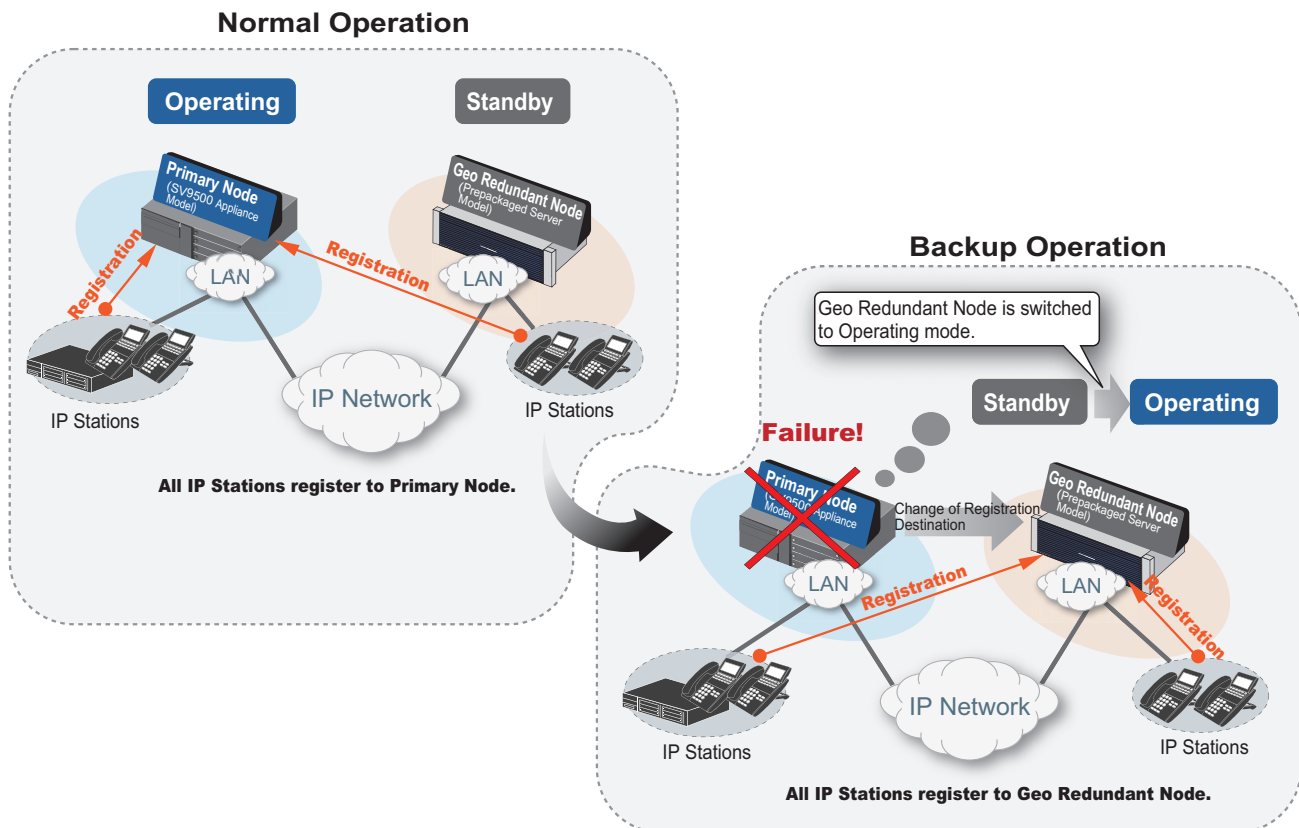
1.1 What is Geographic Redundancy?

This feature allows the user to set a system operating at normal times (hereafter called the Primary Node) and a maximum of seven auxiliary systems (hereafter called the Geo Redundant Node) that can be located in different geographical positions and offers services as well as the system operating at normal times even in the event that a system or network failure occurs. By including Survivable Remote Node (explained in page 4) or SR-MGC in the system configuration, IP stations (**Note 1**) are enabled to re-register to the designated Survivable Remote Node or SR-MGC to continue their operation when they cannot communicate with Primary Node or Geo Redundant Node.

Primary Node and Geo Redundant Node

During normal operation, the Primary Node functions in operating mode and the IP stations from all nodes register to the Primary Node. In contrast, all the Geo Redundant Nodes operate in standby mode waiting for the case a failure occurs in the Primary Node. The Primary Node and all the Geo Redundant Nodes share the same office data except for the IP address (available even when the MGCs are connected to networks that have different address systems or subnet masks).

Feature Overview



Note: This feature is available in North America since FP95-112 V2 and in the other countries since FP95-113 V3.

Note 1: Conditions for IP stations are shown below.

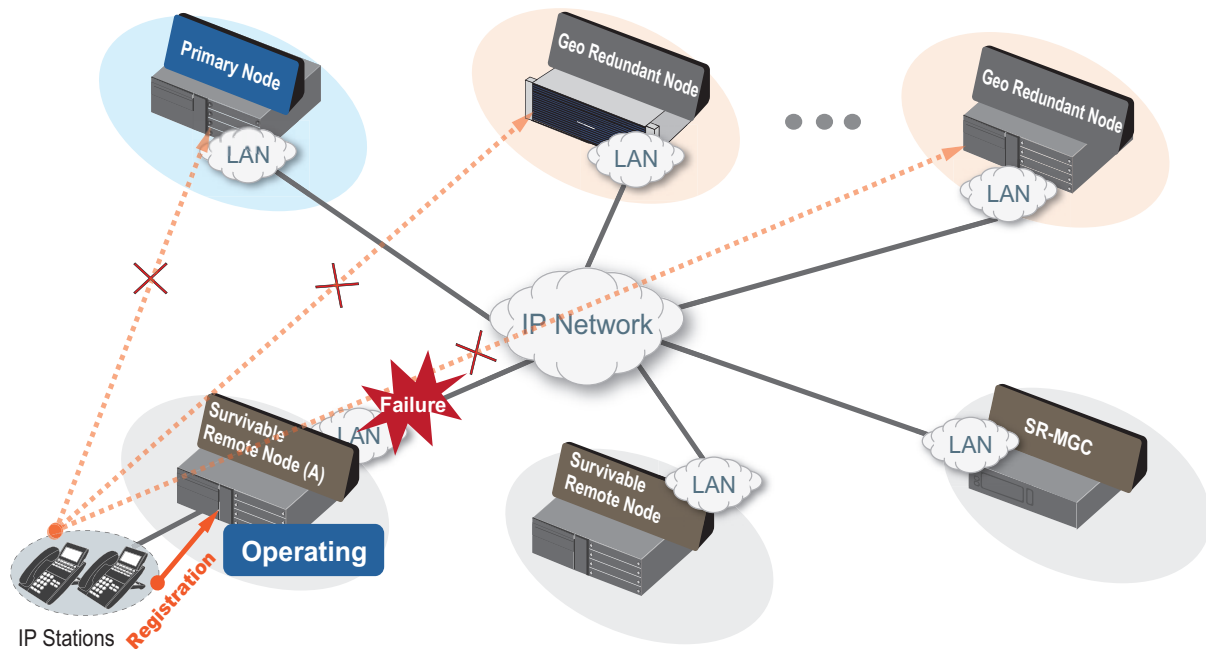
- In this context, IP stations refers to all IP devices.
- Standard SIP terminals require connection tests of NEC.
- When the Primary Node cannot be used due to a failure, Geo Redundant Node or Survivable Remote Node does not take over the control of Standard SIP terminals which can specify only one registration destination. see Maximum of DRS SIP Servers/IP Addresses column in [Availability of Terminals Used in Geographic Redundancy](#), [Availability of Equipment Used in Geographic Redundancy](#), and [Availability of UG50 Device Types Used in Geographic Redundancy](#).

Survivable Remote Node and SR-MGC

In case a failure occurs in the Primary Node and all the Geo Redundant Nodes, the IP stations can also connect to other systems (hereafter called Survivable Remote Node) or to SR-MGCs to continue the operation under those systems or SR-MGC. As in the case of the SR-MGC, the Survivable Remote Node can only rescue IP stations accommodated in a specific predefined MGC. Unlike the Geo Redundant Node, Survivable Remote Node and SR-MGC do not support CCIS Networking via IP and FCCS Redundancy.

The following figure shows an example in the case where a network failure occurs between the operating Primary Node and Survivable Remote Node (A).

**Example of Geographic Redundancy System Configuration
(With Survivable Remote Node And SR-MGC)**



SV9500 server and SR-MGC(E) can be used as a Survivable Remote Node. If you have an existing SR-MGC(E), the SV9500 software allows SR-MGC(E) to serve as a Survivable Remote Node to provide more cost-effective migration to a redundant architecture without having to purchase new hardware.

For the service conditions, see [5. SR-Node Support SR-MGC\(E\)](#) in Chapter 2. For the initial startup procedure, see [14. SR-Node Support SR-MGC\(E\)](#) in Chapter 3.

Note: When using SR-MGC(E) as a backup of a Telephony Server in Asia or Australia, licenses have to be purchased in predetermined packs based on the number of ports, so it may be the case that the number of actually used licenses is smaller than the number of purchased licenses. However, a one port per terminal basis can be purchased for Survivable Remote Node. Licenses for the number of actually used ports need to be purchased even if SR-MGC(E) is used.

1.2 Geographic-Redundancy-Enabled UMGi System

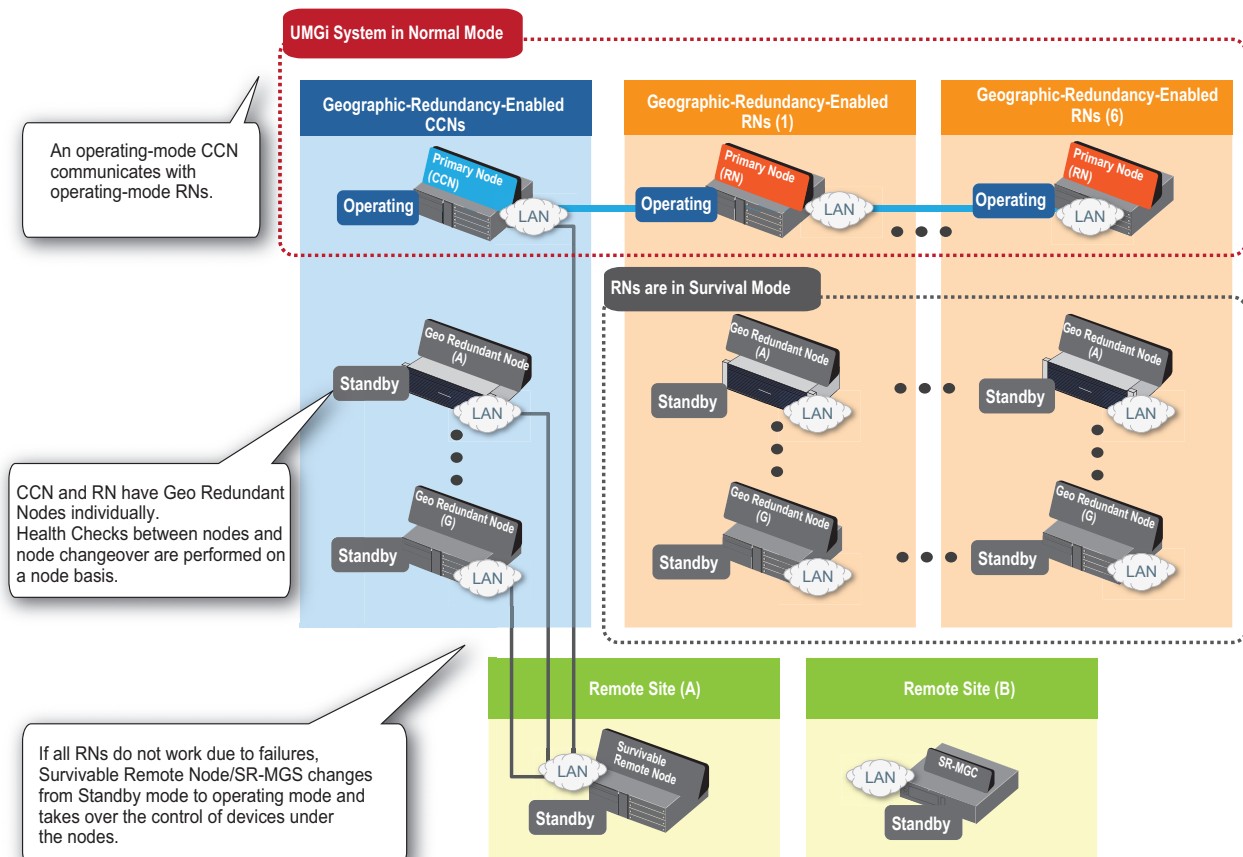
This feature allows the user to set each node in a UMGi system to operate as a Primary Node and to set a maximum of seven Geo Redundant Nodes for each Primary Node. Survivable Remote Nodes/SR-MGCs are also available in case a failure occurs in the Primary Node and all the Geo Redundant Nodes.

As communications between nodes in UMGi system, operating-mode CCN (either the Primary Node (CCN) or one of the Geo Redundant Nodes (CCN)) communicates with operating-mode RNs (either the Primary Node (RN) or one of the Geo Redundant Nodes (RN)) in normal mode. The standby-mode RN operates in survival mode and the standby-mode CCN does not communicate with other nodes.

Regarding health checks between MGCs, the Primary Node (CCN) performs health checks with the Geo Redundant Nodes (CCN) and Primary Node (RN) performs with the Geo Redundant Nodes (RN). Survivable Remote Nodes/SR-MGCs receive health check requests from the Primary Node (CCN)/Geo Redundant Node (CCN).

In case a failure occurs in a Primary Node (in both cases of CCN and RN), a related Geo Redundant Node changes to operating mode, the connection between CCN and RN is established and the Geo Redundant Node takes over the control of devices under the Primary Node. If a failure occurs in all the Primary Nodes (RN)/Geo Redundant Nodes (RN), a Survivable Remote Node/SR-MGC starts to operate and takes over the control of IP devices under the node where the Survivable Remote Node/SR-MGC belongs.

Geographic-Redundancy-Enabled UMGi System



2. Definitions of Terms

The terms used to refer to the devices and operations used in this feature are as follows:

Term	Description	Remarks
Primary Node (Primary-Node)	The system operating at normal times.	Types of Primary Node: - SV9500 Appliance Model - SV9500 Prepackaged Server Model
Geo Redundant Node (GR-Node)	The system that substitutes for the Primary Node when there is a failure in the Primary Node.	Types of Geo Redundant Node: - SV9500 Appliance Model - SV9500 Prepackaged Server Model
Survivable Remote Node (SR-Node)	One of the systems that can provide support to the IP stations when the stations cannot connect with the Primary Node or any Geo Redundant Node.	Types of Survivable Remote Node: - SV9500 Appliance Model - SV9500 Prepackaged Server Model - SR-MGC(E) Note 1 CCIS Networking via IP and FCCS redundancy is not supported
SR-MGC	One of the systems that can provide support to the IP stations when the stations cannot connect with the Primary Node or any Geo Redundant Node (equivalent to the existing Survivable Remote MGC [S-141]).	Types of SR-MGC: SR-MGC(E) CCIS Networking via IP and FCCS and CPU redundancy and features that use LAN2 are not supported.
Primary Node (CCN) (Primary-Node (CCN))	The CCN operating at normal times in Geographic-Redundancy-enabled UMGi system.	Types of Primary Node (CCN): - SV9500 Appliance Model - SV9500 Prepackaged Server Model
Primary Node (RN) (Primary-Node (RN))	The RN operating at normal times in Geographic-Redundancy-enabled UMGi system.	Types of Primary Node (RN): - SV9500 Appliance Model - SV9500 Prepackaged Server Model
Geo Redundant Node (CCN) (GR-Node (CCN))	The system that substitutes for the Primary Node (CCN) when there is a failure in the Primary Node (CCN) in Geographic-Redundancy-enabled UMGi system.	Types of Geo Redundant Node (CCN): - SV9500 Appliance Model - SV9500 Prepackaged Server Model
Geo Redundant Node (RN) (GR-Node (RN))	The system that substitutes for the Primary Node (RN) when there is a failure in the Primary Node (RN) in Geographic-Redundancy-enabled UMGi system.	Types of Geo Redundant Node (RN): - SV9500 Appliance Model - SV9500 Prepackaged Server Model
Operating mode	The state of a system when all the supported features are available and the registration of new IP stations is possible.	

Term	Description	Remarks
Standby mode	The state of a system when usable service is limited. The registration of new IP stations is not possible (IP stations that are already registered are not reset). Call control for directly accommodated stations is available with some service limitations, such as FCCS.	When the IP stations that are already registered are reset, those IP stations cannot register again after the reset.
Normal mode	The state when RN operates under the control of CCN in the UMGi system. The registration of new IP stations is possible.	
Survival mode	The state of RN when it operates independently due to a link down between the CCN and the RN in the UMGi system. The registration of new IP stations is not possible. Initialization of IP stations having been registered is not performed.	When an RN in normal mode accommodates IP stations, re-registration of those IP stations is not available.
Normal/Operating mode	The state when RN operates under the control of CCN in the UMGi system. The registration of new IP stations to RN is possible.	There is no case where a node is in normal/standby mode.
Survival/Operating mode	The state when RN operates as a stand-alone system in the UMGi system. The registration of new IP stations to RN is not possible. RN can become normal/operating mode when it communicates with CCN.	
Survival/Standby mode	The state when RN operates in standby mode in the UMGi system. The registration of new IP stations to RN is not possible. Communications between CCN and RN is not available. When there are no nodes in normal/operating mode or survival/operating mode, RN in survival/standby mode changes to survival/operating mode.	
Transition to Operating	The transition of a system from standby mode to operating mode. There are two kinds of transitions: Automated transition to Operating and Manual Transition to Operating .	
Transition to Standby	The transition of a system from operating mode to standby mode. There are two kinds of transitions: Automated Transition to Standby and Manual Transition to Standby .	
IP Station Registration Changeover	The reset of the IP stations registered to a system. The reset IP stations perform re-registration according to the DRS order.	IP Station Registration Changeover is executed by the MGC which changes to standby mode when Switchback Integration operation or Operation Handover is performed.

Term	Description	Remarks
Failover	The process in which a system in operating mode suffers a failure causing another system to change to operating mode and substitute providing the features to the IP stations.	Failover is an automated process. It cannot be done manually.
Switchback	The process in which, a system that suffered a failure recovers, and it changes to operating mode. The system that substituted the recovered system changes to standby mode.	Switchback is a manual process. It does not happen automatically.
Integration operation	Multiple systems in the network operate in operating mode due to a network failure. After restoring the network, the integration operation registers all the IP stations to a single system. The other systems change to standby mode.	Integration operation can happen automatically or be done manually.
Operation Handover	The process in which a system changes to standby mode, a Registration Changeover is done and the IP stations are registered to the other system after it has changed to operating mode.	Operation handover is a manual process. It does not happen automatically.
Separate Operations	The state when multiple nodes transit to operating mode because communications become impossible between Primary Node and Geo Redundant Nodes due to a network failure.	

Note 1: Considerations when an SR-MGC(E) is used as a Survivable Remote Node are shown below:

- It works only as a single-CPU-configuration node.
- LAN2 connection is available.

3. Contrast for Range of Backup Capability

The table below shows the contrast for range of backup capability of this feature. For reference, the table below compares the capability between this feature and other backup features (Location Diversity [L-55] and Survivable Remote MGC [S-141]).

Capability for Each Backup Feature

	Geographic Redundancy	Location Diversity
Database between Servers	The same data is shared among all the servers.	Each server has its own data.
Dual Hardware (CPU/FT Server)	Supported	Supported
PIR Accommodation	Supported (Primary Node only)	Supported (Cannot be saved by a backup server)
Peripheral Devices (When Primary Node is down or Main Site Network is down)	Supported	Supported
OAI/ACD	Supported (depending on application)	Not supported
MCI	Supported (depending on application)	Supported (visitor terminals cannot use)
SMDR	Supported (depending on application)	Supported (visitor terminals cannot use)
CCIS Networking via IP	Supported (Primary Node/Geo Redundant Node only Note 1)	Not supported
FCCS Networking via IP	Supported (Primary Node/Geo Redundant Node only)	Supported
Hotel System	Not supported	Not supported
PMS	Not supported	Supported (visitor terminals cannot use)
Difficulty of Data Settings	Simple	Difficult

Note 1: CCIS Networking via IP is available for Geo Redundant Node from FP95-114 V4.

When it is compared to the backup by the Geo Redundant Node, the range of capability of Survivable Remote Node/SR-MGC becomes narrower. The Survivable Remote Node and the SR-MGC do not support FCCS redundancy. Also, the SR-MGC does not have a redundant CPU and cannot support features that use LAN2. The following table show the service provision range for each MGC. **Note 2**

Range of Service Provision for Each MGC

		Primary Node	Geo Redundant Node	Survivable Remote Node	SR-MGC
Database between Servers		The same data is shared among all the servers.			
Hardware Configuration (CPU/FT Server)	SV9500 server	Supported (Including CPU/FT Server))	Supported (Including CPU/FT Server))	Supported (Including CPU/FT Server))	-
	SR-MGC(E)	Not supported	Not supported	Supported Note 3	-
PIR Accommodation		Supported	Not supported	Not supported	Not supported
Peripheral Devices (When Primary Node is down or Main Site Network is down)		Supported	Supported	Supported	Supported
SIP Handler		Supported	Supported	Supported	Not supported
OAI/ACD		For details, see Geographic Redundancy - ACD/OAI in the Data Programming Manual -ACD/OAI.			Supported (equivalent to Survivable Remote MGC [S-141])
MCI		Supported	Supported (depending on application)	Not supported	Not supported
SMDR		Supported	Supported (depending on application)	Not supported (Primary Node performs polling)	Not supported (Primary Node performs polling)
CCIS Networking via IP		Supported	Supported Note 4	Not supported	Not supported
FCCS Networking via IP		Supported	Supported	Not supported	Not supported
Hotel System		Supported	Not supported	Not supported	Not supported
PMS		Supported	Not supported	Not supported	Not supported
Internet Protocol Suite	SNMP	Supported	Supported	Supported	Not supported
	SNTP	Supported	Supported	Supported	Not supported
	DNS	Supported	Supported	Supported	Not supported

Note 2: See the following tables for IP devices/stations which Geo Redundant Node/Survivable Remote Node can take over.

- [Availability of Terminals Used in Geographic Redundancy](#)
- [Availability of Equipment Used in Geographic Redundancy](#)
- [Availability of UG50 Device Types Used in Geographic Redundancy](#)

Note 3: When an SR-MGC(E) is used as a Survivable Remote Node, it works only as a single-CPU-configuration node.

Note 4: CCIS Networking via IP is available for Geo Redundant Node from FP95-114 V4.

The following table shows contrast between Survivable Redundant Node and SR-MGC.

Contrast Between Survivable Remote Node And SR-MGC

	Survivable Remote Node	SR-MGC
Hardware Configuration	SV9500 server/SR-MGC(E)	SR-MGC(E) only
Office Data Assignment	All the data are assigned from Primary Node at once. As for the ATIM command, the data is assigned on each Survivable Remote Node.	All the data are assigned from MGC at once. As for the AIPA, ASPC and ATIM commands, the data are assigned on each SR-MGC.
Office Data Assignment When Starting Up	The office data is assigned to the Survivable Remote Node by uploading the data which is downloaded from the Primary Node through the Telephony Server Maintenance Menu.	The office data is assigned to the SR-MGC by the office data copy from the Primary Node to the SR-MGC through the CMNT command.
LAN port	LAN1/LAN2	LAN1 only
Alarm/Notification	For SV9500 server - IAT/WDT detection of EMA card (only for Appliance Model) Note 5 - Notification by SYS ALM lamp of EMA card (only for Appliance Model) - Notification by system messages (for Appliance Model/Prepackaged Server Model) For non-SV9500 server - Notification by system messages	Notification by system messages
Range of Terminal/Device to Take Over	On a node basis (take over the control of device/terminal accommodated in the same node)	
Terminal/Device to Take Over	See the following table: Availability of Terminals Used in Geographic Redundancy Availability of Equipment Used in Geographic Redundancy Availability of UG50 Device Types Used in Geographic Redundancy	See Survivable Remote MGC [S-141] in Data Programming Manual-Business.
License	Apply the same license to both Primary Node and Geo Redundant Node	License is previously installed on CF card of SR-MGC Note 6
Shipment	All components: hardware, program and license are packed separately. Installation by customer is needed.	Hardware and CF card (with program and license installed)

Note 5: IAT and WDT are timers which monitor the status of the program execution.

Note 6: For EMEA, download the exclusive license for SR-MGC from the LMS.

4. Number of Installations for Each Node

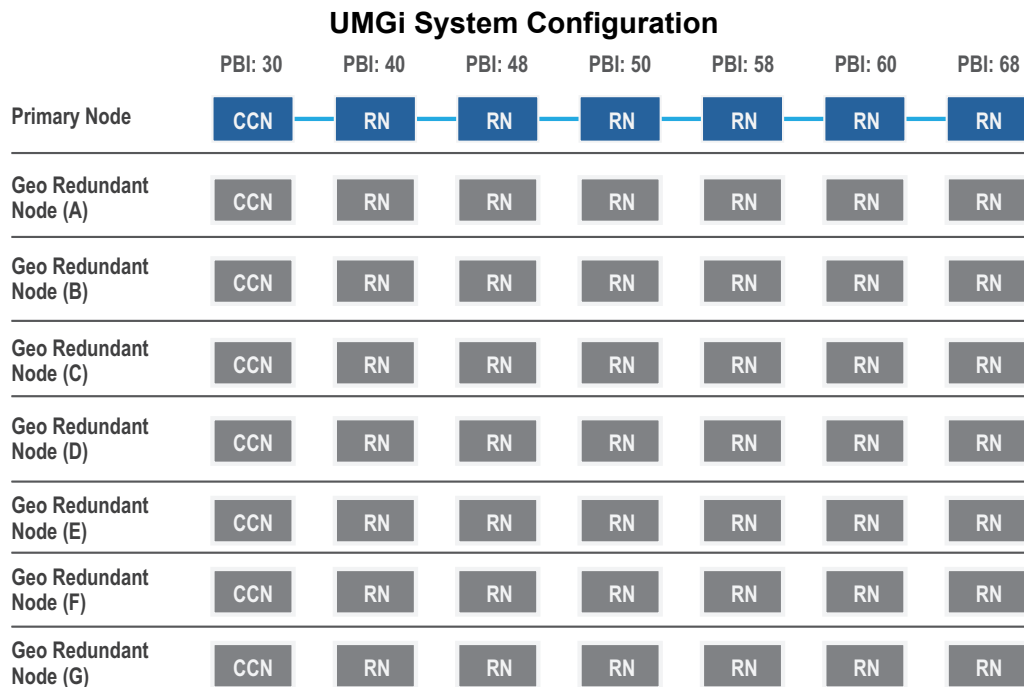
The maximum number of nodes that can be used with this feature is as follows:

1-IMG/4-IMG System Configuration:

- One Primary Node
- Seven Geo Redundant Nodes
- 254 Survivable Remote Nodes
- 255 SR-MGCs

UMGi System Configuration:

- Seven Primary Nodes (depending on the number of CCN and RN)
- Seven Geo Redundant Nodes for each CCN/RN (maximum of 56 nodes in the entire system)
- 199 Survivable Remote Nodes
- 200 SR-MGCs



Note: The total number of Primary Node, Geo Redundant Nodes, Survivable Remote Nodes and SR-MGCs is up to 256. Do not exceed this total number when configuring the system.

5. Outline of Various System Operations

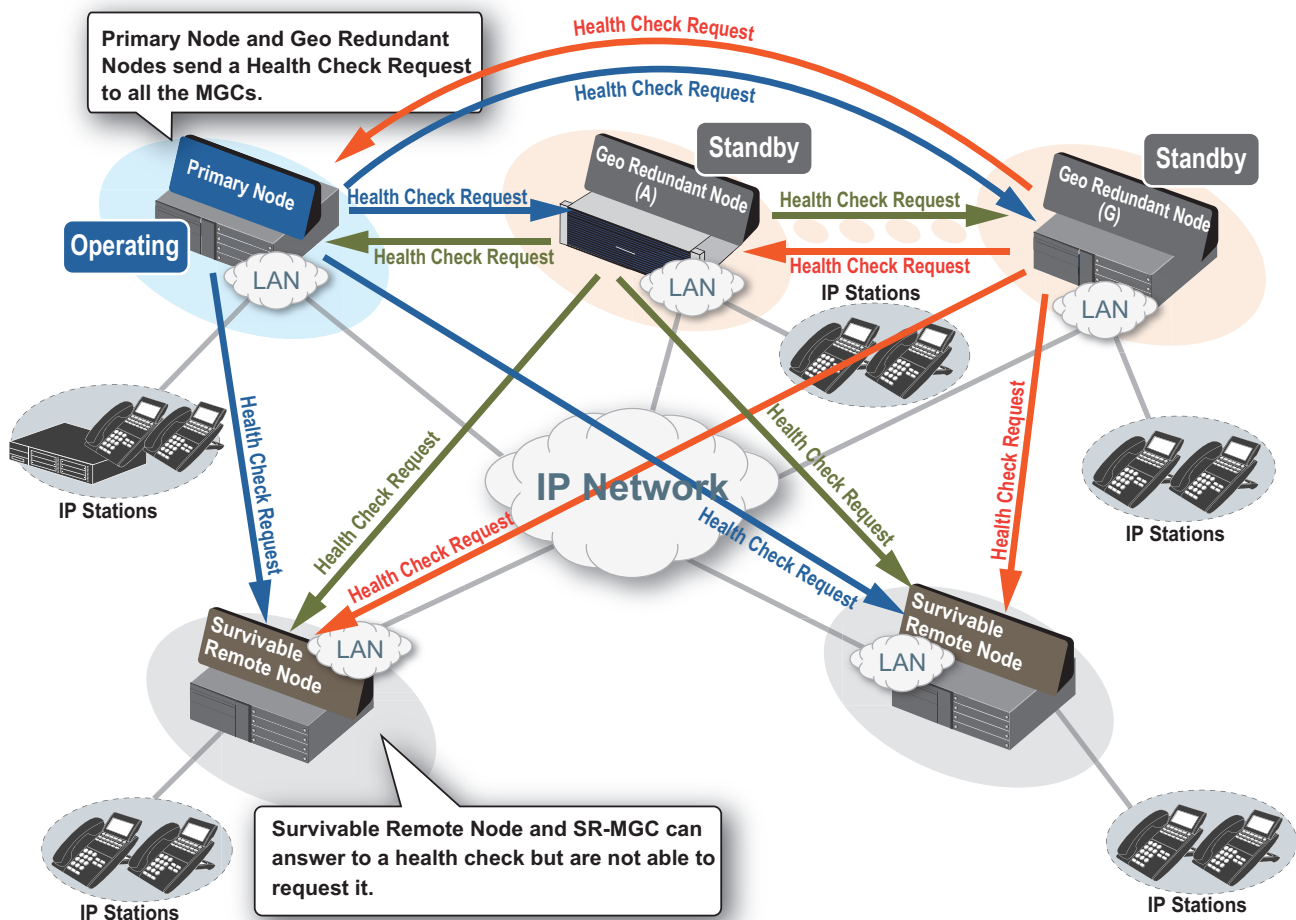
5.1 Health Check

With the health checks, the MGCs not only monitor each other, but also are able to interchange information and control the mode changes.

The Primary Node and the Geo Redundant Nodes are able to request a health check. The Survivable Remote Node and the SR-MGC can just reply to a health check request.

Note: To change the health check data with the ASYDL, SYS1, Index 850, follow the procedure explained in Command Manual. For details, see the note on ASYDL, SYS1, Index 850 in Command Manual.

Health Check between Each MGC

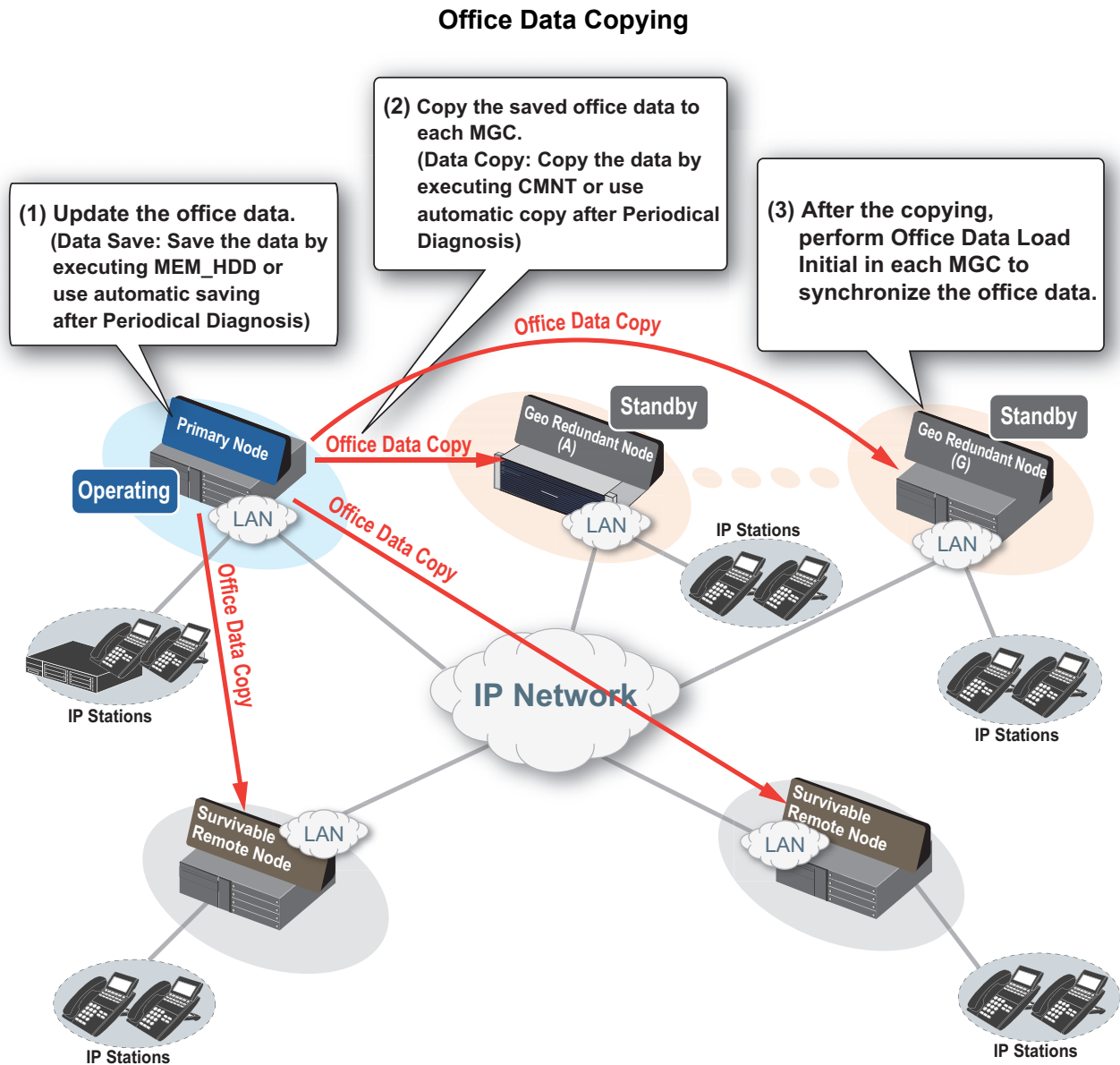


5.2 Office Data Copying

It is necessary to copy the Primary Node office data to other MGCs to share the same office data among them.

- (1) Anytime there is a change in the office data of the Primary Node, such change is stored in a backup file.
- (2) Then the backup file is copied to Geo Redundant Node/Survivable Remote Node/SR-MGC.
- (3) By performing Office Data Load Initial in each MGC, the office data synchronizes with each other.

The copy of new data is performed automatically every time there is a periodical diagnosis or can be done manually to immediately reflect the changes in the office data of all the MGCs.



The following table shows whether or not office data is available to copy to the MGCs.

X: Available N: Not Available

Data Type	MGCs	
	Primary Node	SR-MGC
	GR-Node	
	SR-Node	
Data Memory	X	X
Name Display	X	X
Wireless Call Forwarding	X	X
Call Forwarding	X	X
Speed Dialing	X	X
User Assign Key	X	X
Number Sharing	X	X
ACD Data Memory	X	X
Call Block	X	X
ICB (Note 1) and DR	X	X
Expanded Speed Calling (Not used)	(Not used)	(Not used)
Call Forwarding-Logout	X	X
One Touch Speed Calling Data for DtermIP	X	X
SPD Name Data	X	X
H.323 Terminal Call Transfer (Not used)	(Not used)	(Not used)
Message Area ID Data	X	X
SR-MGC Data Note 2	N	N
SIP Terminal Call Transfer Note 3	X	X
Mobile Service Data	X	X
Day/Night Data Note 1	X	N
Local Phone book Data	X	N
Soft Switch Data	X	N

Note 1: Available only for North America.

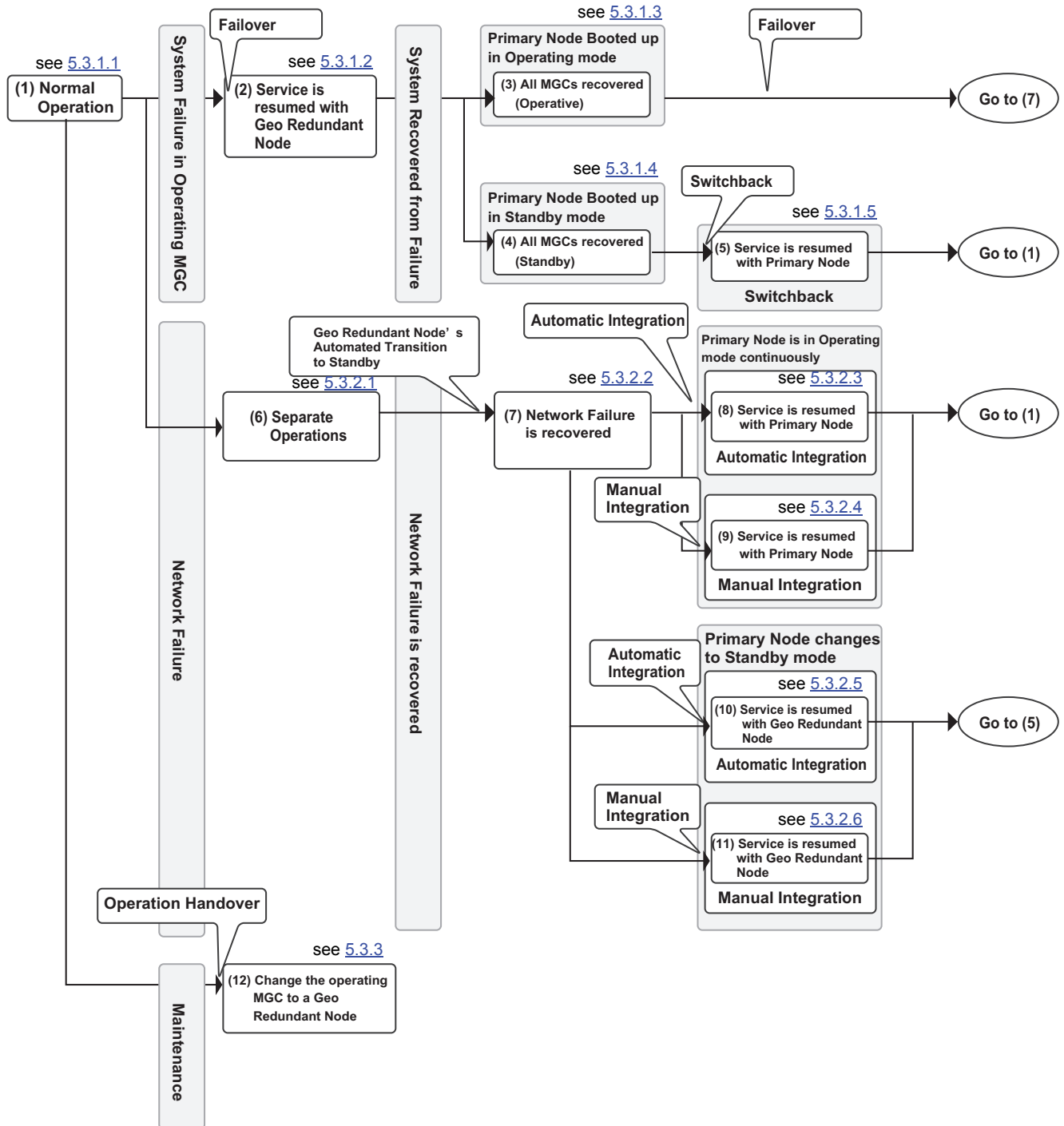
Note 2: This item is generated only on SR-MGC.

Note 3: SIP Terminal Call Transfer indicates the transfer information of SP Controlled SIP terminal.

5.3 Flow of Operations

The chart below explains the flow of operations when there is a failure in the operating MGC, there is a network failure or a maintenance operation is performed. The chart does not consider the use of Survivable Remote Nodes or SR-MGCs, only the Primary Node and the Geo Redundant Nodes.

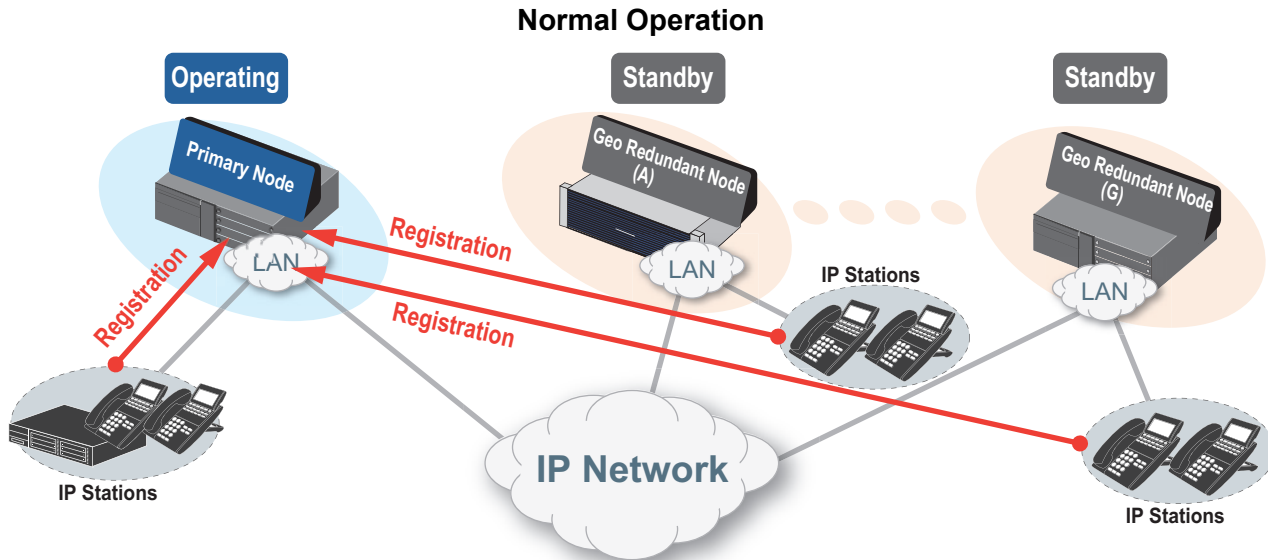
Flow of Operations



5.3.1 Flow of Operations When a System Failure Occurs

5.3.1.1 Normal Operation

In a normal operation state, the Primary Node is in operating mode and the Geo Redundant Nodes are in standby mode. All the IP stations are registered to the Primary Node.



Flow from Powering the Systems to Entering into Normal Operation State

In the Geographic Redundancy system, it is possible to set the node which starts in operating node immediately after initialization by setting the system data (ASYDL, SYS1, Index 1354, Bit 2).

When the system data (ASYDL, SYS1, Index 1354, Bit 2=0) is set, Primary Node starts in operating mode and all Geo Redundant Nodes start in Standby mode. When the system data (ASYDL, SYS1, Index 1354, Bit 2=1) is set, all nodes start in Standby mode. The following shows the main flow of normal operation depending on the system data settings.

- Priority of Automated Transition to Standby: ASYDL, SYS1, Index 1354, Bit 2=0 (default)

- (1) All the MGCs are powered on.

Note: Power on the systems in the following order: Primary Node -> Geo Redundant Node -> Survivable Remote Node and SR-MGC.

- (2) Primary Node is in operating mode and other MGCs are in standby mode.
- (3) All MGCs except Primary Node keep their standby mode according to the result of health checks between MGCs.

- Priority of Automated Transition to Standby: ASYDL, SYS1, Index 1354 Bit 2=1

(1) All the MGCs are powered on.

Note: Power on the systems in the following order: Primary Node -> Geo Redundant Node -> Survivable Remote Node and SR-MGC.

(2) All the MGCs boot in standby mode.

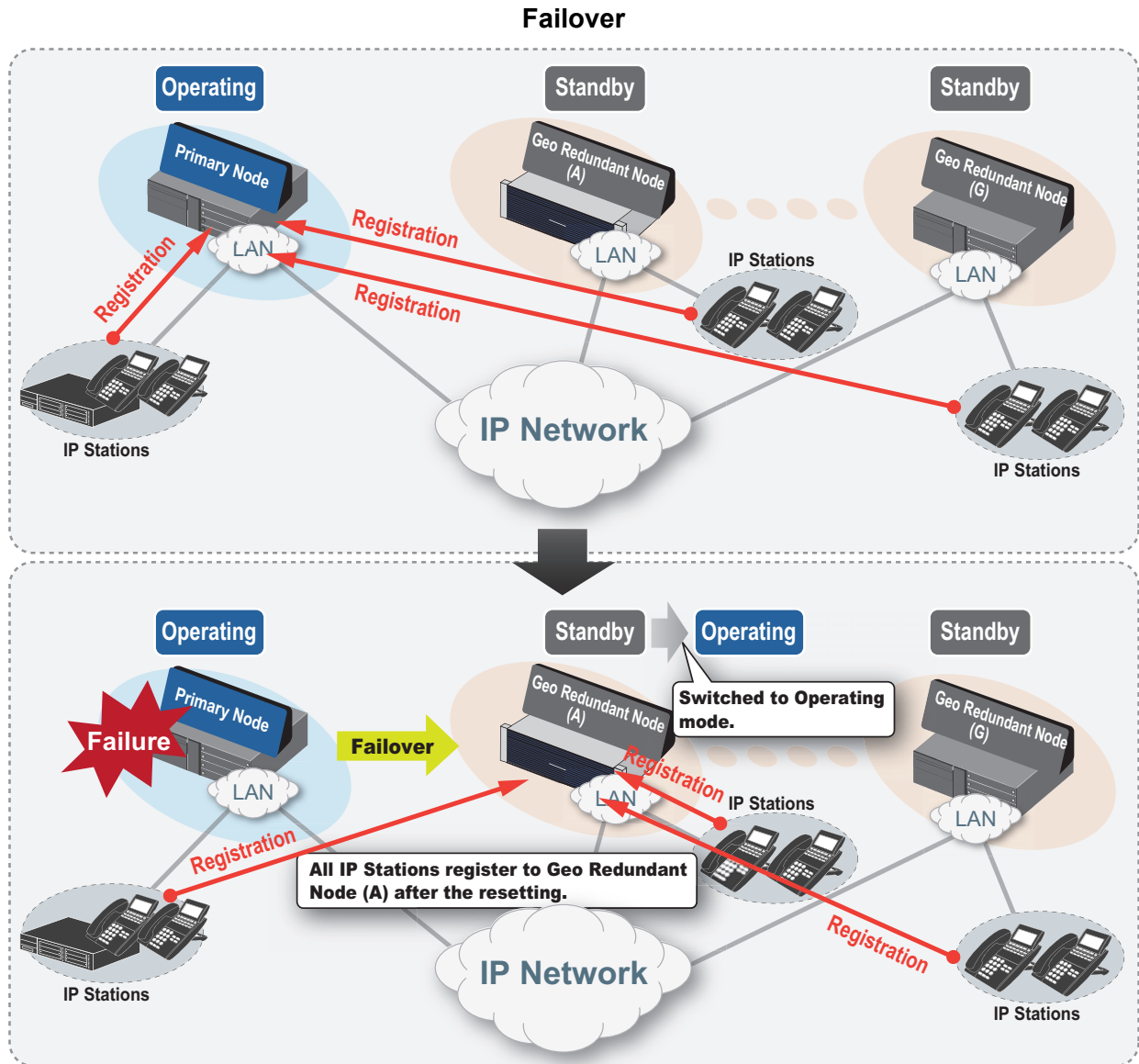
(3) After booting, Primary Node changes to operating mode and all the IP stations register to it.

Note: After the booting is completed it takes around two minutes for the Primary Node to change to operating mode.

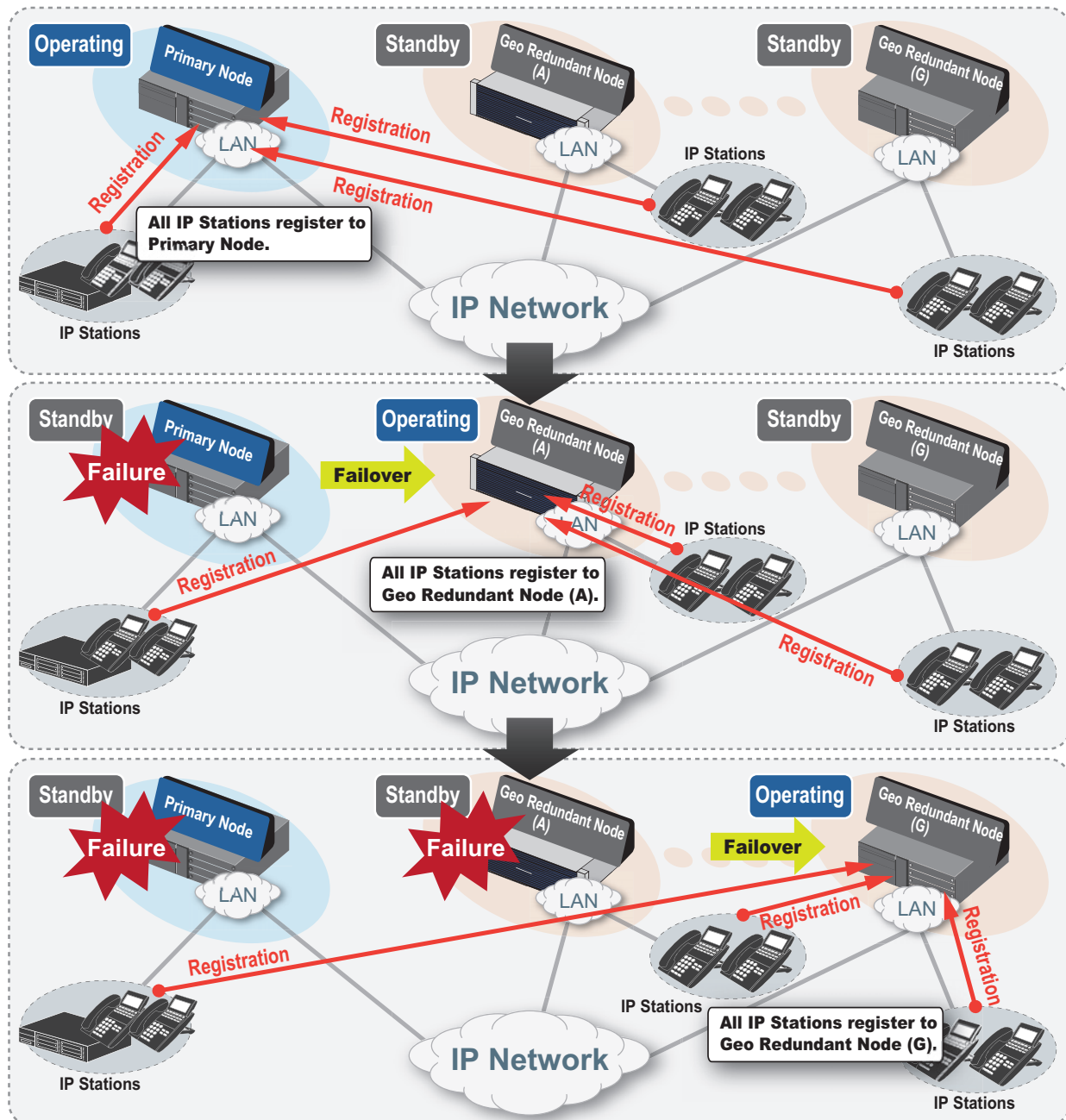
(4) All MGCs except Primary Node keep their standby mode according to the result of health checks between MGCs.

5.3.1.2 Failover (Primary Node to GR-Node)

- (1) A failure occurs in the Primary Node and all the IP stations registered to it stop to function.
- (2) The Geo Redundant Node set to be the first substitute of the Primary Node detects a health check time over and changes to operating mode. The IP stations register to the substitute Geo Redundant Node.



All the Geo Redundant Nodes are set in a substitution order, so if a failure occurs in the first substitute Geo Redundant Node, the second system changes to operating mode and substitutes it.



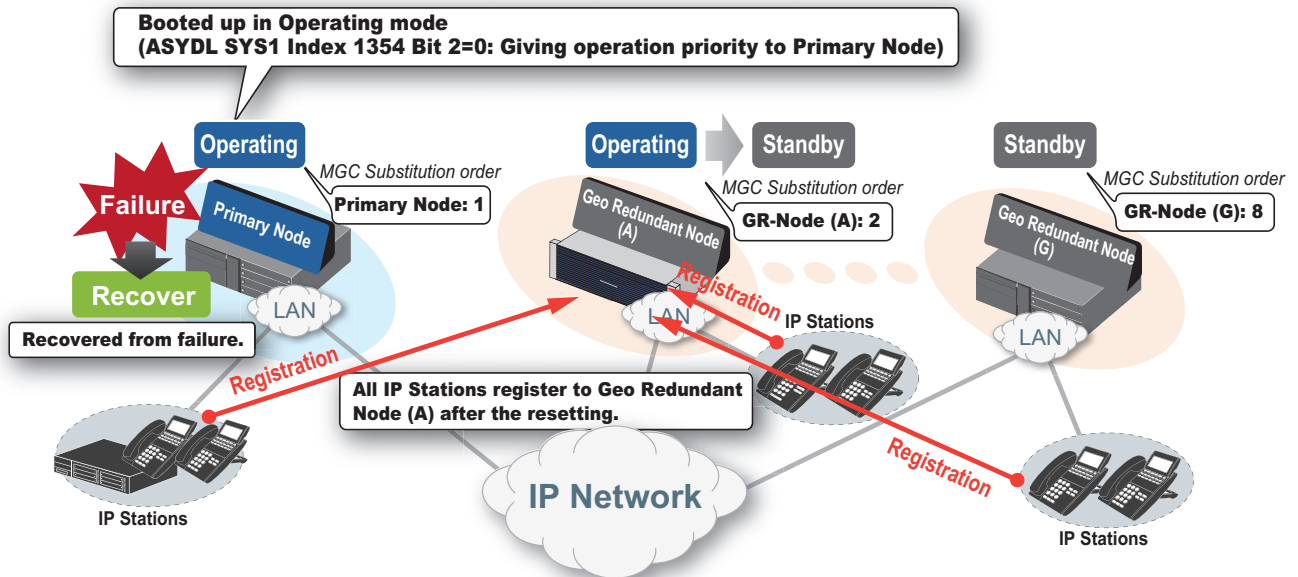
Priority of Automated Transition to Standby

	Primary Node	Geo Redundant Node							Survivable Remote Node and SR-MGC Note 1
		(A)	(B)	(C)	(D)	(E)	(F)	(G)	
Substitution Order	1	2	3	4	5	6	7	8	9

Note 1: The same priority is given to all the Survivable Remote Nodes and SR-MGCs. They change to operating mode after all of the Geo Redundant Nodes.

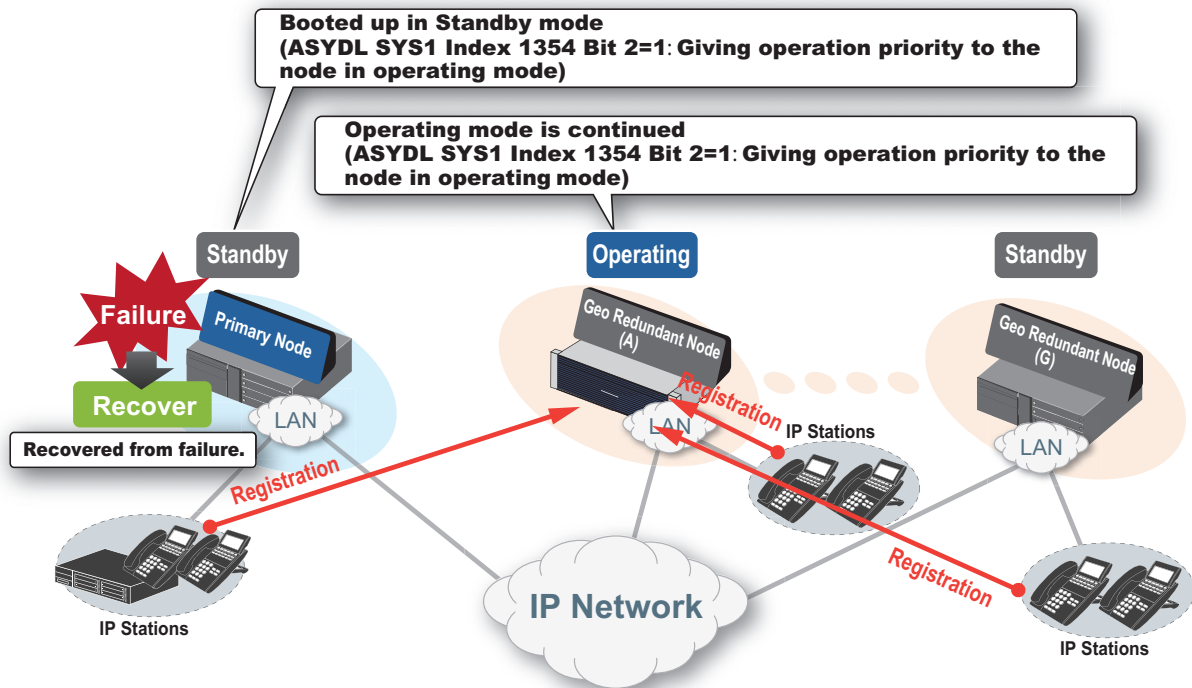
5.3.1.3 All the MGCs Recover (Primary Node Starts in Operating Mode)

After all the nodes recover from a failure, if the Primary Node has default settings (ASYDL, SYS1, Index 1354, Bit 2=0), it enters into operating mode after booting. In that case, two nodes (the Primary Node and the substitute Geo Redundant Node) will be in operating mode at the same time, however, all the IP stations will continue to be registered to the Geo Redundant Node. After this, Automated Transition to Standby of the Geo Redundant Node operates (See [5.3.2.2 Network Recovering \(Automated Transition to Standby\)](#)).



5.3.1.4 All the MGCs Recover (Primary Node Starts in Standby Mode)

After all the systems recover from a failure, if the Primary Node has non-default settings (ASYDL, SYS1 Index 1354, Bit 2=1) it enters into standby mode after booting. In that case, all the IP stations continue to be registered to the substitute MGC. To change from this state to a normal operation state, see [5.3.1.5 Service Resumed with the Primary Node \(Switchback\)](#).

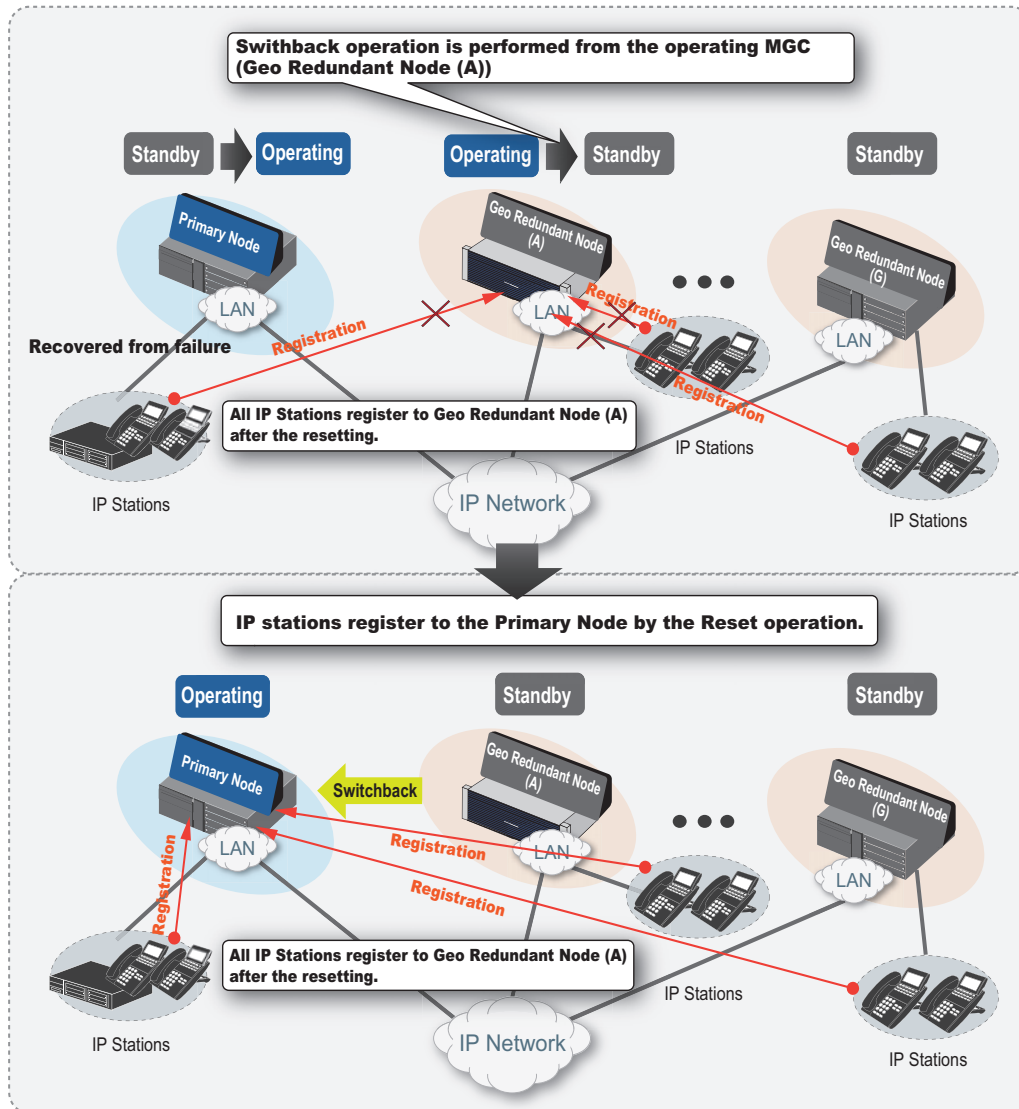


5.3.1.5 Service Resumed with the Primary Node (Switchback)

- (1) In the Primary Node, Switchback is performed with the CMNT command (the Primary Node in standby mode changes to operating mode and the Geo Redundant Node (A) in operating mode when the Primary Node was in standby due to a failure changes to standby mode).
- (2) In the Primary Node, IP Station Registration Changeover is performed with the CMNT command for the IP stations registering to the Geo Redundant Node (A) that has changed to standby mode (in order to have them register to the Primary Node).

Note: It can be set whether ongoing calls are kept or not (ASYDL, SYS1, Index 1354, Bit 3=1).

- (3) The IP stations that have been reset register to the Primary Node to return to a behavior in normal operation state. (state of [5.3.1.1 Normal Operation](#)).



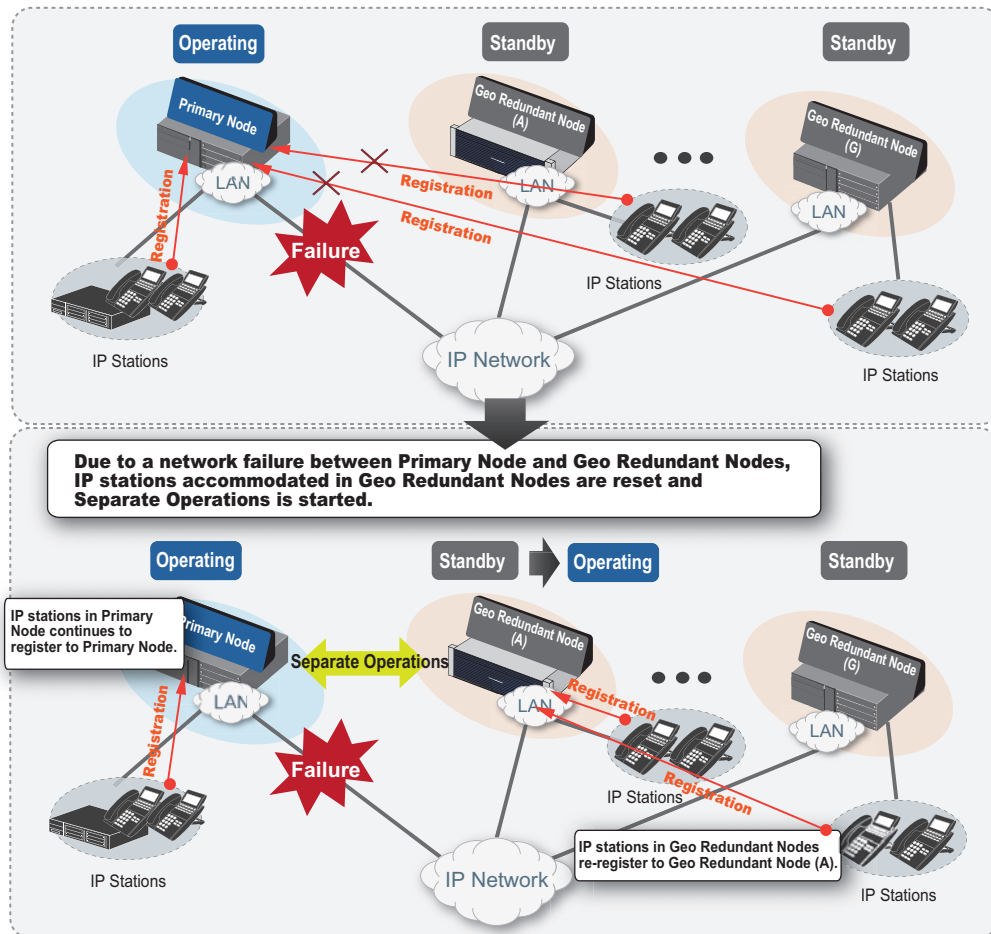
5.3.2 Flow of Operations when a Network Failure Occurs

5.3.2.1 Separate Operations

- (1) A network failure occurs between the Primary Node and the Geo Redundant Nodes. The network failure disconnects the Primary Node from the Geo Redundant Nodes. All the IP stations except those accommodated in the Primary Node are unable to connect to the Primary Node.
- (2) The Geo Redundant Node first substituted as the Primary Node detects delay in health check and changes to operating mode. All the IP stations except those in the Primary Node register to the substitute Geo Redundant Node. To change from this state to a normal operation state, see [5.3.2.3 Automatic Integration Operation with the Primary Node](#).

Note: Only the IP stations accommodated in the Primary Node can continue to register to the Primary Node.

Note: Calls between the Primary Node and Geo Redundant Node are still possible after a network failure if they are able to connect using Flexible Network Re-routing [F-41].



5.3.2.2 Network Recovering (Automated Transition to Standby)

After the network recovers, all IP stations will register to one system that will be in operating mode while other systems will be in standby mode.

- (1) After the network recovers, health check is used to determine which system in operating mode changes to standby mode based on the theory of priority order.

Method	Related System Data	Order	Explanation	Remarks
1	ASYDL, Index 1354, Bit 2 = 0 (Giving operation priority to Prime Node)	Priority of Automated Transition to Standby (default)	The system that does not have priority changes to standby mode	It is easy to elaborate but does not take into account the specific situations of the systems
2	ASYDL, Index 1354, Bit 2 = 1 (Giving operation priority to the node in operating mode)	Current mode status (determined by the Number of registered IP stations)	The system that has less IP stations registered changes to standby mode	It allows to reduce the number of IP stations that have to be registered again

- (2) From here, there are two possible patterns:

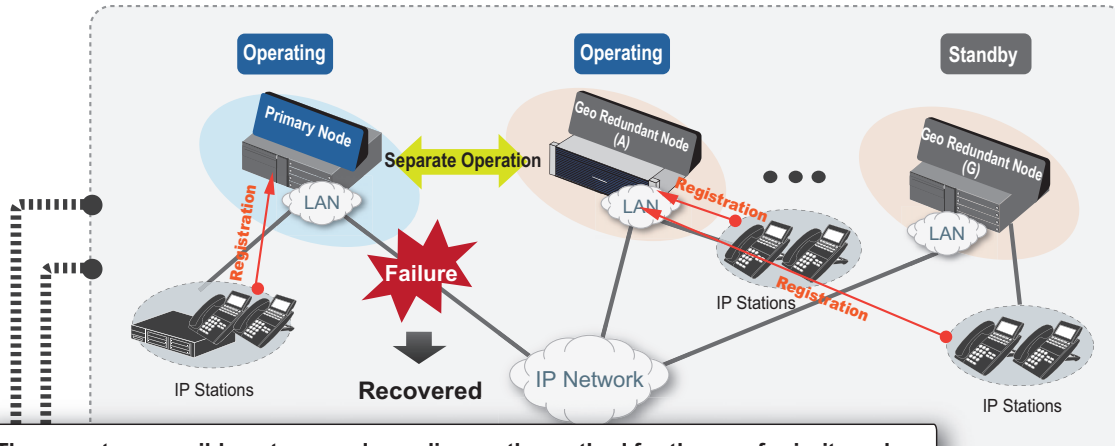
- Pattern 1: Determined based on the Substitution Order (ASYDL, SYS1, Index 1354, Bit 2=0: Giving operation priority to Prime Node)

The Geo Redundant Node (A) changes to standby mode according to the Substitution Order: In this case, an operation is resumed with the Primary Node through either one of the following two processes: [5.3.2.3 Automatic Integration Operation with the Primary Node](#) or [5.3.2.4 Manual Integration Operation with the Primary Node](#). The setting of ASYDL, SYS1, Index 852, Bit 5 determines which process is applied.

- Pattern 2: Determined based on the current mode status (ASYDL, SYS1, Index 1354, Bit 2=1: Giving operation priority to the node in operating mode)

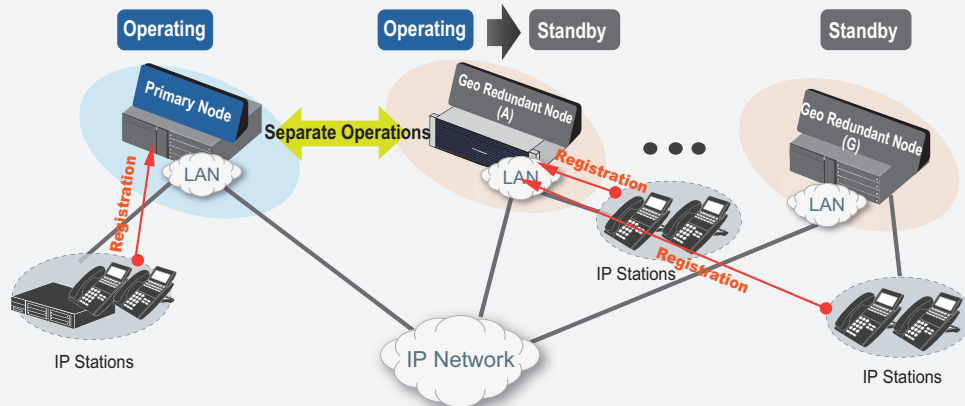
The Primary Node changes to standby mode according to the current mode status: In this case, an operation is resumed with the Geo Redundant Node through either one of the following two processes: [5.3.2.5 Automatic Integration Operation with the GR-Node](#) or [5.3.2.6 Manual Integration Operation with the GR-Node](#). The setting of ASDL, SYS1, Index 852, Bit 5 determines which process is applied.

Network Recovering (Automated Transition to Standby)

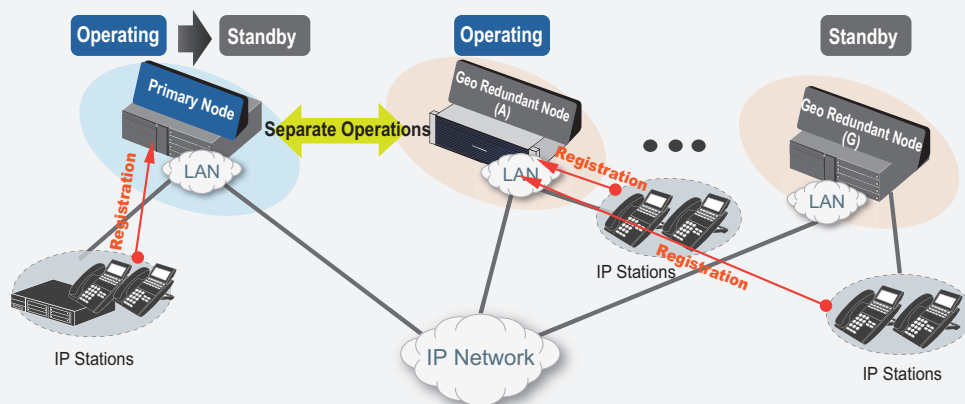


There are two possible outcomes depending on the method for theory of priority order.

Case (a): The Geo Redundant Node(A) changes to Standby mode according to the Substitution Order.



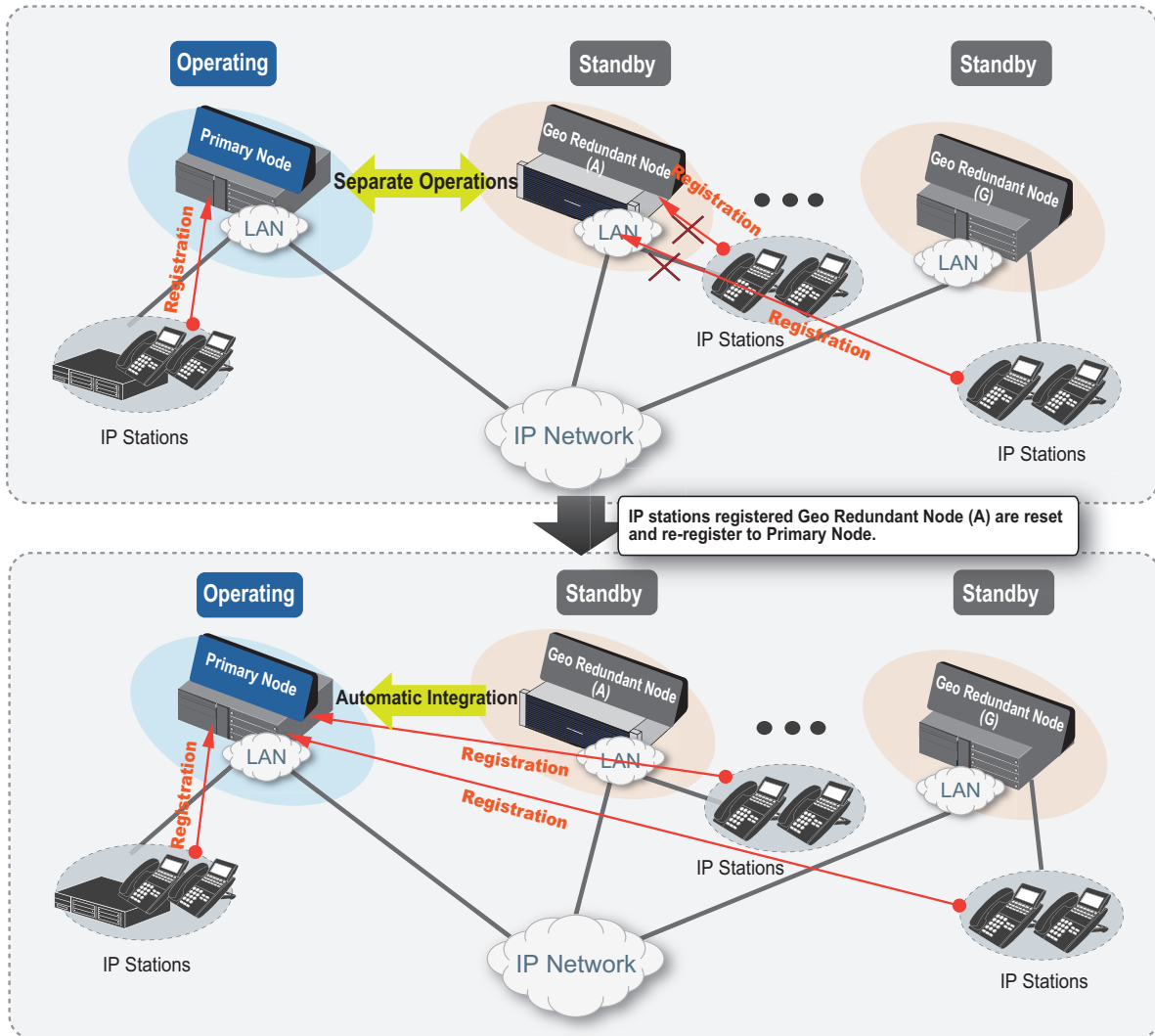
Case (b): The Primary Node changes to Standby mode depending on the current mode status.



5.3.2.3 Automatic Integration Operation with the Primary Node

- (1) Based on the Substitution Order according to the theory of priority order, Automatic Integration operation is performed. Geo Redundant Node (A) resets all the IP stations registered to it. At this time, IP stations registered to the Primary Node are not reset.
- (2) The IP stations that have been reset register to the Primary Node.

Automatic Integration Operation with the Primary Node



5.3.2.4 Manual Integration Operation with the Primary Node

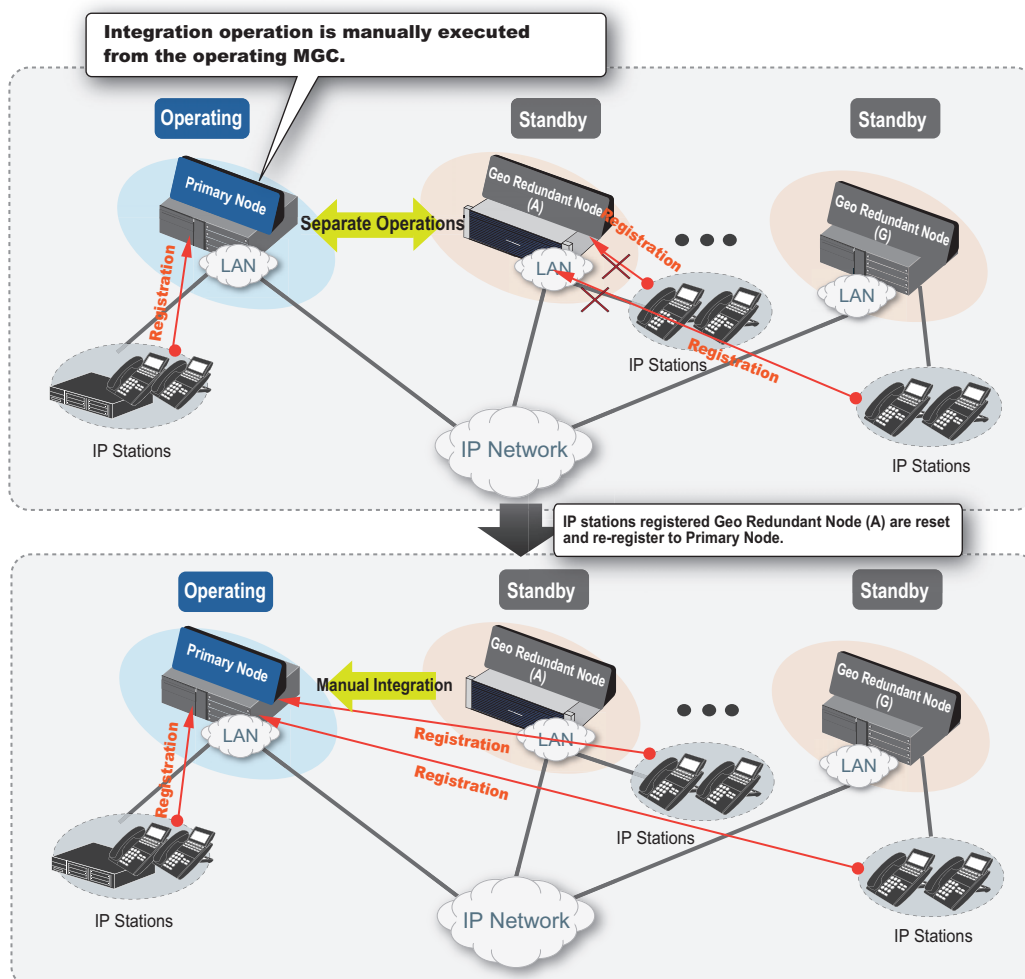
- (1) Based on the Substitution Order according to the theory of priority order, Geo Redundant Node (A) changes to standby mode (Automated Transition to Standby). After that, the maintenance personnel manually perform Integration operation from the Primary Node. Geo Redundant Node (A) resets all the IP stations registered to it. At this time, IP stations registered to the Primary Node are not reset.

Note: It can be set whether ongoing calls are kept or not (ASYDL, SYS1, Index 1354, Bit 3=1).

- (2) The IP stations that have been reset register to the Primary Node.

Note: In the case of Manual Integration operation, you can make the IP stations register to Geo Redundant Node (A). Unlike the Automatic Integration process, since this section process is manual, it allows the maintenance personnel to choose the operations based on the specific situation of the systems.

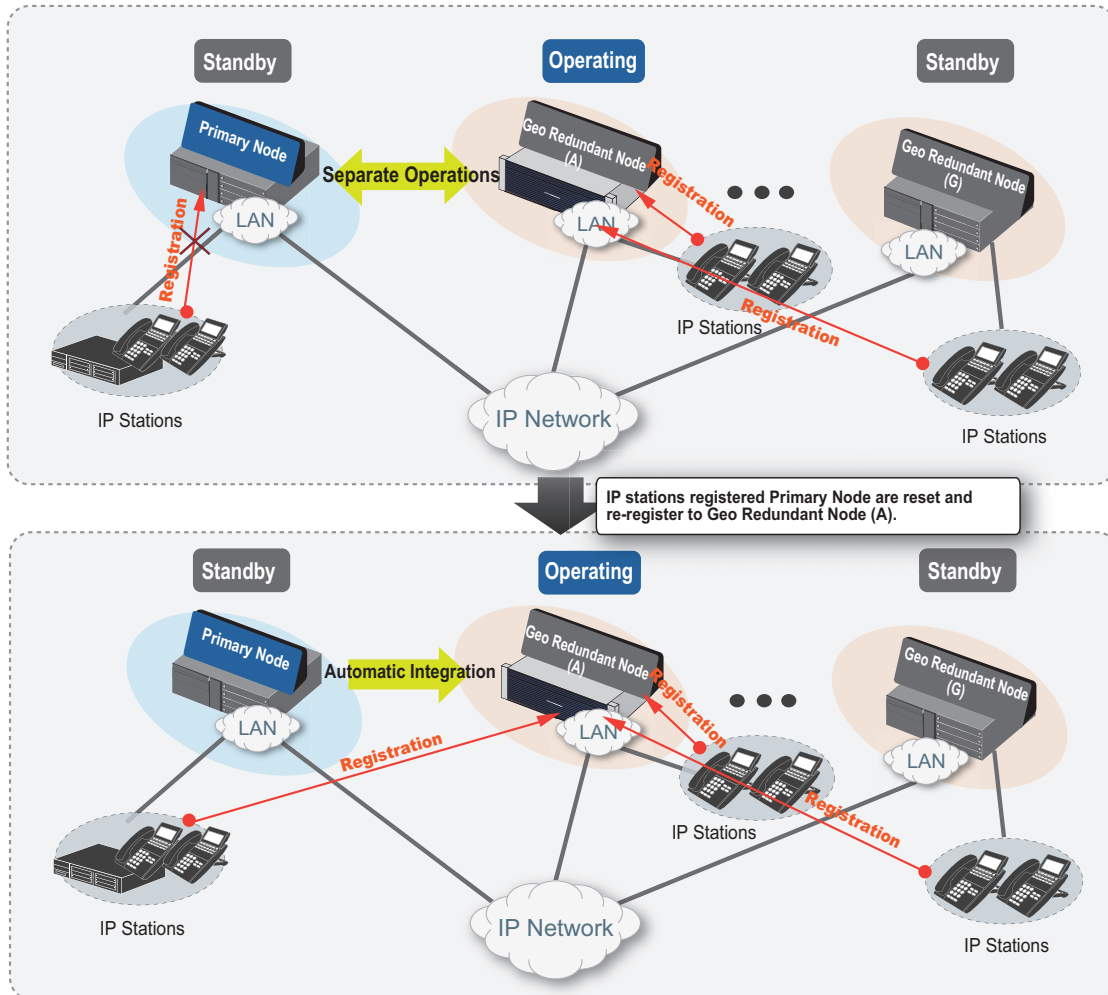
Manual Integration Operation with the Primary Node



5.3.2.5 Automatic Integration Operation with the GR-Node

- (1) Based on the current mode status according to the theory of priority order, Automatic Integration operation is performed. the Primary Node resets all the IP stations registered to it. At this time, IP stations registered to Geo Redundant Node (A) are not reset.
- (2) The IP stations that have been reset register to Geo Redundant Node (A).

Automatic Integration Operation with the Geo Redundant Node



5.3.2.6 Manual Integration Operation with the GR-Node

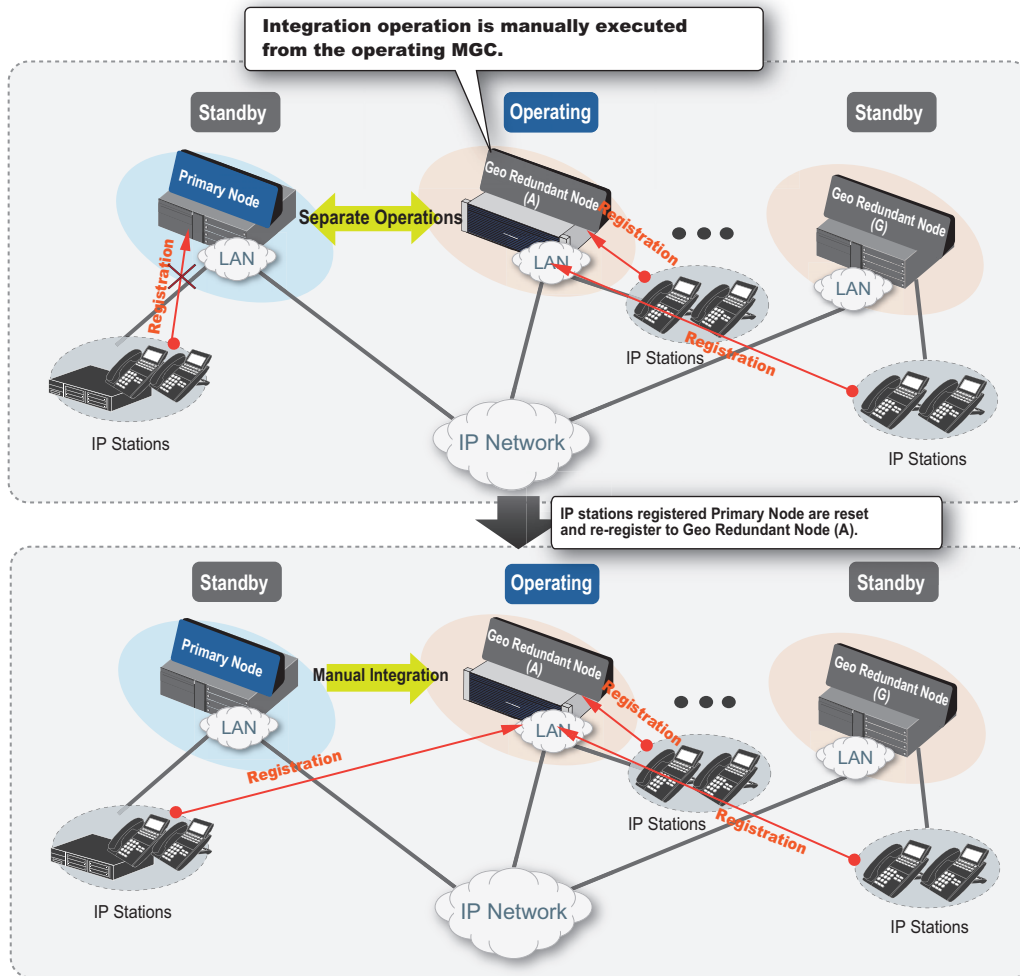
- (1) Based on the current mode status according to the theory of priority order, the Primary Node changes to standby mode (Automated Transition to Standby). After that, the maintenance personnel manually perform Integration operation of IP devices/stations, which are registered with Geo Redundant Node (A), from the Primary Node. The Primary Node resets all the IP devices/stations registered to it. At this time, IP devices/stations registered with Geo Redundant Node (A) are not reset.

Note: It can be set whether ongoing calls are kept or not (ASYDL, SYS1, Index 1354, Bit 3=1).

- (2) The IP stations that have been reset register to Geo Redundant Node (A).

Note: In the case of Manual Integration operation, you can make the IP stations register to the Primary Node. Unlike the Automatic Integration process, since this section process is manual, it allows the maintenance personnel to choose the operations based on the specific situation of the systems.

Manual Integration Operation with the Geo Redundant Node



5.3.3 Maintenance Operations

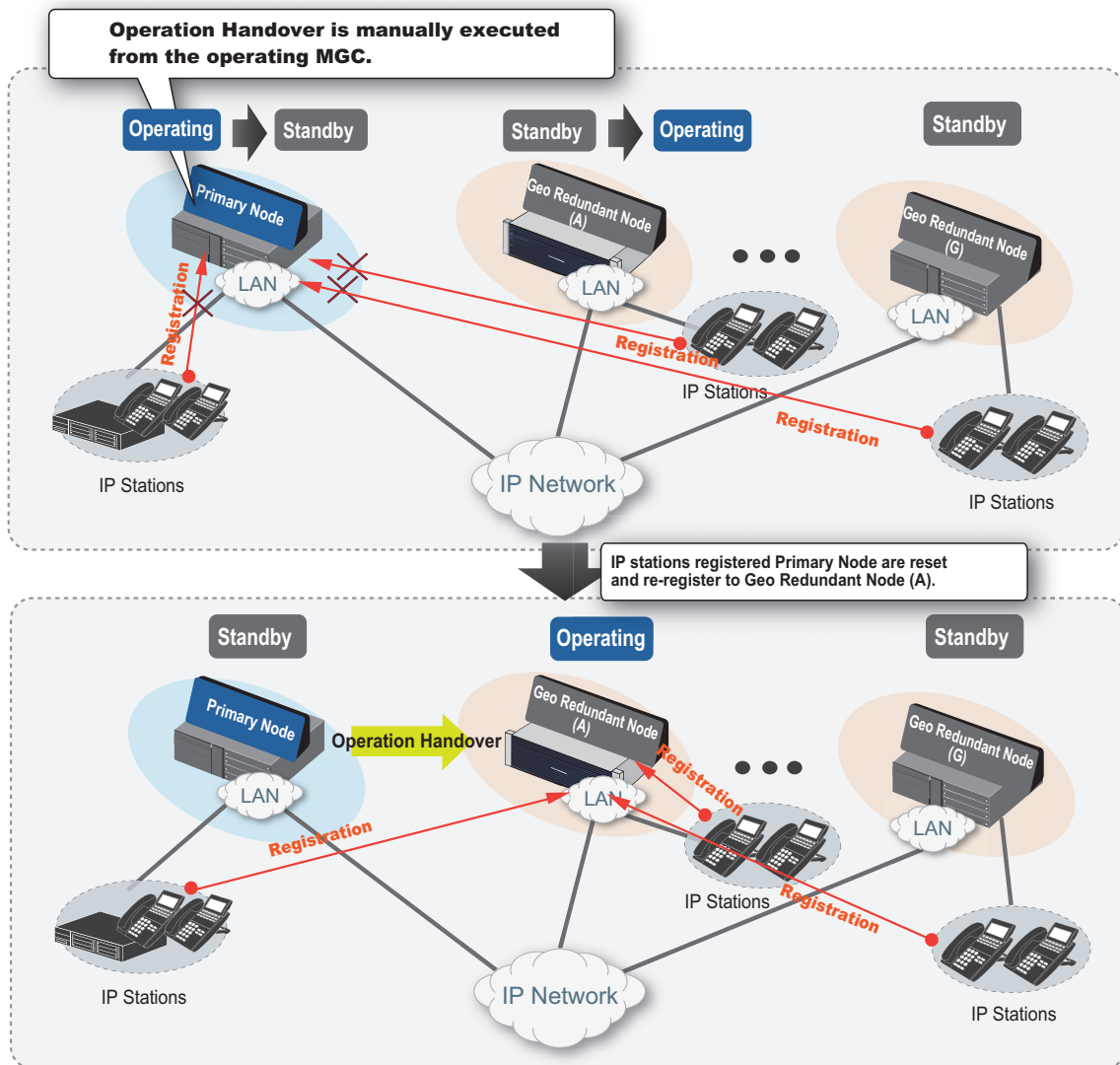
The following operations are for the case when the maintenance personnel needs to suspend the operations of the Primary Node for a period of time.

- (1) The maintenance personnel perform the Operation Handover from the Primary Node. The substitute Geo Redundant Node changes to operating mode first and then the Primary Node changes to standby mode. After that, the IP Station Registration Changeover operation is performed.
- (2) The IP stations that have been reset register to the Geo Redundant Node.

Note: Note the following conditions:

- It can be set whether ongoing calls are kept or not (ASYDL, SYS1, Index 1354, Bit 3=1).
- To change back the Primary Node to operating mode, Switchback operation must be performed from the substitute Geo Redundant Node.

Operation Handover



5.4 DRS Redirect Feature

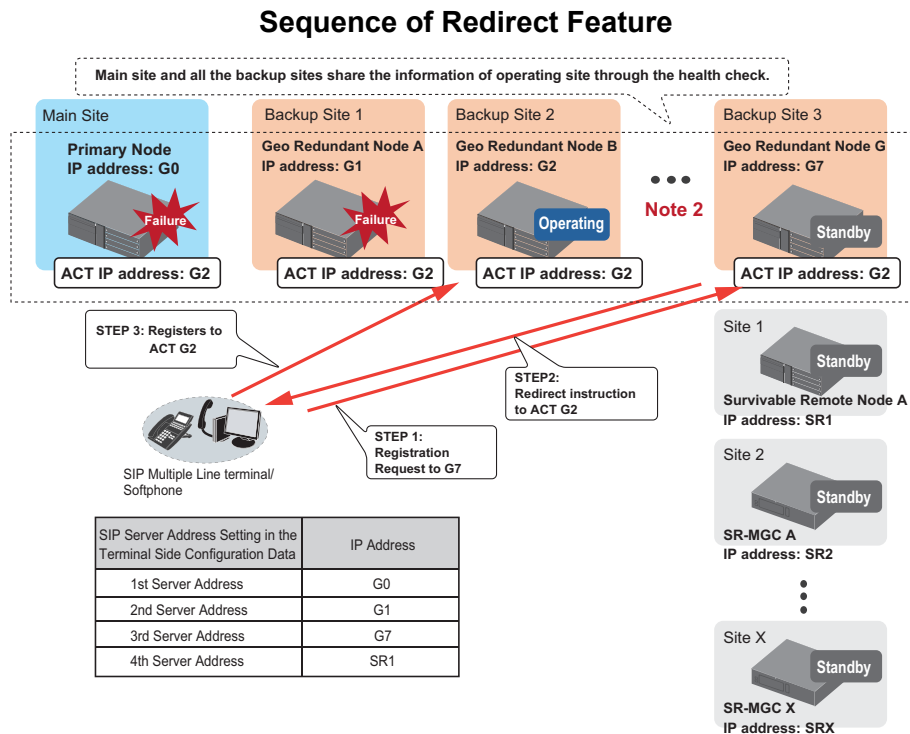
When a terminal requests a registration to Primary Node/Geo Redundant Node in Geographic Redundancy, if the Primary Node/Geo Redundant Node is in standby mode, the node can instruct the device/terminal to redirect for changing the registration destination to another node in operating mode (Primary Node/Geo Redundant Node). DRS Redirect feature allows the operating-mode node (Geo Redundant Node) (**Note 1**) to become a registration destination of a device/terminal even if the node is set as a registration destination through the configuration settings in the device/terminal side.

The number of registration destinations available per device/terminal and the availability of DRS Redirect feature differ depending on the type of device/terminal. For information on the availability of devices used in Geographic Redundancy feature, see [Availability of Terminals Used in Geographic Redundancy](#), [Availability of Equipment Used in Geographic Redundancy](#) and [Availability of UG50 Device Types Used in Geographic Redundancy](#).

Note 1: Be sure to set Primary Node as a registration destination of the device/terminal. There is a limit for the number of registration destinations available per device/terminal; therefore, some of Geo Redundant Nodes may not be able to set as a destination registration of the device/terminal.

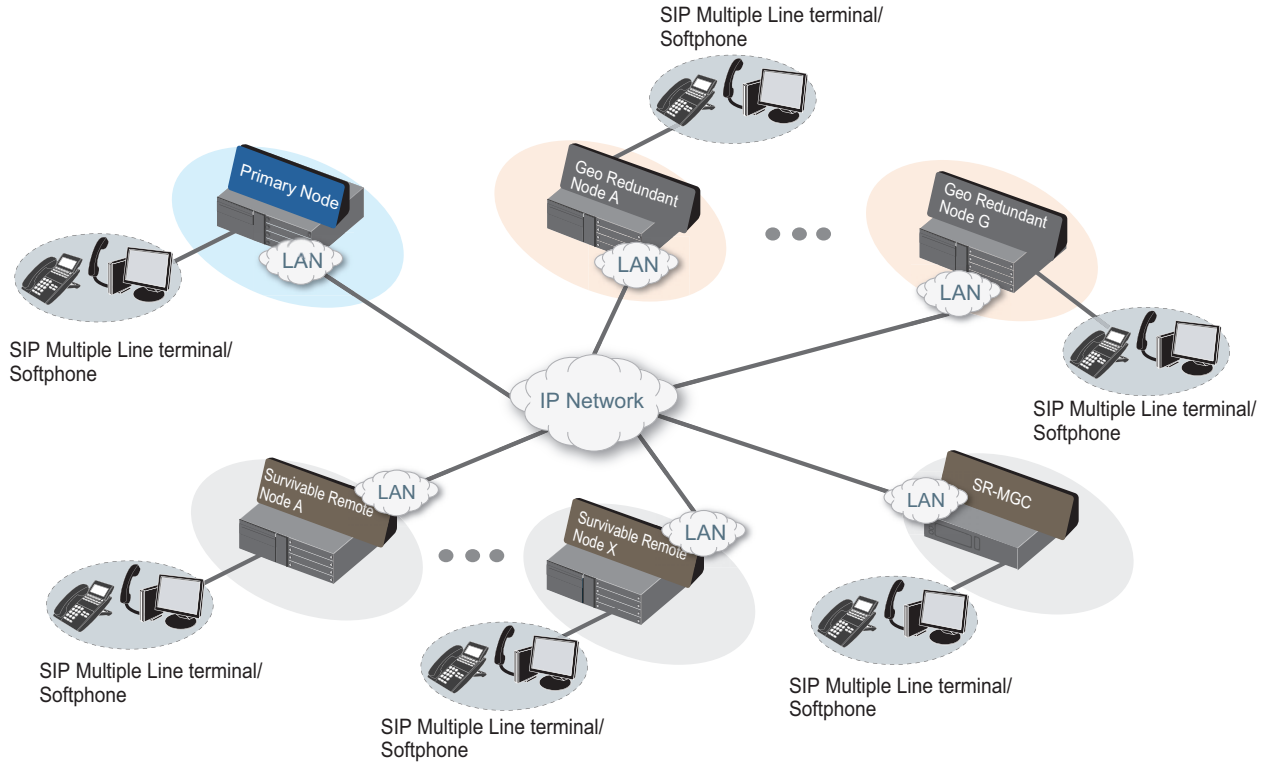
[SIP Multiple Line terminal (DT800 Series/DT700 Series) / Softphone (SP350/SP30 (SIP))]

SIP Multiple Line terminals can use Redirect feature to change their registration destinations.



Note 2: In the figure above, although IP addresses of Backup Sites 2 to 6 (“G2” to “G6”) are not set to the configuration data in each terminal as a registration destination, the information of operating-mode node’s IP address is shared by all nodes. Each terminal performs registration to the operating-mode node “G2.”

SIP Server to Be Set to Each Terminal



Note: Assign the IP address of SIP servers 1 to 4 to each terminal/device under each node according to the priority order of Geo Redundant Node. The following table shows an example of IP addresses to be assigned when the priority order of Geo Redundant Node is A -> B -> C-> D-> E-> F-> G.

SIP Server to Be Set to Terminal	Location of SIP Multiple Line Terminal/Softphone							
	Under Primary Node	Under Geo Redundant Node						Under Survivable Remote Node/SR-MGC or Remote Site
		A	B	C	D	E	F	
SIP Server 1	IP address of Primary Node							
SIP Server 2	IP address of Geo Redundant Node A	IP address of Geo Redundant Node accommodating SIP Multiple Line terminals/Softphones						IP address of Geo Redundant Node A
SIP Server 3	IP address of an arbitrary Geo Redundant Node							
SIP Server 4	IP address of an arbitrary Geo Redundant Node or Survivable Remote Node/SR-MGC which takes over the control of SIP Multiple Line terminals/Softphones							

[Peripheral Equipment (Media Gateways in SIP mode)]

Media Gateways (MGs) in SIP mode do not support Redirect feature. Each MG can specify a maximum of 20 registration destinations. For the registration destinations, set Primary Node to the primary server and Backup Node can individually be set by each MG.

[Terminals and Peripheral Equipment in Proprietary Protocol mode]

Terminals and peripheral equipment in Proprietary protocol mode do not support Redirect feature. Each terminal and peripheral equipment can specify a maximum of 4 registration destinations. For the registration destinations, Primary Node and Backup Node can individually be set by each terminal and peripheral equipment.

[Standard SIP terminal]

It depends on the specifications of terminal. This feature is available for Standard SIP terminal which fulfills the following:

- A terminal which can specify two or more registrations.
- A terminal which supports DRS redirect feature.
- Connection test has performed by NEC.

Availability of Terminals Used in Geographic Redundancy

X: Available, N: Not Available, -: Not Supported

Generic Terms				Terminal Names		GR Node/ SR Node's Taking Over	Maximum of DRS SIP Serv- ers/IP Addresses	Redirect Feature
Desktop terminal	IP station	IP terminal		IP Enabled Dterm	Dterm Series <i>i</i> with IP adapter	X	4	N
				DtermIP INASET		X	4	N
				DtermIP	DtermIP (Proprietary Pro- tocol)	X	4	N
		Soft- phone	Softphone (Proprietary Protocol)	Dterm- SP30	DtermSP30 (Proprietary Pro- tocol)	X	4	N
					DtermSP30 (SIP)	X	4	X
		Soft Client SP350		X	4	X		
		SIP Multiple Line ter- minal		DtermIP	DtermIP (SIP)	X	4	X
				DT700 Se- ries	DT710	X	4	X
					DT730	X	4	X
					DT730G	X	4	X
					DT750	X	4	X
				DT770G	X	4	X	
		DT800 Se- ries	DT830	X	4	X		
			DT830G	X	4	X		
		Standard SIP terminal		SP Con- trolled SIP terminal	SP Controlled SIP Voice termi- nal	N	1	N
					SP Controlled SIP Video termi- nal	N	1	N
				SIP Han- dler Con- trolled SIP terminal	SIP Handler Controlled SIP Voice terminal	Depends on specifications of terminal		
					SIP Handler Controlled SIP Video terminal			
Wireless terminal		WLAN Handset (MH Series)	MH250			N	4	N

Availability of Equipment Used in Geographic Redundancy

Generic Terms Used In This Manual	Equipment Names	Protocol Mode	GR Node/ SR Node's Taking Over	Maximum of DRS SIP Servers/IP Addresses	Redirect Feature
MG(PRI)	MG(PRI) Card [SCA-24PRIA]	Proprietary Protocol	X	4	N
		SIP	X	20	N
	MG(PRI) Box [MG-24PRIA]	Proprietary Protocol	X	4	N
		SIP	X	20	N
	MG(PRI) Card [SCA-30PRIA]	Proprietary Protocol	X	4	N
		SIP	X	20	N
	MG(PRI) Box [MG-30PRIA]	Proprietary Protocol	X	4	N
		SIP	X	20	N
MG-T1(SIP)	MG-T1(SIP) Card [SCA-24DTIA]	SIP	X	20	N
	MG-T1(SIP) [SCA-24DTIA-B]	SIP	X	20	N
MG(BRI)	MG(BRI) Card [SCA-2BRIA]	SIP	X	20	N
	MG(BRI) Box [MG-2BRIA]	SIP	X	20	N
	MG(BRI) [SCA-2BRIA-B]	SIP	X	20	N
MG(SIP)	Software-based MG-SIP	Proprietary Protocol	X	4	N
	MG-SIP16		X	4	N
	MG-SIP16 Card [SCA-16SIPMGA]		X	4	N
	MG-SIP16 Box [MG-16SIPMGA]		X	4	N
	MG-SIP16 Card [SCA-16SIPMG(US)]		X	4	N
	MG-SIP16 [SCA-16SIPMG(US)-B]		X	4	N
	MG-SIP96		X	4	N
	MG-SIP128 [MG-128SIPMGL-A]		X	4	N
	MG-SIP128 [MG-128SIPMGG]		X	4	N
	MG-SIP128 [MG-128SIPMGG-B]		X	4	N
	MG-SIP128 [MG-128SIPMGJ]		X	4	N
	MG-SIP128 [MG-128SIPMGJ-B]		X	4	N
MC&MG-COT	MCMG Card [SCA-4LC2COTA]	Proprietary Protocol	X	4	N
	MCMG Box [MG-4LC2COTA]	Proprietary Protocol	X	4	N

Generic Terms Used In This Manual	Equipment Names	Protocol Mode	GR Node/ SR Node's Taking Over	Maximum of DRS SIP Servers/IP Addresses	Redirect Feature
MG-COT	MG-COT Card [SCA-6COTA]	Proprietary Protocol	X	4	N
		SIP	X	20	N
	MG-COT Card [SCA-6COTB]	Proprietary Protocol	X	4	N
		SIP	X	20	N
	MG-COT Card [SCA-6COTC]	Proprietary Protocol	X	4	N
		SIP	X	20	N
Analog MC	Analog 2MC	Proprietary Protocol	X	4	N
	8LC Card [SCA-8LCA]	SIP	X	4	N
	8LC Card [SCA-8LCA-EMEA]	SIP	X	4	N
	8LC Card [SCA-8LCC]	SIP	X	4	N
	8LC Card [SCA-8LCC-EMEA]	SIP	X	4	N
SR-MGC	SR-MGC(E)	-	-	-	N
VS32	Software-based VS32	Proprietary Protocol	X	4	N
	VS-32(Dual) Card [SCA-VS32VA]	Proprietary Protocol	X	4	N
		SIP	X	20	N
	VS-32(Dual) Box [MG-VS32VA]	Proprietary Protocol	X	4	N
		SIP	X	20	N
	VS-32(Dual) [SCA-VS32VA-B]	Proprietary Protocol	X	4	N
		SIP	X	20	N
IPG Digital		-	X (Ver. I6.00 or later)	1 (Ver. lower than I6.00) 4 (Ver. I6.00 or later)	N
IPG Analog		-	X (Ver. I6.00 or later)	1 (Ver. lower than I6.00) 4 (Ver. I6.00 or later)	N

Availability of UG50 Device Types Used in Geographic Redundancy

Operation Mode	Device Type	Protocol Type	GR Node/SR Node's Taking Over	Maximum of DRS SIP Servers/IP Addresses	Redirect Feature
Multi-slot mode	UG50 (DLC)	Proprietary Protocol	X	4	N
	UG50 (LC) [Proprietary Protocol/SIP]	Proprietary Protocol	X	4	N
		SIP	X	20	N
	UG50 (PRT 1.5M) [Proprietary Protocol/SIP]	Proprietary Protocol	X	4	N
		SIP	X	20	N
	UG50 (PRT 2M) [Proprietary Protocol/SIP]	Proprietary Protocol	X	4	N
		SIP	X	20	N
	UG50 (COT-TYPE1)	Proprietary Protocol	X	4	N
	UG50 (COT-TYPE2) [Proprietary Protocol/SIP]	Proprietary Protocol	X	4	N
		SIP	X	20	N
	UG50 (PGT-TYPE1)	Proprietary Protocol	X	4	N
	UG50 (PGT-TYPE2) [Proprietary Protocol/SIP]	Proprietary Protocol	X	4	N
		SIP	X	20	N
IPG mode	UG50-IPG (Digital)	Proprietary Protocol	X	4	N
	UG50-IPG (Analog)	Proprietary Protocol	X	4	N

Operation Mode	Device Type	Protocol Type	GR Node/SR Node's Taking Over	Maximum of DRS SIP Servers/IP Addresses	Redirect Feature
Retrofit mode	UG50-8LC	SIP	X	20	N
	UG50-2MC	Proprietary Protocol	X	4	N
	UG50-24PRIA [Proprietary Protocol/SIP]	Proprietary Protocol	X	4	N
		SIP	X	20	N
	UG50-30PRIA [Proprietary Protocol/SIP]	Proprietary Protocol	X	4	N
		SIP	X	20	N
	UG50-4LC2COTA (COT)	Proprietary Protocol	X	4	N
	UG50-4LC2COTA (PGT)	Proprietary Protocol	X	4	N
	UG50-6COT [Proprietary Protocol/SIP]	Proprietary Protocol	X	4	N
		SIP	X	20	N

5.5 Setting and Synchronizing System Clock Information

5.5.1 Setting System Clock Information

The system clock information is individually set by each MGC (Primary Node/Geo Redundant Node/Survivable Remote Node). At this time, set the same time zone/summer time information for all the MGCs (Primary Node/Geo Redundant Node/Survivable Remote Node/SR-MGC). Since the time zone/summer time is not copied by the office data copying, the same value needs to be individually set by each MGC.

5.5.2 Synchronizing System Clock Information

- As for Appliance Model, the clock information (except time zone and summer time) can be synchronized through the Health Check.
As for Prepackaged Server Model, the clock information is subordinate to the Hypervisor.

Availability of System Clock Synchronization by Health Check

(Primary Node/Geo Redundant Node/Survivable Remote Node)

Order	Appliance Model	Prepackaged Server Model
NTP is not used (without ANTPL)	Synchronized	Not synchronized
NTP is used (with ANTPL)	Not synchronized	Not synchronized

Note: As for SR-MGC, only clock synchronization by Health Check is available.

- Source of Time Synchronization by Health Check
The clock information is synchronized from the Primary Node. When a failure occurs in the Primary Node, the clock information is not synchronized.
- Conditions of System Clock Synchronization by Health Check
When the time difference between the system clock of the self MGC and the time information on the received health check exceeds one minute to five minutes, the system clock is synchronized based on the information on the health check.

For Geo Redundant Node/Survivable Remote Node

When the time difference between the system clock of the self MGC and the time information on the received health check exceeds one minute, the system clock is synchronized based on the information on the health check.

For SR-MGC

When the time difference between the system clock of the self MGC and the time information on the received health check exceeds five minutes, the system clock is synchronized based on the information on the health check.

5.6 Synchronizing Inter-Node Information

By synchronizing the part of information in Primary Node and Geo Redundant Nodes, a node that changes to operating mode after Transition to Operating is performed, can take over the information in another node which was originally in operating mode. The following shows the information to be synchronized:

- SIP terminal authentication information
- Day/Night mode information

Note 1: Synchronizing Inter-Node Information is available since FP95-114 V4.

The table below shows differences in behaviors when Inter-Node Information Synchronization is in service or not:

Behavior Differences

Information to be synchronized	Inter-Node Information Synchronization	
	Out of Service	In Service
SIP terminal authentication information	When the operating-mode node is switched in a system where SIP terminals registration to an originally operating-mode node is completed (the SIP terminals have been authenticated), <u>the SIP terminals may fail re-registration to the newly switched operating-mode node.</u> ->SIP terminal information is automatically copied to a standby-mode node during a routine diagnosis. SIP terminal authentication information which is generated after the routine diagnosis is copied to standby-mode node during the next routine diagnosis.	When the operating-mode node is switched in a system where SIP terminals registration to an originally operating-mode node is completed (the SIP terminals have been authenticated), <u>the SIP terminals can perform re-registration to the newly switched operating-mode node.</u>
Day/Night mode information	When the operating-mode node is switched, Day/Night mode services <u>may behave differently from the behavior before the operating-mode node is switched (due to Day/Night mode information mismatch).</u> ->Day/Night mode requires to be changed manually.	When the operating-mode node is switched, Day/Night mode services <u>behave as well as the behavior before the operating-mode node is switched.</u>

Inter-Node Information Synchronization is activated in the following timing.

Synchronization Timing

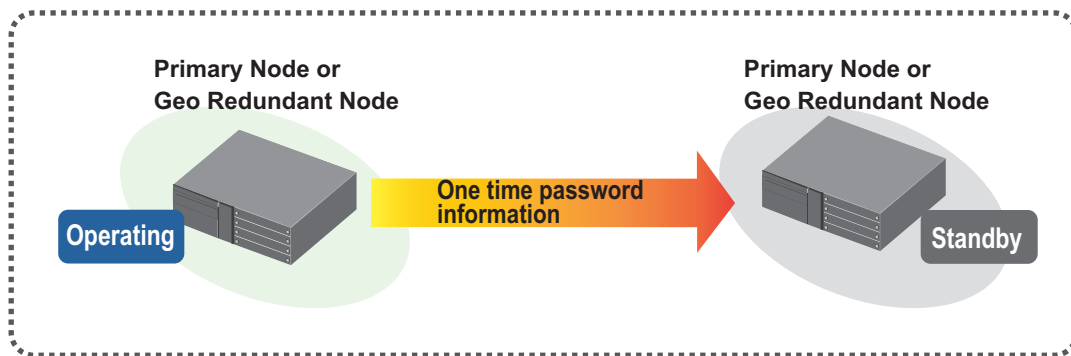
Information to be synchronized	Synchronization Timing	Remarks
SIP terminal authentication information	- Terminal authentication (When a terminal registration is performed) - ASECL data setting (one time password)	One time password is included in the information to be synchronized.
Day/Night mode information	- Day/Night Mode Change by Attendant Console (Only Primary Node) - Day/Night Mode Change by Desktop Terminal - Day/Night Mode Change with the ADN command - Periodic Refreshment (in 30-second cycles)	Supports change between Day mode and Night mode 3 only. Night mode attendant console (Night mode 1) and External key (Night mode 2) are not supported.

5.6.1 Synchronizing SIP Terminal Authentication Information

The following are behaviors for synchronizing SIP Terminal authentication information.

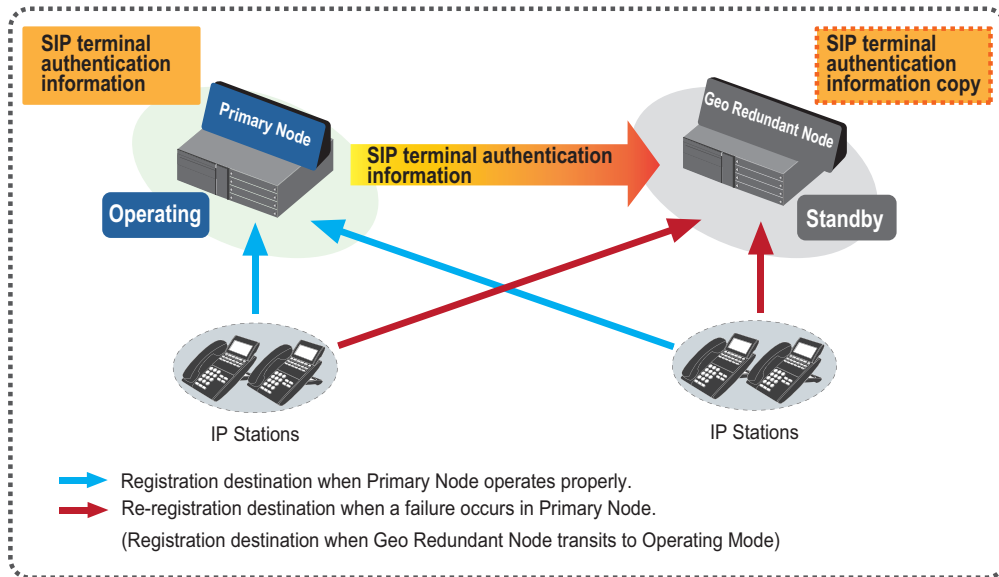
[1] One time password data setting with the ASECL command

When the one time password data is set with the ASECL command, the data is copied to the other nodes.



[2] SIP terminal registration

SIP terminal authentication information is generated when a SIP terminal performs registration to an operating-mode node (the one time password is entered). This authentication information is copied to standby-mode nodes. Even when a failure occurs in the operating-mode node, one of the standby-mode nodes becomes the operating-mode node and the authenticated SIP terminal can perform re-registration to the new operating-mode node according to the copied authentication information.

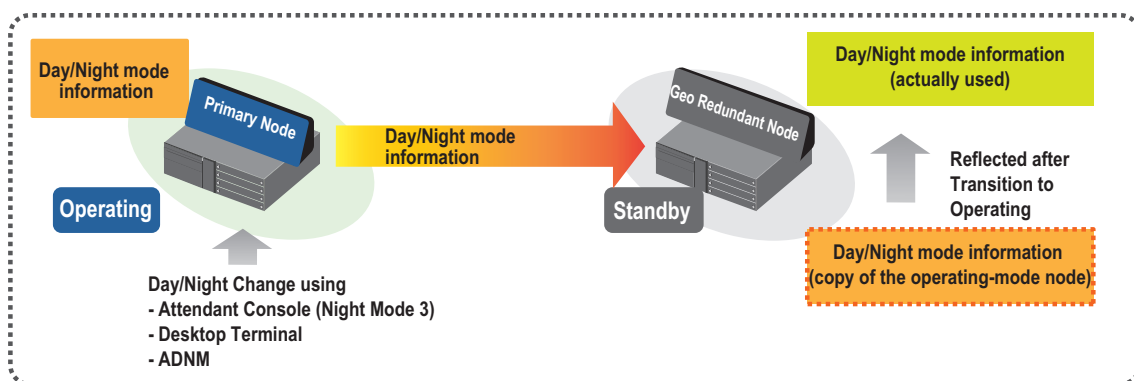


5.6.2 Synchronizing Day/Night Mode Information

The following are behaviors of synchronizing Day/Night Mode information.

[1] Day/Night mode change in the operating-mode node (When a standby-mode node accommodates no attendant consoles (ASYD, SYS1, Index 9 = 0))

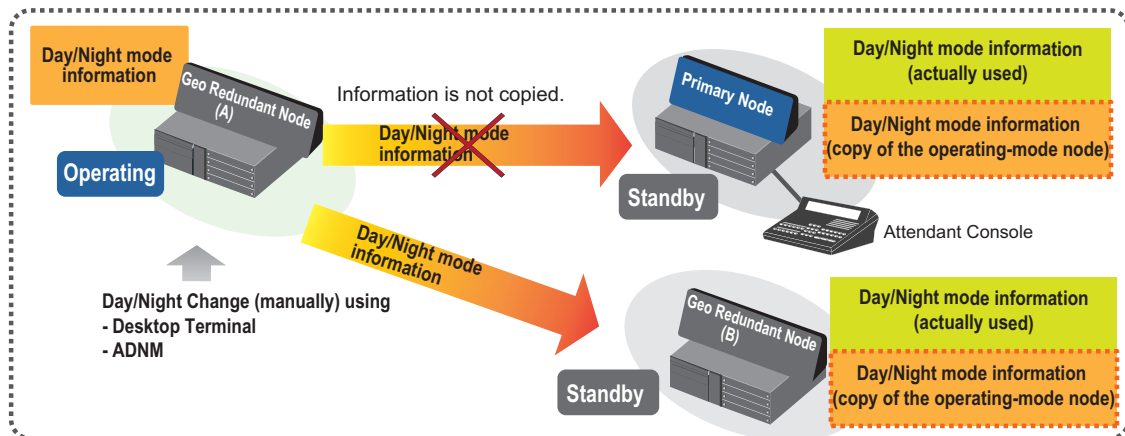
When Day/Night mode change is executed (in the case of Night mode 3), Day/Night mode information in the operating-mode node is copied to standby-mode nodes. The copied data is saved in the standby-mode nodes temporarily without being reflected. Then the data is reflected on a new operating-mode node when Transition to Operating occurs. Before that, the node is in standby mode and the information is not reflected on the node.



[2] Day/Night mode change in the operating-mode node (When a standby-mode node accommodates an attendant console (ASYD, SYS1, Index 9 = values other than 0))

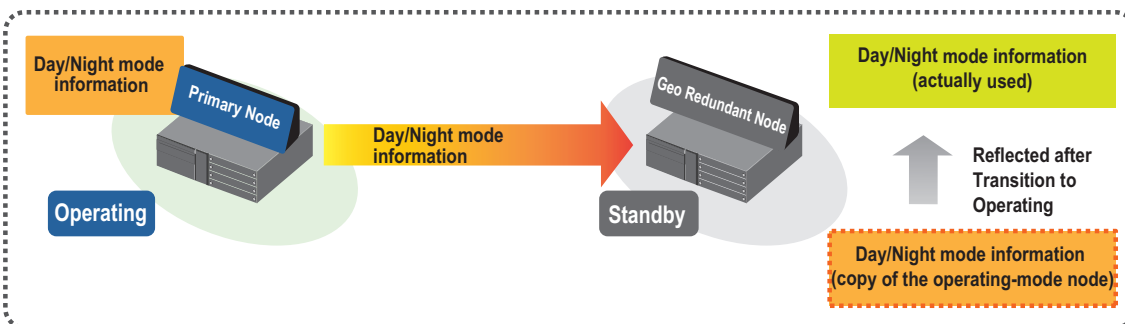
When a Geo Redundant Node is in operating mode and Primary Node accommodating an attendant console (Night mode 3) is in standby mode, the Day/Night information in the Geo Redundant Node is not reflected on the Primary Node (**Note 1**). For the other Geo Redundant Nodes in standby mode which do not accommodate any attendant consoles, the Day/Night information is reflected.

Note 1: The Day/Night mode information in the Geo Redundant Node is not reflected on the Primary Node because the attendant console may not operate properly if there is a mismatch in the Day/Night mode state between the attendant console and the Primary Node.



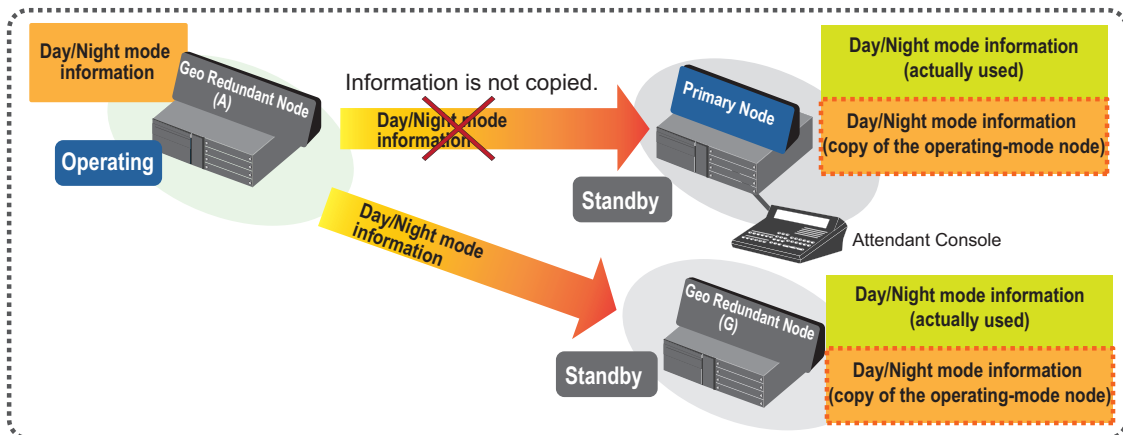
[3] Periodic Refreshment (When a standby-mode node accommodates no attendant console (ASYD, SYS1, Index 9 = 0))

Day/Night mode information in the operating-mode node is copied to standby-mode nodes in 30-second cycles. The copied data is saved in the standby-mode nodes without being reflected. The data is reflected on a new operating-mode node when Transition to Operating occurs.



[4] Periodic Refreshment (When a standby-mode node accommodates an attendant console (ASYD, SYS1, Index 9 = values other than 0))

When a Geo Redundant Node is in operating mode and Primary Node accommodating an attendant console (Night mode 3) is in standby mode, the Day/Night information in the Geo Redundant Node is not reflected on the Primary Node. This is because the attendant console may not operate properly if there is a mismatch in the Day/Night mode state between the attendant console and the Primary Node. For the other Geo Redundant Nodes in standby mode which do not accommodate any attendant consoles, the Day/Night information is reflected.

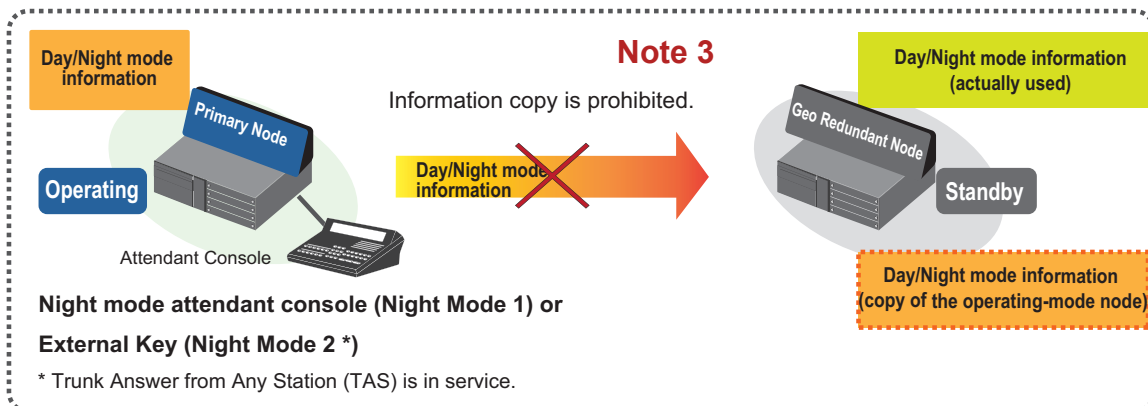


[5] In the environment where Inter-Node Information Synchronization is not available

In the following cases, be sure to disable the data for Synchronization of Day/Night mode information (ASYDL, SYS1, Index 1357, Bit 1=1) because Day/Night mode change becomes unavailable in Geo Redundant Node (**Note 2**).

- When Trunk Answer from Any Station (TAS) is in service (ASYD, SYS2, Index 11, Bit 6=1 is set).
- Night mode attendant console (Night Mode 1) is used in Primary Node.

Note 2: Synchronization of Day/Night mode information is not available because Day/Night mode change becomes unavailable in Geo Redundant Node



Note 3: Information copy is prohibited also when an operating-mode node is a Geo Redundant Node.

6. Outline of Operations When Using Other Services

6.1 FCCS Redundancy

This feature supports FCCS services. In an FCCS network, the Primary Node and the maximum of seven Geo Redundant Nodes are formed as a single node. The figure below shows an example of an FCCS network including a Geographic Redundancy node. The NDM routing table manages a total of eight MGCs (a Primary Node and seven Geo Redundant Nodes) as destinations of FPC2. In the routing table, the operating MGC (Primary Node) is handled as one of the FCCS nodes. When a failure occurs in the Primary Node (operating MGC) and one of the Geo Redundant Node changes to Operating, the routing table is also updated.

When a failure occurs at the Primary Node in FPC2 and the fusion communication from FCCS nodes in FPC1/FPC3 to FPC2 becomes unavailable, the FCCS nodes in FPC1/FPC3 wait for detecting Health Check NG (Permanent) (**Note 1**) with FPC2 (Primary Node) before trying to regenerate a FCCS link with a Geo Redundant Node in FPC2 that is registered in a routing table. This can take some time (Health Check NG (Permanent) detection time + several tens of seconds (**Note 2**)) for FCCS nodes in FPC1/FPC3 to be able to connect with an operating Geo Redundant Node.

Note 1: When Health Check NG (Permanent) is detected, the system message [36-F] Fusion Health Check Report (Permanent) or [36-T] Fusion Health Check Report (Permanent) is output. The approximate time for Health Check NG (Permanent) to be detected can be calculated as follows:

Health Check Cycle x 11 times + Health Check Timeout Time

Example with default values:

- Health Check Cycle: 30 seconds
- Health Check Timeout Time: 12 seconds

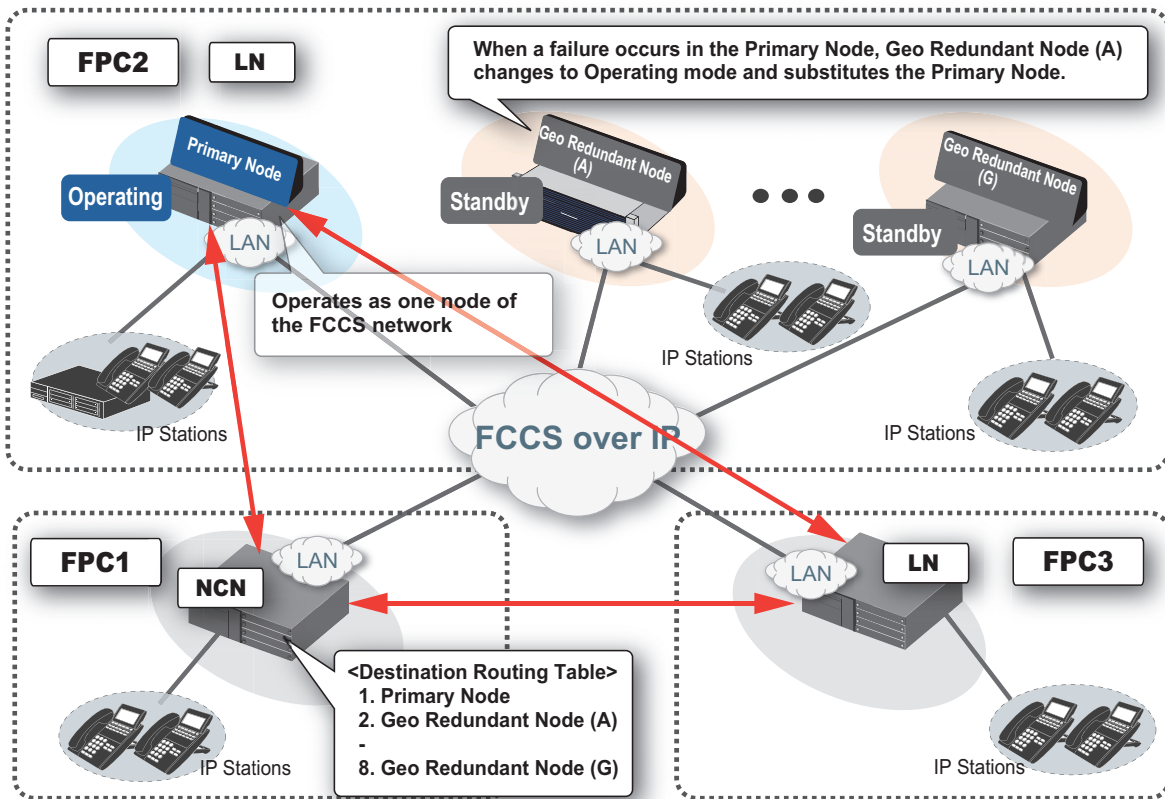
30 seconds x 10 times + 12 = 342 seconds

(There can be up to 30 seconds of discrepancy depending on the timing of a cycle.)

For detailed information about FCCS Health Check, see Data Programming Manual - FCCS.

Note 2: Discrepancy that is caused due to timing of health check.

FCCS Redundancy



6.2 CCIS Networking via IP

This section explains the outline of operations when CCIS Networking via IP (By PHC) [C-163] is used in combination with Geographic Redundancy. To enable CCIS Networking via IP (By PHC) [C-163], the following functions need to be provided. In addition to this section, see [4. Interactions with Network Services](#) for service conditions.

- For CCIS call originating node side:
Retaining the destination IP address
- For CCIS call destination node side (Only for Geographic-Redundancy nodes in standby mode):
Prohibiting standby-mode nodes' response to CCIS messages (Initial Address Message with Additional Information/Initial Address Messages (IAI/IAM)) sent from an originating node.

Note: Note the following conditions:

- CCIS Networking via IP (By PHC) [C-163] can be used in combination with Geographic Redundancy from FP95-114 V4.
- For details of CCIS Networking via IP (By PHC) [C-163], see Data Programming Manual - CCIS.

6.2.1 Retaining Destination IP Address

CCIS Networking via IP (By PHC) [C-163] is enabled in combination with the Geo Redundant Node by using CCIS Alternate Routing - Backup [C-178] and retaining a destination IP address in the originating node of a CCIS network.

Whether destination IP address information is retained or not can be set with the APIPL command by setting the Keep Destination IP Address parameter to ON.

When a call takes alternative route to the node with the same Point Code (PC), the destination IP address information is retained in the originating node side. As a result, every call from the originating node arrives at the node with same destination IP address.

6.2.1.1 Destination IP Address Update Timing

In the CCIS call originating node which allows a destination IP address to be retained, the destination IP address is retained per Point Code and the retained IP address is updated when the following events occur.

Destination IP Address Update Timing

No.	Update Timing	Updated data
1	Executing one of these: System Initialize Office Data Load & System Initialize Program & Office Data Load & System Initialize	All the Point Code information is cleared.
2	Restart on TCP/IP Module Control in Options tab of the ADTM command	
3	Initialization of Internal PHC with the ADPM command (Reset is excluded)	
4	Update of the AGIP command data	
5	Sending of a CCIS message (IAI/IAM) from the originating node	Relevant Point Code information is updated.

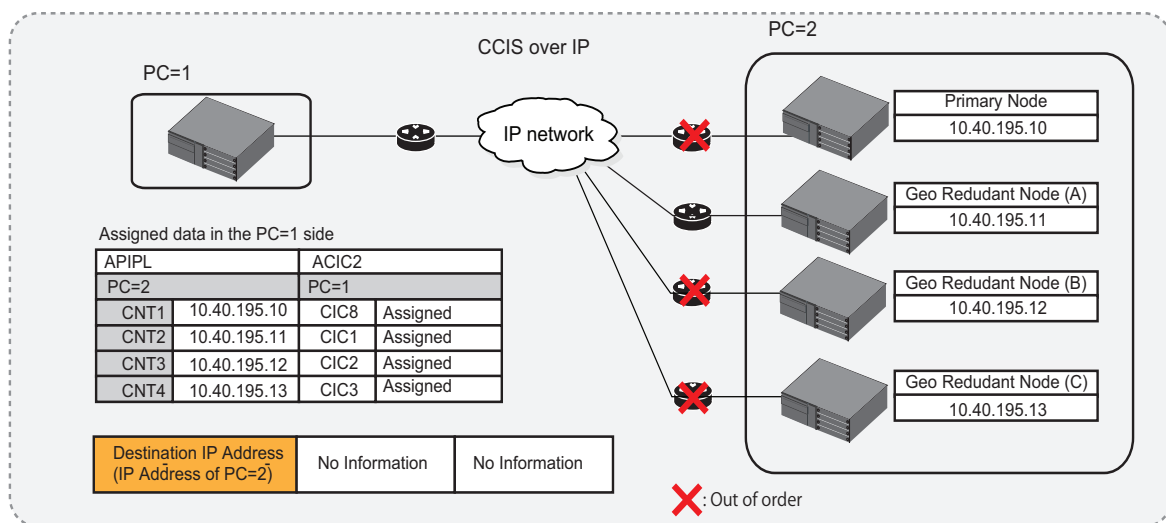
6.2.1.2 Determining Destination IP Address

The table shows example data assignments and the figures show example of calls in CCIS Networking via IP.

Count Number in APIPL (CNT)	Circuit Identification Code (CIC)	IP Address for Destination Point Code in APIPL (IP ADDRESS)
1	8	10.40.195.10
2	1	10.40.195.11
3	2	10.40.195.12
4	3	10.40.195.13
No data	No data	No data
No data	No data	No data
No data	No data	No data
No data	No data	No data

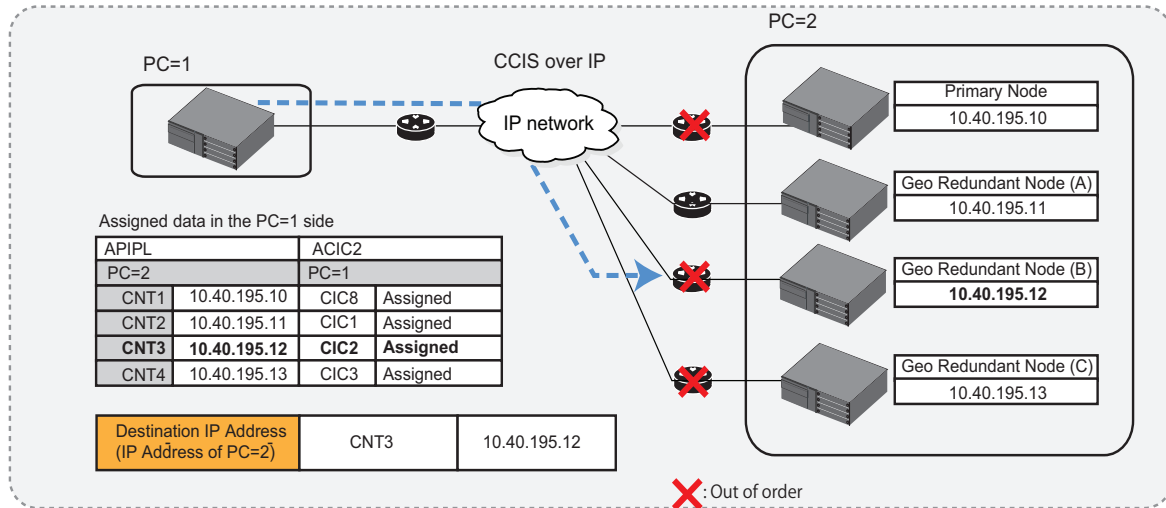
[1] When one of the Destination IP Address Update Timings occurs (before a call origination)

Soon after one of the Destination IP Address Update Timings No. 1 to No.4 occurs, the destination IP address of the node in PC=2 is not retained if no call is originated.



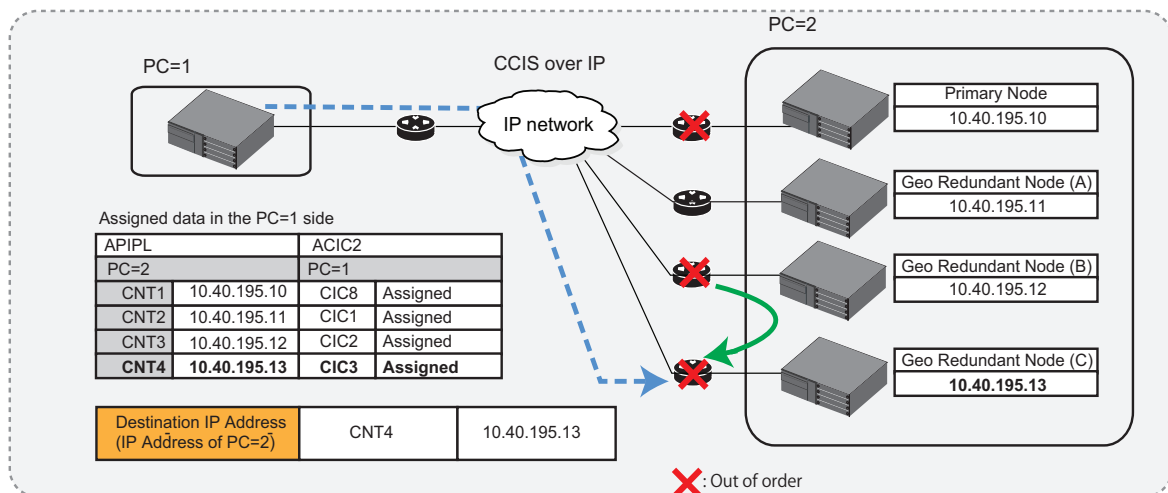
[2] When one of the Destination IP Address Update Timings occurs (after a call origination)

When a call is originated soon after one of the Destination IP Address Update Timings No. 1 to No.4 occurs (hereinafter, this call is mentioned as “the first call”), the call arrives at the destination where the seized B-channel and the destination node IP address are linked (the following figure shows in case of CIC=2). At this time, the originating node sends a CCIS message (IAI/IAM) to the PHC in the node (10.40.195.12), and then the destination IP address in PC=2 is changed to the IP address of CNT=3.



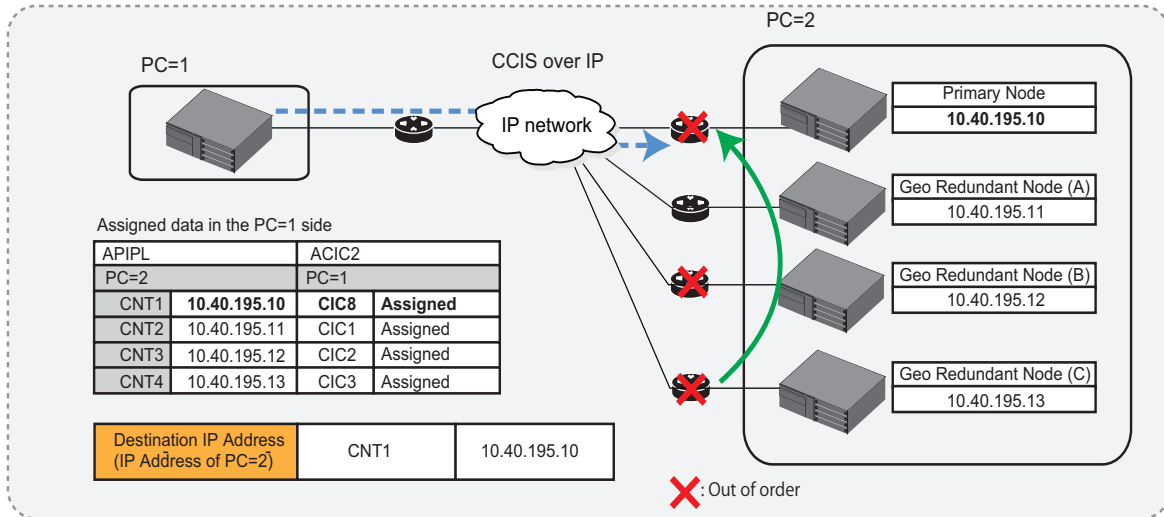
[3] Proper Alternative Routing

Usually, the first call performs alternative routing until the originating node becomes available to communicate with an operating-mode node according to the CNT order assigned with the APIPL command. At this time, the originating node sends a CCIS message (IAI/IAM) to the PHC in the destination node (10.40.195.13), and then the destination IP address in PC=2 is changed to the IP address of CNT=4.



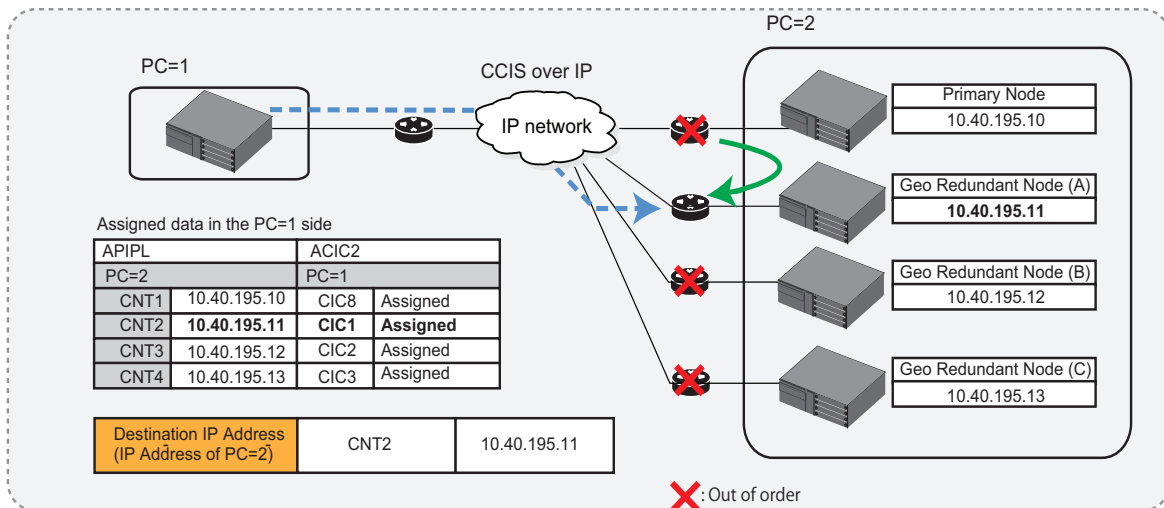
[4] When the route to the IP address of the last CNT number is not available

Usually, the first call performs alternative routing until the originating node becomes available to communicate with an operating-mode node. If the last CNT number is not available, the CNT number returns to the first one. At this time, the originating node sends a CCIS message (IAI/IAM) to the PHC in the destination node (10.40.195.10), and then the destination IP address in PC=2 is changed to the IP address of CNT=1.



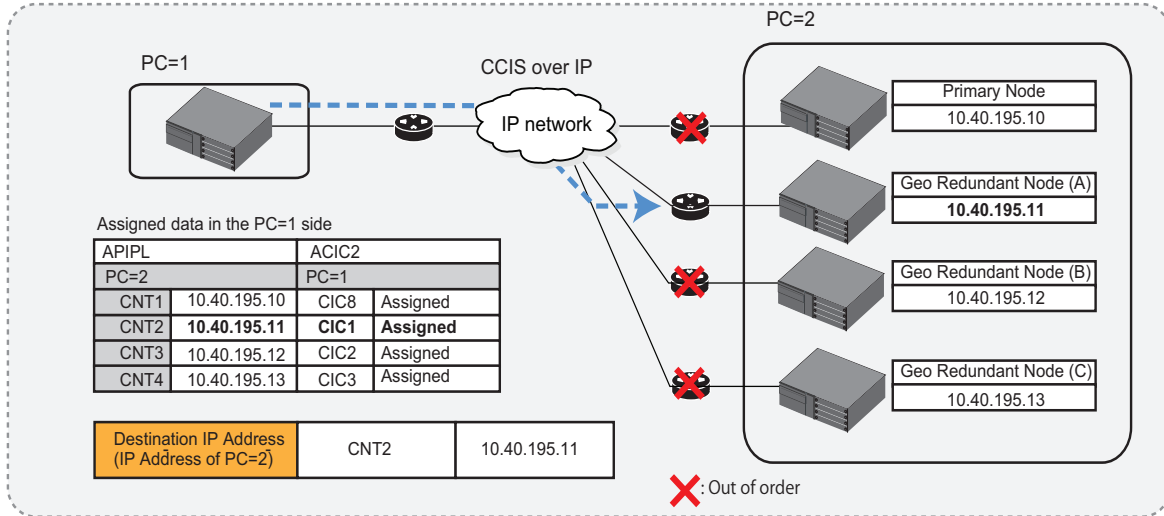
[5] When the call is connected properly after the alternative routing in [4]

When the communication between the originating node and an operating-mode node becomes available, updating the destination IP address for the first call is completed. By this process, the destination IP address is retained and each call will arrive at the retained destination IP address.



[6] When the communication becomes available with one node in PC=2 after [5]

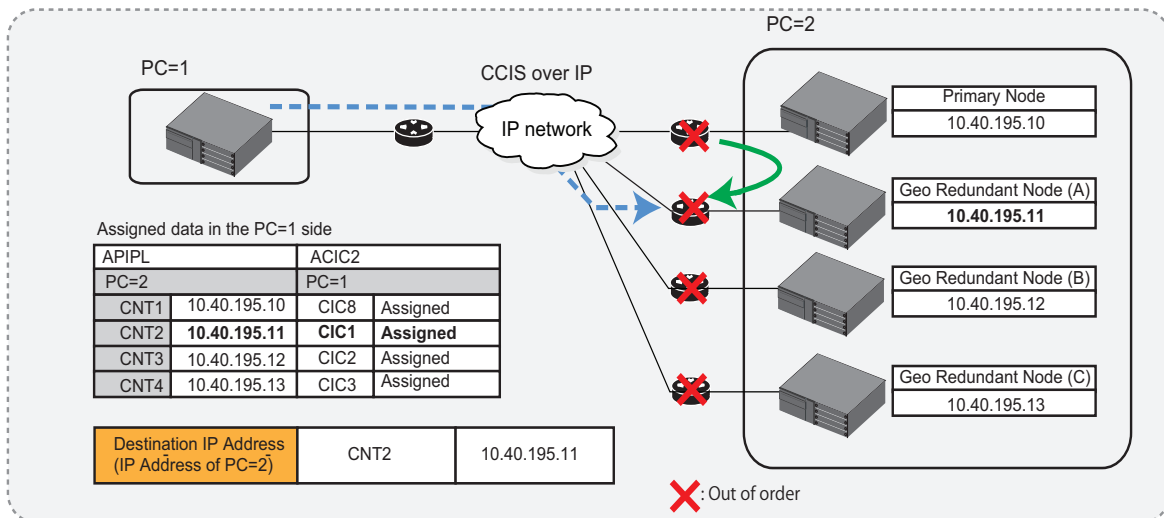
When the communication becomes available with one node in PC=2 (CNT=2 is available in the figure below), the update of the destination IP address is completed. This allows subsequent calls to be terminated to the destination IP address of CNT=2. Alternate routing will not be performed because the destination is not depended to CIC.



[7] When the connection with CNT=2 fails from a subsequent call of [4]

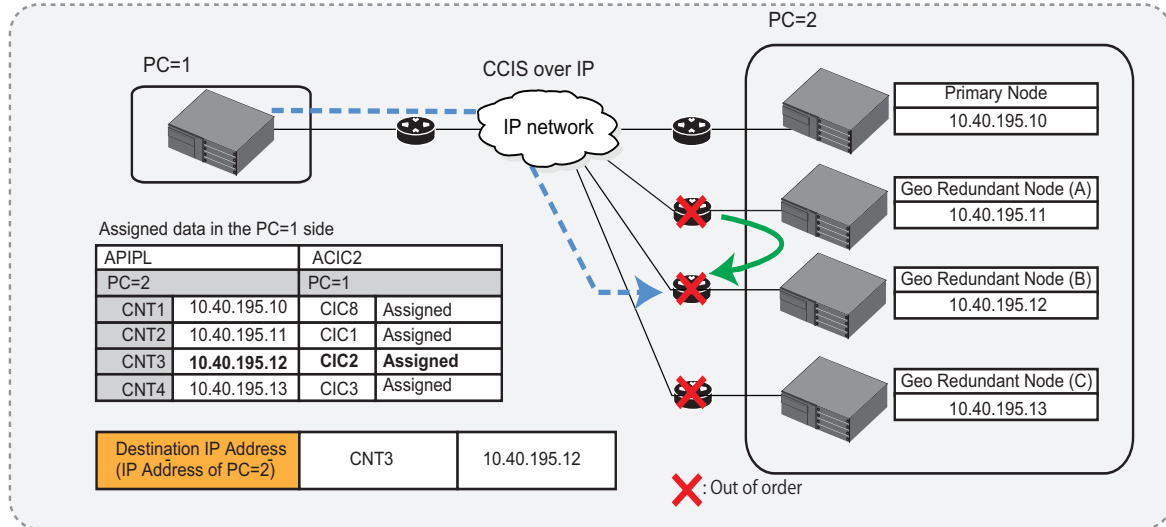
Even if the call has taken alternative routes to all the destinations of CNT number assigned with the APIPL command, the destination IP address in PC=2 is updated to the address of CNT=2 because the CCIS call originating node still sends a CCIS message (IAI/IAM) to the PHC in the destination node (10.40.195.11).

Note: If connections to all the destinations assigned to the CNT numbers are failed, alternative routing to the destination IP address ends. When there is an alternative route to a different trunk, the call takes the alternative route to the different trunk. If there are no alternative routes to different trunks, alternative routing is restricted.



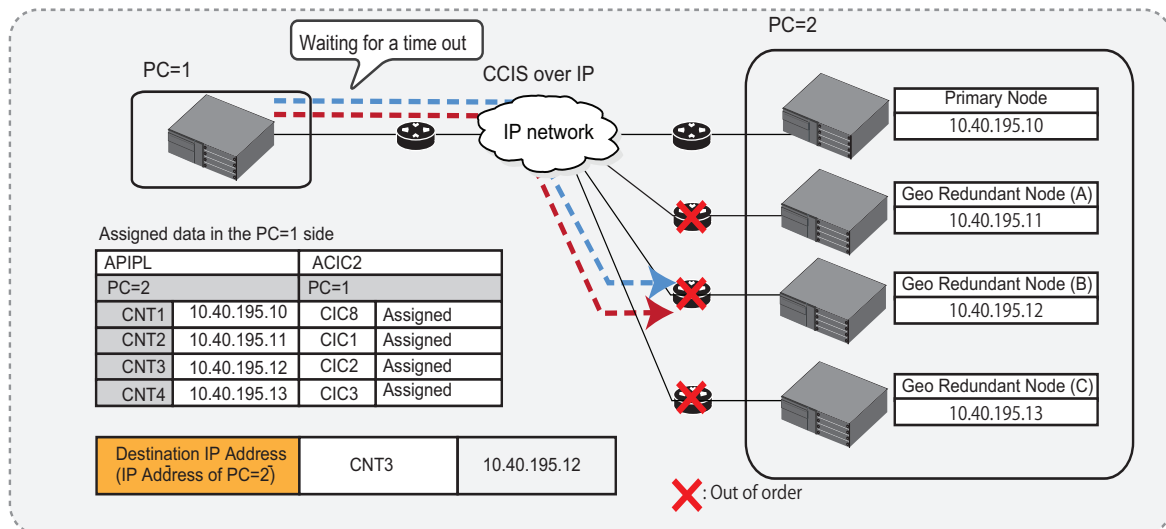
[8] If a failure occurs in the node with the retained destination IP address

If a failure occurs in the node with the retained destination IP address, the destination IP address is updated by performing alternative routing again. The CCIS call originating node sends a CCIS message (IAI/IAM) to the PHC in the destination node (10.40.195.12) which is assigned to the next CNT. The destination IP address in PC=2 is updated to the address of CNT=3.



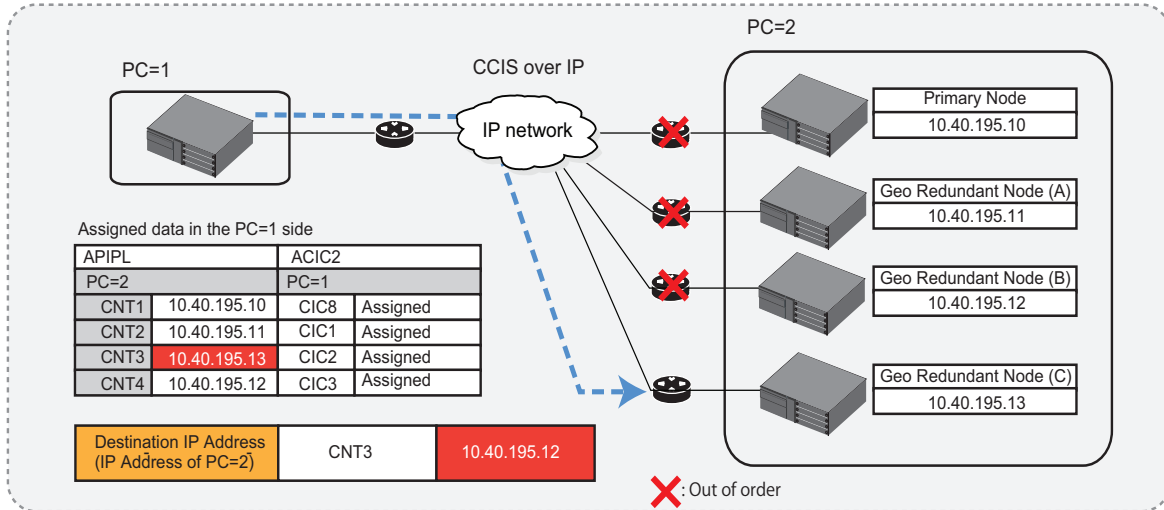
[9] When another new call is originated while performing alternative routing

When another new call is originated while performing alternative routing, the new call is terminated to the node with the same destination IP address of alternative route.



[10] When IP address of CNT data is updated with the APIPL command

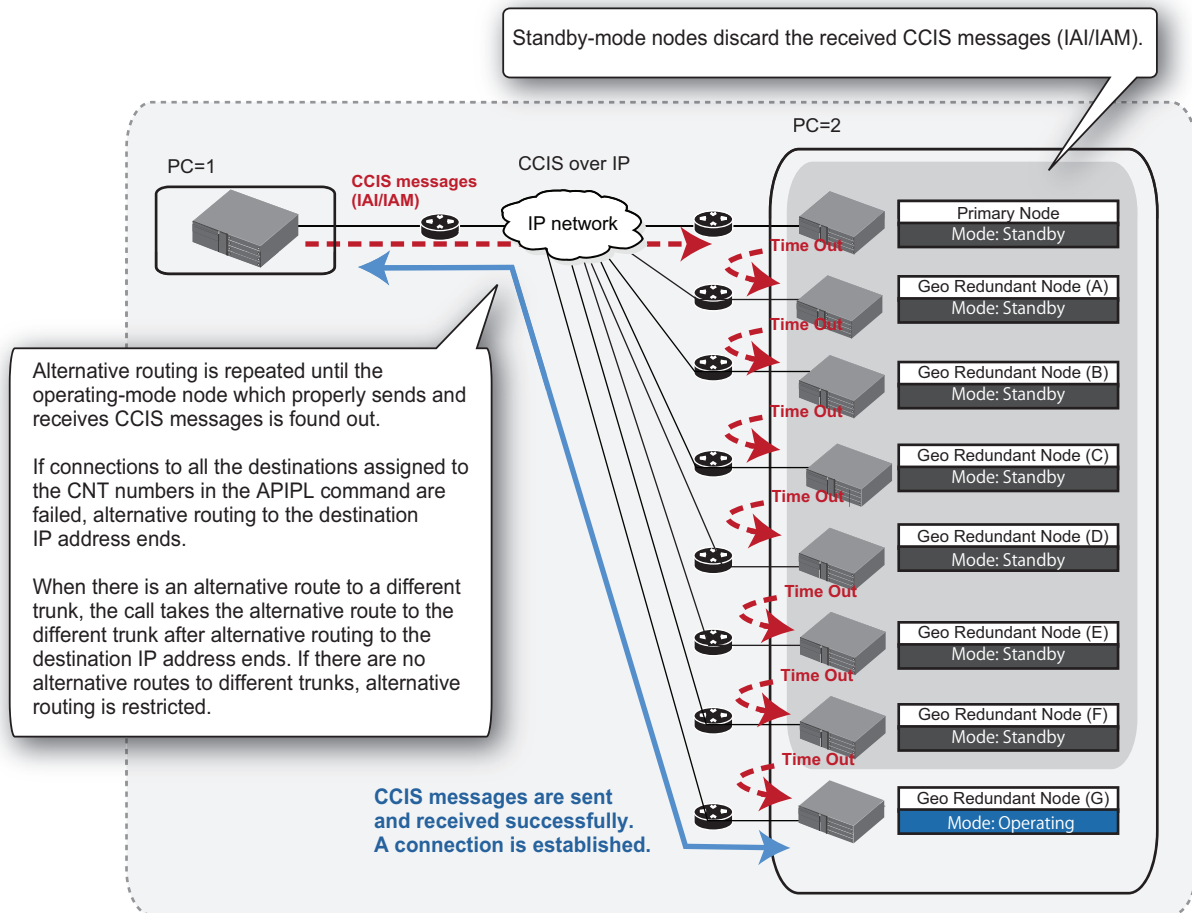
When a call is originated immediately after an IP address of CNT data is updated with the APIPL command, the updated IP address may not match the retained destination IP address. In this case, the call arrives at the destination where the seized B-channel and the selected IP address are linked (the figure below shows the route when CIC=2 is selected).

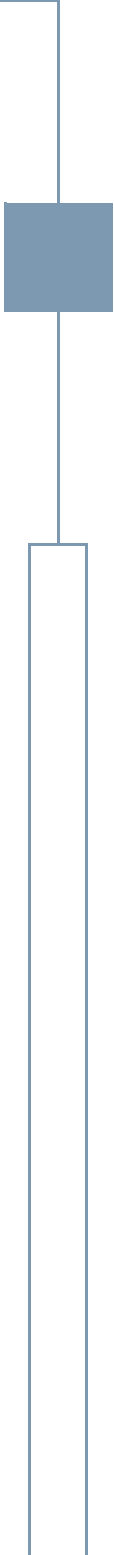


6.2.2 Prohibiting Response to CCIS Messages

Operating-mode nodes receive all the CCIS messages. Standby-mode nodes receive CCIS messages other than CCIS messages (IAI/IAM) (Standby-mode nodes discard CCIS messages (IAI/IAM)). Due to the operation patterns of standby-mode nodes, standby-mode nodes do not send response messages and a CCIS call originating node can perform alternative routing operation every time the timer elapses.

When a node receives CCIS messages (IAI/IAM) before it transits to standby, the node sends response messages. In this case, communication is available even after the node's transiting to standby.





CHAPTER 2

SERVICE CONDITIONS

This chapter describes the service conditions of Geographic Redundancy.

1. System Conditions

The following conditions are common to IMG (1-IMG)/MMG (4-IMG)/UMGi system configuration.

1.1 Common Conditions (Primary Node/GR-Node/SR-Node/SR-MGC)

- (1) The following shows the available hardware types to be used as each node in a system providing Geographic Redundancy for SV9500 Appliance Model, SV9500 Prepackaged Server Model and SR-MGC(E):

X: Available N: Not Available

System/ Device Node Kind	IMG/MMG			UMGi			
	SV9500 Appliance Model Hardware	SV9500 Prepackaged Server Model Hardware	SR-MGC(E) Chassis	SV9500 Appliance Model Hardware	SV9500 Prepackaged Server Model Hardware	SR-MGC(E) Chassis	
Primary Node	X	X	N	X	X	N	Note 1
Geo Redundant Node	X	X	N	X	X	N	
Survivable Remote Node	X	X	X	X	X	X	Note 2
SR-MGC	N	N	X	N	N	X	

Note: SR-MGC(E) can be used only as a single configuration system.

Note 1: This node communicates with other nodes (CCN/RN) during normal mode operations in UMGi configuration. It operates properly as a CCN/RN.

Note 2: This node does not communicate with other nodes (CCN/RN) during normal mode operations in UMGi configuration. It operates individually as a backup node and takes over the control of IP terminals and IP devices under the CCN/RN.

- (2) Set the same time zone and daylight saving time for all the MGCs. That data is not updated by Office Data Transfer or Office Data Copy. Set the same value to each MGC individually with the ATIM command.
- (3) The Registration Changeover of one IP station needs around 0.5 seconds. For example, a system with 4000 stations registered will need around 33 minutes for a full reset.
- (4) Primary Node and all the Geo Redundant Nodes must have the same version and issue of SV9500 software. The version and issue of the software on the Survivable Remote Node must be same or higher than that on the Primary Node/Geo Redundant Node.
- (5) This feature only allows for a high speed method of the data copy. The existing regular method is not supported. Even when this feature is used with SR-MGCs, only high speed method is available.

- (6) Office data copying needs around five minutes per node in a single configuration system. As for a dual configuration system, it needs around ten minutes per node.
- (7) When assigning data for the command ASYDL, SYS1, Index 844 and Index 845, assign the total number of Geo Redundant Nodes and Survivable Remote Nodes/SR-MGCs to which office data is automatically copied per day after a routine diagnosis, registered with the CMNT command.

$$\begin{aligned} & \text{[Number of all Geo Redundant Nodes]} \\ & + \text{[Number of Survivable Remote Nodes/SR-MGCs to which office data is copied per day]} \\ & = \text{[Value of ASYDL, SYS1, Index 844 and 845]} \end{aligned}$$

Example Setting:

In the case of the following conditions:

- When there are 3 Geo Redundant Nodes and 12 Survivable Remote Nodes/SR-MGCs
- To copy the office data to 3 Survivable Remote Nodes/SR-MGCs per day

Assign the data to ASYDL, SYS1, Index 844 and 845 as follows:

$$\begin{aligned} & 3 \text{ [Number of all Geo Redundant Nodes]} \\ & + 3 \text{ [Number of Survivable Remote Nodes/SR-MGCs to which office data is} \\ & \quad \text{copied per day]} \\ & = 6 \text{ [Value of ASYDL, SYS1, Index 844 and 845]} \end{aligned}$$

In this case, it takes 4 days to complete the office data copy to all Geo Redundant Nodes, Survivable Remote Nodes and SR-MGCs.

Note: The value of ASYDL, SYS1, Index 844 and Index 845 (the number of nodes to which office data is automatically copied per day) must contain the number of all Geo Redundant Nodes.

- (8) For the conditions of use specific to OAI and ACD, see the Data Programming Manual - OAI manual and the Data Programming Manual - ACD manual.
- (9) This feature is not available for Hotel services.
- (10) Non-IP terminals require UG50 to be rescued by this feature.
- (11) Geographic Redundancy allows you to use the Visitor key feature.
- When the Visitor feature is assigned to a Line/Feature key, the lamp indicates as follows:
Primary Node: off
Geo Redundant Node: lights green
Survivable Remote Node: lights red
SR-MGC: lights red

- When the Visitor feature is assigned to a Soft key, the LCD display indicates as follows:

Primary Node: "VISIT" appears.

Geo Redundant Node: "VISIT" flashes.

Survivable Remote Node: "VISIT" flashes.

SR-MGC: "VISIT" flashes.

- When the Visitor key is pressed: **Note 3**

Primary Node: any operation is invalid.

Geo Redundant Node: the terminal is reset when the Geo Redundant Node is in standby mode.

Survivable Remote Node: the terminal is reset.

SR-MGC: the terminal is reset.

Note 3: When ASYDL, SYS1, Index 846, Bit 4 = 1 is assigned, the key operation at any MGC will be invalid.

- (12) When SIP Terminal Authentication [S-152] is used, backup the data memory with the **MEM_HDD** command after setting SIP stations authentication using one time password. After the backup, copy the office data to all the MGCs in standby mode (including the SR-MGC) with the **CMNT** command. This way the terminals can be rescued by these MGCs if necessary. The data for terminal authentication is also actualized for all the systems with the automatic copy after a periodical diagnosis.
- (13) When a change of Day/Night mode is performed in a Geo Redundant Node, regardless of whether there is any Attendant Console in the Primary Node, office data must be set for DAY-NIGHT MODE STATUS - D - II [D-164D-II] (if there is an Attendant Console in the Primary Node the Day/Night mode cannot be changed with a desktop terminal, but if a Geo Redundant Node changes to operating mode, it becomes possible.)
- (14) This feature cannot be used with Location Diversity [L-55].
- (15) Geo Redundant Node/Survivable Remote Node/SR-MGC supports VoIP Encryption [V-27]. The devices/stations can continue to execute the encryption feature, even if they are rescued by SR-MGC.
- (16) Features that need to group terminals, such as Multi-Line and Station Hunting, might not be available, depending on the system configuration.
- (17) To check the status of terminal registration on Geo Redundant Node/Survivable Remote Node/SR-MGC, use DISD command. Also, DISD command is used to send Soft Reset packets to the Survivable Remote Node/SR-MGC. For details on DISD command, refer to Operations and Maintenance Manual.
- (18) To operate Geo Redundant Node/Survivable Remote Node/SR-MGC, the office data in the Primary Node have to be reflected. Method to reflect the data in the Primary Node differs depending on each backup node as shown below.
 - SR-MGC
Perform the office data copy with the CMNT command.

- Geo Redundant Node/Survivable Remote Node

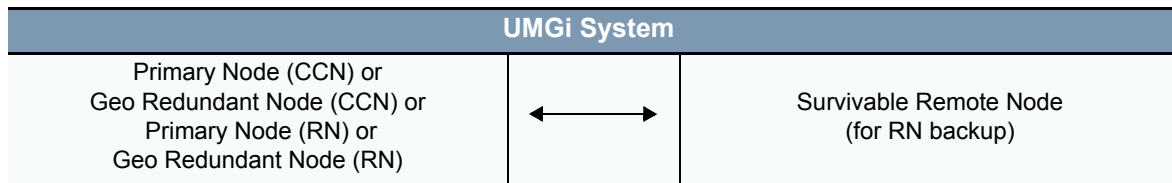
Download the office data from the Primary Node using Telephony Server Maintenance Menu to a PC and then upload the downloaded data from the PC to each backup node.

- (19) Geo Redundant Node/Survivable Remote Node/SR-MGC requires VS32 when terminals belonging to the Geo Redundant Node/Survivable Remote Node/SR-MGC use voice conference features such as Conference and Announcement.

1.2 Conditions for GR-Node/SR-Node

- (1) In case of a failure in the Primary Node, the Geo Redundant Node or the Survivable Remote Node cannot take over the control of SIP Handler Controlled SIP terminals which are able to specify only one registration destination. For the SIP Handler Controlled SIP terminals which are able to specify two or more registration destinations, the Primary Node and the Geo Redundant Node (or the Survivable Remote Node) can take over control of the terminals by setting the Primary Node and the Geo Redundant Node (or the Survivable Remote Node) as registration destinations of the terminals.
- (2) The remote version upgrade which is mentioned in “Remote Version Upgrade” of SR-MGC(E) [SN8178 MGCEV-B/SN8178 MGCEV-A] in Peripheral Equipment Description (IP Devices) cannot be used for the version upgrade of the Primary Node, the Geo Redundant Node and the Survivable Remote Node (it is available only for SR-MGC(E) used for Survivable Remote MGC [S-141]). To upgrade the Primary Node, the Geo Redundant Node and the Survivable Remote Node, use Telephony Server Maintenance Menu.
- (3) To use Flexible Network Re-routing [F-41], note that it is not available between nodes as shown below:

IMG/MMG System		
Primary Node	↔	Geo Redundant Node
Geo Redundant Node	↔	Geo Redundant Node
Primary Node or Geo Redundant Node	↔	Survivable Remote Node
UMGi System		
Primary Node (CCN)	↔	Geo Redundant Node (CCN)
Geo Redundant Node (CCN)	↔	Geo Redundant Node (CCN)
Primary Node (RN)	↔	Geo Redundant Node (RN) *Same PBI No.
Geo Redundant Node (RN)	↔	Geo Redundant Node (RN) *Same PBI No.
Primary Node (CCN) or Geo Redundant Node (CCN) or Primary Node (RN) or Geo Redundant Node (RN)	↔	Survivable Remote Node (for CCN backup)



- (4) WLAN Handset (MH Series) terminals cannot be rescued by Geo Redundant Node/Survivable Remote Node but they can be rescued by SR-MGC.
- (5) The following conditions apply when performing office data copy to a dual configuration system.
 - If the data copy to the ACT system fails, the data will not be copied to the STBY system.
 - If the office data copy to the ACT system is successful but the copy to the STBY system fails, a copy failure notification will be sent to the system that sent the data through the **CMNT** command. However, the ACT system will be initialized. In that case, copy the office data again one more time both to the ACT system and the STBY system. At this time, the office data is copied to the ACT system prior to the STBY system.
 - If there is a system changeover during the data copy, the data copy fails.
- (6) Register SIP terminals with the SIP handler control. You cannot register them with the SP control.
- (7) The connection information (domain name or IP address) of the following servers set in the Primary Node with the **ADTM/ANTPL** command and the information is shared with Geo Redundant Nodes and Survivable Remote Nodes. None of the MGCs can have different information set.
 - DNS server
 - SNMP server
 - SNTP server

If any of these servers is used, set the data with consideration for occurrence of a failure.

1.3 Conditions for GR-Node

- (1) Starting method of the Primary Node differs depending on the setting of **ASYDL, SYS1, Index 1354, Bit 2**. When **ASYDL, SYS1, Index 1354, Bit 2 = 0**, Primary Node starts in operating mode. In this case, all the other MGCs are in standby mode. When **ASYDL, SYS1, Index 1354, Bit 2 = 1**, current operating state of each node is maintained. Survivable Remote Node and SR-MGC starts in standby mode immediately after the initialization regardless of the system data setting.
- (2) The office data can be updated, maintained and copied only from the Primary Node. To update, maintain and copy the office data from an operating-mode node Geo Redundant Node due to a failure in the Primary Node, assign “1” to the following system data:

ASYDL, SYS1, Index 1354, Bit 1 (Office Data management restrictions in a network with Geographic Redundancy)

0 = Permit the creation, editing and deletion of Office data only on the Primary Node (or Primary Node (CCN))

1 = Permit the creation, editing and deletion of Office data on the Primary Node (or Primary Node (CCN)) or operating Geo Redundant Node (or Geo Redundant Node (CCN))

- (3) Geographic Redundancy does not support Changeover to Geo Redundant Node on both LAN1 and LAN2 sides of Telephony Server (ASYDL, SYS1, Index 846, Bit 2). For MG(BRI), it is recommended to use it in the SIP mode.
- (4) If a MGC used with this feature also is the NCN or LN in FCCS, make the same settings for the IP address set with the **AFIPN** command for Primary Node or Geo Redundant Node registered with the **ADTM** command.
- (5) Regarding the billing information, the following applies:
 - SMDR equipment must be installed in the Primary Node and each Geo Redundant Node.
 - The Primary Node/Geo Redundant Node in operating mode can collect the billing information of the Survivable Remote Node/SR-MGC with the polling method and output it.
 - When SV9500 Prepackaged Server Model is used as the Primary Node, Geo Redundant Node or Survivable Remote Node, LAN billing information must be set. (IOC and LAN cannot be used together.)
 - Connect the same number of pieces of SMDR equipment to the Primary Node and the Geo Redundant Nodes.
- (6) Regarding the Message Center Interface the following applies:
 - A device that provides Center Messages must be connected to the Primary Node and each Geo Redundant Node.
 - MWL control is individually provided to each MGC (Primary Node/Geo Redundant Node). When the IP station registers to a different system, the MWL information is not passed.
 - When SV9500 Prepackaged Server Model is used as the Primary Node or the Geo Redundant Node, LAN Message Control Center must be set. (IOC and LAN cannot be used together.)
- (7) The following applies regarding systems time synchronization:
 - If SV9500 Prepackaged Server Model is used as a Geo Redundant Node, synchronization will be done based on the host machine controlling the system.
 - If SV9500 Prepackaged Server Model is used as a Geo Redundant Node and SV9500 Appliance Model is used as Primary Node, synchronization in the Geo Redundant Node side will not be done based in the SNTP even if the **ANTPL** command is set.

1.4 Conditions for SR-MGC

Version Upgrade of SR-MGC which is used for Survivable Remote MGC [S-141] can be executed remotely with the CMNT command. For details on Remote Version Upgrade, refer to “SR-MGC(E) [SN8178 MGCEV-B]/SR-MGC(E) [SN8178 MGCEV-A]” - “Remote Version Upgrade” in the Peripheral Equipment Description (IP Devices).

2. Conditions for Synchronizing Inter-Node Information

The following shows conditions in common of Synchronizing Inter-Node Information between Primary Node and Geo Redundant Node.

2.1 Common Conditions for Synchronizing Inter-Node Information

- (1) Survivable Redundant Node and SR-MGC are not supported.
- (2) Information is synchronized through PBUS over IP module. When PBUS over IP module cannot be used for communications among nodes due to a failure such as a network failure, the information is not synchronized. The following are considerations for using PBUS over IP module in each system configuration.
 - For IMG/MMG system
 - (a) PBUS over IP module works by using LAN2 (fixed).
 - (b) When memory synchronization between Act side and Standby side during ACDP Quick Initialization is used in combination with this feature, PBUS over IP module is shared with each other.
 - (c) In a network environment where segments of LAN1 and LAN2 networks are separated, if a failure in the LAN1 network causes a suspension of health checks between nodes, the synchronization does not work between the nodes with the health checks suspended even if the LAN2 network operates normally (the information between operating-mode nodes is not synchronized).
 - For UMGi system
PBUS over IP module works by using LAN1 (fixed).

2.2 Conditions for Synchronizing One Time Password and SIP Terminal Authentication Information

- (1) When a network failure causes a communication problem at the timing of synchronization with standby-mode nodes, the information may not be synchronized properly.

Note: When SIP terminals cannot perform registrations to an operating-mode node, log in to the operating-mode node through the PCPro and confirm that the MAC addresses of the relevant terminals exist in the Certified Terminal List of the ASECL command window. If the desired MAC addresses do not exist, perform authentication of SIP terminals again using the one time password in an operating-mode node.

- (2) Authentication information of SIP terminals in the operating-mode node is copied to standby-mode nodes automatically during a routine diagnosis.

Note: During the routine diagnosis, the following operations are performed:

- [1] Routine backup in the operating-mode node
- [2] Data copy (file copy) of SIP terminal authentication information to the standby-mode nodes
- [3] Office Data Load & System Initialize in the standby-mode node

When a new SIP terminal authentication is performed in the operating-mode node during the process between [2] and [3], the authentication information is overwritten by old one by [3]. Do not perform SIP terminal authentication during a routine diagnosis.

2.3 Conditions for Synchronizing Day/Night Mode Information

- (1) In a standby-mode node, Day/Night information copied from the operating-mode node becomes effective when either of the following operations are performed. Until then, Day/Night mode state in the standby-mode node is retained.

- Transition to Operating (Automated Transition to Operating due to a network failure or Manual Operation Changeover with the CMNT command)
- System Initialization

- (2) When a Geo Redundant Node is in operating mode and Primary Node accommodating an attendant console (Night mode 3) is in standby mode, the Day/Night information in the Geo Redundant Node is not reflected on the Primary Node (**Note 1**). For the other Geo Redundant Nodes in standby mode which do not accommodate any attendant consoles, the Day/Night information is reflected.

Note 1: The Day/Night information in the Geo Redundant Node is not reflected on the Primary Node because the attendant console may not operate properly if there is a mismatch in the Day/Night mode state between the attendant console and the Primary Node.

- (3) In the following cases, be sure to disable the data for Synchronization of Day/Night mode information (ASYDL, SYS1, Index 1357, Bit 1=1) because Day/Night mode change becomes unavailable in Geo redundant Node.
- When Trunk Answer from Any Station (TAS) is in service (ASYD, SYS2, Index 11, Bit 6=1 is set).
 - Night mode attendant console (Night Mode 1) and external key (Night Mode 2) are used in Primary Node.

- (4) When Day/Night Data Retention is used in combination with this feature, only the Day/Night mode information in the operating-mode node is backed up automatically. The Day/Night information saved in the operating-mode node during a routine diagnosis is copied (file copy) to standby-mode nodes.

3. Hardware/Software Conditions

- (1) The systems that can be used as Primary Node, Geo Redundant Node and Survivable Remote Node are SV9500 Prepackaged Server Model and SV9500 Appliance Model. Also SR-MGC(E) can work as Survivable Remote Node (see [5. SR-Node Support SR-MGC\(E\)](#)).
- (2) The possible patterns of the combinations of Primary Node/Geo Redundant Node/Survivable Remote Node in the use of different systems are as follows:

Supported : x Non Supported : -

Primary Node	Geo Redundant Node/Survivable Remote Node				
	Appliance Model (Single CPU Configuration Note 2)	SV9500 Appliance Model (Dual CPU Configuration Note 2)	SV9500 Prepackaged Server Model (Single Configuration Note 2)		SR-MGC(E) Hardware (Single CPU Configuration Note 3)
			IMG/MMG	UMGi (CCN/RN)	
Appliance Model (Single CPU Configuration Note 1)	X Note 4	- Note 4	X	-	X Note 6
Appliance Model (Dual CPU Configuration Note 1)	X Note 5	X Note 5	X Note 5	X Note 5	X Note 6
Prepackaged Server Model (Single Configuration Note 1)	X Note 4	- Note 4	X	-	X Note 6

Note 1: Set ASYD, SYS1, Index 58, Bit 0: 0/1 (Configuration of CPU: Single/Dual) according to the system configuration.

Note 2: Set the configuration of CPU (Single/Dual) for Geo Redundant Node/Survivable Remote Node with the **CMNT** command.

Note 3: SR-MGC(E) can be used only as a single configuration system. Set the configuration of CPU (Single) for Survivable Remote Node with the **CMNT** command.

Note 4: If the CPU of the Primary Node is in single configuration, the CPU of the Geo Redundant Nodes and Survivable Remote Nodes must also be in single configuration.

Note 5: If the CPU of the Primary Node is in dual configuration, the CPU of the Geo Redundant Nodes and Survivable Remote Nodes can be either in single or dual configuration.

Note 6: SR-MGC(E) cannot be used as a Geo Redundant Node.

- (3) SR-MGC can be used for backup support in any of the combinations above.
- (4) RNIP system is not supported.
- (5) UMGi system is supported. For more information on conditions specific to UMGi system, see [6. Geographic-Redundancy-Enabled UMGi System](#).
- (6) PIRs can be used only in an SV9500 Appliance Model Primary Node.
- (7) The following tables show how IP equipment (a terminal or device) operates when the equipment switches its registration destination from a Primary Node to a Geo Redundant Node or vice versa, which depends on the equipment kind and its state:

Note: Standard SIP terminals operate according to their individual specification.

- (a) If a communication failure occurs in a network between IP equipment and a Primary Node (LAN1) when the Primary Node is operating (The node controlling IP equipment changes from a Primary Node to a Geo Redundant Node.)

Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
IP terminal Softphone (Proprietary Protocol)	The terminal maintains an ongoing call; after you disconnect the call by on-hook, the terminal resets itself to register to a GR-Node.	After ringback tone lasts for two to three minutes, an IP terminal resets itself to register to a GR-Node.	After ringing tone lasts for two to three minutes, an IP terminal resets itself to register to a GR-Node.
SIP Multiple Line terminal		After ringback tone lasts for two to six minutes, a SIP Multiple Line terminal resets itself to register to a GR-Node.	After ringing tone lasts for two to six minutes, a SIP terminal resets itself to register to a GR-Node.
Softphone (SIP)		After ringback tone lasts for a while, a Softphone (SIP) discards the call to register to a GR-Node.	

Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
MC&MG-COT: - SCA-4LC2COTA - MG-4LC2COTA	The device maintains an ongoing call; after you disconnect the call by on-hook, the device resets itself to register to a GR-Node.	After ringback tone lasts for two to four minutes, an MC&MG-COT resets itself to register to a GR-Node.	After ringing tone lasts for two to four minutes, the device resets itself to register to a GR-Node.
Analog 2MC	After a few minutes, an Analog 2MC resets itself to register to a GR-Node.	After ringback tone lasts for two to four minutes, an Analog 2MC resets itself to register to a GR-Node.	
8LC Card	An 8LC Card maintains an ongoing call; after you disconnect the call for eight lines by on-hook, the 8LC Card resets itself to register to a GR-Node.	After ringback tone lasts for a while, an 8LC Card discards the call and resets itself to register to a GR-Node.	
IPG Digital	After a minute or two, the call is disconnected. An IPG resets itself to register to a GR-Node within two or three minutes.	After ringback tone lasts for two to three minutes, an IPG resets itself to register to a GR-Node. (DT connection when off-hook)	After ringing tone lasts for two to three minutes, the device resets itself to register to a GR-Node.
IPG Analog Note: IPG Analog resets itself to perform re-registration after two to three minutes, regardless of the set time before forcible switchback is executed (ASYDL SYS1 Index 847 Bit 0-3).	After two to three minutes, the call is disconnected by an IPG reset. It will be registered to a GR-Node by on-hook in a few minutes.	After ringback tone lasts for two to three minutes, an IPG resets itself. It will be registered to a GR-Node by on-hook.	
UG50 (Multi-slot mode) • UG50 (DLC)	After a minute or two, the call is disconnected. The UG50 resets itself to register to a GR-Node within two or three minutes.	After ringback tone lasts for two to three minutes, the UG50 resets itself to register to a GR-Node. (DT connection when off-hook)	
UG50 (Multi-slot mode) • UG50 (LC) [Proprietary] • UG50 (LC) [SIP]	The UG50 maintains an ongoing call; after you disconnect the call by on-hook, the UG50 resets itself to register to a GR-Node.	After ringback tone lasts for a while, the UG50 discards the call and resets itself to register to a GR-Node.	
UG50 (IPG mode) • UG50-IPG (Digital)	After a minute or two, the call is disconnected. The UG50 resets itself to register to a GR-Node within two or three minutes.	After ringback tone lasts for two to three minutes, the UG50 resets itself to register to a GR-Node. (DT connection when off-hook)	After ringing tone lasts for two to three minutes, the UG50 resets itself to register to a GR-Node.

Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
UG50 (IPG mode) UG50-IPG (Analog)	The UG50 maintains an ongoing call; after you disconnect the call by on-hook, the UG50 resets itself to register to a GR-Node.	After ringback tone lasts for a while, the UG50 discards the call and resets itself to register to a GR-Node.	After ringing tone lasts for two to four minutes, the UG50 resets itself to register to a GR-Node.
UG50 (Retrofit mode) - UG50-2MC - UG50-8LC - UG50-4LC2COTA (COT) - UG50-4LC2COTA (PGT)			

- (b) If a failure in a network between IP equipment and a Primary Node (LAN1) recovers when a Geo Redundant Node is operating (The node controlling IP equipment changes from a Geo Redundant Node to a Primary Node)

**Condition of IP Station Registration Changeover:
ASYDL, SYS1, Index 852, Bit5=1: Automatic Switchback**

Condition of IP Station Registration Changeover: ASYDL SYS1 INDEX 852 Bit 5 = 1: Automatic Switchback			
Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
IP terminal Soft Phone (Proprietary Protocol)	The terminal maintains an ongoing call; after you disconnect the call, it takes a few minutes for the terminal to register to a Primary Node.	If you abandon the call before connected: After ringback tone lasts for a few minutes, the terminal registers to a Primary Node.	If you abandon the call without answering: Ringing tone lasts; if the calling party disconnects the call by on-hook, it takes a few minutes for the UG50 to register to a Primary Node. If you answer the call: The UG50 maintains the ongoing call; after you disconnect the call, it takes a few minutes for the UG50 to register to a Primary Node.
SIP Multiple Line terminal		If the call connects to a peer: The terminal maintains the ongoing call; after you disconnect the call, it takes a few minutes for the terminal to register to a Primary Node.	
Softphone (SIP)			
MC&MG-COT: - SCA-4LC2COTA - MG-4LC2COTA	The device maintains an ongoing call; after you disconnect the call, the device registers to a Primary Node.	Ringback tone lasts until you go on-hook; the device registers to a Primary Node.	
Analog 2MC			
8LC Card			
IPG Digital	IPG maintains a call until the set forcible switchback time executes (5 min x (1-14)). IPG resets itself and will be registered to a Primary Node by on-hook.	Ringback tone lasts until the set forcible switchback time executes (5 min x (1-14)). IPG resets itself to register to a Primary Node. (DT connection when off-hook)	Ringring tone lasts until the set forcible switchback time executes (5 min x (1-14)). IPG resets itself to register to a Primary Node.

Condition of IP Station Registration Changeover:
ASYDL SYS1 INDEX 852 Bit 5 = 1: Automatic Switchback

Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
IPG Analog Note: IPG Analog resets itself to perform re-registration after two to three minutes, regardless of the set time before forcible switchback is executed (ASYDL SYS1 Index 847 Bit 0-3).	After two to three minutes, the call is disconnected by an IPG reset. It will be registered to a Primary Node by on-hook in a few minutes.	After ringback tone lasts for two to three minutes, IPG resets itself. It will be registered to a Primary Node by on-hook.	After ringing tone lasts for two to three minutes, the device resets itself to register to a Primary Node.
UG50 (Multi-slot mode) UG50 (DLC)	The UG50 maintains a call until the set forcible switchback time executes (5 min x (1-14)). The UG50 resets itself and will be registered to a Primary Node by on-hook.	Ringback tone lasts until the set forcible switchback time executes (5 min x (1-14)). The UG50 resets itself to register to a Primary Node. (DT connection when off-hook)	Ringing tone lasts until the set forcible switchback time executes (5 min x (1-14)). The UG50 resets itself to register to a Primary Node.
UG50 (Multi-slot mode) - UG50 (LC) [Proprietary] - UG50 (LC) [SIP]	The device maintains an ongoing call; after you disconnect the call, the device registers to a Primary Node.	Ringback tone lasts until you go on-hook; the device registers to a Primary Node.	If you abandon the call without answering: Ringing tone lasts; if the calling party disconnects the call by on-hook, it takes a few minutes for the terminal/device to register to a Primary Node. If you answer the call: The terminal/device maintains the ongoing call; after you disconnect the call, it takes a few minutes for the terminal/device to register to a Primary Node.
UG50 (IPG mode) UG50-IPG (Digital)	UG50 maintains a call until the set forcible switchback time executes (5 min x (1-14)). The UG50 resets itself and will be registered to a Primary Node by on-hook.	Ringback tone lasts until the set forcible switchback time executes (5 min x (1-14)). The UG50 resets itself to register to a Primary Node. (DT connection when off-hook)	Ringing tone lasts until the set forcible switchback time executes (5 min x (1-14)). The UG50 resets itself to register to a Primary Node.

Condition of IP Station Registration Changeover:
ASYDL SYS1 INDEX 852 Bit 5 = 1: Automatic Switchback

Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
UG50 (IPG mode) UG50-IPG (Analog)	The UG50 maintains an ongoing call; after you disconnect the call, the UG50 registers to a Primary Node.	Ringback tone lasts until you go on-hook; the UG50 registers to a Primary Node.	If you abandon the call without answering: Ringing tone lasts; if the calling party disconnects the call by on-hook, it takes a few minutes for the UG50 to register to a Primary Node. If you answer the call: The UG50 maintains the ongoing call; after you disconnect the call, it takes a few minutes for the UG50 to register to a Primary Node.
UG50 (Retrofit mode) - UG50-2MC - UG50-8LC - UG50-4LC2COTA (COT) - UG50-4LC2COTA (PGT)			

Condition of IP Station Registration Changeover:
ASYDL, SYS1, INDEX 852, Bit 5=0: Manual Switchback/INDEX 1354, Bit 3=1: Enable Ongoing Call Retention When Manual Changeover to Standby Mode

After you execute CMNT command; Change Operating tab; CONDITION; “Primary Node to Operating mode,” Primary Node changes its mode from standby mode to operating mode, but accommodating location of IP equipment is not changed.

Condition of IP Station Registration Changeover: ASYDL, SYS1, INDEX 852, Bit 5 = 0: Manual Switchback ASYDL, SYS1, INDEX 1354, Bit 3 = 1: Enable Ongoing Call Retention When Manual Changeover to Standby Mode			
Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
IP terminal Soft Phone (Proprietary Protocol)	The CMNT command makes the terminal register to a Primary Node in a few minutes after you disconnect an ongoing call: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”	If you execute the CMNT command: The CMNT command makes the terminal register to a Primary Node: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”	If you execute the CMNT command: The CMNT command makes the terminal register to a Primary Node: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication” If you abandon the call without answering: Ringing tone lasts; if the calling party disconnects the call by on-hook, it takes a few minutes for the terminal/device to register to a Primary Node. If you answer the call: The terminal/device maintains the ongoing call; after you disconnect the call, it takes a few minutes for the terminal/device to register to a Primary Node.
SIP Multiple Line terminal		If you abandon the call before connected: After ringback tone lasts for a few minutes, the terminal registers to a Primary Node in a few minutes after you disconnect an ongoing call.	
Softphone (SIP)		If the call connects to a peer: The terminal maintains the ongoing call; after you disconnect the call, it takes a few minutes for the terminal to register to a Primary Node.	
MC&MG-COT: - SCA-4LC2COTA - MG-4LC2COTA	The CMNT command makes the device register to a Primary Node after you disconnect an ongoing call: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”	The CMNT command makes an MC&MG-COT register to a Primary Node when you go on-hook after hearing a ringback tone: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”	

Condition of IP Station Registration Changeover: ASYDL, SYS1, INDEX 852, Bit 5 = 0: Manual Switchback ASYDL, SYS1, INDEX 1354, Bit 3 = 1: Enable Ongoing Call Retention When Manual Changeover to Standby Mode			
Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
Analog 2MC	The CMNT command makes an Analog 2MC register to a Primary Node: CMNT command; Change Operating tab; FUNC; "Terminal Reset Indication"	The CMNT command makes an Analog 2MC register to a Primary Node: CMNT command; Change Operating tab; FUNC; "Terminal Reset Indication"	If you execute the CMNT command: The CMNT command makes the terminal register to a Primary Node: CMNT command; Change Operating tab; FUNC; "Terminal Reset Indication"
8LC Card	The CMNT command makes an 8LC Card register to a Primary Node after you disconnect an ongoing call: CMNT command; Change Operating tab; FUNC; "Terminal Reset Indication"	The CMNT command makes an 8LC Card register to a Primary Node after you go on-hook: CMNT command; Change Operating tab; FUNC; "Terminal Reset Indication"	If you abandon the call without answering: Ringing tone lasts; if the calling party disconnects the call by on-hook, it takes a few minutes for the terminal/device to register to a Primary Node. If you answer the call: The terminal/device maintains the ongoing call; after you disconnect the call, it takes a few minutes for the terminal/device to register to a Primary Node.
IPG Digital	After you execute the CMNT command; Change Operating tab; "Terminal Reset Indication," IPG maintains a call until the set forcible switchback time executes (5 min x (1-14)). IPG resets itself and will be registered to a Primary Node by on-hook.	After you execute the CMNT command; Change Operating tab; "Terminal Reset Indication," ringback tone lasts until the set forcible switchback time executes (5 min x (1-14)). IPG resets itself to register to a Primary Node. (DT connection when off-hook)	After you execute the CMNT command; Change Operating tab; "Terminal Reset Indication," ringing tone lasts until the set forcible switchback time executes (5 min x (1-14)). IPG resets itself to register to a Primary Node.
IPG Analog Note: IPG Analog resets itself to perform re-registration after two to three minutes, regardless of the set time before forcible switchback is executed (ASYDL SYS1 Index 847 Bit 0-3).	After you execute the CMNT command; Change Operating tab; "Terminal Reset Indication," IPG maintains a call for two to three minutes. IPG resets itself and will be registered to a Primary Node by on-hook in a few minutes.	After you execute the CMNT command; Change Operating tab; "Terminal Reset Indication," ringback tone lasts for two to three minutes. IPG resets itself and will be registered to a Primary Node by on-hook in a few minutes.	After you execute the CMNT command; Change Operating tab; "Terminal Reset Indication," ringing tone lasts for two to three minutes. The IPG resets itself to register to a Primary Node.

Condition of IP Station Registration Changeover: ASYDL, SYS1, INDEX 852, Bit 5 = 0: Manual Switchback ASYDL, SYS1, INDEX 1354, Bit 3 = 1: Enable Ongoing Call Retention When Manual Changeover to Standby Mode			
Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
UG50 (Multi-slot mode) UG50 (DLC)	After you execute the CMNT command; Change Operating tab; "Terminal Reset Indication," IPG maintains a call until the set forcible switchback time executes (5 min x (1-14)). UG50 resets itself and will be registered to a Primary Node by on-hook.	After you execute the CMNT command; Change Operating tab; "Terminal Reset Indication," ringback tone lasts until the set forcible switchback time executes (5 min x (1-14)). UG50 resets itself to register to a Primary Node. (DT connection when off-hook)	After you execute the CMNT command; Change Operating tab; "Terminal Reset Indication," ringing tone lasts until the set forcible switchback time executes (5 min x (1-14)). UG50 resets itself to register to a Primary Node.
UG50 (Multi-slot mode) - UG50 (LC) [Proprietary] - UG50 (LC) [SIP]	The CMNT command makes UG50 register to a Primary Node after you disconnect an ongoing call: CMNT command; Change Operating tab; FUNC; "Terminal Reset Indication"	The CMNT command makes UG50 register to a Primary Node after you go on-hook: CMNT command; Change Operating tab; FUNC; "Terminal Reset Indication"	If you execute the CMNT command: The CMNT command makes the UG50 register to a Primary Node: CMNT command; Change Operating tab; FUNC; "Terminal Reset Indication" If you abandon the call without answering: Ringing tone lasts; if the calling party disconnects the call by on-hook, it takes a few minutes for the UG50 to register to a Primary Node. If you answer the call: The UG50 maintains the ongoing call; after you disconnect the call, it takes a few minutes for UG50 to register to a Primary Node.
UG50 (IPG mode) UG50-IPG (Digital)	After you execute the CMNT command; Change Operating tab; "To Operating mode," UG50 maintains a call until the set forcible switchback time executes (5 min x (1-14)). UG50 resets itself and will be registered to a Primary Node by on-hook.	After you execute the CMNT command; Change Operating tab; "To Operating mode," ringback tone lasts until the set forcible switchback time executes (5 min x (1-14)). UG50 resets itself to register to a Primary Node. (DT connection when off-hook)	After you execute the CMNT command; Change Operating tab; "To Operating mode," ringing tone lasts until the set forcible switchback time executes (5 min x (1-14)). UG50 resets itself to register to a Primary Node.

Condition of IP Station Registration Changeover: ASYDL, SYS1, INDEX 852, Bit 5 = 0: Manual Switchback ASYDL, SYS1, INDEX 1354, Bit 3 = 1: Enable Ongoing Call Retention When Manual Changeover to Standby Mode			
Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
UG50 (IPG mode) UG50-IPG (Analog)	The CMNT command makes UG50 register to a Primary Node after you disconnect an ongoing call: CMNT command; Change Operating tab; FUNC; "Terminal Reset Indication"	The CMNT command makes UG50 register to a Primary Node after you go on-hook: CMNT command; Change Operating tab; FUNC; "Terminal Reset Indication"	If you execute the CMNT command: The CMNT command makes UG50 register to a Primary Node: CMNT command; Change Operating tab; FUNC; "Terminal Reset Indication"
UG50 (Retrofit mode) - UG50-2MC - UG50-8LC - UG50-4LC2COTA (COT) - UG50-4LC2COTA (PGT)	The CMNT command makes UG50 register to a Primary Node after you disconnect an ongoing call: CMNT command; Change Operating tab; FUNC; "Terminal Reset Indication"	The CMNT command makes UG50 register to a Primary Node after you go on-hook: CMNT command; Change Operating tab; FUNC; "Terminal Reset Indication"	If you abandon the call without answering: Ringing tone lasts; if the calling party disconnects the call by on-hook, it takes a few minutes for UG50 to register to a Primary Node. If you answer the call: UG50 maintains the ongoing call; after you disconnect the call, it takes a few minutes for UG50 to register to a Primary Node.

Condition of IP Station Registration Changeover:
ASYDL, SYS1, INDEX 852, Bit 5=0: Manual Switchback/INDEX 1354, Bit 3=0: Disable Ongoing Call Retention When Manual Changeover to Standby Mode

After you execute CMNT command; Change Operating tab; CONDITION; "Primary Node to Operating mode," Primary Node changes its mode from standby mode to operating mode, but accommodating location of IP equipment is not changed.

Condition of IP Station Registration Changeover: ASYDL, SYS1, INDEX 852, Bit 5 = 0: Manual Switchback ASYDL, SYS1, INDEX 1354, Bit 3 = 0: Disable Ongoing Call Retention When Manual Changeover to Standby Mode			
Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
IP terminal Softphone (Proprietary Protocol) SIP Multiple Line terminal Softphone (SIP)	The CMNT command makes the terminal register to a Primary Node: CMNT command; Change Operating tab; FUNC; "Terminal Reset Indication"		

Condition of IP Station Registration Changeover:

ASYDL, SYS1, INDEX 852, Bit 5 = 0: Manual Switchback

ASYDL, SYS1, INDEX 1354, Bit 3 = 0: Disable Ongoing Call Retention When Manual Changeover to Standby Mode

Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
MC&MG-COT: - SCA-4LC2COTA - MG-4LC2COTA	The CMNT command makes the device register to a Primary Node after you disconnect an ongoing call: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”	The CMNT command makes an MC&MG-COT register to a Primary Node: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”	The CMNT command makes the device register to a Primary Node: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”
Analog 2MC	The CMNT command makes an Analog 2MC register to a Primary Node: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”	The CMNT command makes an Analog 2MC register to a Primary Node: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”	
8LC Card	The CMNT command makes an 8LC Card register to a Primary Node after you disconnect an ongoing call: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”	The CMNT command makes an 8LC Card register to a Primary Node after you go on-hook: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”	
IPG Digital	The CMNT command makes IPG register to a Primary Node: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”		
IPG Analog			
UG50 (Multi-slot mode) • UG50 (DLC)			
UG50 (Multi-slot mode) • UG50 (LC) [Proprietary] • UG50 (LC) [SIP]	The CMNT command makes UG50 register to a Primary Node after you disconnect an ongoing call: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”	The CMNT command makes UG50 register to a Primary Node after you go on-hook: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”	
UG50 (IPG mode) • UG50-IPG (Digital)	The CMNT command makes UG50 register to a Primary Node: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”		
UG50 (IPG mode) • UG50-IPG (Analog)	The CMNT command makes UG50 register to a Primary Node after you disconnect an ongoing call: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”	The CMNT command makes UG50 register to a Primary Node after you go on-hook: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”	The CMNT command makes the device register to a Primary Node: CMNT command; Change Operating tab; FUNC; “Terminal Reset Indication”
UG50 (Retrofit mode) • UG50-2MC • UG50-8LC • UG50-4LC2COTA (COT) • UG50-4LC2COTA (PGT)			

- (8) The following tables show how IP equipment (a terminal or device) operates when the equipment switches its registration destination from a Primary Node/Geo Redundant Node to a Survivable Remote Node/SR-MGC or vice versa, which depends on the equipment kind and its state:

Note: Standard SIP terminals operate according to their individual specification.

- (a) If a communication failure occurs in a network between IP equipment and a Primary Node/Geo Redundant Node (LAN1) when the Primary Node/Geo Redundant Node is operating (The node controlling IP equipment changes from Primary Node/Geo Redundant Node to Survivable Remote Node/SR-MGC.)

Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
IP terminal Softphone (Proprietary Protocol)	The terminal maintains an ongoing call; after you disconnect the call by on-hook, the terminal resets itself to register to an SR-Node/SR-MGC.	After ringback tone lasts for two to three minutes, an IP terminal resets itself to register to an SR-Node/SR-MGC.	After ringing tone lasts for two to three minutes, an IP terminal resets itself to register to an SR-Node/SR-MGC.
SIP Multiple Line terminal		After ringback tone lasts for two to six minutes, a SIP Multiple Line terminal resets itself to register to an SR-Node/SR-MGC.	After ringing tone lasts for two to six minutes, a SIP terminal resets itself to register to an SR-Node/SR-MGC
Softphone (SIP)		After ringback tone lasts for a while, a Softphone (SIP) discards the call to register to an SR-Node/SR-MGC.	
MC&MG-COT: - SCA-4LC2COTA - MG-4LC2COTA	The device maintains an ongoing call; after you disconnect the call by on-hook, the device resets itself to register to an SR-Node/SR-MGC.	After ringback tone lasts for two to four minutes, an MC&MG-COT resets itself to register to an SR-Node/SR-MGC.	After ringing tone lasts for two to four minutes, the device resets itself to register to an SR-Node/SR-MGC.
Analog 2MC	After a few minutes, an Analog 2MC resets itself to register to an SR-Node/SR-MGC.	After ringback tone lasts for two to four minutes, an Analog 2MC resets itself to register to an SR-Node/SR-MGC.	
8LC Card	An 8LC Card maintains an ongoing call; after you disconnect the call by on-hook, the 8LC Card resets itself to register to an SR-Node/SR-MGC.	After ringback tone lasts for a while, an 8LC Card discards the call and resets itself to register to an SR-Node/SR-MGC.	

Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
IPG Digital	After a minute or two, the call is disconnected. An IPG resets itself to register to an SR-Node/SR-MGC in two or three minutes.	After ringback tone lasts for two to three minutes, an IPG resets itself to register to an SR-Node/SR-MGC. (DT connection when off-hook)	After ringing tone lasts for two to three minutes, the device resets itself to register to an SR-Node/SR-MGC.
IPG Analog Note: IPG Analog resets itself to perform re-registration after two to three minutes, regardless of the set time before forcible switchback is executed (ASYDL SYS1 Index 847 Bit 0-3).	After two to three minutes, the call is disconnected by an IPG reset. It will be registered to an SR-Node/SR-MGC by on-hook in a few minutes.	After ringback tone lasts for two to three minutes, an IPG resets itself. It will be registered to an SR-Node/SR-MGC by on-hook.	
UG50 (Multi-slot mode) UG50 (DLC)	After a minute or two, the call is disconnected. the UG50 resets itself to register to an SR-Node/SR-MGC within two or three minutes.	After ringback tone lasts for two to three minutes, the UG50 resets itself to register to an SR-Node/SR-MGC. (DT connection when off-hook)	
UG50 (Multi-slot mode) - UG50 (LC) [Proprietary] - UG50 (LC) [SIP]	The UG50 maintains an ongoing call; after you disconnect the call by on-hook, the UG50 resets itself to register to an SR-Node/SR-MGC.	After ringback tone lasts for a while, the UG50 discards the call and resets itself to register to an SR-Node/SR-MGC.	After ringing tone lasts for two to four minutes, the UG50 resets itself to register to an SR-Node/SR-MGC.
UG50 (IPG mode) UG50-IPG (Digital)	After a minute or two, the call is disconnected. The UG50 resets itself to register to an SR-Node/SR-MGC in two or three minutes.	After ringback tone lasts for two to three minutes, the UG50 resets itself to register to an SR-Node/SR-MGC. (DT connection when off-hook)	After ringing tone lasts for two to three minutes, the UG50 resets itself to register to an SR-Node/SR-MGC.
UG50 (IPG mode) UG50-IPG (Analog)	The UG50 maintains an ongoing call; after you disconnect the call by on-hook, the UG50 resets itself to register to an SR-Node/SR-MGC.	After ringback tone lasts for a while, the UG50 discards the call and resets itself to register to an SR-Node/SR-MGC.	After ringing tone lasts for two to four minutes, the UG50 resets itself to register to an SR-Node/SR-MGC
UG50 (Retrofit mode) - UG50-2MC - UG50-8LC - UG50-4LC2COTA (COT) - UG50-4LC2COTA (PGT)			

- (b) If a failure in a network between IP equipment and a Primary Node/Geo Redundant Node (LAN1) recovers when a Survivable Remote Node/SR-MGC is operating (The node controlling IP equipment changes from a Survivable Remote Node/SR-MGC to a Primary Node/Geo Redundant Node)

**Condition of IP Station Registration Changeover:
ASYDL, SYS1, Index 852, Bit5=1: Automatic Switchback**

Condition of IP Station Registration Changeover: ASYDL SYS1 INDEX 852 Bit 5=1: Automatic Switchback			
Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
IP terminal Soft Phone (Proprietary Protocol)	The terminal maintains an ongoing call; after you disconnect the call, it takes a few minutes for the terminal to register to a Primary Node/GR-Node.	If you abandon the call before connected: After ringback tone lasts for a few minutes, the terminal registers to a Primary Node/GR-Node. If the call connects to a peer: The terminal maintains the ongoing call; after you disconnect the call, it takes a few minutes for the terminal to register to a Primary Node/GR-Node.	If you abandon the call without answering: Ringing tone lasts; if the calling party disconnects the call by on-hook, it takes a few minutes for the terminal/device to register to a Primary Node/GR-Node. If you answer the call: The terminal/device maintains the ongoing call; after you disconnect the call, it takes a few minutes for the terminal/device to register to a Primary Node/GR-Node.
SIP Multiple Line terminal			
Softphone (SIP)			
MC&MG-COT: - SCA-4LC2COTA - MG-4LC2COTA	The device maintains an ongoing call; after you disconnect the call, the device registers to a Primary Node/GR-Node.	Ringback tone lasts until you go on-hook; the device registers to a Primary Node/GR-Node.	
Analog 2MC			
8LC Card			
IPG Digital	IPG maintains a call until the set forcible switchback time executes (5 min x (1-14)). IPG resets itself and will be registered to a Primary Node/GR-Node by on-hook.	Ringback tone lasts until the set forcible switchback time executes (5 min x (1-14)). IPG resets itself to register to a Primary Node/GR-Node. (DT connection when off-hook)	Ringing tone lasts until the set forcible switchback time executes (5 min x (1-14)). IPG resets itself to register to a Primary Node/GR-Node.
IPG Analog	After two to three minutes, the call is disconnected by an IPG reset. It will be registered to a Primary Node/GR-Node by on-hook in a few minutes.	After ringback tone lasts for two to three minutes, IPG resets itself. It will be registered to a Primary Node/GR-Node by on-hook.	After ringing tone lasts for two to three minutes, the device resets itself to register to a Primary Node/GR-Node.
Note: IPG Analog resets itself to perform re-registration after two to three minutes, regardless of the time before forcible switchback is executed (ASYDL SYS1 Index 847 Bit 0-3).			

Condition of IP Station Registration Changeover:
ASYDL SYS1 INDEX 852 Bit 5=1: Automatic Switchback

Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
UG50 (Multi-slot mode) UG50 (DLC)	The UG50 maintains a call until the set forcible switchback time executes (5 min x (1-14)). The UG50 resets itself and will be registered to a Primary Node/GR-Node by on-hook.	Ringback tone lasts until the set forcible switchback time executes (5 min x (1-14)). The UG50 resets itself to register to a Primary Node/GR-Node. (DT connection when off-hook)	Ringing tone lasts until the set forcible switchback time executes (5 min x (1-14)). The UG50 resets itself to register to a Primary Node/GR-Node.
UG50 (Multi-slot mode) - UG50 (LC) [Proprietary] - UG50 (LC) [SIP]	The device maintains an ongoing call; after you disconnect the call, the device registers to a Primary Node/GR-Node.	Ringback tone lasts until you go on-hook; the device registers to a Primary Node/GR-Node.	If you abandon the call without answering: Ringing tone lasts; if the calling party disconnects the call by on-hook, it takes a few minutes for the UG50 to register to a Primary Node/GR-Node. If you answer the call: The terminal/device maintains the ongoing call; after you disconnect the call, it takes a few minutes for the UG50 to register to a Primary Node/GR-Node.
UG50 (IPG mode) UG50-IPG (Digital)	UG50 maintains a call until the set forcible switchback time executes (5 min x (1-14)). The UG50 resets itself and will be registered to a Primary Node/GR-Node by on-hook.	Ringback tone lasts until the set forcible switchback time executes (5 min x (1-14)). The UG50 resets itself to register to a Primary Node/GR-Node. (DT connection when off-hook)	Ringing tone lasts until the set forcible switchback time executes (5 min x (1-14)). The UG50 resets itself to register to a Primary Node/GR-Node.
UG50 (IPG mode) UG50-IPG (Analog)	The UG50 maintains an ongoing call; after you disconnect the call, the UG50 registers to a Primary Node/GR-Node.	Ringback tone lasts until you go on-hook; the UG50 registers to a Primary Node/GR-Node.	If you abandon the call without answering: Ringing tone lasts; if the calling party disconnects the call by on-hook, it takes a few minutes for the UG50 to register to a Primary Node/GR-Node. If you answer the call: The UG50 maintains the ongoing call; after you disconnect the call, it takes a few minutes for the UG50 to register to a Primary Node/GR-Node.
UG50 (Retrofit mode) - UG50-2MC - UG50-8LC - UG50-4LC2COTA (COT) - UG50-4LC2COTA (PGT)			

**Condition of IP Station Registration Changeover:
ASYDL, SYS1, Index 852, Bit 5=0: Manual Switchback**

Condition of IP Station Registration Changeover: ASYDL, SYS1, INDEX 852, Bit 5 = 0: Manual Switchback			
Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
IP terminal Soft Phone (Proprietary Protocol)	The CMNT command makes the terminal register to a Primary Node/GR-Node: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”		
SIP Multiple Line terminal			
Softphone (SIP)			
MC&MG-COT: - SCA-4LC2COTA - MG-4LC2COTA	The CMNT command makes the device register to a Primary Node/GR-Node after you disconnect an ongoing call: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”	The CMNT command makes an MC&MG-COT register to a Primary Node/GR-Node: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”	The CMNT command makes the device register to a Primary Node/GR-Node: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”
Analog 2MC	The CMNT command makes an Analog 2MC register to a Primary Node/GR-Node: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”		
8LC Card	The CMNT command makes an 8LC Card register to a Primary Node/GR-Node after you disconnect an ongoing call: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”	The CMNT command makes an 8LC Card register to a Primary Node/GR-Node after you go on-hook: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”	
IPG Digital	The CMNT command makes IPG register to a Primary Node/GR-Node: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”		
IPG Analog	The CMNT command makes IPG register to a Primary Node/GR-Node: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”		
UG50 (Multi-slot mode) • UG50 (DLC)	The CMNT command makes the UG50 register to a Primary Node/GR-Node: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”		
UG50 (Multi-slot mode) • UG50 (LC) [Proprietary] • UG50 (LC) [SIP]	The CMNT command makes the UG50 register to a Primary Node/GR-Node after you disconnect an ongoing call: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”	The CMNT command makes the UG50 register to a Primary Node/GR-Node after you go on-hook: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”	

Condition of IP Station Registration Changeover: ASYDL, SYS1, INDEX 852, Bit 5 = 0: Manual Switchback			
Equipment State Equipment Kind	During Conversation	During Ringback Tone	During Ringing Tone
UG50 (IPG mode) UG50-IPG (Digital)	The CMNT command makes the UG50 register to a Primary Node/GR-Node: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”		The CMNT command makes the device register to a Primary Node/GR-Node: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”
UG50 (IPG mode) UG50-IPG (Analog)	The CMNT command makes the UG50 register to a Primary Node/GR-Node after you disconnect an ongoing call: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”	The CMNT command makes the UG50 register to a Primary Node/GR-Node after you go on-hook: CMNT command; Change Operating tab; CONDITION; “To Standby mode with terminal reset”	
UG50 (Retrofit mode) - UG50-2MC - UG50-8LC - UG50-4LC2COTA (COT) - UG50-4LC2COTA (PGT)			

4. Interactions with Network Services

- When using this feature with FCCS, the following conditions apply:
 - Set the office data of health check to FCCS links the same as the health checks between MGCs.
 - Set to in service the Health Check Set System Message [36-F]/[36-K] output for FCCS (ASYDL, SYS1, Index 534, Bit 6 = 0).
- CCIS Networking via IP (By PHC) [C-163] can be used not only with the Primary Node but also the Geo Redundant Node from FP95-114 V4.

Also CCIS services (including Centralized Billing - CCIS [C-55], Centralized System Management Report -CCIS [C-57] and Message Center Interface - CCIS [M-67]) can be used not only with the Primary Node but also the Geo Redundant Node from SV95-114 V4. See [6.2 CCIS Networking via IP](#), for the outline of operations.

Note: Be sure to note the following conditions.

- CCIS Networking via IP (By PHC) [C-163] is available between the originating and the destination node and Primary Node is in operating mode are prerequisite conditions for using Centralized Billing - CCIS [C-55], Centralized System Management Report -CCIS [C-57] and Message Center Interface - CCIS [M-67].
- CCIS services can be used only with the Primary Node in SV95-113 V3 or earlier software versions.

- The following shows CCIS features supported by Geo Redundant Node.Name Display features.
 - Name Display features
 - Name Display - OAI - CCIS [N-36]
 - CLI Suppression - CCIS [C-202]
 - Digital Display - Station - CCIS [D-72]

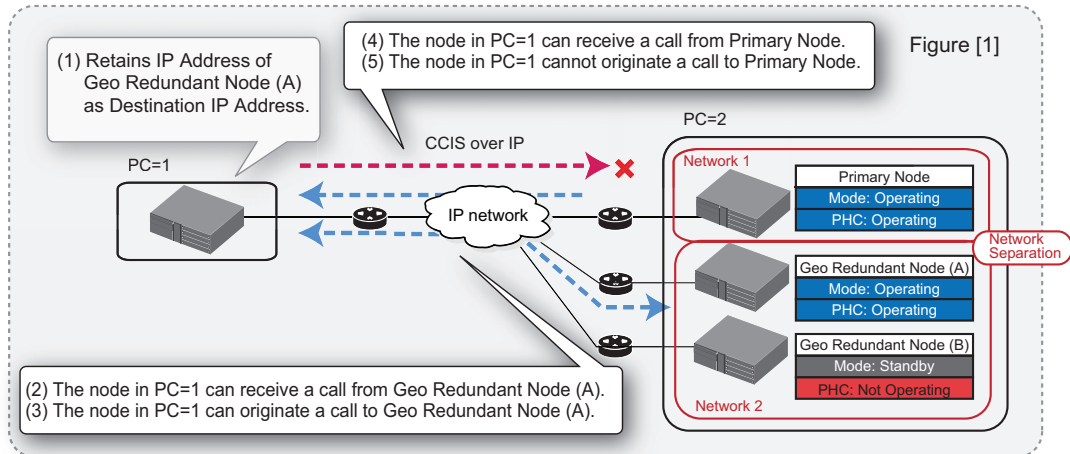
- Call Forwarding features
 - Call Forwarding - All Calls - CCIS [M-40]
 - Multiple Call Forwarding - Busy Line - CCIS [M-41]
 - Multiple Call Forwarding - Don't Answer - CCIS [M-42]
 - Call Transfer - All Calls - CCIS [C-50]
 - Station-to-Station Call features
 - Step Call - CCIS [S-59]
- (4) The following shows common conditions to originating/destination node for CCIS Networking via IP (By PHC) [C-163]. These conditions apply from FP95-114 V4.
- Related to CCIS Call Originating/Destination Node
 - (a) When the system data for ASYDL, SYS1, Index 1020, Bit 7=1 (Expansion of Links to Internal PHC is in service) is set, the number of Point Codes (PCs) which are managed as destinations of alternative routes is 252, the maximum number of links to Internal PHC.
 - (b) Only CCIS Networking via IP [C-163] with Internal PHC is supported.
 - (c) Service conditions of CCIS Networking via IP (By PHC) [C-163] are also applied. For details, refer to Data Programming Manual - CCIS.
 - (d) If a CCIS network error occurs when a call is ongoing or a sequence does not finish, behaviors of Primary Node and Geo Redundant Node are the same as those of the Internal PHC.
 - (e) For the case where the software versions are different between CCIS call originating node and destination node, see the condition [\(8\)](#).
 - Related to Geographic-Redundancy Node
 - (a) In the Geographic-Redundancy-enabled UMGi system, configure an Internal PHC in CCN. Do not configure two or more Internal PHCs in a Geographic-Redundancy-enabled UMGi system. The Internal PHC connections are not available in an RN in survival mode.
 - (b) For conditions of ongoing calls and originating calls before Transition to Standby occurs, see [\(7\)](#) in [3. Hardware/Software Conditions](#).
For incoming calls, conditions of [\(7\)](#) in [3. Hardware/Software Conditions](#) applies to calls which are terminated after the destination node (Geographic-Redundancy node) sends back the ACM signal. For a call when all the destination nodes do not send back the ACM signal (connections to all the destinations assigned to the CNT numbers are failed) before Transition to Standby occurs, the call takes an alternative route assigned to the Outgoing Route Selection Number (OPR) in the originating node side.
 - (c) For conditions of ongoing calls or calls in the middle of a sequence before Transition to Operating occurs, see [\(7\)](#) in [3. Hardware/Software Conditions](#).

- (d) When multiple operating-mode nodes exist because a network is divided into multiple networks and a CCIS call originating node can communicate with one of those operating-mode nodes, the call does not take an alternative route. As a result, the network where the originating node exists may differ from that where the destination node exists (see figure [1] on the next page). In this case, the networks can be united by the following data assignment (see figure [2] on the next page).

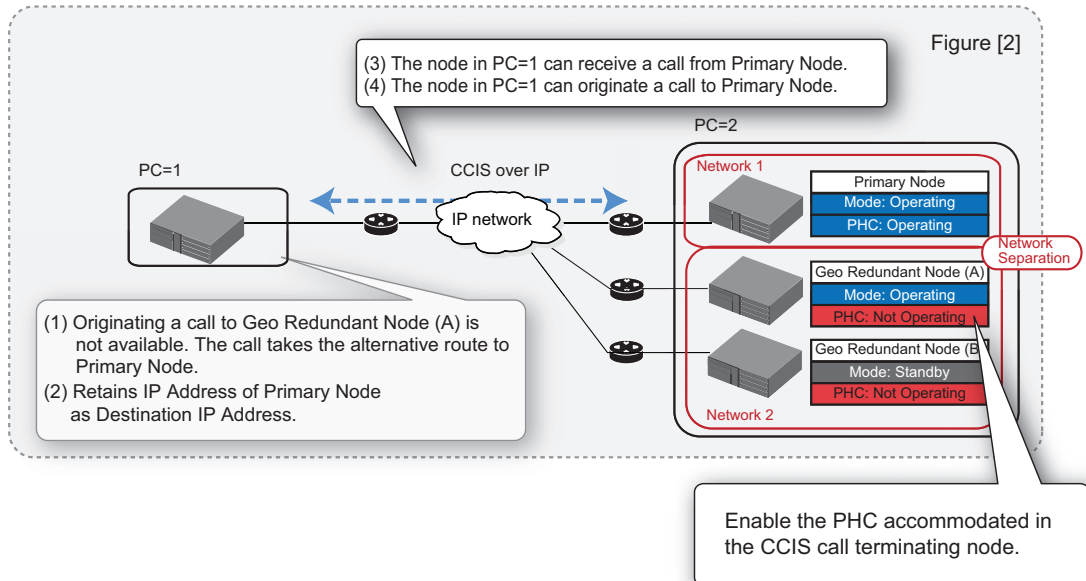
- Set ASYDL, SYS1, Index 880, Bit 2 = 0 (Internal PHC activation is not valid)
- Execute “Module Initialize of Internal PHC” with the ADPM command.
- Confirm that the Internal PHC is not displayed in the PH Module Status field (which means Internal PHC activation is not valid) of the DMOS command.

By setting Internal PHC not valid, the CCIS call destination node cannot originate or receive CCIS calls through the Internal PHC. After the networks for CCIS call originating node and destination node are united, assign the following data.

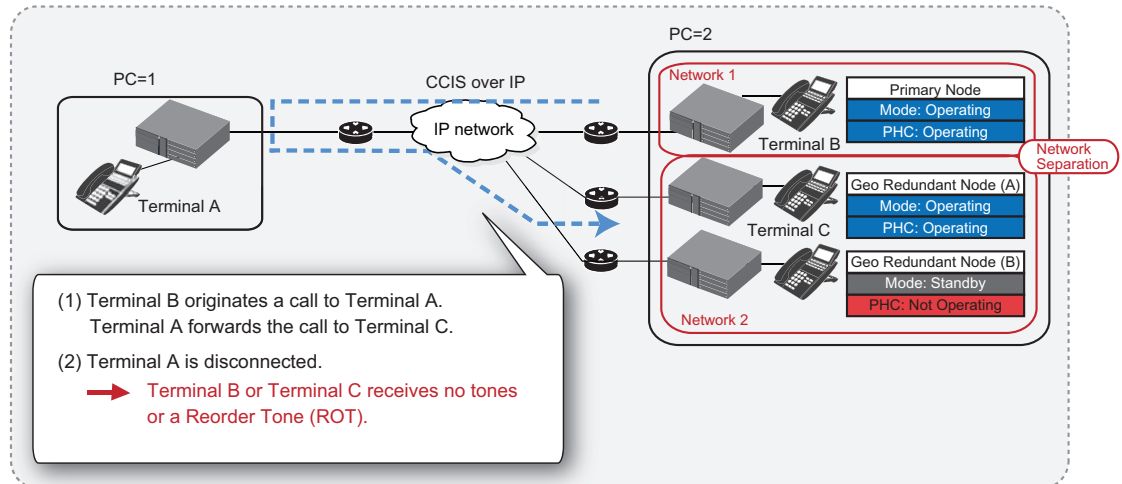
- Set ASYDL, SYS1, Index 880, Bit 2 = 1 (Internal PHC activation is valid).
- Execute “Module Initialize of Internal PHC” with the ADPM command.



Cancel the Internal PHC use in Geo Redundant Node (A) with the ADTM command.



- (e) When a network is divided into multiple networks and multiple nodes behave in operating mode, if the originating party and the destination party of forwarding features such as Blind Transfer, Call Forwarding - All Calls/Busy Line/Don't Answer - CCIS [C-45/46/47], Call Transfer - All Calls - CCIS [C-50] and Consultation Hold - All Calls - CCIS [C-58] belongs to the same Point Code (PC), the destination party receives no tone or a Reorder Tone (ROT) depending on the terminal type.



- (f) CCIS features are not supported in a standby-mode node.
- (5) The following shows conditions specific to originating node for CCIS Networking via IP (By PHC) [C-163]. These conditions apply from FP95-114 V4.
- Related to CCIS Call Originating Node
 - (a) When a destination is a node in the Geographic Redundancy system or the Geographic Redundancy-enabled UMGi system, assign the Primary Node to CNT=1. After CNT=2, assign the Geo Redundant Nodes according to an order specified with the CMNT command. When the order is changed with the CMNT command, change the CNT number with the APIPL command as well.
 - (b) When the Keep Destination IP Address parameter is set to ON with the APIPL command, the update timing of destination IP address is shown in [6.2.1.1 Destination IP Address Update Timing](#). The following are conditions related to Destination IP Address Update Timing.
 - After Destination IP Update Timing No.1 to No.4 in “Destination IP Address Update Timing,” is performed, it takes eight seconds until the destination IP address is cleared.
 - Soon after the destination IP address is updated at a moment of No.1 to No.4 in “Destination IP Address Update Timing,” the destination of a call is determined by linking a seized B-channel and the IP address of the counter node. In this case, the call takes an alternative route according to the order of CNT assigned with the APIPL command. The time until the call terminates is different depending on the seized B-channel.

- (c) When the Keep Destination IP Address parameter is set to ON with the APIPL command, if the originating node makes a CCIS call while the originating node is detecting the destination (while waiting the ACM Signal No-Receiving timeout due to a CCIS network communication failure), the CCIS call is sent to the node while the originating node is detecting the destination.
- (d) When alternative routing to IP address of a counter node has priority, if all the destination nodes fail to receive a call using the Destination IP Address, the call takes an alternative route to the other trunk (alternative routing with the Outgoing Route Selection Number (OPR)). At this time, the Destination IP Address is changed to the IP address of a destination party which has received a CCIS call recently.
- (e) Destination IP address is handed over when CPU changeover (memory copy changeover) occurs.
- (f) Failure Detection and Time Out Disconnection functions of Internal PHC do not work in combination with alternative routing.
- (g) Alternative routing works only for CCIS call origination. It does not work for incoming calls from the counter node. Likewise, the alternative routing does not work for a CCIS call sent from a node in Geographic Redundancy/Geographic-Redundancy-enabled UMGi system even the call is sent after the node transits to operating.
- (h) Conditions of alternative routing correspond to those of CCIS Alternate Routing - Backup [C-178]. For details, see CCIS Alternate Routing - Backup [C-178] in Data Programming Manual-CCIS.
- Related to Geographic-Redundancy Node as CCIS Call Originating Node
 - (a) The destination IP address in the operating-mode node is not handed over to the other node in the Geographic Redundancy system or the Geographic Redundancy-enabled UMGi system even after the other node transits to operating. When the destination IP address is retained in the new operating-mode node after Transit to Operating, the address is used for the destination of the CCIS call. If it is not retained, the call is made to the destination according to the CIC code.
 - (b) Unified Communication (UC) cooperation corresponds to conditions (c) and (d) in • [Related to Geographic-Redundancy Node](#) because nodes in standby mode discards CCIS messages (IAI/ AIM).
 - (c) A standby-mode node after Transit to Standby can makes a call with the following conditions:
 - The destination IP address in the operating-mode node is not changed because it did not link with that in the standby-mode node.
 - The counter party cannot call back to original calling party after a call is finished.
 - (d) Destination IP address is not be cleared by Transit to Operating/Standby. The process for changing the destination IP address by CCIS Alternate Routing - Backup [C-178] does not depend on the operating or standby mode.

- (6) The following shows conditions specific to destination nodes in CCIS Networking via IP (By PHC) [C-163]. These conditions apply from FP95-114 V4.
- Related to Geographic-Redundancy Node as CCIS Call Destination Node
- (a) IPMT command is used to collect CCIS messages (IAI/AIM) received by standby-mode nodes. To confirm the CCIS messages, refer to the time when 02H (MGC standby state shift notification) is output in the system message “10-V (Geographic Redundancy - MGC State Notification).”
- (b) When segments of LAN1 and LAN2 networks are separated, if a failure occurs in the LAN2 network which is used by Internal PHC by default, Internal PHC becomes unavailable. This is because health checks are still performed normally between the Geographic-Redundancy nodes and the operating-mode node does not transit to standby. In this case, the operating-mode node cannot receive a call even if the call from the originating node takes the alternative route.
- (7) The following shows conditions for communications between nodes with different software versions in CCIS Networking via IP (By PHC) [C-163]. These conditions apply from FP95-114 V4.

The following shows considerations when the software versions are different between originating node and destination node according to example case 1 to 4.

Example Case 1

	CCIS Networking over IP	
	Originating Node	Destination Node
Software Version	Earlier than FP95-114 V4	FP95-114 V4
Geographic-Redundancy Node	Either node	Yes

Note the following:

- (a) The timing of a call termination to the destination node will be different depending on the originating node (or depending on the call) because alternative routing operations are performed more often.
- (b) Call takes a long time to terminate. It may be mistakenly considered that a failure occurs in a node or network.

Example Case 2

	CCIS Networking over IP	
	Originating Node	Destination Node
Software Version	FP95-114 V4	Earlier than FP95-114 V4
Geographic-Redundancy Node	Either node	No

Note the following:

When the Keep Destination IP Address parameter is set to ON with the APIPL command in the originating node side, calls concentrate on a specific PHC in the destination node.

Example Case 3

	CCIS Networking over IP	
	Originating Node	Destination Node
Software Version	Any software version	FP95-114 V4
Geographic-Redundancy Node	Either node	Yes

Note the following:

- (a) Standby-mode nodes of Geographic Redundancy do not receive new incoming calls. If the originating node does not have the data settings of alternative routing, call loss occurs.
- (b) When the multiple Geographic-Redundancy nodes are in operating mode due to a separated network environment such as an environment where segments are separated, the node used for outgoing calls may differ from the one used for incoming call.
- (c) The originating node cannot identify whether the destination node is a Geographic-Redundancy node in operating mode or in standby mode. If the communication in the network is unstable, the destination node may be changed in each call.

Example Case 4

	CCIS Networking over IP	
	Originating Node	Destination Node
Software Version	FP95-114 V4	Any software version
Geographic-Redundancy Node	Yes	Either node

Note the following:

- (a) See (c) in [• Related to Geographic-Redundancy Node as CCIS Call Originating Node](#).
 - (b) When multiple nodes are in operating mode due to a network environment such as an environment where segments are separated, the destination node which receives a call cannot call back after the call is finished.
- (8) The following shows interactions to other services when CCIS Networking via IP (By PHC) [C-163] is used in combination with Geographic Redundancy. These conditions apply from FP95-114 V4.
- (a) In the case of a call via MG(PRI) (**Note 1**), a call is not maintained in the following conditions even if Call Protected Re-Registration [C-203] is used.
 - When the system data for ASYDL, SYS1, Index 852, Bit 5 = 0 (IP Station Registration Manual Changeover) is set, the node which is the registration destination of the MG(PRI) transits to standby. After that, “Terminal Reset Indication” is executed with the CMNT command.

- When the system data for ASYDL, SYS1, Index 852, Bit 5 = 1 (IP Station Registration Automatic Changeover) is set, the node which is the registration destination of the MG(PRI) transits to standby.

Note 1: For hardware condition of MG(PRI) which this condition applies, see Call Protected Re-Registration [C-203] in Data Programming Manual - Business.

(b) The following shows conditions on Centralized Billing - CCIS [C-55].

- In the case where a Geo Redundant Node exists:

Centralized Billing - CCIS [C-55] is not supported (**Note 2**). Please collect the billing information of the Primary Node or the Geo Redundant Node directly by connecting the SMDR equipment with each node. For the programming procedure, see Station Message Detail Recording (SMDR) [S-10] in Data Programming Manual-Business. For the system data of ASYD, SYS1, Index 182 and 183 (Centralized Billing Point Code), assign the data as shown below.

When A Node Is	ASYD, SYS1, Index 182 and 183 (Centralized Billing Point Code)
A node in the Geographic Redundancy system	0 (fixed)
A counter office of a node in the Geographic Redundancy	Assign a point code which is not used by nodes in the Geographic Redundancy system

Note 2: When a node in the Geographic Redundancy system is Center Node (Main Node) or Local Node (Satellite Node) of Centralized Billing - CCIS [C-55], the following will happen.

- When the node is Center Node
The billing information of each Local Node is sent to the Primary Node (which is a Local Node of CNT=1 set with the APIPL command) so the information cannot be collected by any Geo Redundant Node.
- When the node is Local Node
Center Node can collect the billing information generated in the Primary Node but it cannot collect the one generated in each Geo Redundant Node (the billing information in each Geo Redundant Node is erased automatically after a certain period of time).
- In the case where a Geo Redundant Node does not exist (a combination of Primary Node and Survivable Remote Node/SR-MGC):

Centralized Billing - CCIS [C-55] is supported by the Primary Node. For the programming procedure, see Centralized Billing - CCIS [C-55] in Data Programming Manual-CCIS.

(c) The following shows conditions on Centralized System Management Report - CCIS [C-57].

- In the case where a Geo Redundant Node exists:

Centralized System Management Report - CCIS [C-57] is not supported (**Note 3**). Please collect the fault information of the Primary Node or the Geo Redundant Node directly by connecting PCPro or a printer with each node. For the system data of ASYD, SYS1, Index 184 and 185 (Centralized Management Report Point Code), assign the data as shown below.

When A Node Is	ASYD, SYS1, Index 184 and 185 (Centralized Management Report Point Code)
A node in the Geographic Redundancy system	0 (fixed)
A counter office of a node in the Geographic Redundancy system	Assign a point code which is not used by nodes in the Geographic Redundancy system

Note 3: When a node in the Geographic Redundancy system is Center Node (Main Node) or Local Node (Satellite Node) of Centralized System Management Report - CCIS [C-57], the following will happen.

- When the node is Center Node
The fault information of each Local Node is sent to the Primary Node (which is a Local Node of CNT=1 set with the APIPL command) so the information cannot be collected by any Geo Redundant Node.
- When the node is Local Node
Center Node cannot collect the fault information generated in each Geo Redundant Node.
- In the case where a Geo Redundant Node does not exist (a combination of Primary Node and Survivable Remote Node/SR-MGC):

Centralized System Management Report - CCIS [C-57] is supported by the Primary Node. For the programming procedure, see Centralized System Management Report - CCIS [C-57] in Data Programming Manual-CCIS.

(d) When a CCIS call originating node which enables Look Ahead Routing - CCIS [L-25] makes a call to a node of a Point Code to which the Keep Destination IP Address parameter is set with the APIPL command, the call takes an alternate route predetermined as a detour by the AOPR/AOPRL/AOP-RN command in the cases shown below. Alternate routing to destination IP address is not available.

- Incoming route or outgoing route of a relaying node are busy.
- Alternate routing is performed according to Look Ahead Routing - CCIS [L-25] because the tandem connection is restricted.

5. SR-Node Support SR-MGC(E)

The following are the conditions for the features specific to Survivable Remote Node support SR-MGC(E). Conditions in common with the current Geographic Redundancy feature are omitted.

- (1) The following requirements must be met to use an SR-MGC(E) as a Survivable Remote Node.
 - (a) MGC numbers of Survivable Remote Nodes must be configured after CF card initialization process by using the DVD for enabling SR-Node Support SR-MGC(E) or by using ssh.
 - (b) MGC numbers must be assigned to Survivable Remote Nodes with the **CMNT** command.
- (2) When entering information about Survivable Remote Nodes with the **CMNT** command, configure the parameters on the Primary Node or self MGC as follows:
 - (a) Configuration of CPU: Single
 - (b) Use Physical PIR: Off (Clear the check box.)
- (3) Primary Node or SV9500 cannot be configured on an SR-MGC(E). If you install the software on the machine and start the system, all the commands that overwrite the existing office data are restricted except for:
 - ASYD, ASYDL, ASYDN, ADTM, ATIM and CMNT
 - AONE **Note 1**

Note 1: Accessed via the PCPro menu item [System] -> [Activate].

In that system, registration of IP equipment is also restricted.

- (4) The hardware structure of SR-MGC(E) differs from that of SV9500 Appliance Model. The table below shows the functional limitation of the SR-MGC(E) due to the absence of or difference in the following cards:

Card	Related Limitation
EMA MAIN	The SR-MGC(E) has no alarm indicators. An alarm condition can only be monitored via PCPro.
	Because of the absence of the WDT and IAT functions, the SR-MGC(E) does not provide software fault recovery.
CPU	SW2 of the MODE switch must be set to off and SW3 to on, which means "SR-MGC(E)." (This is the factory default.) SW2 through SW4 are hidden behind the front panel of the chassis, preventing unauthorized access.
IOC	The SR-MGC(E) has no CONN connector.
TSW PWR	The SR-MGC(E) has no TSW PWR connector to PIR.
EMA SUB-A	The SR-MGC(E) has no connectors to External Alarm Indication Panel or alarm display supply (DSPP).
EMA SUB-B	The SR-MGC(E) has no connectors to TSWR for 4-IMG system.

Card	Related Limitation
EXB	The SR-MGC(E) has no connectors to TSW-BOX or TSWR.

- (5) The table below shows the functional modification of the SR-MGC(E) to use it as a Survivable Remote Node, providing the same service as offered by a Survivable Remote Node running on SV9500 Appliance Model:

Card	Related Limitation
CPU	The LAN2 connector was not necessary on the SR-MGC(E) as long as the machine was used in a conventional way. Now it becomes available for the use of Survivable Remote Node on the SR-MGC(E).
	The system message “4-U: PCI Card Failure” is generated for LAN3 and LAN4 connectors (both unused) on a Survivable Remote Node on SR-MGC(E) to provide the same specification as a Survivable Remote Node running on SV9500 Appliance Model.

- (6) On a Survivable Remote Node on SR-MGC(E), turning on and off of the following lamps is controlled by the hardware and the system message “6-A: System Failure (for SR-MGC(E))” is generated:
- PWR
 - FAN1 ALM
 - FAN2 ALM

6. Geographic-Redundancy-Enabled UMGi System

The following are the conditions for the features specific to Geographic-Redundancy-enabled UMGi system. Conditions in common with the current Geographic Redundancy feature are omitted.

6.1 System Conditions

- (1) Auxiliary nodes are provided for Primary Node (CCN) and Primary Node (RN) individually. This feature must be configured per LP number.
- (2) Information about the following nodes is required in a UMGi system with this feature enabled:
 - Primary Node (CCN/RN)
 - Geo Redundant Node (CCN/RN)
 - Survivable Remote Node
 - SR-MGC

Use the CMNT command and enter the information for every node listed above (including non-Geo-graphic-Redundant CCN and RN, for which the “MGC Kind” parameter should be set to “Primary Node”). You also need to use the ADTM command to assign an IP address to the Primary Nodes (CCN/RN), Geo Redundant Nodes (CCN/RN) and Survivable Remote Nodes.

- (3) In a UMGi system with this feature enabled, the behavior of CCNs and RNs differs between operating and standby modes in the following ways:

	Operating mode	Standby mode
CCN	Works in normal mode where it controls RNs in operating mode.	Neither Primary Node (CCN) nor Geo Redundant Nodes (CCN) communicate with RNs.
RNs	Work in normal mode where they are under control of the CCN in operating mode and communicate with it to see if it is in good working order.	Work in survival mode where they operate independently without communicating with Primary Node (CCN) or Geo Redundant Nodes (CCN).

- (4) The following features are not supported:
 - (a) Appliance Model
 - CCIS features
 - Hotel features
 - PS features
 - MG-SIP TIE Line [M-122]
 - (b) Prepackaged Server Model
 - Attendant Console features
 - CCIS features
 - ACD features
 - Hotel features

- PS features
- MG-SIP TIE Line [M-122]
- UG50 (DLC) **Note 1**
- IPG Digital **Note 2**

Note 1: UG50 (DLC) includes Digital Multiple Line Telephones which use Multi-slot Mode DLC cards.

Note 2: IPG Digital includes UG50 IPG mode.

- (5) SMDR/MCI need to be accommodated for each Primary Node/Geo Redundant Node (CCN/RN).
- (6) Standard SIP terminals can be accommodated in the following ways.

Supported : X Non Supported : N

System		Standard SIP Terminal	Geographic Redundancy	
			Primary Node	Geo Redundant Node
UMGi System	CCN	SIP Handler Controlled SIP terminal	X	X
		SP Controlled SIP terminal	X	N
	RN	SIP Handler Controlled SIP terminal	X Note 3	X Note 3
		SP Controlled SIP terminal	N	N

Note 3: Accommodation is available from FP95-114 V4 Issue 2.0.

- (7) If the software version and issue of the Primary Node (CCN) and the Primary Node (RN) are not the same, the Primary Node (RN) cannot change to normal mode.
- (8) The software version of Survivable Remote Node/SR-MGC must be same or higher than that of the Primary Nodes/Geo Redundant Nodes (CCN/RN).
- (9) In normal mode, the operating mode Primary Node (RN)/Geo Redundant Node (RN) is synchronized by a UMGi function: Office Data Transfer from the CCN memory to each RN memory.
 The standby-mode Primary Node (RN)/Geo Redundant Node (RN), Survivable Remote Nodes and SR-MGCs are synchronized by a Geographic Redundancy function: Office Data Copying with files. For more information, see [6.3 Conditions for System Maintenance](#).
- (10) Primary Nodes (CCN/RN) and Geo Redundant Nodes (CCN/RN) start up in operating mode after system initialization. Survivable Remote Nodes and SR-MGCs start up in standby mode after system initialization.

- (11) When the following node is Appliance Model, the clock information is synchronized with the system clock of Primary Node (CCN) as shown below.

Clock Information Synchronization

Node	Synchronization Method
CCN in standby mode	The clock information is synchronized with the Primary Node (CCN).
RN in normal mode	The clock information is synchronized: • when the RN changes to normal mode • during the 30 seconds of refresh time in normal mode
RN in survival mode	The clock information is synchronized with the Primary Node (RN).
Survivable Remote Node and SR-MGC	The clock information is synchronized with the Primary Node (CCN).

6.2 Conditions for Modes

- (1) If a fault occurs in Primary Node (RN) that is in normal mode, Geo Redundant Node (RN) changes from standby mode to normal mode and authenticates itself with the related Primary Node (CCN). It takes approximately two minutes to start rescuing the terminals that had connected with the faulty Primary Node (RN).
- (2) If a fault occurs in Primary Node (CCN), all the related Primary Nodes (RN) change over to survival mode temporarily. Simultaneously, Geo Redundant Node (CCN) changes standby mode to operating mode within approximately two minutes and authenticates itself with the related Primary Nodes (RN) that are in survival mode. After that all of them start in normal mode to rescue the terminals.
- (3) Under the condition that Primary Node (RN) and Geo Redundant Node (RN) do not accommodate IP terminals, even though you decided to use manual setting (using the COPM command), the RN automatically changes its state to normal mode directly, without remaining on survival mode. However, if Primary Node (RN) accommodates non-IP stations, Geo Redundant Node (RN) stays in survival mode. In this case, you need to use the COPM command to change state of Geo Redundant Node (RN) to normal mode.
- (4) If Primary Node has a fault in its SP, it changes from operating mode to standby mode and survival mode. At this time, non-IP/SIP devices are accommodated only in survival-mode Primary Node, even though Geo Redundant Node in normal mode is capable of accommodating IP/SIP devices.
- (5) Even though communication error occurs between CCN and RN, when communication works normally between Primary Node (CCN/RN) and Geo Redundant Node (CCN/RN), automatic changeover never happens in Primary Node and Geo Redundant Node. Maintenance personnel manually restore CCN and RN to normal mode.
- (6) If PBI settings on MGC does not match LP numbers assigned with the CMNT command, CCN and RN do not operate in normal mode. The CCN keeps operating as standby mode and the RN keeps operating as survival mode (standby mode). When this happens, system message (10-V FNC=02H) is output. PBI setting is specified in the following:
SV9500 Appliance Model: Front switch (PBI No. switch) on EMA MAIN card
SV9500 Prepackaged Server Model: config_tool.sh
- (7) If the setting with the CMNT command of CCN and RN does not match the setting on ASSW, they do not operate in normal mode. The CCN keeps operating as standby mode and the RN keeps operating as survival mode (standby mode). When this happens, system message (10-V FNC=02H) is output.

6.3 Conditions for System Maintenance

- (1) Office data can be registered/modified/deleted only on operating-mode CCN. CCN replicates office data to RN when they are in normal mode. System data (ASYDL, SYS1, Index 1354, Bit 1) for Geographic Redundancy can be enabled in CCN.
- (2) In Geographic Redundancy, office data is duplicated from the following:
 - Operating CCN replicates its own office data to standby-mode CCN/Survivable Remote Node/SR-MGC.
 - RN operating in normal mode replicates its own office data to standby-mode RN.
- (3) Whether Automatic office data copy to Geo Redundant Node (RN) is out of service or in service can be selected by system data (ASYDL, SYS1, Index 1354, Bit 6=0 (out of service)/1 (in service)). If in service, it is performed to all the standby-side RNs. As for automatic duplication after periodical diagnosis, it is performed only when the operating RN is in normal mode. If the RN is in survival mode, automatic duplication after periodical diagnosis is not performed.
- (4) When UMGi system uses Geographic Redundancy, the CMNT command is executable from RN as well. However, some of the features are restricted.
- (5) To check the status of Primary Node (CCN)/Geo Redundant Node (CCN)/Survivable Remote Node/SR-MGC, log in to Primary Node (CCN) or Geo Redundant Node (CCN) by using PCPro and execute the CMNT command. You cannot check the status of Primary Node (RN)/Geo Redundant Node (RN). Their health check status indicates “??” which means “health checks have not been executed” though they are shown in MGC list of the CMNT Command.
- (6) To check the status of Primary Node (RN)/Geo Redundant Node (RN) (**Note 1**), log in to Primary Node (RN) or Geo Redundant Node (RN) by using PCPro and execute the CMNT command. You cannot check the status of Primary Node (CCN)/Geo Redundant Node (CCN)/Survivable Remote Node/SR-MGC. Their health check status indicates “??” which means “health checks have not been executed” though they are shown in MGC list of the CMNT Command.

Note 1: You can check the status of Primary Node (RN)/Geo Redundant Node (RN) only within the same LP number.
- (7) To perform manual operations to Primary Node (RN)/Geo Redundant Node (RN), log in to RN that is in normal mode by using PCPro, and then execute the CMNT command.
- (8) To check system messages (10-T/10-U/10-V) indicating operations between Primary Node (RN) and Geo Redundant Node (RN), log in to each RN by PCPro and perform the DFTD command. Note that you cannot see the system messages for CCN while you log in to RN.

- (9) Operating Primary Node (CCN)/Geo Redundant Node (CCN) manages the master data of office data. Operating Primary Node (RN)/Geo Redundant Node (RN) manages the office data assigned with the ASYD, ASYDL, CMNT and ADTM commands.
- (10) ASYDL, SYS1, Index 1354, Bit 1 (Restriction of office data change) determines a rule for data assignment in Geographic Redundancy environment; it does not support data assignment from Primary Node (RN)/Geo Redundant Node (RN).
- (11) PCPro can connect to operating and standby Primary Node (CCN/RN)/Geo Redundant Node (CCN/RN).
- (12) Office data assignment (add/delete/modify) should be executed on operating/standby Primary Node (CCN) or operating Geo Redundant Node (CCN).
- (13) After you have modified office data in operating Primary Node (CCN)/Geo Redundant Node (CCN), use the CPDM command to transfer the data change to operating Primary Node (RN)/Geo Redundant Node (RN).
For CCN, after office data is updated with the MEM_HDD command, copy the office data from operating-mode Primary Node (CCN) or Geo Redundant Node (CCN) to standby-mode Primary Node (CCN) or Geo Redundant Node (CCN) and Survivable Remote Node with the CMNT command. For RN, log in to Primary Node (RN) or Geo Redundant Node (RN) in normal mode. Then copy the office data from operating-mode Primary Node (RN) or Geo Redundant Node (RN) to standby-mode Primary Node (RN) or Geo Redundant Node (RN) and Survivable Remote Node with the CMNT command. It is available to use the office data copy performed by the periodical diagnosis.
- (14) At startup, the ATIM command is available to set time zone and summer time on PCPro connected to Primary Node (RN)/Geo Redundant Node (RN).
- (15) Use the ARPM/COPM command from operating Primary Node (CCN)/Geo Redundant Node (CCN). You cannot switch the operation mode of Primary Node (RN)/Geo Redundant Node (RN) from standby Primary Node (CCN)/Geo Redundant Node (CCN).
- (16) You can check the status of operating Primary Node (RN)/Geo Redundant Node (RN) from operating Primary Node (CCN)/Geo Redundant Node (CCN) by using the DRPM command, however, you cannot check the status of standby Primary Node (RN)/Geo Redundant Node (RN).
- (17) Information on failure occurred in Primary Node (RN)/Geo Redundant Node (RN) when the RN is in normal mode is displayed on operating Primary Node (CCN)/Geo Redundant Node (CCN). However, to check the information on standby Primary Node (CCN/RN)/Geo Redundant Node (CCN/RN), you need to connect PCPro to the node where the failure happens.
- (18) The following are conditions for the MGC list shown in CMNT command on UMGi with Geographic Redundancy.

- To check status of Primary Node (CCN/RN)/Geo Redundant Node (CCN/RN), connect PCPro to the node you want to check and execute the CMNT command.
You cannot check the status of Primary Node (RN)/Geo Redundant Node (RN) from PCPro connected to Primary Node (CCN)/Geo Redundant Node (CCN), and vice versa. You cannot check the status of Survivable Remote Node/SR-MGC from PCPro connected to Primary Node (RN)/Geo Redundant Node (RN) as well.
In addition, only information of nodes with the same LP number within the Primary Node (RN)/Geo Redundant Node (RN) can be collected; it cannot collect information on nodes having other LP number.
- The CMNT command lists all the equipment related to Primary Node/Geo Redundant Node/Survivable Remote Node/SR-MGC.
This list is shown, regardless of operating or standby state of the node PCPro connected to.

6.4 Conditions for Automatic Detour in Survival Mode

Automatic detour between Primary Node and Geo Redundant Node is invalid if they have the same PBI.

6.5 Conditions for Accommodating IP Devices

- (1) Primary Node (RN) and Geo Redundant Node (RN) in survival mode or standby-mode Primary Node (CCN)/Geo Redundant Node (CCN) can perform IP Station Registration Changeover.
- (2) IP Station Registration Changeover is determined by ASYDL, SYS1 Index 852, Bit 5. This system data is a common setting with SR-MGC manual/automatic changeover.
- (3) IP Station Registration Changeover executed by Primary Node (RN) via proprietary protocol makes terminal autonomously reboot. The necessary time for terminal reboot varies, depending on the IP devices. This condition applies to the situation when IP Station Registration Changeover occurs due to a failure in the SP. Because IP devices with proprietary protocol only accept the reset command from the DRS (CCN when UMGi is used) they have registered in, they do not accept the reset command from RN that is in survival mode.

6.6 Conditions for SR-MGC

- (1) The remote version upgrade which is mentioned in “Remote Version Upgrade” of SR-MGC(E) [SN8178 MGCEV-B/SN8178 MGCEV-A] in Peripheral Equipment Description (IP Devices) cannot be used for the version upgrade of the Primary Node (CCN/RN), the Geo Redundant Node (CCN/RN) and the Survivable Remote Node (it is available only for SR-MGC(E) used for Survivable Remote MGC [S-141]). To upgrade the Primary Node (CCN/RN), the Geo Redundant Node (CCN/RN) and the Survivable Remote Node, use Telephony Server Maintenance Menu.

6.7 Hardware/Software Conditions

- (1) The systems that can be used as Primary Node (CCN/RN), Geo Redundant Node (CCN/RN) and Survivable Remote Node are SV9500 Prepackaged Server Model and SV9500 Appliance Model. Also SR-MGC can work as Survivable Remote Node. For more information, see [5. SR-Node Support SR-MGC\(E\)](#).
- (2) The following table shows the availability of terminals in a Geographic-Redundancy-enabled UMGi system. Only Primary Node supports PIR accommodation:

X: Available N: Not Available

Terminal MGC Kind	Non-IP Station	IP Station
Primary Node (CCN)	X Note 1	X
Geo Redundant Node (CCN)	N	X
Primary Node (RN)	X Note 1	X
Geo Redundant Node (RN)	N	X
Survivable Remote Node	N	X
SR-MGC	N	X

Note 1: Only Appliance Model node with PIRs can accommodates non-IP stations.

- (3) This feature is not supported by RNs accommodating only non-IP stations. In the CMNT command, select “Primary Node (RN)” to the MGC Kind parameter.
- (4) When the Primary Node (CCN) is Prepackaged Server Model, the CPU configurations (ASYD, Index 58, Bit 0) data assignment must be the same as the data set to Primary Node (RN).
For Geo Redundant Node and Survivable Remote Node, the CPU configurations data needs to be assigned with the CMNT command.
- (5) Expansion to a Geographic-Redundancy-enabled UMGi system is available from a UMGi system. To migrate a 1-IMG/4-IMG/UMG system to the Geographic-Redundancy-enabled UMGi system, migration to a UMGi system is required in advance.
- (6) When the UMGi system is operating, the second setup of existing SR-MGCs is not required for the expansion to the Geographic-Redundancy-enabled UMGi system.



CHAPTER 3 IMG/MMG SYSTEM STARTUP (SV9500 APPLIANCE MODEL)

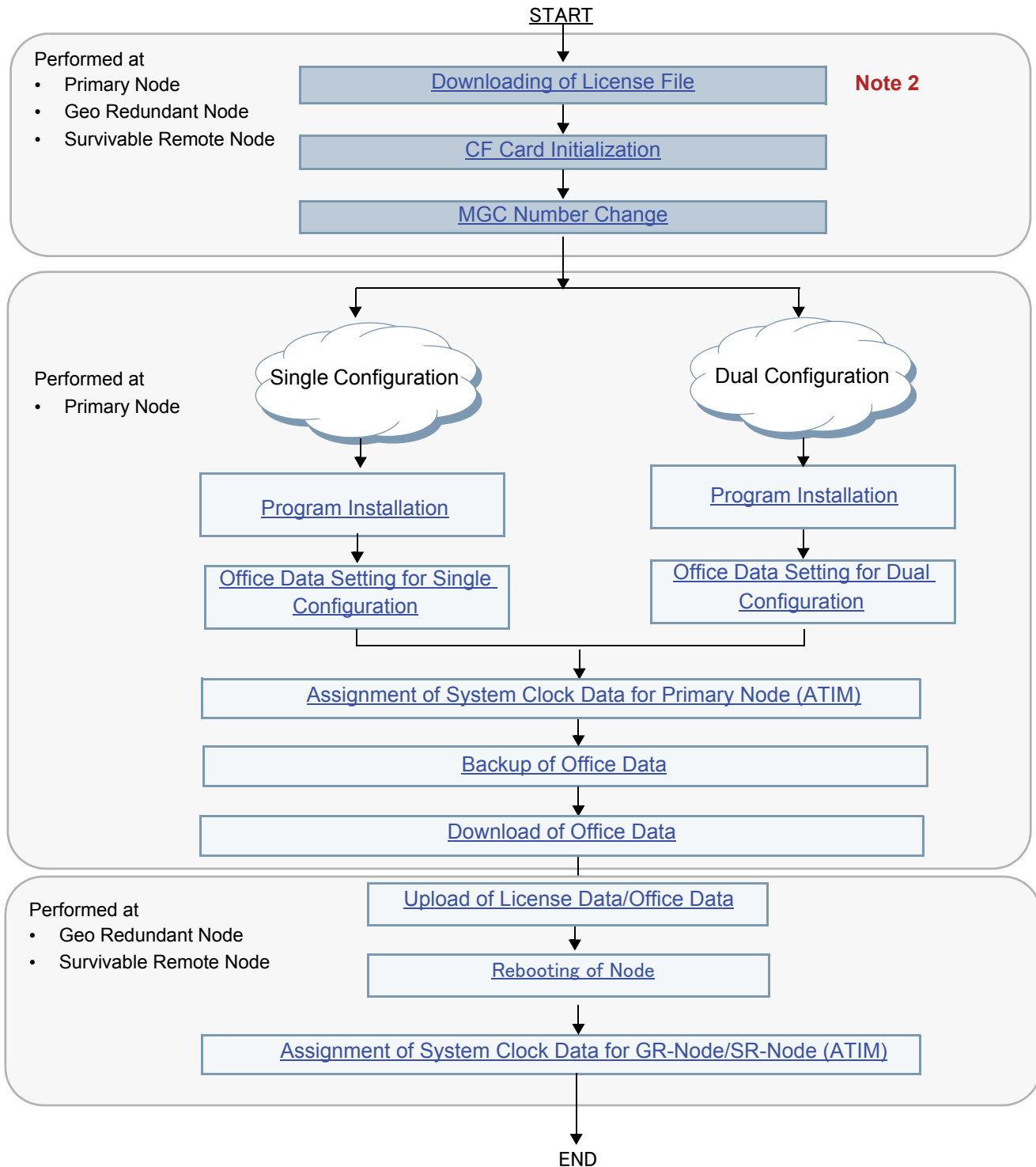
This chapter describes how to start up the Appliance Model system with Geographic Redundancy.

The initial startup process of the Telephony Server includes many procedures for setting and operation. The instructions in the following sections will help you perform the initial startup more easily by giving a detailed description on each setting.

In the sections of initial startup procedure, **Note** states the precautions required when performing each initial startup procedure. An error or failure may occur if these precautions are missed. Be sure to follow each precautions without exception. **Point** states tips and supplemental remarks to be considered when performing each initial startup procedure.

1. Initial Startup Procedure

This section explains the initial startup procedure of the SV9500 Appliance Model system with Geographic Redundancy. The following procedure needs to be performed at each MGC site (Primary Node/Geo Redundant Node/Survivable Remote Node). **Note 1**



Note 1: Please note the following condition for SR-MGC:

- The procedures for SR-MGC are the same as for the conventional case; see [S-141] Survivable Remote MGC on Data Programming Manual and Peripheral Equipment Description - IP Devices.
- This office data copy to SR-MGC is executed in the Primary Node site. After the previous steps are completed, perform the office data copy from Primary Node to SR-MGCs through the CMNT command.

Note 2: A common license file for Geographic Redundancy is to be used among Primary Node, Geo Redundant Node and Survivable Remote Node (even when Appliance model and Prepackaged Server model coexist in a network).

2. Downloading of License File

Access the License Management Server (LMS) to download a license file (svi.zip) and obtain Activation Code. A common license file for Geographic Redundancy is to be used among Primary Node, Geo Redundant Node and Survivable Remote Node (even when SR-MGC(E), Appliance model and Prepackaged Server model co-exist in a network).

Note: Be sure to note the following conditions.

- A new Registration Activation code is necessary when the license is upgraded.
- The SVI file is downloaded in a zip format. Do not unzip the SVI file since this file is used as is.
- You can rename the saved SVI file, but do not change the extension of the file.

3. CF Card Initialization

Note: For North America and Asia, the CF card is shipped pre-loaded. Only use this procedure when the CF card must be re-loaded. If this procedure is not required, skip this section and go to [4. MGC Number Change](#).

Follow the steps below to perform the following operations.

- Initializing CF card
- Installing OS, SV9500 program and default Office Data into the card
- Setting LAN 1 IP address
- Setting MGC Number (0-255) **Note 1**

Note 1: Set a MGC number in a range of 1-255 for Primary Node, Geo Redundant Node and Survivable Remote Node. Do not set MGC number "0" for these nodes.

1

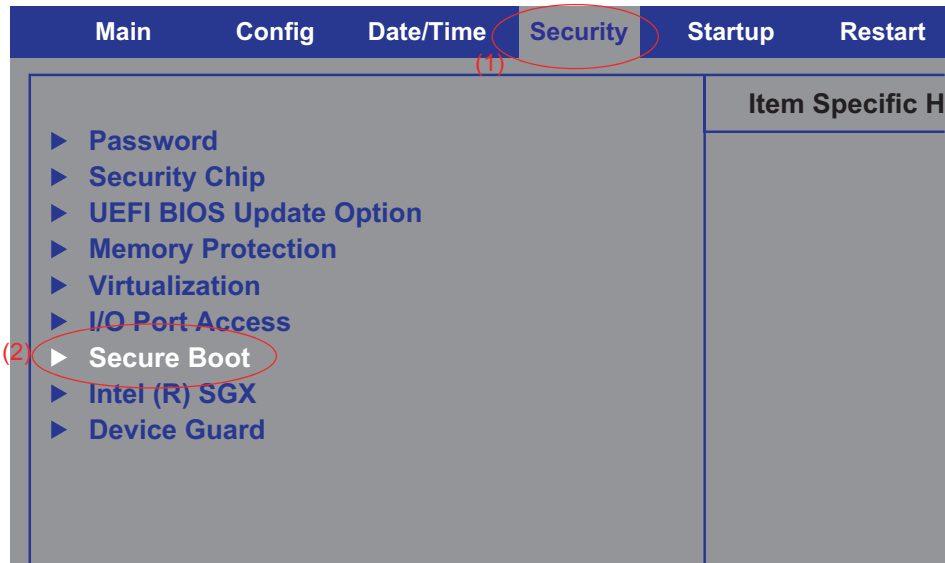
- (1) Turn on the maintenance PC to be used for CF card initialization.
- (2) Set the install DVD "GENERIC SOFTWARE" in the disk drive.
- (3) Insert CF card into PCMCIA card slot.
- (4) On Windows, open **ACTION CENTER** and select **All settings**.
- (5) Click **Update & security** on **Windows Settings**.
- (6) Click **Recovery** under **Update & security**.
- (7) Click **Restart now** under **Advanced startup**.
- (8) Select **Troubleshoot** on **Choose an option**.
- (9) Select **Advanced options** on **Troubleshoot**.
- (10) Select **UEFI Firmware Settings** on **Advanced options**.
- (11) Select **Restart** on **UEFI Firmware Settings**.
UEFI screen automatically displays after restart.

Note: If you can access the BIOS setting menu by pressing the key (such as F2) during boot in your PC, do the following:

- Select DVD drive as the first option in the boot priority order. If the boot mode is set to UEFI boot, change it to Legacy boot.
- Insert DVD and turn off PC.
- Insert CF card into PCMCIA card slot and turn on the PC.
- Then, go to [Step 8](#)

2

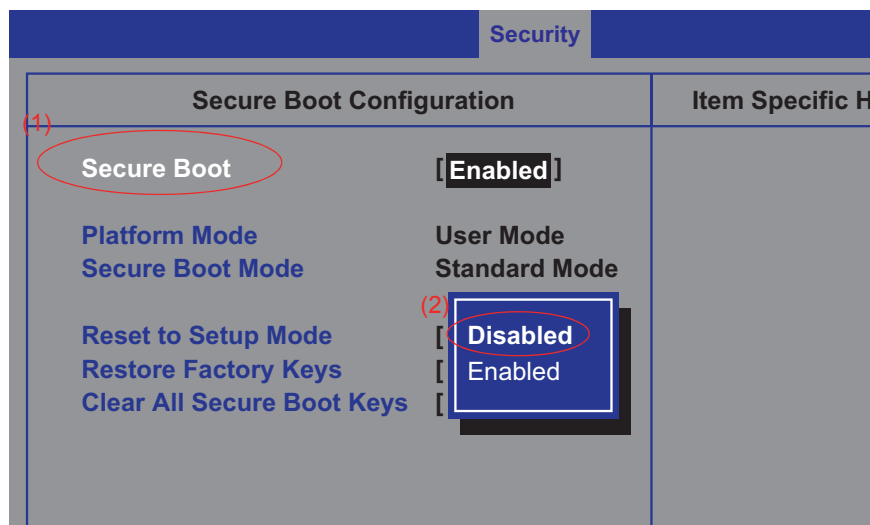
- (1) Click **Security** tab on **BIOS Setup**.
- (2) Click **Secure Boot** on **Security**.



Note: The screens being explained here may not be the same as ones you see in your PC. Please consider it and assign the same settings on your PC.

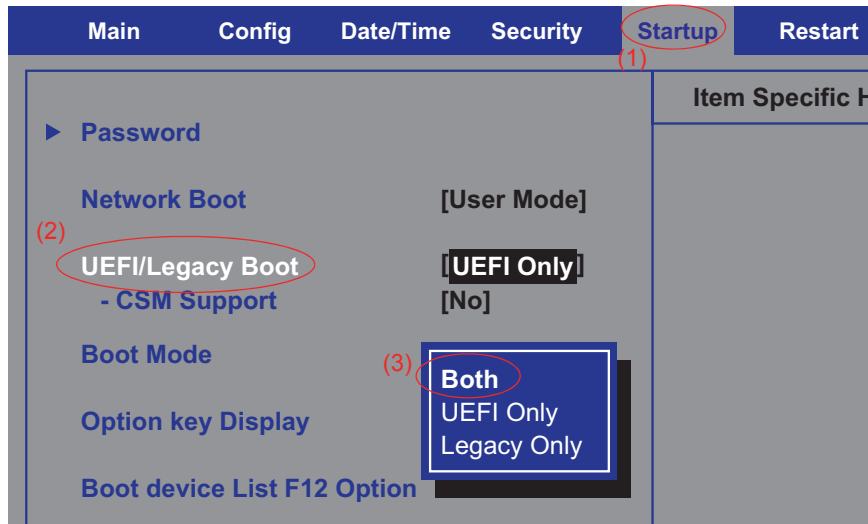
3

- (1) Select **Secure Boot** on **Secure Boot Configuration**.
- (2) Select **Disabled** on **Secure Boot**.
- (3) Press **ESC** key to return to the previous screen.



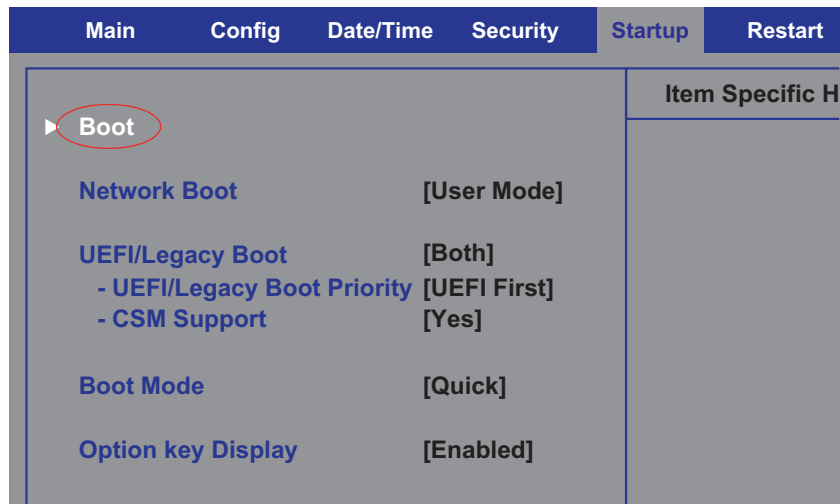
4

- (1) Select **Startup** tab.
- (2) Select **UEFI/Legacy Boot** on **Startup**.
- (3) Select **Both** on **UEFI/Legacy Boot**.



5

Select **Boot** on **Startup**.



6

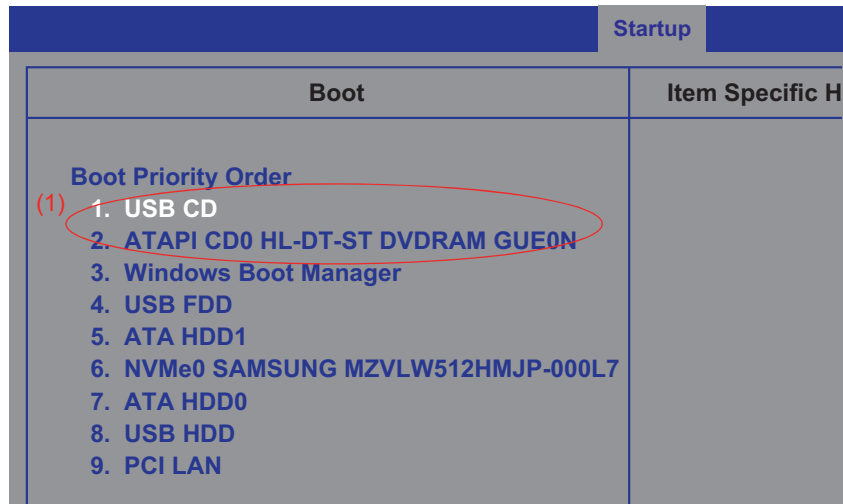
Determine the boot priority order for DVD drive in a PC that initializes CF.

- (1) Specify the setting for restart (boot priority 1).

The settings varies, depending on the PC environment such as USB-connected DVD drive or embedded DVD drive. For example;

- Set **ATAPI CD...** to the top priority (1) if you intend to use an embedded DVD drive as boot drive.
- Set **UCB CD** to the top priority (1) if you intend to use USB-connected DVD drive as boot drive.

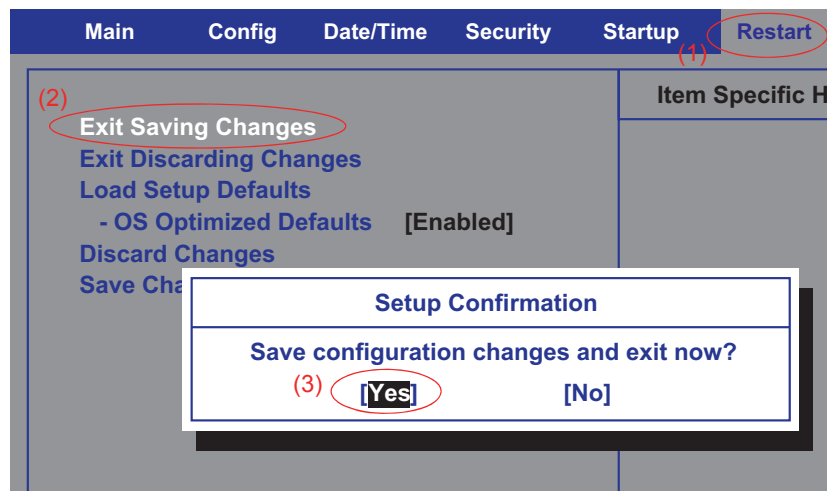
- (2) Press **ESC** key to return to the previous screen.



Note: Be sure to set "1.USB CD" in the case of USB-connected DVD drive. The boot program may not run if USB -connected DVD drive is set as 2 or later in Boot Priority Order.

7

- (1) Select **Restart** tab.
- (2) Select **Exit Saving Changes** in **Restart**.
- (3) Select **Yes** in **Setup Confirmation**.

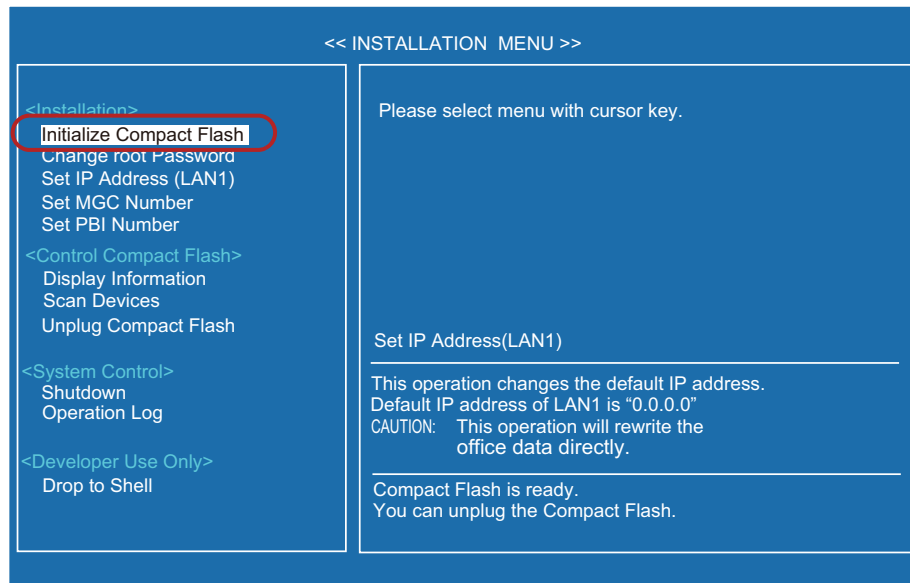


8

INSTALL DVD BOOT OPTIONS MENU screen appears. Select **2. Auto (Keyboard: US)** and then press the Enter key.

9

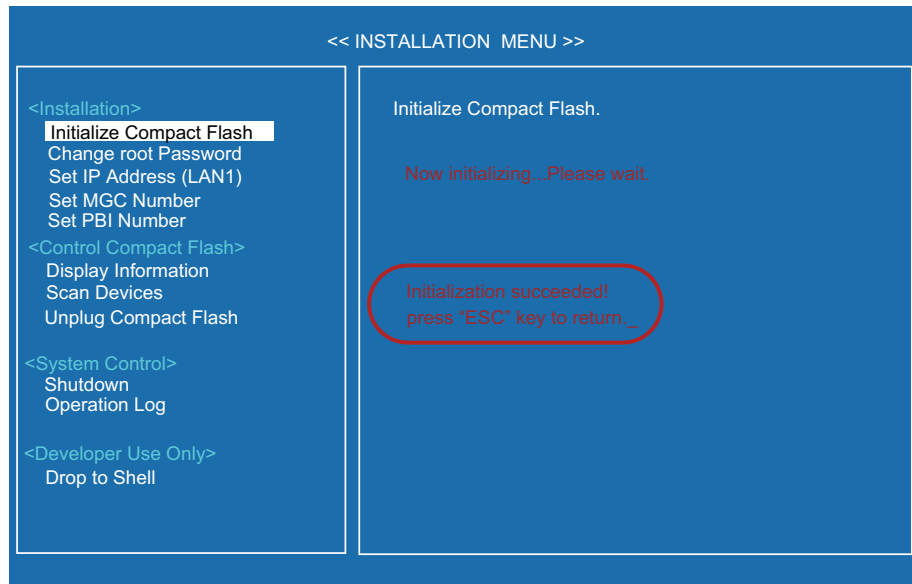
- (1) **INSTALLATION MENU** screen appears about five minutes later. Select **Initialize Compact Flash** under <Installation> by using the arrow keys on the keyboard and then press the Enter key.
- (2) A confirmation message appears. Select **OK** and press the Enter key.



Note: If processing speed of your PC is slow when writing to the CF card, an error may occur. If an error occurs during the installation, the following action is required.

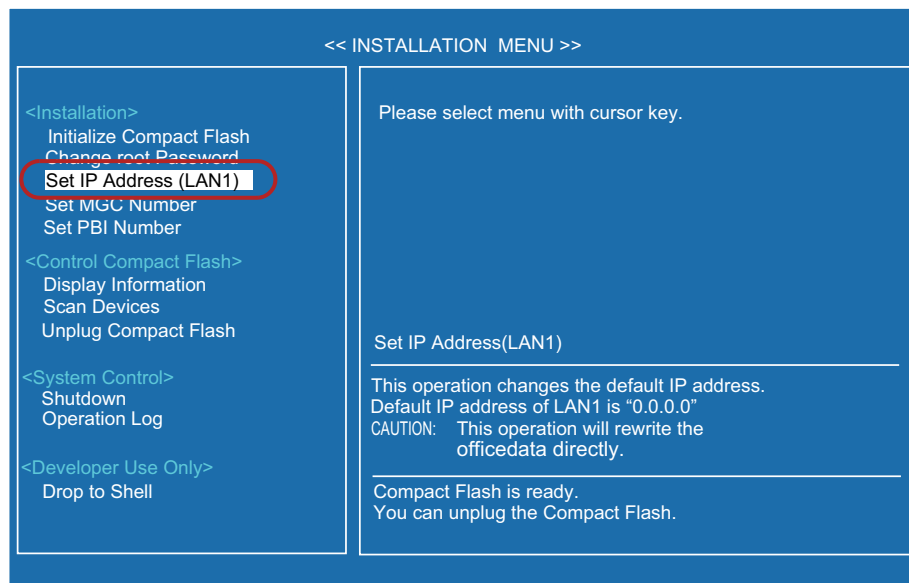
- When the installation process is aborted, remove the DVD-ROM from the tray manually.
- When the PC fails to recognize the CF card, the message “Compact Flash is NOT found...” is displayed. In that case, perform “Scan Devices” under <Control Compact Flash>. If the problem still remains unsolved, you need to use another PC to perform the installation.
- The time to complete the initialization (OS and program Installation) varies depending on the PC used.
- When the CF card is not detected by the PC, the installation cannot be executed. In that case, select **Scan Devices** under <Control Compact Flash> to have the card detected, then execute the initialization again by selecting **Initialize Compact Flash**.

- 10** When the initialization is complete, the message “Initialization succeeded! press ESC key to return” is displayed. It takes about 20 minutes to complete the initialization.



Note: The time to complete the initialization (OS and program Installation) varies depending on the PC used.

- 11** Select **Set IP Address (LAN1)** under <Installation> by using the arrow keys on the keyboard and then press the Enter key.



12

- (1) Select "Single" for the single configuration or "Dual" for the dual configuration and then press the Enter key.
- (2) Set the values corresponding to your actual network environment for the following items.

Note: When your system is in dual configuration, apply the same setting for both CF cards.

Setting Items for Single Configuration

Items	Setting Values
IP Address[ACT]	IP address of LAN1 (e.g. 10.100.1.11)
Subnet Mask	Subnet mask (e.g. 255.255.255.0)
Default Gateway	Default gateway (e.g. 10.100.1.1)

Setting Items for Dual Configuration

Items	Setting Values
IP Address[ACT]	IP address (ACT) of LAN1 (e.g. 10.100.1.11)
IP Address[CPU-0]	IP address (System #0) of LAN1 (e.g. 10.100.1.21)
IP Address[CPU-1]	IP address (System #1) of LAN1 (e.g. 10.100.1.31)
Subnet Mask	Subnet mask (e.g. 255.255.255.0)
Default Gateway	Default gateway (e.g. 10.100.1.1)

- (3) After the setting is complete, select **OK** and then press the Enter key.
- (4) The message "WARNING! this operation will change the setting in Compact Flash" is displayed. Select **OK** and press the Enter key.
- (5) The message "Succeed. press ESC key to return" is displayed. Press the ESC key.

<< INSTALLATION MENU >>

<Installation>

- Initialize Compact Flash
- Change root Password
- Set IP Address (LAN1)
- Set MGC Number
- Set PBI Number

<Control Compact Flash>

- Display Information
- Scan Devices
- Unplug Compact Flash

<System Control>

- Shutdown
- Operation Log

<Developer Use Only>

- Drop to Shell

Please select the CPU redundancy.
(Do NOT set it for SR-MGC (E) / (S))

[Single] [Dual]

IP Address[ACT] :

IP Address[CPU-0] :

IP Address[CPU-1] :

Subnet Mask :

Default Gateway :

13

Select **Set MGCNumber** under <Installation> by using the arrow keys on the keyboard and then press the Enter key.

<< INSTALLATION MENU >>

<Installation>
Initialize Compact Flash
Change root Password
Set IP Address (LAN1)
Set MGC Number
Set PBI Number

<Control Compact Flash>
Display Information
Scan Devices
Unplug Compact Flash

<System Control>
Shutdown
Operation Log

<Developer Use Only>
Drop to Shell

Please select menu with cursor key.

Set IP Address(LAN1)

This operation changes the default IP address.
Default IP address of LAN1 is "0.0.0.0"
CAUTION: This operation will rewrite the office data directly.

Compact Flash is ready.
You can unplug the Compact Flash.

14

- (1) Type an MGC number [0-255] in the **number** box.
- (2) After the setting is complete, select **OK** and then press the Enter key.
- (3) The message "WARNING! this operation will change the setting in Compact Flash" is displayed. Select **OK** and press the Enter key.
- (4) The message "Succeed. press ESC key to return" is displayed. Press the ESC key.

<< INSTALLATION MENU >>

<Installation>
Initialize Compact Flash
Change root Password
Set IP Address (LAN1)
Set MGC Number
Set PBI Number

<Control Compact Flash>
Display Information
Scan Devices
Unplug Compact Flash

<System Control>
Shutdown
Operation Log

<Developer Use Only>
Drop to Shell

Set MGCNumber

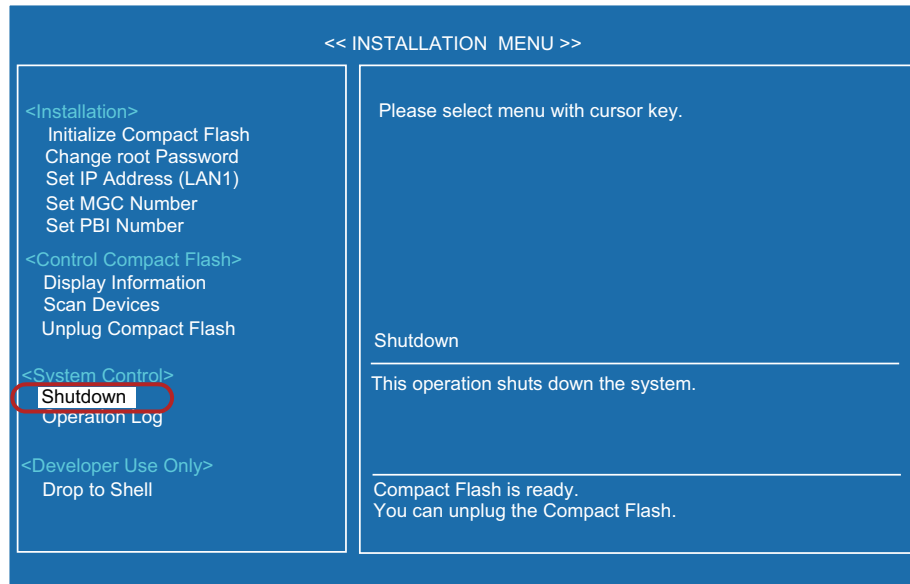
Please Input new MGCNumber [0-255].

number :

[OK] [CANCEL]

15

- (1) Select **Shutdown** under <System Control> by using the arrow keys on the keyboard and then press the Enter key.
- (2) A confirmation message appears. Select **OK** and then press the Enter key.
- (3) The DVD tray is automatically ejected and the PC is turned off.
- (4) Take the CF card out of the slot.



16

When you have changed any settings of the maintenance PC through [Step 1](#) to [Step 7](#), restore the original settings.

Note: When you can access the BIOS setting menu by pressing the key (such as F2), if you have changed the original BIOS settings to the following ([Step 1](#)), restore the original settings.

- DVD drive is selected as the top priority for boot.
- The boot mode is set to Legacy boot.

4. MGC Number Change

Note: This operation is required for North America and Asia. If not, skip this section and go to [Program Installation](#).

This section explains how to change MGC numbers of Primary Node/Geo Redundant Node/Survivable Remote Node through ssh.

Before you begin, you need to prepare the application handling ssh. After preparing it, follow the steps below to assign the appropriate MGC numbers to Primary Node/Geo Redundant Node/Survivable Remote Node.

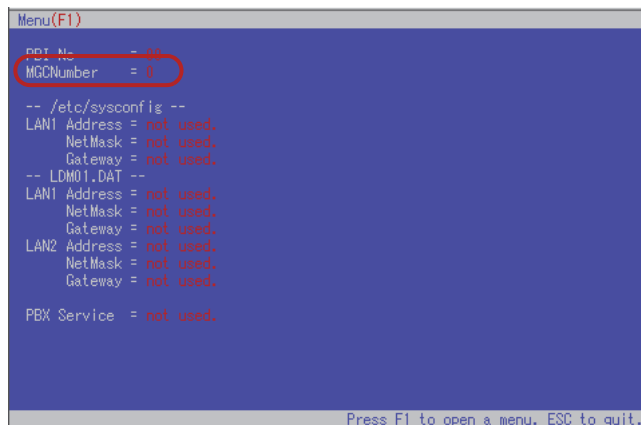
1

- (1) Activate the ssh application and access the target MGC.
- (2) Log in as “setpbimgcno” and type the password “S7#qzgrS0”.

```
[setpbimgcno@nextsv_typ1 ~]$
```

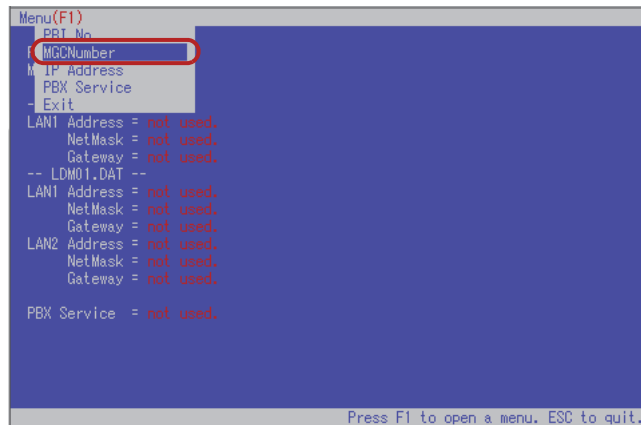
2

MGCNumber on the screen indicate MGC number.

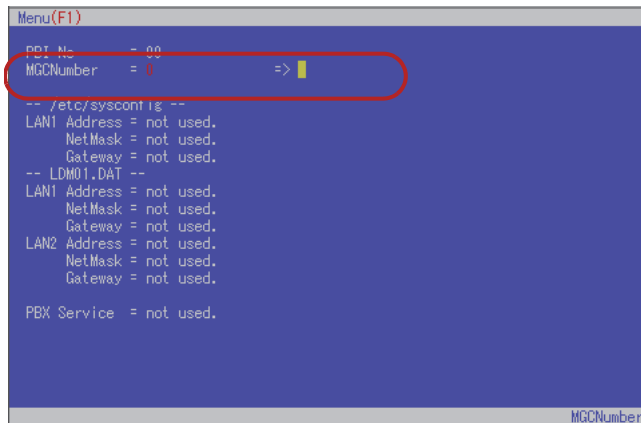


```
Menu(F1)
MGCNumber = 0
-- /etc/sysconfig --
LAN1 Address = not used.
NetMask = not used.
Gateway = not used.
-- LDM01.DAT --
LAN1 Address = not used.
NetMask = not used.
Gateway = not used.
LAN2 Address = not used.
NetMask = not used.
Gateway = not used.
PBX Service = not used.
Press F1 to open a menu. ESC to quit.
```

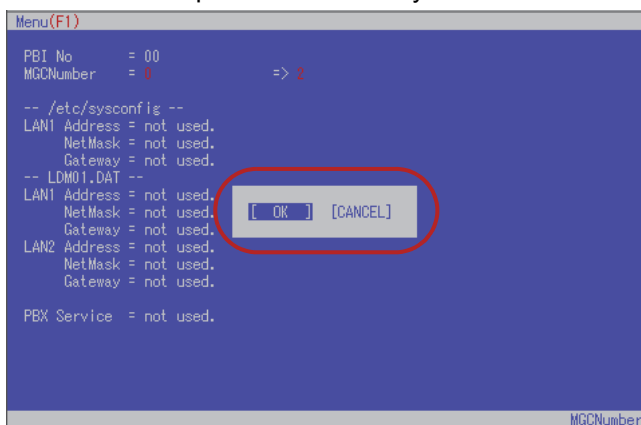
- 3
- (1) Press F1 or M key to display items under **Menu**.
 - (2) Select **MGCNumber** from the menu.



- 4
- Enter the appropriate MGC number.



- 5
- Select **OK** to save the value and press the Enter key.



6

Make sure the value in **MGCNumber** is changed, and then press the Enter key.

```
Menu(F1)
PBI No      = 00
MGCNumber   = 3
-- /etc/sysconfig --
LAN1 Address = not used.
NetMask     = not used.
Gateway     = not used.
-- LDM01.DAT --
LAN1 Address = not used.
NetMask     = not used.
Gateway     = not used.
LAN2 Address = not used.
NetMask     = not used.
Gateway     = not used.
PBX Service  = not used.

Press F1 to open a menu. ESC to quit.
```

7

- (1) Press F1 or M key to display items under **Menu**.
- (2) Select **Exit** from the menu.

```
Menu(F1)
PBI No
MGCNumber
IP Address
PBX Service
Exit
LAN1 Address = not used.
NetMask     = not used.
Gateway     = not used.
-- LDM01.DAT --
LAN1 Address = not used.
NetMask     = not used.
Gateway     = not used.
LAN2 Address = not used.
NetMask     = not used.
Gateway     = not used.
PBX Service  = not used.

Press F1 to open a menu. ESC to quit.
```


5. Program Installation

To start up the Telephony Server, the initial setting data (including the program, default office data and license data) needs to be written into CF card. The procedures are the same as for the conventional case. For single configuration system, see “Program Installation for Single Configuration” in Chapter 6 System Startup of Appliance Model Installation Manual. For dual configuration system, see “Program Installation for Dual Configuration” in Chapter 6 System Startup of Appliance Model Installation Manual.

6. Office Data Setting for Single Configuration

This section explains the procedure to set the basic office data for Primary Node/Geo Redundant Node/Survivable Remote Node when Primary Node is in single configuration. Take notice that some parts of the procedure may differ between Primary Node and Geo Redundant Node/Survivable Remote Node.

Follow the steps below to set the basic office data.

Office Data Setting for Single Configuration

STEP NO.	PROCEDURES	NOTES	CONNECTING DST. OF PCPro
1	Advance Preparation for PCPro	Same as for the conventional case; see Appliance Model Installation Manual.	-
2	Startup of the Telephony Server		
3	Network Configuration of Maintenance PC		
4	Setting Activation Code (AACT)	See 6.1 Registration of Activation Code .	LAN2 default IP address (172.16.253.0)
5	CPU Configuration (ASYD)	See 6.2 CPU Configuration .	
6	Enable Geographic Redundancy (ASYDL)	See 6.3 Enable Geographic Redundancy .	
7	Assignment of Self MGC (CMNT)	See 6.4 Assignment of Self MGC .	
8	LAN2 Network Configuration (ADTM) (IPv4)	See 6.5 LAN2 Network Configuration (ADTM) (IPv4) .	LAN2 IP address assigned to for your network (e.g. 10.100.1.12)
9	Modifying Network Configuration of Maintenance PC	Same as for the conventional case; see Appliance Model Installation Manual.	
10	LAN1 Network Configuration (ADTM) (for Asia)	See 6.6 LAN1 Network Configuration (ADTM) (for Asia) .	
11	LAN1 Network Configuration (ADTM) (IPv6) Note 1	See 6.7 LAN1 Network Configuration (ADTM) (IPv6) .	
12	Assignment for Routing Data/NIC Data (ADTM) (IPv4)	See 6.8 Assignment for Routing Data/NIC Data (ADTM) (IPv4) .	-
13	Assignment for Routing Data (ADTM) (IPv6) Note 1	See 6.9 Assignment for Routing Data (ADTM) (IPv6) .	
14	Assignment for LAN Interface Data (ADTM) (IPv6) Note 1	See 6.10 Assignment for LAN Interface Data (ADTM) (IPv6) .	
15	Modifying Network Configuration of Maintenance PC	Same as for the conventional case; see Appliance Model Installation Manual.	LAN2 IP address assigned for your network (e.g.: 10.100.1.12) or LAN1 IPv6 IP address assigned for your network (e.g. 2001:db8::c)
16	Assignment of Geo Redundant Node/Survivable Remote Node/SR-MGC (CMNT)	See 6.11 Assignment of GR-Node/SR-Node/SR-MGC (CMNT) .	
17	Assignment of IP address for Geo Redundant Node/Survivable Remote Node (ADTM)	See 6.12 Assignment of IP Address for GR-Node/SR-Node (ADTM) .	

Office Data Setting for Single Configuration

STEP NO.	PROCEDURES	NOTES	CONNECTING DST. OF PCPRO
18	Assignment for Routing Data for Geo Redundant Node/Survivable Remote Node (ADTM) (IPv6) Note 1	See 6.13 LAN1 Network Configuration for GR-Node (ADTM) (IPv6) .	LAN2 IP address assigned for your network (e.g.: 10.100.1.12) or LAN1 IPv6 IP address assigned for your network (e.g. 2001:db8::c)
19	Assignment for Routing Data/NIC Data for Geo Redundant Node/Survivable Remote Node (ADTM) (IPv4)	See 6.14 Assignment for Routing Data/NIC Data for GR-Node/SR-Node (ADTM) (IPv4) .	
20	Assignment for Routing Data (ADTM) for Geo Redundant Node (IPv6) Note 1	See 6.15 Assignment for Routing Data for GR-Node (ADTM) (IPv6) .	
21	System Configuration Data Assignment	See CHAPTER 6 OFFICE DATA SETTINGS .	
22	Initial Data Assignment		
23	Configuration of SIP Server (ASPC)	See 6.16 Configuration of SIP Server (AS-PC) .	

Note 1: These settings are only for the IPv6 connection. If you use only IPv4 addresses, these settings are not required.

6.1 Registration of Activation Code

Once the license file has been uploaded and the SV9500 has been reset, the SV9500 must be registered before you will be granted a PCPro access. See “Registration of Activation Code” in Appliance Model Installation Manual to register the activation code.

Note: You cannot be logged into the PCPro to use this operation.

6.2 CPU Configuration

Configure the CPU for a single configuration system.

- 1 Connect to PCPro using the connection account (e.g. LAN2_Default) assigned to the default IP address of the active (ACT) interface for LAN2 (172.16.253.0/16). The user ID and the password shown below need to be entered.

User ID: maintenance

Password: ty8*#02F

Note: If the user ID and the password are not entered, login is unavailable.

Point: For procedure to connect to PCPro, refer to “Communication Link with the Telephony Server” in Chapter 3. Setting Up PCPro in PCPro Setup Manual.

- 2 Execute the **ASYD** command and set the following data.
ASYD, SYS1, Index 58, Bit 0=0 (Configuration of CPU = Single)

Point: No modification is required since the default value is set for this data in normal cases. If a different value is set, modify the data to the value as given.

6.3 Enable Geographic Redundancy

Assign the system data below to enable Geographic Redundancy.

- 1 In the **ASYDL** command, set the following data.
ASYDL, SYS1, Index 1354, Bit 0=1 (Geographic Redundancy is enabled)

- 2 Exit the **ASYDL** command.

Note: Please note the following:

- Do not perform the system initialization when the CMNT data assignment has not been completed yet. If the system initialization is performed without completing the CMNT data assignment, CMNT command will be locked. If it happens, disable the Geographic Redundancy (ASYDL, SYS1, Index 1354, Bit 0=0), perform system initialization, and then follow the procedure again from [Step 1](#) under the condition that the Geographic Redundancy is disabled.
- After the setting of this system data, retry log in to PCPro.

6.4 Assignment of Self MGC

Assign an MGC number of itself (Primary Node) through the **CMNT** command.

- 1 Execute the **CMNT** command and click the **Setting** tab. Type an MGC number (1-255) of itself (Primary Node) in the **MGC No.** box and then click the **Get** button.

The screenshot shows the CMNT command interface with the **Setting** tab selected. The **MGC No.** field is empty, and the **Get** button is highlighted. Other tabs include **FTP Server Setting**, **Priority**, **Initialize**, **Change Operating**, and **File Control**. Below the **MGC No.** field are **Set** and **Del** buttons.

- 2 Assign the following parameters. After all the required parameters are set, click the **Set** button. For more details on each parameter of the **CMNT** command, refer to the Operations and Maintenance Manual.

<Primary Node>

MGC Kind: Choose "Primary Node."

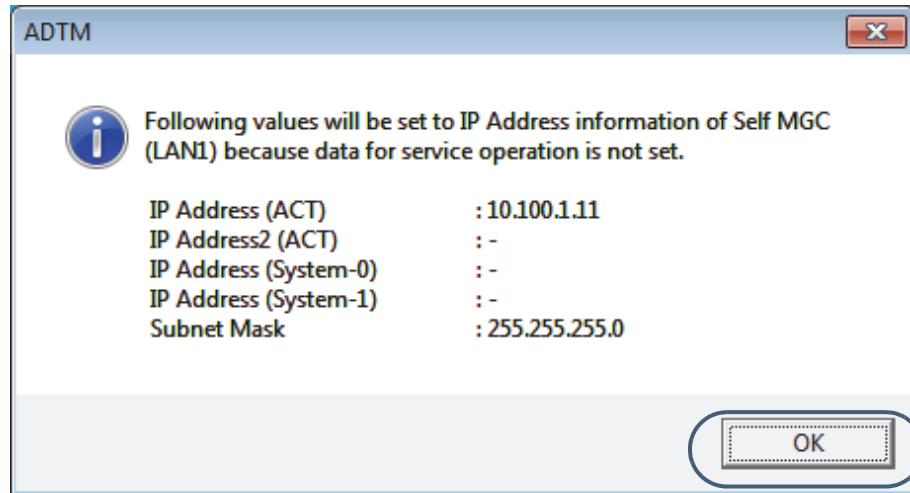
IP Address: Blank (IP address is to be assigned through the ADTM command in the later step.)

The screenshot shows the CMNT command interface with the **MGC No.** field set to 1 and the **MGC Kind** dropdown menu set to **Primary Node**. The **Set** button is highlighted. The **IP Address** field is empty, with a note: "(Please assign IP address with the ADTM command.)". Other buttons include **Get** and **Del**.

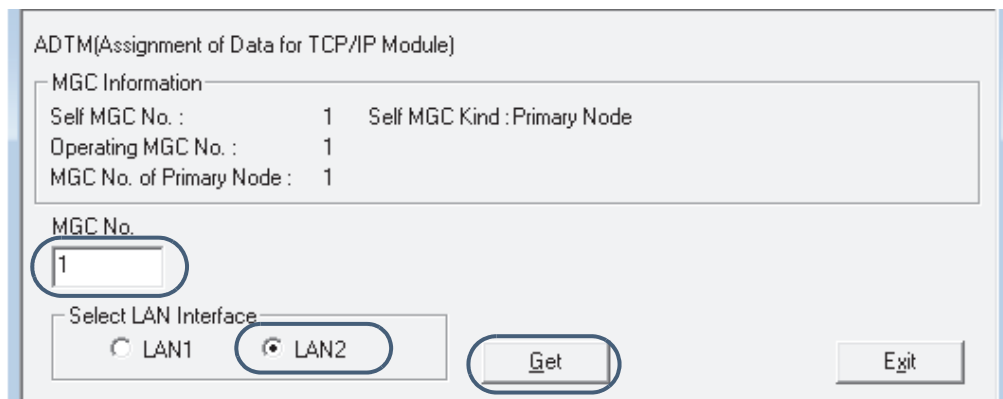
6.5 LAN2 Network Configuration (ADTM) (IPv4)

Modify the IP address of LAN2 assigned with the default IP address (172.16.253.0) to the IP address used for the actual environment (e.g. 10.100.1.12).

- 1 Execute the **ADTM** command. The following message will be displayed by PCPro.
Click **OK** to close the message box.

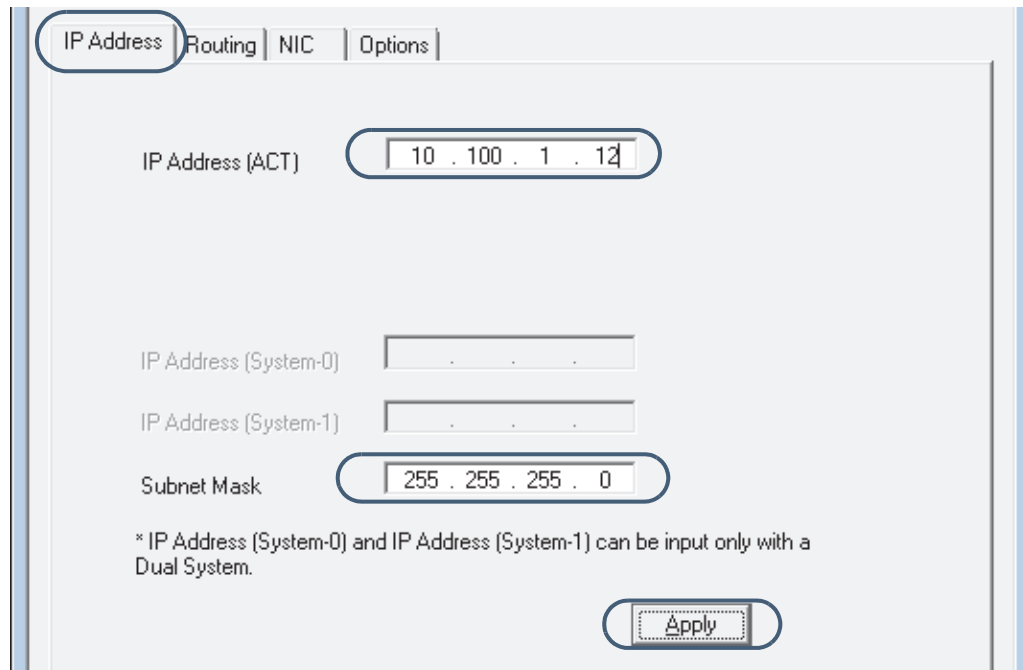


- 2 In the **ADTM** command window, set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of itself (Primary Node).
Select LAN Interface: Choose **LAN2**.



3

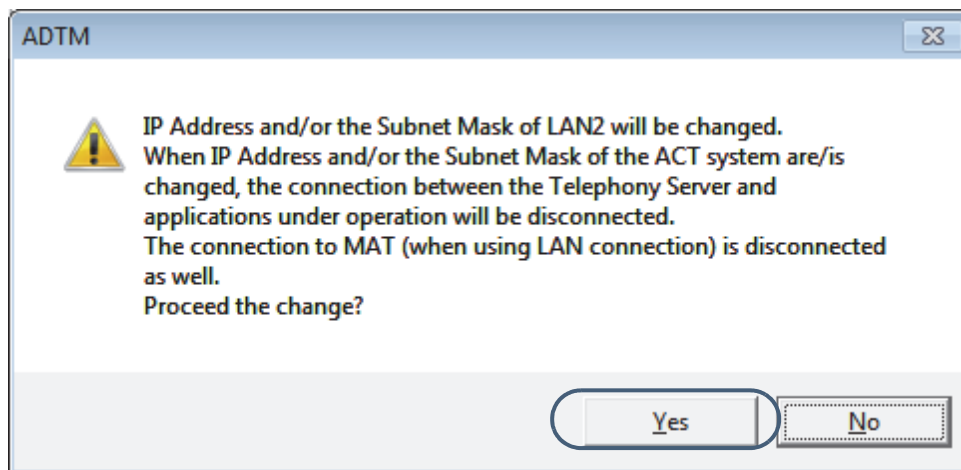
Click the **IP Address** tab and type **IP Address (ACT)** and **Subnet Mask** according to your actual network environment. Then, click the **Apply** button.



The screenshot shows a configuration window with four tabs: "IP Address", "Routing", "NIC", and "Options". The "IP Address" tab is selected and highlighted with a blue border. Inside the tab, there are four input fields: "IP Address (ACT)" containing "10 . 100 . 1 . 12", "IP Address (System-0)" which is empty, "IP Address (System-1)" which is empty, and "Subnet Mask" containing "255 . 255 . 255 . 0". Below these fields is a note: "* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System." At the bottom right of the window is an "Apply" button.

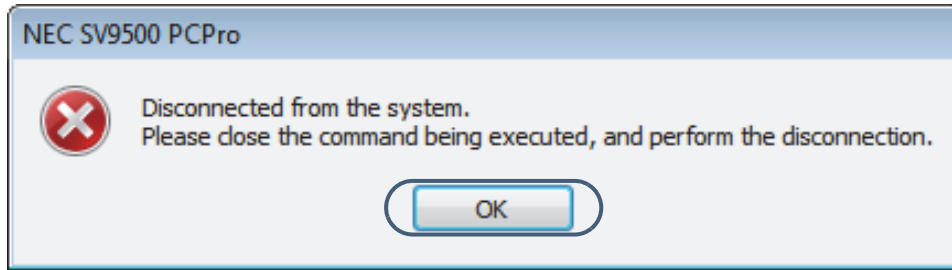
4

The following confirmation message will be displayed.
Click the **Yes** button to apply the modification.



Point: The connection to PCPro will be disconnected when the data is modified.

- 5** The following message will be displayed by PCPro.
Click **OK** to close the message box.



- 6** Click the **Exit** to exit the ADTM command.

- 7** Disconnect PCPro (on the **System** menu, click **Disconnect**) from the system.

Point: For detailed disconnecting procedure, refer to “Disconnecting the Communication Link” in Chapter 3 Setting Up PCPro in PCPro Setup Manual.

- 8** Assign a user ID and a password to PCPro. For detailed Procedure, refer to “User Account Setting” in Chapter 5 Various Settings of PCPro in PCPro Setup Manual.

Note: Use the user ID and password assigned here when connecting PCPro to the Telephony Server.

6.6 LAN1 Network Configuration (ADTM) (for Asia)

Modify the IP address of LAN1 assigned with the default IP address (**Note 1**) to the IP address used for the actual environment (e.g. 10.100.1.11).

Note: This procedure is required for Asia.

Note 1: The default IP address “192.168.0.2” is set for LAN1 for Asia.

- 1** Connect to PCPro using the connection account (e.g. LAN2_Default) assigned to the default IP address of the active (ACT) interface for LAN2 (172.16.253.0). The user ID and the password shown below need to be entered.

User ID: maintenance

Password:ty8*#02F

Note: If the user ID and the password are not entered, login is unavailable.

Point: For procedure to connect to PCPro, refer to “Communication Link with the Telephony Server” in Chapter 3. Setting Up PCPro in PCPro Setup Manual.

- 2** Execute the ADTM command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of itself (Primary Node).
Select LAN Interface: Choose **LAN1**.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. : 1 Self MGC Kind : Primary Node

Operating MGC No. : 1

MGC No. of Primary Node : 1

MGC No.

1

Select LAN Interface

☒ LAN1 ☐ LAN2

Get Exit

- 3** Click the **IP Address** tab and set the values corresponding to your actual network environment for **IP Address (ACT)** and **Subnet Mask**. Then, click the **Apply** button.

IP Address | Routing | IP Address(v6) | Routing(v6) | NIC | Options

IP Address (ACT) 10 . 100 . 1 . 12

☒ Add IP Address (ACT)

IP Address2 (ACT) 10 . 100 . 1 . 43

IP Address (System-0) . . .

IP Address (System-1) . . .

Subnet Mask 255 . 255 . 255 . 0

* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System.

Apply

- 4** Click the **Routing** tab and set the values corresponding to your actual network environment for each necessary parameter. Then, click the **Apply** button.

6.7 LAN1 Network Configuration (ADTM) (IPv6)

Set IPv6 addresses (e.g. 2001:db8::c) for LAN1.

Note: Note the following conditions for this setting.

- This data setting is for the Primary Node's IPv6 connection with PCPro. If you use only IPv4 addresses, this setting is not required.
- Programming for IPv4 must be done before programming in this section can be done.
- For detailed conditions of IPv6 addresses, refer to "IPv6 Connection with PCPro" in the System Description.

1 Connect to PCPro using the connection account (e.g. NewOffice#1) assigned for the IP address of LAN2 connector. Enter the user ID and the password that have been previously assigned to connect to PCPro.

Note: If the user ID and password are not entered, login is unavailable.

Point: For detailed procedure to connect to PCPro, refer to "Communication Link with the Telephony Server" in Chapter 3 Setting Up PCPro in PCPro Setup Manual.

2 Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of itself (Primary Node).
Select LAN Interface: Choose **LAN1**.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. :	1	Self MGC Kind : Primary Node
Operating MGC No. :	1	
MGC No. of Primary Node :	1	

MGC No.

1

Select LAN Interface

☒ LAN1 ☐ LAN2

Get Exit

3

- (1) Click the **IP Address (v6)** tab.
- (2) Select the **Use IPv6** check box.
- (3) Set the values corresponding to your actual network environment for **Prefix Length** and **IP Address (ACT)**.
- (4) Click the **Apply** button.

IP Address | Routing | **IP Address(v6)** | Routing(v6) | NIC | Options

☒ Use IPv6

Prefix Length: 64 Bit

IP Address (ACT): 2001:db8::c

IP Address (System-0):

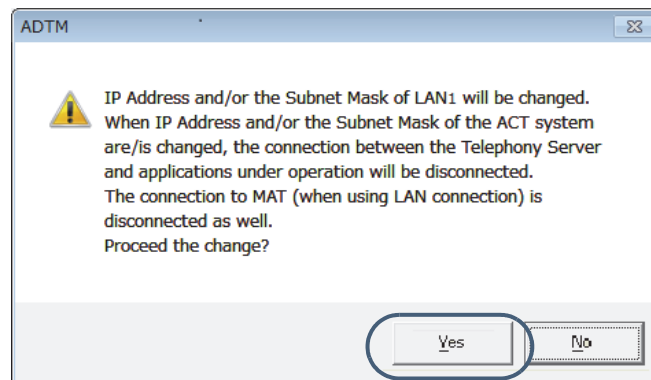
IP Address (System-1):

* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System.

Apply

4

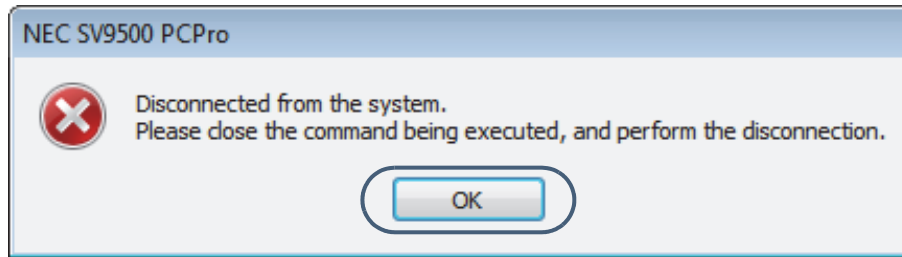
The following confirmation message is displayed.
Click the **Yes** button to apply the new setting.



Note: The data setting for the IPv6 address becomes valid after the change is applied.

Point: The connection to PCPro is disconnected when the data is modified.

- 5** The following message is displayed on PCPro.
Click **OK** to close the message.



- 6** Click the **Exit** button to exit the **ADTM** command.

- 7** Disconnect PCPro (on the **System** menu, click **Disconnect**) from the system.

Point: For detailed disconnecting procedure, refer to “Disconnecting the Communication Link” in Chapter 3 Setting Up PCPro in PCPro Setup Manual.

6.8 Assignment for Routing Data/NIC Data (ADTM) (IPv4)

Configure the network of the Telephony Server to conform to the actual network environment.

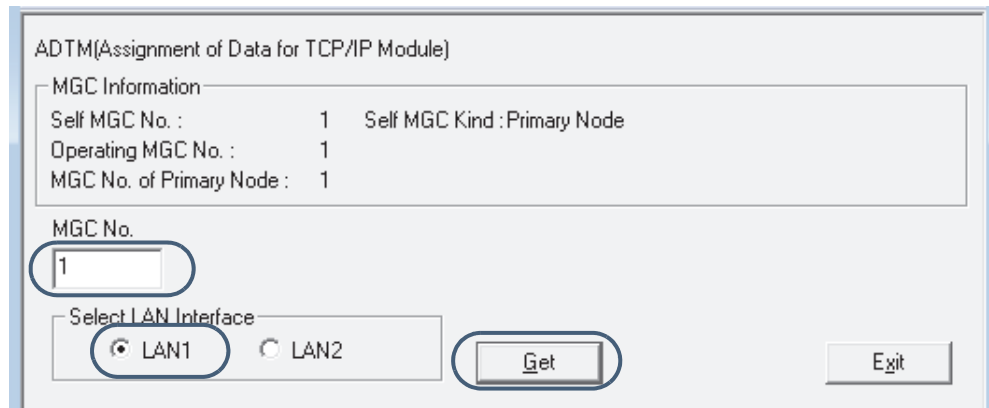
- 1** Connect to PCPro using the connection account (e.g. NewOffice#1) assigned for the IP address of LAN2 connector. Enter the user ID and the password that have been previously assigned to connect to PCPro.

Note: If the user ID and password are not entered, login is unavailable.

Point: For detailed procedure to connect to PCPro, refer to “Communication Link with the Telephony Server” in Chapter 3 Setting Up PCPro in PCPro Setup Manual.

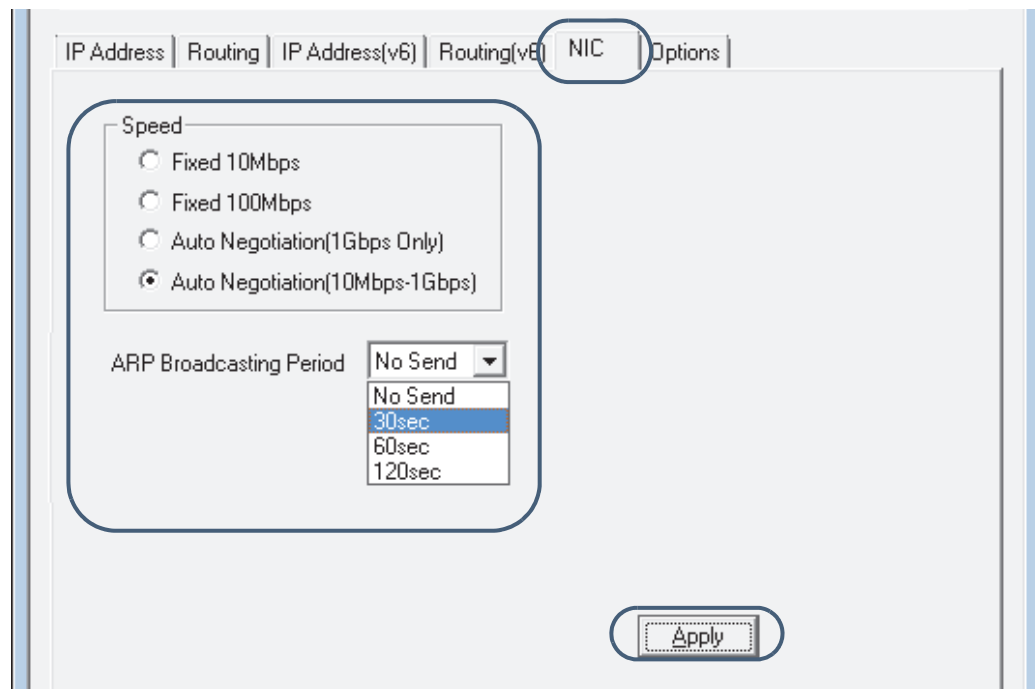
2

Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of itself (Primary Node).
Select LAN Interface: Choose **LAN1**.



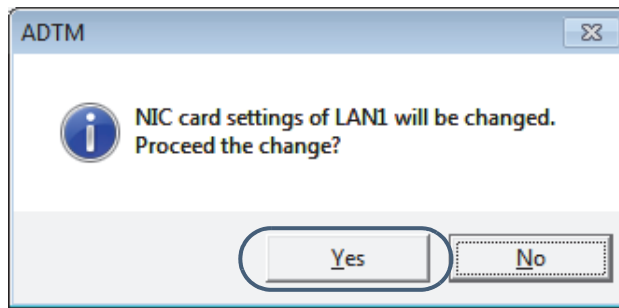
3

- (1) Click the **NIC** tab.
- (2) Select the value corresponding to your actual network environment for **Speed** and select **30 sec** or **60 sec** for **ARP Broadcasting Period**.
- (3) Click the **Apply** button.

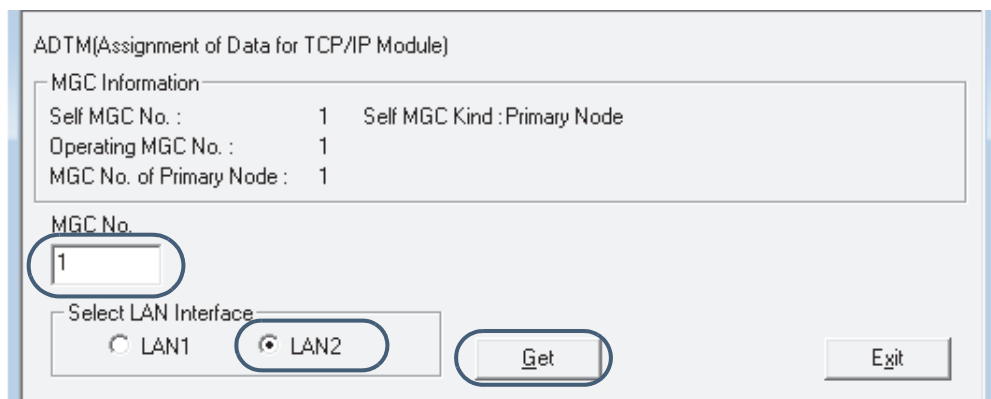


Note: When items other than **Auto Negotiation (10Mbps-1Gbps)** are selected as **Speed**, the **Duplex Mode** parameter appears. In that case, select **Half Duplex** or **Full Duplex**.

- 4** The confirmation message is displayed. Click the **Yes** button to apply the change.



- 5** Select **LAN2** for **Select LAN Interface** and then click the **Get** button.



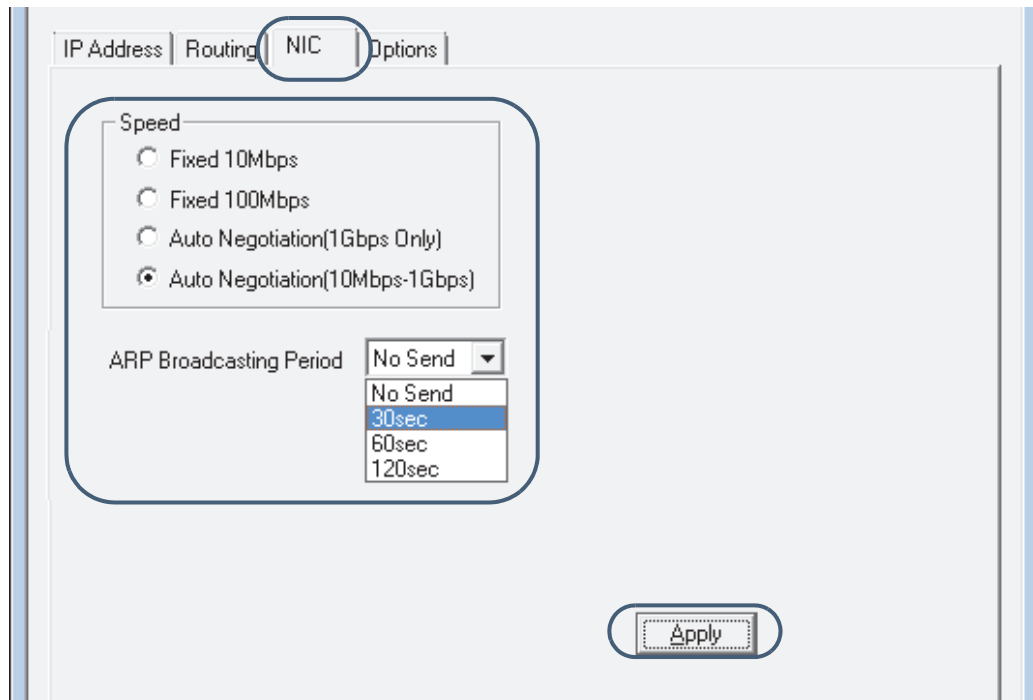
6

- (1) Click the **Routing** tab.
- (2) Select the **Use Default Gateway** check box.
- (3) Set the value corresponding to your actual network environment for **IP Address (Default Gateway)** and **Static Routing**.
- (4) Click the **Apply** button.

The screenshot shows a configuration window with four tabs: 'IP Address', 'Routing', 'NIC', and 'Options'. The 'Routing' tab is selected and highlighted with a blue border. Inside the 'Routing' tab, there is a checkbox labeled 'Use Default Gateway' which is checked. Below this checkbox is a text input field labeled 'IP Address (Default Gateway)' containing the value '10 . 100 . 1 . 254'. Below the input field is a button labeled 'Static Routing'. At the bottom right of the window is an 'Apply' button. Blue rounded rectangles are drawn around the 'Routing' tab, the 'Use Default Gateway' checkbox, the 'IP Address (Default Gateway)' input field, the 'Static Routing' button, and the 'Apply' button to indicate the steps in the instructions.

7

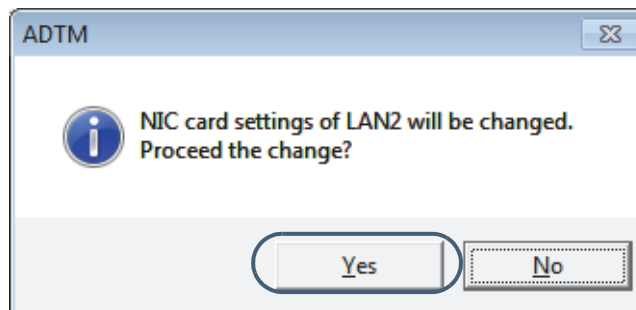
- (1) Click the **NIC** tab.
- (2) Select the value corresponding to your actual network environment for **Speed** and select **30 sec** or **60 sec** for **ARP Broadcasting Period**.
- (3) Click the **Apply** button.



Note: When items other than **Auto Negotiation (10Mbps-1Gbps)** are selected as **Speed**, the **Duplex Mode** parameter appears. In that case, select **Half Duplex** or **Full Duplex**.

8

The confirmation message is displayed. Click the **Yes** button to apply the change.



9

Click the **Exit** button to exit the **ADTM** command.

6.9 Assignment for Routing Data (ADTM) (IPv6)

Configure the network of the Telephony Server to conform to the actual network environment.

Note: Conditions for this operation is shown below:

- This data setting is for the Primary Node's IPv6 connection with PCPro. If you use only IPv4 addresses, this setting is not required.
- Programming for IPv4 must be done before programming in this section can be done.

1

Execute the **ADTM** command. Set the following parameters and then click the **Get** button.

MGC No.: Type an MGC number of itself (Primary Node).

Select LAN Interface: Choose **LAN1**.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. : 1 Self MGC Kind : Primary Node

Operating MGC No. : 1

MGC No. of Primary Node : 1

MGC No.

1

Select LAN Interface

☒ LAN1 ☐ LAN2

Get Exit

2

(1) Click the **Routing (v6)** tab.

(2) Set the value corresponding to your actual network environment for each item.

(3) Click the **Apply** button.

IP Address Routing IP Address(v6) Routing(v6) NIC Options

☒ Use Default Gateway

IP Address (Default Gateway) 2001:db8::1

Apply

3

Click the **Exit** button to exit the **ADTM** command.

6.10 Assignment for LAN Interface Data (ADTM) (IPv6)

This section explains the procedure for configuring the LAN interface to connect to PCPro with IPv6 addresses.

Note: Conditions for this operation is shown below:

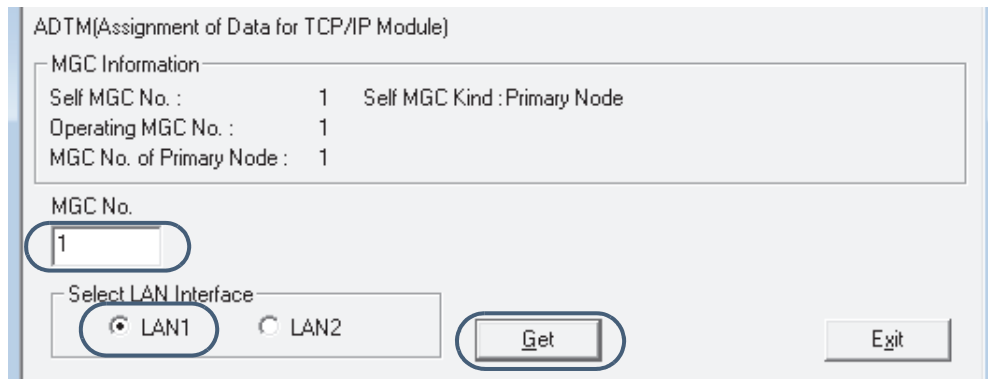
- This data setting is for the Primary Node's IPv6 connection with PCPro. If you use only IPv4 addresses, this setting is not required.
- Programming for IPv4 must be done before programming in this section can be done.

1

Execute the **ADTM** command. Set the following parameters and then click the **Get** button.

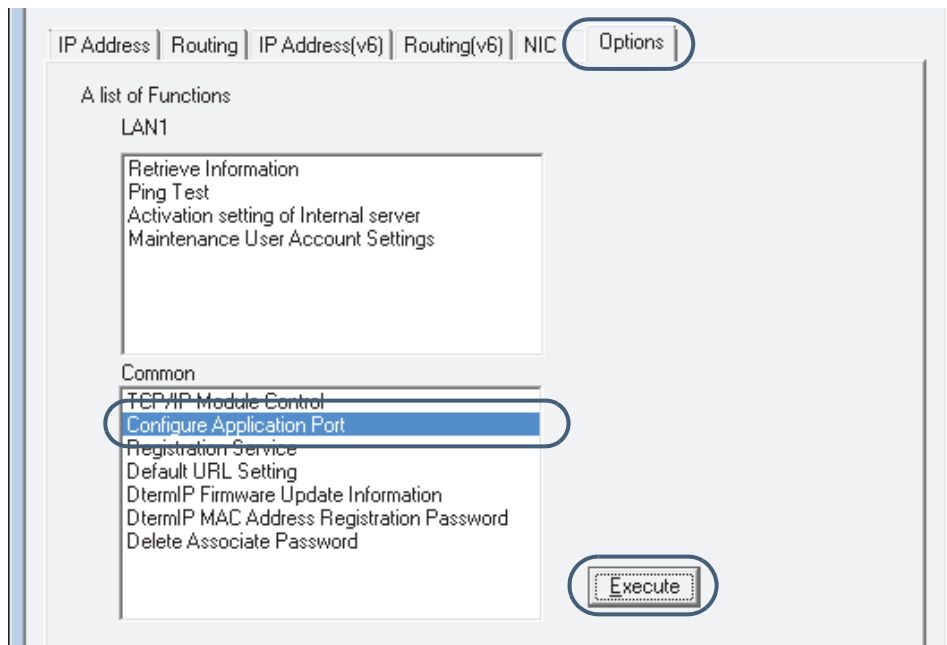
MGC No.: Type an MGC number of itself (Primary Node).

Select LAN Interface: Choose **LAN1**.



2

- (1) Click the **Options** tab.
- (2) In the **Common** list, select **Configure Application Port**.
- (3) Click the **Execute** button.



3

- (1) Select **LAN1** under **LAN Interface to be used in MAT**.
- (2) Click the **Apply** button.

Configure Application Port

Configure Application Port	LAN Interface to be used	Port Number (1024-65534)	Default Value
MAT	(TCP) ☒ LAN1 ☐ LAN2	0	60000
SMDR	(TCP) ☐ LAN1 ☒ LAN2	0	60010
MCI	(TCP) ☐ LAN1 ☒ LAN2	0	60020
QAI	(TCP) ☐ LAN1 ☒ LAN2	0	60030
MIS	(TCP) ☐ LAN1 ☒ LAN2	0	60040
CS Report	(TCP) ☐ LAN1 ☒ LAN2	0	60080
PMS	(TCP) ☐ LAN1 ☒ LAN2	0	60050
MCC	(TCP) ☐ LAN1 ☒ LAN2	0	60190
CCIS Cluster	(TCP) ☒ LAN1 ☐ LAN2	0	60001
FCCS Cluster	(TCP) ☐ LAN1 ☒ LAN2	0	60210

*If you want to change Port Number of "FCCS Cluster", you must use AFCCMN command.

Internal PHI-PRI	(TCP) ☐ LAN1 ☒ LAN2	0	64000
Internal PHC	☐ LAN1 ☒ LAN2		
Client	(TCP)	0	65030
Server	(TCP)	0	57000
Internal PHF	(UDP) ☒ LAN1 ☐ LAN2	0	60180
REG	(UDP)	0	3456
Internal PHE	(UDP)	0	60130
Internal PHI-BRI	(UDP) *If "Internal PHI-PRI" and "Internal PHI-BRI" use the same Port Number.		
SR-MGC/NMS			
NMS	(TCP)	0	60060
Health Check Receive MGC - SR-MGC (Server)	(UDP)	0	60110
Health Check Send MGC - SR-MGC (Client)	(UDP)	0	60120
SR-MGC Charge MGC Side	(TCP)	0	60140
SR-MGC Charge SR-MGC Side	(TCP)	0	60150
DNS	(UDP) ☐ LAN1 ☒ LAN2	0	53
SNTP	(UDP) ☐ LAN1 ☒ LAN2	0	123
PBUS over IP	(UDP) ☒ LAN1 ☐ LAN2	0	60220
Internal SIP Handler	☐ LAN1 ☐ LAN2 ☒ LAN1(ACT2)		
SIP Signaling	(UDP/TCP Server)	0	5060
DRS Registration	(UDP)	0	60300
Negotiation	(UDP/TCP Server)	0	60301
TLS	(TCP Server)	0	5061

*When the Port Number of "REG" is changed, it is necessary to set the same Port Number as DrsPort by the ASPC command. (SPconfig.conf,StaticInfo.txt)

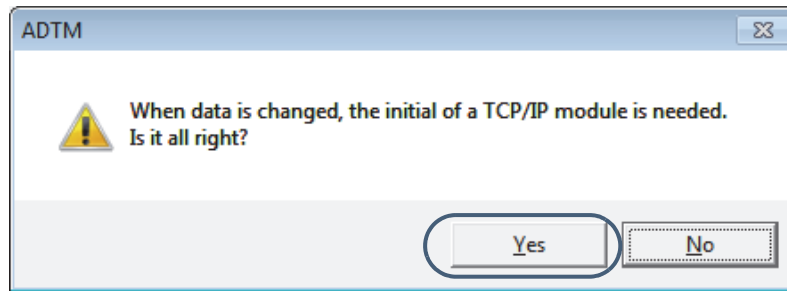
*When "Internal PHI-PRI" or "Internal PHI-BRI" or "Internal PHC" or "Internal PHF" or "Internal SIP Handler" is changed, it is necessary to initialize the module.

*When the Port Number of "Internal PHE" is changed, it is necessary to set the same Port Number as PHEPort by the ASPC command. (SPconfig.conf)

*Port Number=0:Using the default value.

Apply **Close**

- 4 The confirmation message is displayed. Click the **Yes** button to apply the change.



- 5 Click the **Close** button to close the **Configure Application Port** dialog box.

*When the Port Number of "REG" is changed, it is necessary to set the same Port Number as DrsPort by the ASPC command. (SPconfig.conf,StaticInfo.txt)

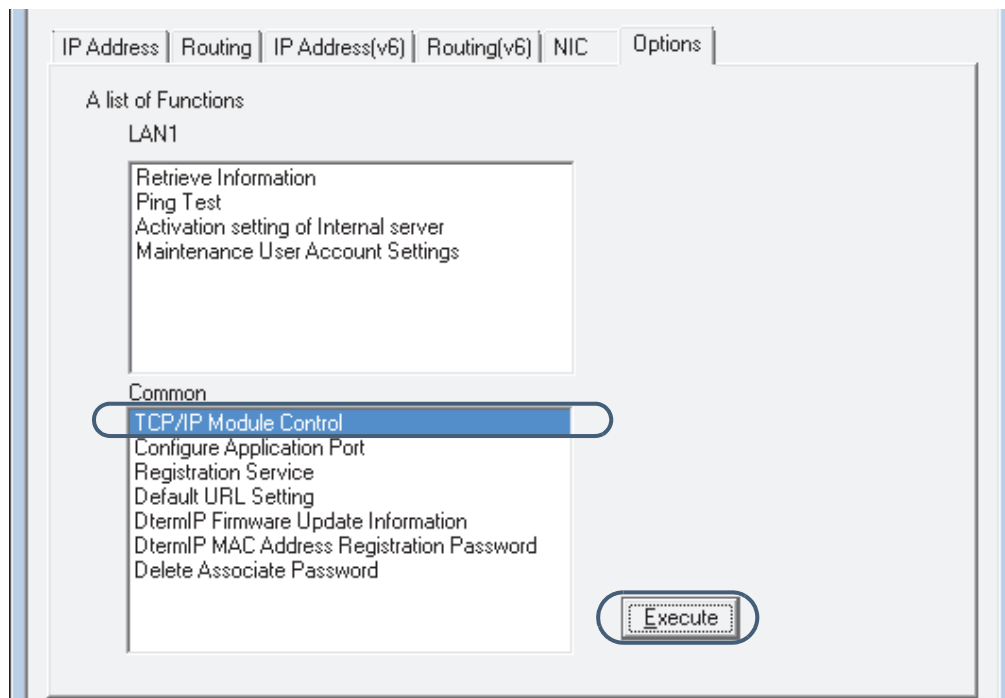
*When "Internal PHI-PRI" or "Internal PHI-BRI" or "Internal PHC" or "Internal PHF" or "Internal SIP Handler" is changed, it is necessary to initialize the module.

*When the Port Number of "Internal PHE" is changed, it is necessary to set the same Port Number as PHEPort by the ASPC command. (SPconfig.conf)

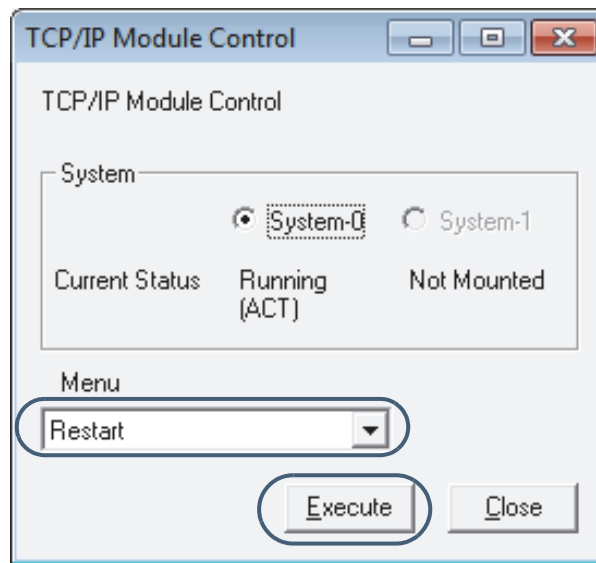
*Port Number=0:Using the default value.

Apply Close

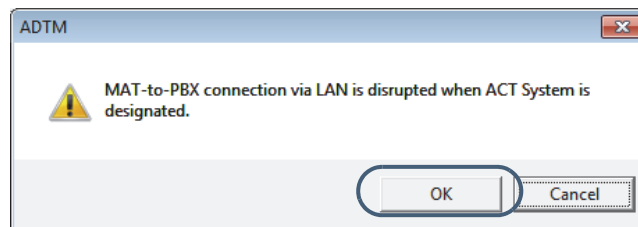
- 6 (1) Select **TCP/IP Module Control** in the **Common** list.
(2) Click the **Execute** button.



- 7 Select **Restart** in the **Menu** box and then click the **Execute** button.



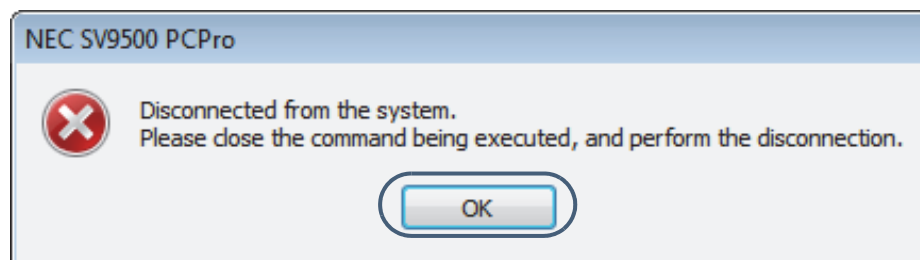
- 8 The following message is displayed. Click **OK** to close the message.



- 9 Click the **Close** button to close the **TCP/IP Module Control** dialog box.



- 10 The following message is displayed on PCPro. Click **OK** to close the message.



11 Click the **Exit** button to exit the **ADTM** command.

12 Select **Disconnect** on the **System** menu on PCPro.

Point: For detailed disconnecting procedure, refer to “Disconnecting the Communication Link” in Chapter 3 Setting Up PCPro in PCPro Setup Manual.

6.11 Assignment of GR-Node/SR-Node/SR-MGC (CMNT)

Connect PCPro with Primary Node in operating mode and assign some necessary data for Geo Redundant Node/Survivable Remote Node/SR-MGC through the **CMNT** command.

1 Execute the CMNT command and click the **Setting** tab. Type an MGC number (0-255 **Note 1**) of a target MGC (Geo Redundant Node/Survivable Remote Node/SR-MGC) and then click the **Get** button.

The screenshot shows a web-based interface for the CMNT command. At the top, there are several tabs: 'Setting' (which is selected and highlighted with a blue border), 'FTP Server Setting', 'Priority', 'Initialize', 'Change Operating', and 'File Control'. Below the tabs, there is a label 'MGC No.' followed by a text input field. To the right of the input field, there are three buttons: 'Get' (highlighted with a blue border), 'Set', and 'Del'.

Note 1: MGC number “0” is available only for SR-MGC used for [S-141] Survivable Remote MGC. Do not set “0” for Geo Redundant Node and Survivable Remote Node

2

Assign the following parameters. After all the required parameters are set, click the **Set** button. For more details on each parameter of the **CMNT** command, refer to the Operations and Maintenance Manual.

<In the case of Geo Redundant Node>

MGC Kind: Choose “Geo Redundant Node.”

Configuration of CPU: Choose “Single” as CPU configuration of the specified Geo Redundant Node.

Use Physical PIR: Clear the check box (Fixed)

Office Name: Type the office name of the specified Geo Redundant Node (up to 20 digits).

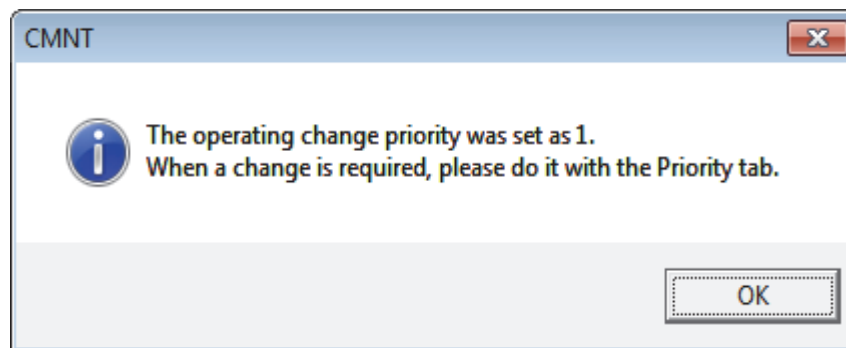
IP Address: Blank (IP address is assigned with the **ADTM** command at a later step.)

Assigning MA-ID: Clear the check box (Fixed).

The screenshot shows the CMNT configuration window. The 'MGC No.' field contains the value '2'. The 'MGC Kind' dropdown menu is set to 'Geo Redundant Node'. Under 'Configuration of CPU', the 'Single' radio button is selected, and the 'Dual' radio button is unselected. The 'Use Physical PIR' checkbox is unchecked. The 'Office Name' field is empty. The 'IP Address' field is empty, with a note '(Please assign IP address with the ADTM command.)' to its right. The 'Assigning MA-ID' checkbox is unchecked. On the right side of the window, there are three buttons: 'Get', 'Set', and 'Del'. The 'Set' button is circled in red.

The following confirmation message is displayed.

Click the **OK** button to give the highest priority to the specified Geo Redundant Node. To change the priority data, click the **Priority** tab to change the data of **Setting of Operating Change Priority**.



<In the case of Survivable Remote Node>

MGC Kind: Choose “Survivable Remote Node.”

Model: Choose “E” (SV9500) to use SV9500 as Survivable Remote Node hardware type. Choose also “E” (SR-MGC(E)) to use SR-MGC(E) as Survivable Remote Node hardware type.

Configuration of CPU: Choose “Single” as CPU configuration of the specified Survivable Remote Node.

Office Name: Type the office name of the specified Survivable Remote Node (up to 20 digits).

Number of Ports: Enter the number of port licenses for the specified Survivable Remote Node. **Note 1**

IP Address: Blank (IP address is assigned with the **ADTM** command at a later step.)

Mode: Choose the specified Survivable Remote Node’s change over/change back timing.

Assigning MA-ID: Clear the check box (Fixed).

ACDP: Place a check mark to use Call Distribution. **Note 2**

Call Distribution: Choose “ACD” for using ACD call distribution method or “UCD” for using UCD call distribution method of ACDP for MGC. **Note 2**

The screenshot shows a configuration window for a Survivable Remote Node. The fields are as follows:

- MGC No.: 3
- MGC Kind: Survivable Remote Node (dropdown)
- Model: E (dropdown)
- Configuration of CPU: Single (selected radio button), Dual (radio button)
- Office Name: (empty text field)
- Number of Ports: (empty text field)
- IP Address: (empty text field) (Please assign IP address with the ADTM command.)
- Mode: (empty text field)
- Assigning MA-ID: (unchecked checkbox)
- ACDP: (checked checkbox)
- Call Distribution: ACD (selected radio button), UCD (radio button)

On the right side of the window, there are three buttons: Get, Set (circled in red), and Del.

Note 1: The maximum 8192 port licenses can be purchased.

Note 2: This parameter is not used in North America market.

<In the case of SR-MGC>

MGC No.: Type an MGC number of a target SR-MGC.

MGC Kind: Choose "SR-MGC."

Office Name: Type the office name of the SR-MGC (up to 20 digits).

IP Address: Type the IP address of the SR-MGC.

Mode: Choose the SR-MGC's change over/change back timing.

Assigning MA-ID: When Flexible Network Re-routing service is enabled, place a check mark.

MA-ID: Type an MA-ID (0-9999) to be assigned to the SR-MGC when "Assigning MA-ID" parameter is ON.

FTP Server No.: Type FTP Server Number (1-256).

The screenshot displays a configuration window for SR-MGC. The form includes the following fields and controls:

- MGC No.: A text input field containing the value "0".
- MGC Kind: A dropdown menu currently showing "SR-MGC".
- Office Name: A text input field.
- IP Address: A text input field.
- Mode: A text input field.
- Assigning MA-ID: A checkbox that is checked.
- MA-ID: A text input field, located within a sub-container with the "Assigning MA-ID" checkbox.
- FTP Server No.: A text input field.

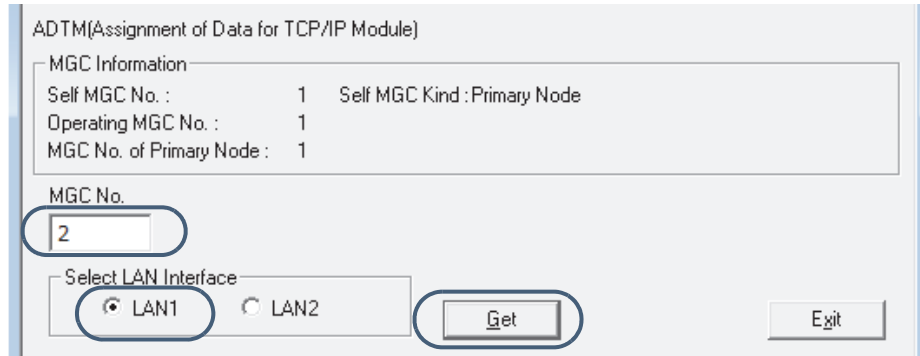
On the right side of the form, there are three buttons: "Get", "Set", and "Del". The "Set" button is highlighted with a red circle.

6.12 Assignment of IP Address for GR-Node/SR-Node (ADTM)

Assign IP addresses of Geo Redundant Nodes/Survivable Remote Nodes through the ADTM command.

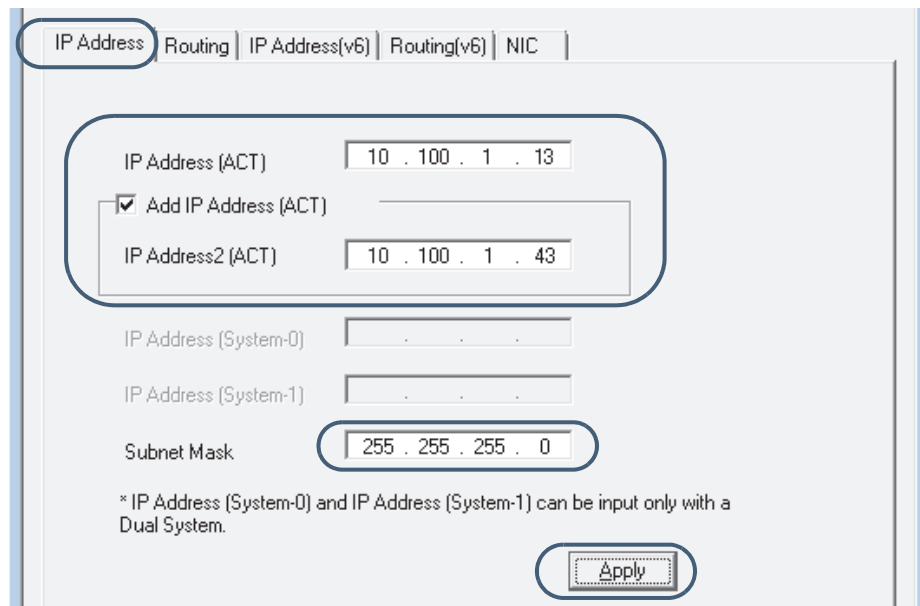
1

Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of a target MGC (Geo Redundant Node/Survivable Remote Node).
Select LAN Interface: Choose **LAN1**.

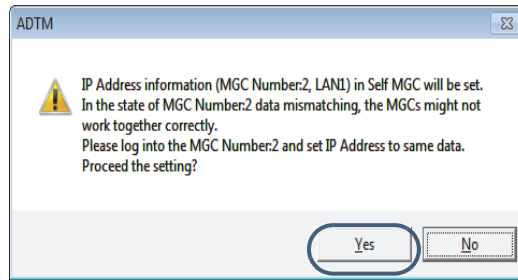


2

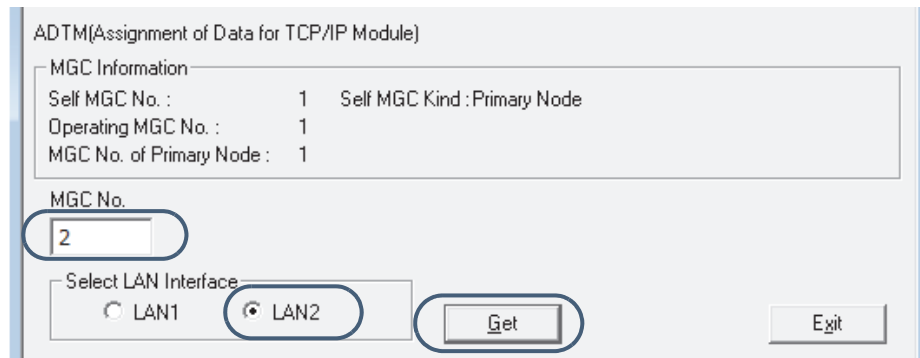
Click the **IP Address** tab and enter values for **IP Address (ACT)**, **IP Address2 (ACT)** and **Subnet Mask** according to your actual network environment. Then, click the **Apply** button.



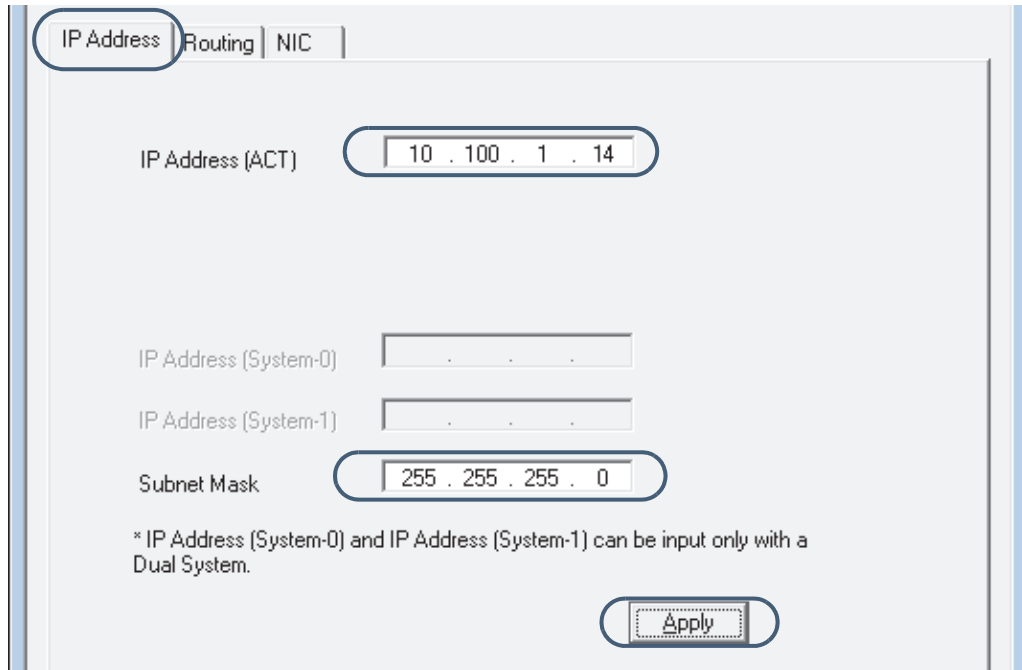
- 3** The following confirmation message is displayed.
Click the **Yes** button to apply the new setting.



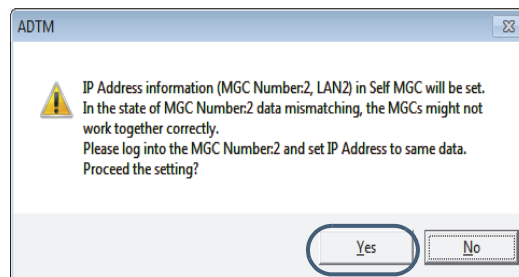
- 4** Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of a target MGC (Geo Redundant Node/Survivable Remote Node).
Select LAN Interface: Choose **LAN2**.



- 5** Click the **IP Address** tab and enter values for **IP Address (ACT)** and **Subnet Mask** according to your actual network environment. Then, click the **Apply** button.



- 6** The following confirmation message is displayed.
Click the **Yes** button to apply the new setting.



- 7** Repeat the previous steps for necessary Geo Redundant Nodes and Survivable Remote Nodes.

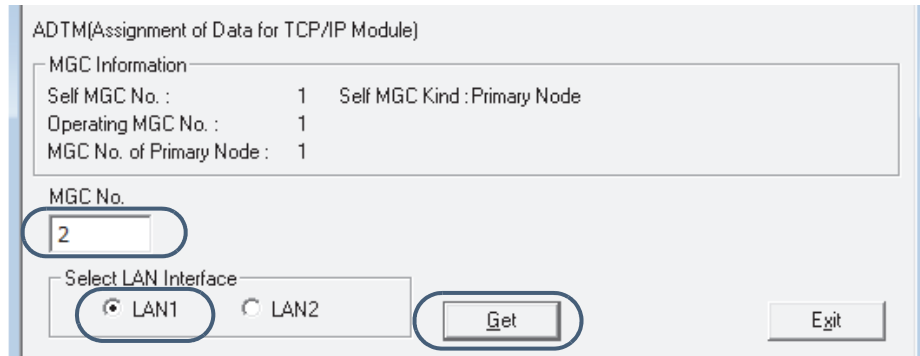
6.13 LAN1 Network Configuration for GR-Node (ADTM) (IPv6)

Set IPv6 addresses (e.g. 2001:db8::f) for LAN1.

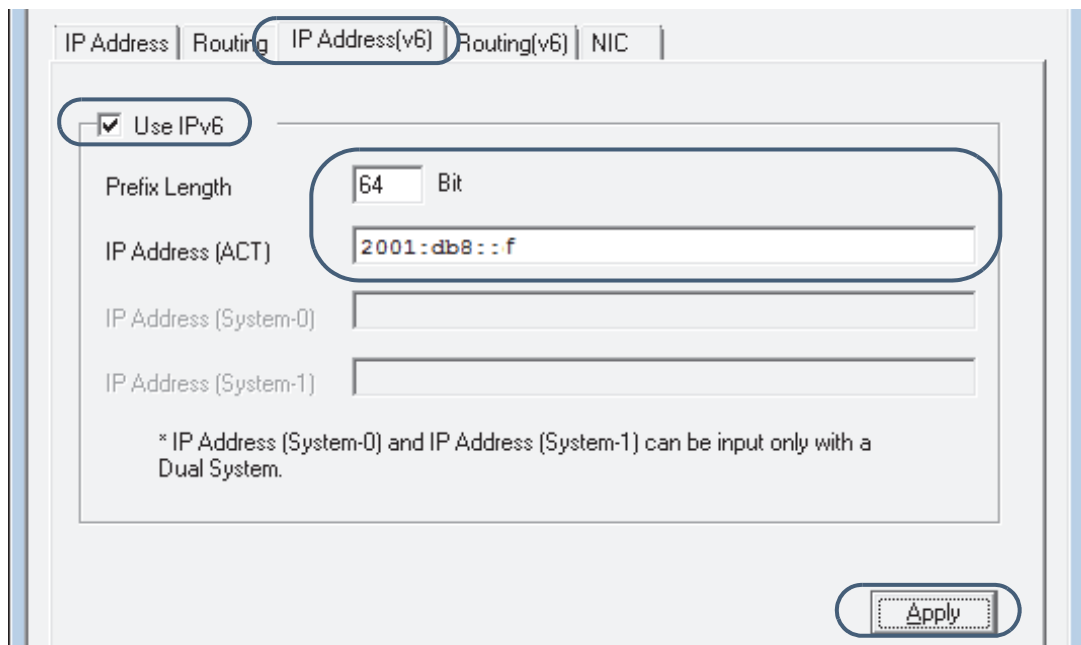
Note: Note the following conditions for this setting.

- This data setting is for the Geo Redundant Node's IPv6 connection with PCPro. If you use only IPv4 addresses, this setting is not required.
- Programming for IPv4 must be done before programming in this section can be done.
- For detailed conditions of IPv6 addresses, refer to "IPv6 Connection with PCPro" in the System Description.

- 1** Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of a target MGC (Geo Redundant Node).
Select LAN Interface: Choose **LAN1**.



- 2**
- (1) Click the **IP Address (v6)** tab.
 - (2) Select the **Use IPv6** check box.
 - (3) Set the values corresponding to your actual network environment for **Prefix Length** and **IP Address (ACT)**.
 - (4) Click the **Apply** button.



Note: The data setting for the IPv6 address becomes valid after the change is applied.

6.14 Assignment for Routing Data/NIC Data for GR-Node/SR-Node (ADTM) (IPv4)

Configure the network of the Telephony Server to conform to the actual network environment.

- 1 Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of a target MGC (Geo Redundant Node/Survivable Remote Node).
Select LAN Interface: Choose **LAN1**.

ADTM[Assignment of Data for TCP/IP Module]

MGC Information

Self MGC No. : 1 Self MGC Kind : Primary Node

Operating MGC No. : 1

MGC No. of Primary Node : 1

MGC No.

2

Select LAN Interface

☒ LAN1 ☐ LAN2

Get

Exit

- 2
 - (1) Click the **Routing** tab.
 - (2) Select the **Use Default Gateway** check box.
 - (3) Set the value corresponding to your actual network environment for **IP Address (Default Gateway)** and **Static Routing**.
 - (4) Click the **Apply** button.

IP Address Routing IP Address(v6) Routing(v6) NIC

☒ Use Default Gateway

IP Address (Default Gateway) 10 . 100 . 1 . 254

Static Routing

Apply

3

- (1) Click the **NIC** tab.
- (2) Select the value corresponding to your actual network environment for **Speed** and select **30 sec** or **60 sec** for **ARP Broadcasting Period**.
- (3) Click the **Apply** button.

IP Address | Routing | IP Address(v6) | Routing(v6) | **NIC**

Speed

- ☐ Fixed 10Mbps
- ☐ Fixed 100Mbps
- ☐ Auto Negotiation(1Gbps Only)
- ☒ Auto Negotiation(10Mbps-1Gbps)

ARP Broadcasting Period: **No Send** (dropdown menu open showing: No Send, 30sec, 60sec, 120sec)

Apply

Note: When items other than **Auto Negotiation (10Mbps-1Gbps)** are selected as **Speed**, the **Duplex Mode** parameter appears. In that case, select **Half Duplex** or **Full Duplex**.

4

- Select **LAN2** for **Select LAN Interface** and then click the **Get** button.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. : 1 Self MGC Kind : Primary Node

Operating MGC No. : 1

MGC No. of Primary Node : 1

MGC No. : **2**

Select LAN Interface

- ☐ LAN1
- ☒ **LAN2**

Get **Exit**

5

- (1) Click the **Routing** tab.
- (2) Select the **Use Default Gateway** check box.
- (3) Set the value corresponding to your actual network environment for **IP Address (Default Gateway)** and **Static Routing**.
- (4) Click the **Apply** button.

The screenshot shows a network configuration window with three tabs: "IP Address", "Routing", and "NIC". The "Routing" tab is selected and highlighted with a blue border. Inside the "Routing" tab, there is a checked checkbox labeled "Use Default Gateway". Below this checkbox is a text input field labeled "IP Address (Default Gateway)" containing the value "10 . 100 . 1 . 254". Below the input field is a button labeled "Static Routing". At the bottom right of the window is a button labeled "Apply". Blue rounded rectangles highlight the "Routing" tab, the "Use Default Gateway" checkbox, the "IP Address (Default Gateway)" input field, the "Static Routing" button, and the "Apply" button.

6

- (1) Click the **NIC** tab.
- (2) Select the value corresponding to your actual network environment for **Speed** and select **30 sec** or **60 sec** for **ARP Broadcasting Period**.
- (3) Click the **Apply** button.

The screenshot shows a configuration window with three tabs: 'IP Address', 'Routing', and 'NIC'. The 'NIC' tab is active. Inside the 'NIC' tab, there is a 'Speed' section with four radio button options: 'Fixed 10Mbps', 'Fixed 100Mbps', 'Auto Negotiation(1Gbps Only)', and 'Auto Negotiation(10Mbps-1Gbps)'. The 'Auto Negotiation(10Mbps-1Gbps)' option is selected. Below the 'Speed' section is the 'ARP Broadcasting Period' section, which has a dropdown menu. The dropdown menu is open, showing four options: 'No Send', '30sec', '60sec', and '120sec'. The '30sec' option is highlighted. At the bottom right of the window is an 'Apply' button.

Note: When items other than **Auto Negotiation (10Mbps-1Gbps)** are selected as **Speed**, the **Duplex Mode** parameter appears. In that case, select **Half Duplex** or **Full Duplex**.

7

- Click the **Exit** button to exit the **ADTM** command.

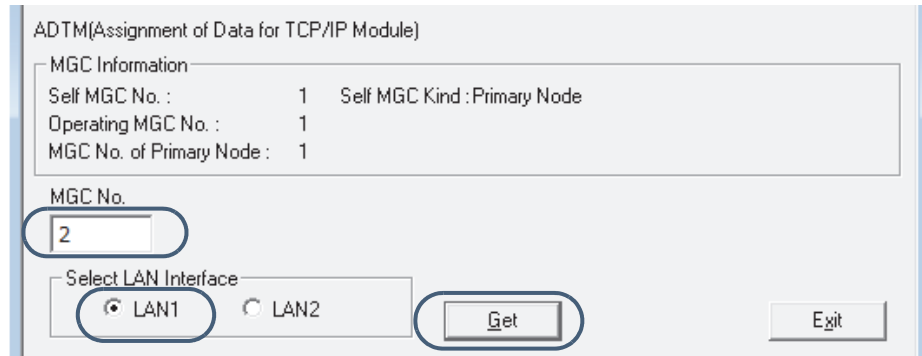
6.15 Assignment for Routing Data for GR-Node (ADTM) (IPv6)

Configure the network of the Telephony Server to conform to the actual network environment.

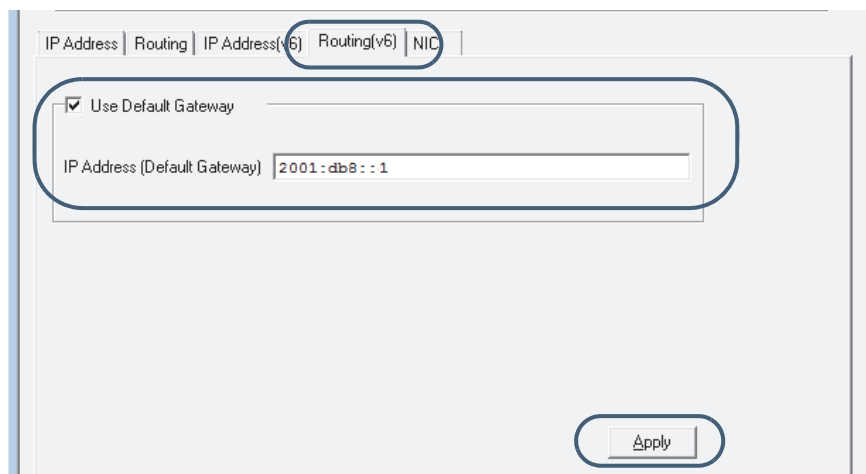
Note: Conditions for this operation is shown below:

- This data setting is for the Geo Redundant Node's IPv6 connection with PCPro. If you use only IPv4 addresses, this setting is not required.
- Programming for IPv4 must be done before programming in this section can be done.

- 1 Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of a target MGC (Geo Redundant Node).
Select LAN Interface: Choose **LAN1**.



- 2
 - (1) Click the **Routing (v6)** tab.
 - (2) Set the value corresponding to your actual network environment for each item.
 - (3) Click the **Apply** button.



- 3 Click the **Exit** button to exit the **ADTM** command.

6.16 Configuration of SIP Server (ASPC)

Note: This procedure is required only for Primary Node.

Set the office data for the SP part of the system through the **ASPC** command. For more details on the configuration of SIP Server (ASPC), see the configuration of SIP server (ASPC) section in Appliance Model Installation Manual.

7. Office Data Setting for Dual Configuration

This section explains the procedure to set the basic office data for Primary Node/Geo Redundant Node/Survivable Remote Node in dual configuration. Take notice that some parts of the procedure may differ between Primary Node and Geo Redundant Node/Survivable Remote Node.

Follow the steps below to set the basic office data.

Office Data Setting for Dual Configuration

STEP NO.	PROCEDURES	NOTES	CONNECTING DST. OF PCPRO
1	Advance Preparation for PCPro	Same as for the conventional case; see Appliance Model Installation Manual.	-
2	Startup of the Telephony Server		
3	Network Configuration of Maintenance PC		
4	Setting Activation Code (AACT)	See 7.1 Registration of Activation Code .	LAN2 default IP address (172.16.253.0)
5	CPU Configuration (ASYD)	See 7.2 CPU Configuration .	
6	Enable Geographic Redundancy (ASY-DL)	See 7.3 Enable Geographic Redundancy .	
7	Assignment of Self MGC (CMNT)	See 7.4 Assignment of Self MGC .	
8	LAN2 Network Configuration (ADTM) (IPv4)	See 7.5 LAN2 Network Configuration (ADTM) (IPv4) .	LAN2 IP address assigned for your network (e.g. 10.100.1.12)
9	Modifying Network Configuration of Maintenance PC	Same as for the conventional case; see Appliance Model Installation Manual.	
10	LAN1 Network Configuration (ADTM) (for Asia)	See 7.6 LAN1 Network Configuration (ADTM) (for Asia) .	
11	LAN1 Network Configuration (ADTM) (IPv6) Note 1	See 7.7 LAN1 Network Configuration (ADTM) (IPv6) .	
12	Assignment for Routing Data/NIC Data (ADTM) (IPv4)	See 7.8 Assignment for Routing Data/NIC Data (ADTM) (IPv4) .	
13	Assignment for Routing Data (ADTM) (IPv6) Note 1	See 7.9 Assignment for Routing Data (ADTM) (IPv6) .	
14	Assignment for LAN Interface Data (ADTM) (IPv6) Note 1	See 7.10 Assignment for LAN Interface Data (ADTM) (IPv6) .	
15	Modifying Network Configuration of Maintenance PC	Same as for the conventional case; see Appliance Model Installation Manual.	-

Office Data Setting for Dual Configuration

STEP NO.	PROCEDURES	NOTES	CONNECTING DST. OF PCPRO
16	Assignment of Geo Redundant Node/ Survivable Remote Node/SR-MGC (CMNT)	See 7.11 Assignment of GR-Node/SR-Node/SR-MGC (CMNT) .	LAN2 IP address assigned for your network (e.g. 10.100.1.12) or LAN1 IPv6 IP address assigned for your network (e.g. 2001:db8::c)
17	Assignment of IP address for Geo Redundant Node/Survivable Remote Node (ADTM)	See 7.12 Assignment of IP Address for GR-Node/SR-Node (ADTM) .	
18	Assignment for Routing Data for Geo Redundant Node (ADTM) (IPv6) Note 1	See 7.13 LAN1 Network Configuration for GR-Node (ADTM) (IPv6) .	
19	Assignment for Routing Data/NIC Data for Geo Redundant Node/Survivable Remote Node (ADTM) (IPv4)	See 7.14 Assignment for Routing Data/ NIC Data for GR-Node/SR-Node (ADTM) (IPv4) .	
20	Assignment for Routing Data for Geo Redundant Node (ADTM) (IPv6) Note 1	See 7.15 Assignment for Routing Data for GR-Node (ADTM) (IPv6) .	
21	System Configuration Data Assignment	See CHAPTER 6 OFFICE DATA SETTINGS .	
22	Initial Data Assignment		
23	Configuration of SIP Server (ASPC)	See 7.16 Configuration of SIP Server (ASPC) .	

Note 1: These settings are only for the IPv6 connection. If you use only IPv4 addresses, these settings are not required.

7.1 Registration of Activation Code

Once the license file has been uploaded and the SV9500 has been reset, the SV9500 must be registered before you will be granted a PCPro access. See the Registration of Activation Code section in Appliance Model Installation Manual to register the activation code.

Note: You cannot be logged into the PCPro to use this operation. For dual CPUs, both CPUs must be on-line to enter the Activation Code.

7.2 CPU Configuration

Configure the CPU for a single configuration system.

- 1 Connect to PCPro using the connection account (e.g. LAN2_Default) assigned to the default IP address of the active (ACT) interface for LAN2 (172.16.253.0/16). The user ID and the password shown below need to be entered.

User ID: maintenance

Password: ty8*#02F

Note: If the user ID and the password are not entered, login is unavailable.

Point: For procedure to connect to PCPro, refer to “Communication Link with the Telephony Server” in Chapter 3. Setting Up PCPro in PCPro Setup Manual.

- 2 Execute the **ASYD** command and set the following data.
ASYD, SYS1, Index 58, Bit 0=1 (Configuration of CPU: Dual)

7.3 Enable Geographic Redundancy

Assign the system data below to enable Geographic Redundancy.

- 1 Execute the **ASYDL** command and set the following data.
ASYDL, SYS1, Index 1354, Bit 0=1 (Geographic Redundancy is enabled)

- 2 Exit the **ASYDL** command.

Note: Please note the following:

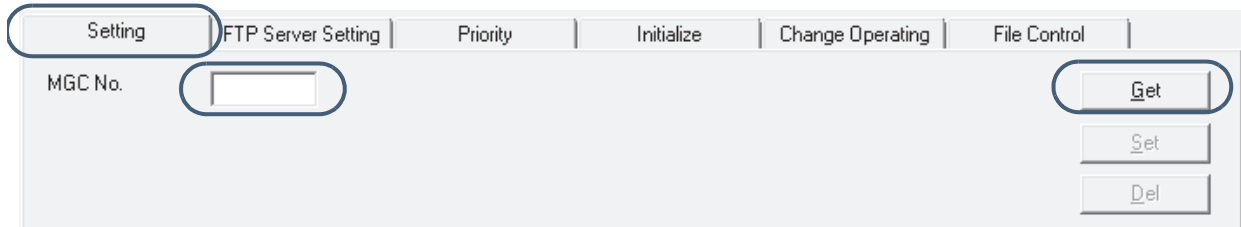
- Do not perform the system initialization when the CMNT data assignment has not been completed yet. If the system initialization is performed without completing the CMNT data assignment, CMNT command will be locked. If it happens, disable the Geographic Redundancy (ASYDL, SYS1, Index 1354, Bit 0=0), perform system initialization, and then follow the procedure again from [Step 1](#) under the condition that the Geographic Redundancy is disabled.
- After the setting of this system data, retry log in to PCPro.

7.4 Assignment of Self MGC

Assign an MGC number of itself (Primary Node) through the **CMNT** command.

1

Execute the **CMNT** command and click the **Setting** tab. Type an MGC number (1-255) of itself (Primary Node) and then click the **Get** button.



The screenshot shows a web interface with a top navigation bar containing tabs: Setting, FTP Server Setting, Priority, Initialize, Change Operating, and File Control. The 'Setting' tab is selected. Below the tabs, there is a label 'MGC No.' followed by an empty text input field. To the right of the input field are three buttons: 'Get', 'Set', and 'Del'. The 'Get' button is circled in blue.

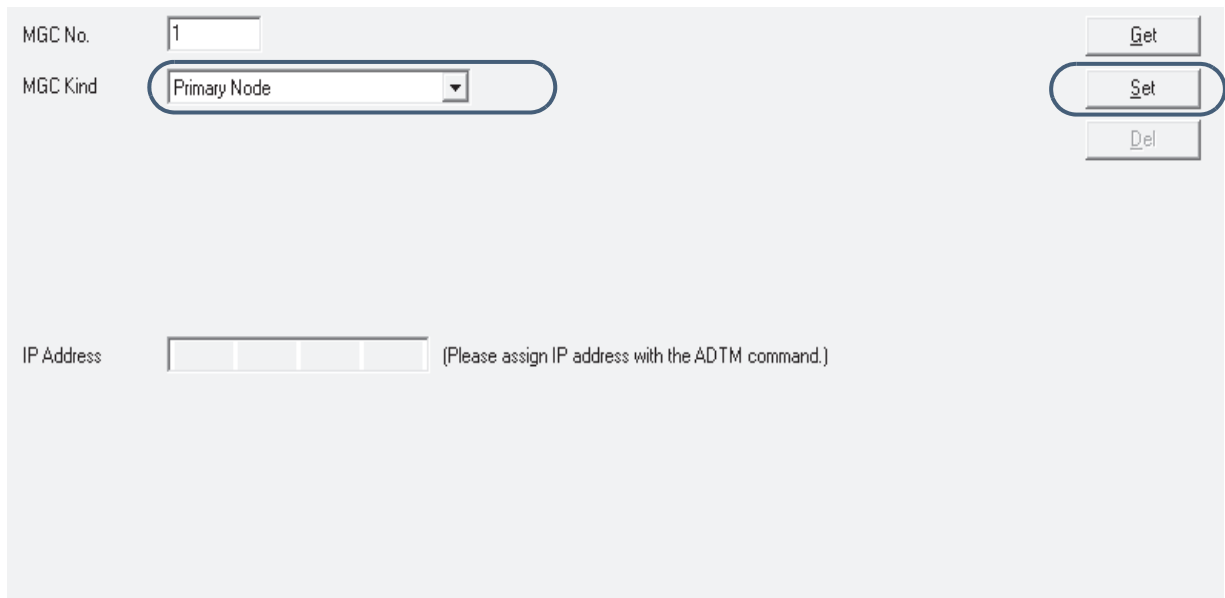
2

Assign the following parameters. After all the required parameters are set, click the **Set** button. For more details on each parameter of the **CMNT** command, refer to the Operations and Maintenance Manual.

<Primary Node>

MGC Kind: Choose "Primary Node."

IP Address: Blank (IP address is to be assigned through the ADTM command in the later step.)



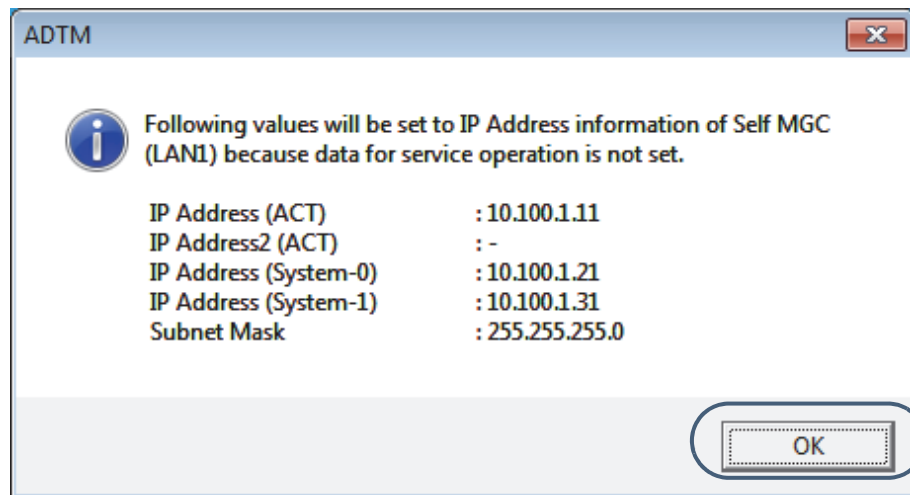
The screenshot shows the same web interface as before, but with the 'MGC No.' field now containing the number '1'. The 'MGC Kind' label is followed by a dropdown menu showing 'Primary Node'. The 'Set' button is now circled in blue. Below these fields, there is an 'IP Address' label followed by a text input field and a note: '(Please assign IP address with the ADTM command.)'.

7.5 LAN2 Network Configuration (ADTM) (IPv4)

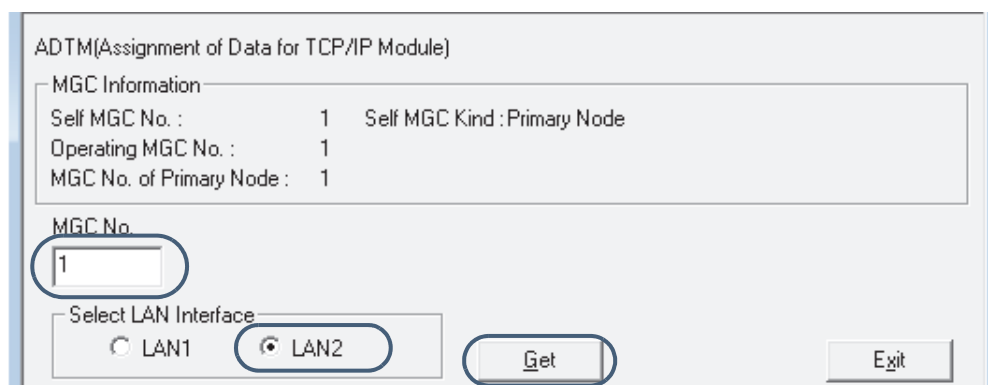
Modify the IP addresses of System #0 and #1 for LAN2 assigned with the default IP address (172.16.253.0) to the IP address used for the actual environment.

Note: For the dual system configuration, it is recommended to enable the periodic transmission of GARP on both LAN1 and LAN2 with the ADTM command. The parameter of ARP Broadcasting Period should be preferably selected as “60 sec”. As for the offices that frequently execute the CPU system changeover, select “30 sec” for the parameter of ARP Broadcasting Period.

- 1 Execute the **ADTM** command. The following message will be displayed by PCPro.
Click **OK** to close the message box.

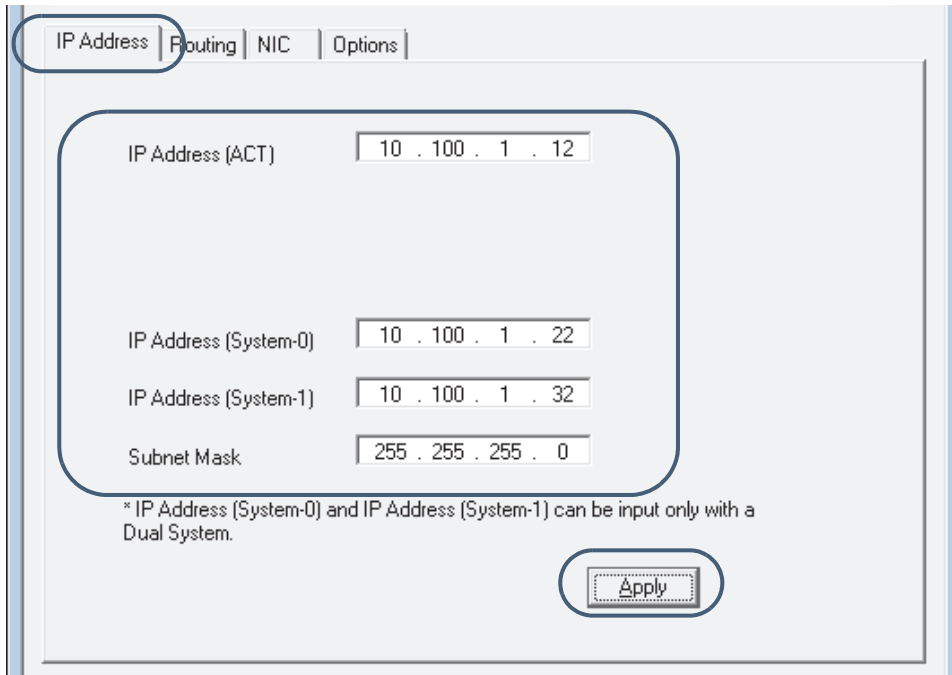


- 2 In the **ADTM** command window, set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of itself (Primary Node).
Select LAN Interface: Choose **LAN2**.



3

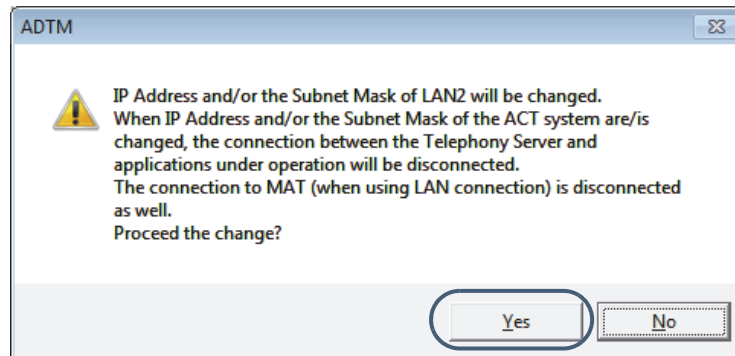
Click the **IP Address** tab and type IP address. Set the values corresponding to your actual network environment for **IP Address (ACT)**, **IP Address (System-0)**, **IP Address (System-1)** and **Subnet Mask**. Then, click the **Apply** button.



The screenshot shows a configuration window with four tabs: "IP Address", "Routing", "NIC", and "Options". The "IP Address" tab is selected and highlighted with a blue border. Inside the tab, there are four input fields: "IP Address (ACT)" with the value "10 . 100 . 1 . 12", "IP Address (System-0)" with the value "10 . 100 . 1 . 22", "IP Address (System-1)" with the value "10 . 100 . 1 . 32", and "Subnet Mask" with the value "255 . 255 . 255 . 0". Below these fields, a note states: "* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System." At the bottom right of the window, there is an "Apply" button, which is also highlighted with a blue border.

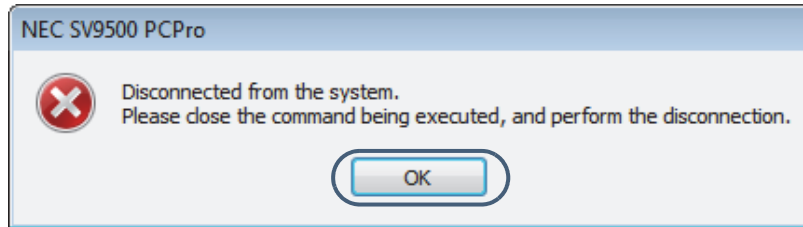
4

The following confirmation message will be displayed.
Click the **Yes** button to apply the modification.



Point: The connection to PCPro will be disconnected when the data is modified.

- 5** The following message will be displayed by PCPro.
Click **OK** to close the message box.



- 6** Click the **Exit** to exit the **ADTM** command.

- 7** Disconnect PCPro (on the **System** menu, click **Disconnect**) from the system.

Point: For detailed disconnecting procedure, refer to “Disconnecting the Communication Link” in Chapter 3 Setting Up PCPro in PCPro Setup Manual.

- 8** Assign a user ID and a password to PCPro. For detailed Procedure, refer to “User Account Setting” in Chapter 5 Various Settings of PCPro in PCPro Setup Manual.

Note: Use the user ID and password assigned here when connecting PCPro to the Telephony Server.

7.6 LAN1 Network Configuration (ADTM) (for Asia)

Modify the IP address of LAN1 assigned with the default IP address (**Note 1**) to the IP address used for the actual environment (e.g. 10.100.1.11).

Note: This procedure is required for Asia.

Note 1: The default IP address “192.168.0.2” is set for LAN1 for Asia.

- 1** Connect to PCPro using the connection account (e.g. LAN2_Default) assigned to the default IP address of the active (ACT) interface for LAN2 (172.16.253.0). The user ID and the password shown below need to be entered.

User ID: maintenance

Password:ty8*#02F

Note: If the user ID and the password are not entered, login is unavailable.

Point: For procedure to connect to PCPro, refer to “Communication Link with the Telephony Server” in Chapter 3. Setting Up PCPro in PCPro Setup Manual.

- 2** Execute the ADTM command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of itself (Primary Node).
Select LAN Interface: Choose **LAN1**.

- 3** Click the **IP Address** tab and set the values corresponding to your actual network environment for **IP Address (ACT)**, **IP Address (System-0)**, **IP Address (System-1)** and **Subnet Mask**. Then, click the **Apply** button.

- 4** Click the **Routing** tab and set the values corresponding to your actual network environment for each necessary parameter. Then, click the **Apply** button.

7.7 LAN1 Network Configuration (ADTM) (IPv6)

Set IPv6 addresses for LAN1 of System-0 and System-1.

Note: Note the following conditions for this setting.

- This data setting is for the Primary Node's IPv6 connection with PCPro. If you use only IPv4 addresses, this setting is not required.
- Programming for IPv4 must be done before programming in this section can be done.
- For detailed conditions of IPv6 addresses, refer to "IPv6 Connection with PCPro" in the System Description.

1 Connect to PCPro using the connection account (e.g. NewOffice#1) assigned for the IP address of LAN2 connector. Enter the user ID and the password that have been previously assigned to connect to PCPro.

Note: If the user ID and password are not entered, login is unavailable.

Point: For detailed procedure to connect to PCPro, refer to "Communication Link with the Telephony Server" in Chapter 3 Setting Up PCPro in PCPro Setup Manual.

2 Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of itself (Primary Node).
Select LAN Interface: Choose **LAN1**.

ADTM[Assignment of Data for TCP/IP Module]

MGC Information

Self MGC No. :	1	Self MGC Kind : Primary Node
Operating MGC No. :	1	
MGC No. of Primary Node :	1	

MGC No.

1

Select LAN Interface

☒ LAN1 ☐ LAN2

Get Exit

3

- (1) Click the **IP Address (v6)** tab.
- (2) Select the **Use IPv6** check box.
- (3) Set the values corresponding to your actual network environment for **Prefix Length**, **IP Address (ACT)**, **IP Address (System-0)** and **IP Address (System-1)**.
- (4) Click the **Apply** button.

IP Address | Routing | **IP Address(v6)** | Routing(v6) | NIC | Options

☒ Use IPv6

Prefix Length: 64 Bit

IP Address (ACT): 2001:db8::c

IP Address (System-0): 2001:db8::d

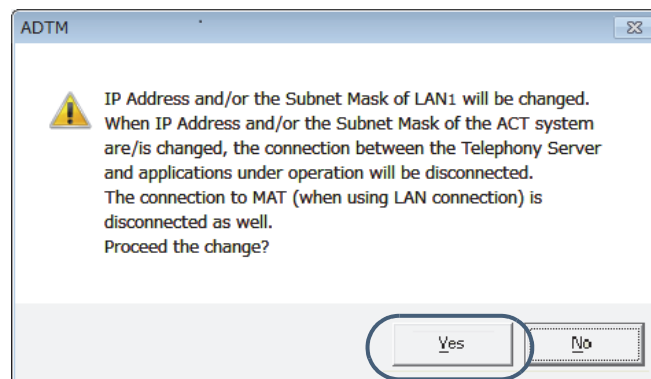
IP Address (System-1): 2001:db8::e

* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System.

Apply

4

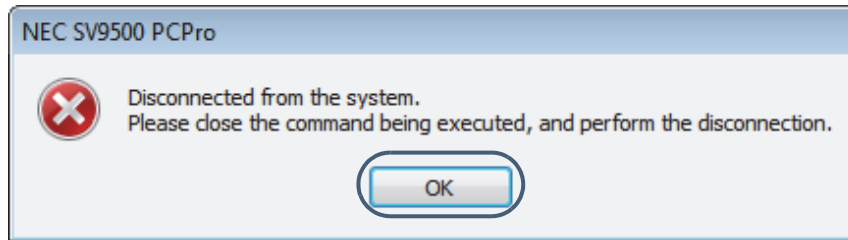
- The following confirmation message is displayed.
Click the **Yes** button to apply the new setting.



Note: The data setting for the IPv6 address becomes valid after the change is applied.

Point: The connection to PCPro is disconnected when the data is modified.

- 5** The following message will be displayed by PCPro.
Click **OK** to close the message box.



- 6** Click the **Exit** button to exit the **ADTM** command.
- 7** Disconnect PCPro (on the **System** menu, click **Disconnect**) from the system.

Point: For detailed disconnecting procedure, refer to “Disconnecting the Communication Link” in Chapter 3 Setting Up PCPro in PCPro Setup Manual.

7.8 Assignment for Routing Data/NIC Data (ADTM) (IPv4)

This section explains the procedure for configuring the network of the Telephony Server to conform to the actual network environment.

- 1** Connect to PCPro using the connection account (e.g. NewOffice#1) assigned for the IP address of LAN2 connector.

Note: If the user ID and password are not entered, login is unavailable.

Point: For detailed procedure to connect to PCPro, refer to “Communication Link with the Telephony Server” in Chapter 3 Setting Up PCPro in the PCPro Setup Manual.

- 2** Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of itself (Primary Node).
Select LAN Interface: Choose **LAN1**.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. : 1 Self MGC Kind : Primary Node

Operating MGC No. : 1

MGC No. of Primary Node : 1

MGC No.

1

Select LAN Interface

☒ LAN1 ☐ LAN2

Get Exit

- 3**
- (1) Click the **NIC** tab.
 - (2) Select the value corresponding to your actual network environment for **Speed** and select **30 sec** or **60 sec** for **ARP Broadcasting Period**.
 - (3) Click the **Apply** button.

IP Address Routing IP Address(v6) Routing(v6) NIC Options

Speed

☐ Fixed 10Mbps

☐ Fixed 100Mbps

☐ Auto Negotiation(1Gbps Only)

☒ Auto Negotiation(10Mbps-1Gbps)

ARP Broadcasting Period

No Send

30sec

60sec

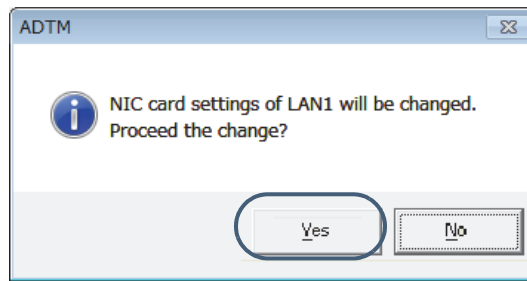
120sec

Apply

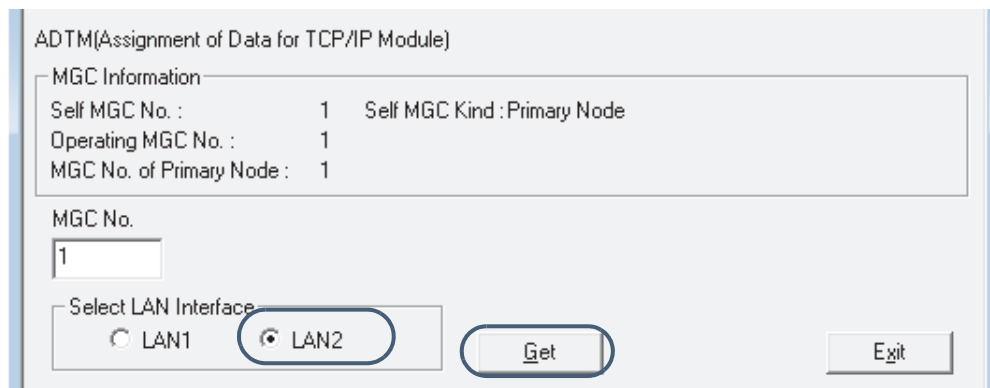
Note: Please note the following conditions:

- When items other than **Auto Negotiation (10Mbps-1Gbps)** are selected as **Speed**, the **Duplex Mode** parameter appears. In that case, select **Half Duplex** or **Full Duplex**.
- As for the offices that frequently execute the CPU system changeover, select **30 sec** as **ARP Broadcasting Period**.

- 4** The confirmation message is displayed. Click the **Yes** button to apply the change.



- 5** Select **LAN2** for **Select LAN Interface** and click the **Get** button.



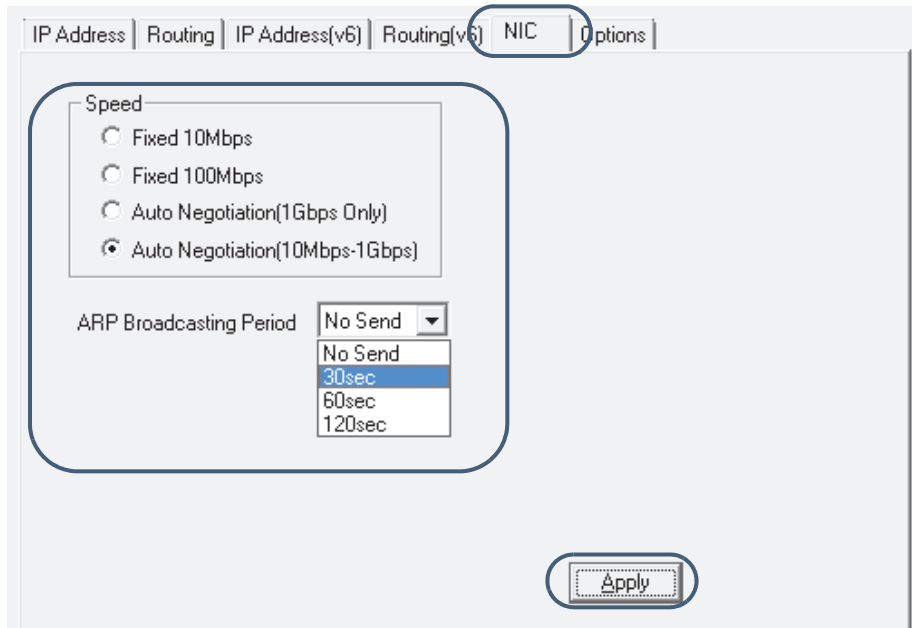
6

- (1) Click the **Routing** tab.
- (2) Select the **Use Default Gateway** check box.
- (3) Set the value corresponding to your actual network environment for **IP Address (Default Gateway)** and **Static Routing**.
- (4) Click the **Apply** button.

The screenshot shows a network configuration window with four tabs: "IP Address", "Routing", "NIC", and "Options". The "Routing" tab is selected and highlighted with a blue circle. Inside the "Routing" tab, there is a checked checkbox labeled "Use Default Gateway" (circled in blue). Below this checkbox is a text input field labeled "IP Address (Default Gateway)" containing the value "10 . 100 . 1 . 254" (circled in blue). Below the input field is a button labeled "Static Routing" (circled in blue). At the bottom right of the window is an "Apply" button (circled in blue).

7

- (1) Click the **NIC** tab.
- (2) Select the value corresponding to your actual network environment for **Speed** and select **30 sec** or **60 sec** for **ARP Broadcasting Period**.
- (3) Click the **Apply** button.

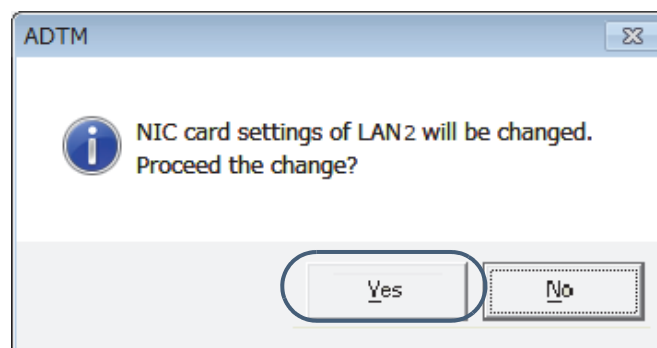


Note: Please note the following conditions:

- When items other than **Auto Negotiation (10Mbps-1Gbps)** are selected as **Speed**, the **Duplex Mode** parameter appears. In that case, select **Half Duplex** or **Full Duplex**.
- As for the offices that frequently execute the CPU system changeover, select **30 sec** as **ARP Broadcasting Period**.

8

The confirmation message is displayed. Click the **Yes** button to apply the change.



9

Click the **Exit** button to exit the **ADTM** command.

7.9 Assignment for Routing Data (ADTM) (IPv6)

This section explains the procedure for configuring the network of the Telephony Server to conform to the actual network environment.

Note: Conditions for this operation is shown below:

- This data setting is for the Primary Node's IPv6 connection with PCPro. If you use only IPv4 addresses, this setting is not required.
- Programming for IPv4 must be done before programming in this section can be done.

1

Execute the ADTM command. Set the following parameters and then click the **Get** button.

MGC No.: Type an MGC number of itself (Primary Node).

Select LAN Interface: Choose **LAN1**.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. :	1	Self MGC Kind : Primary Node
Operating MGC No. :	1	
MGC No. of Primary Node :	1	

MGC No.

1

Select LAN Interface

☒ LAN1 ☐ LAN2

Get Exit

2

- (1) Click the **Routing (v6)** tab.
- (2) Set the value corresponding to your actual network environment for each item.
- (3) Click the **Apply** button.

The screenshot shows a configuration window with tabs: IP Address, Routing, IP Address(v6), Routing(v6), NIC, and Options. The 'Routing(v6)' tab is selected and circled. Below the tabs, there is a section with a checked checkbox labeled 'Use Default Gateway' and a text field labeled 'IP Address (Default Gateway)' containing the value '2001:db8::1'. Both the checkbox and the text field are circled. An 'Apply' button is located at the bottom right of the window.

3

- Click the **Exit** button to exit the **ADTM** command.

7.10 Assignment for LAN Interface Data (ADTM) (IPv6)

This section explains the procedure for configuring the LAN interface to connect to PCPro with IPv6 addresses.

Note: Conditions for this operation is shown below:

- This data setting is for the Primary Node's IPv6 connection with PCPro. If you use only IPv4 addresses, this setting is not required.
- Programming for IPv4 must be done before programming in this section can be done.

1

Execute the **ADTM** command. Set the following parameters and then click the **Get** button.

MGC No.: Type an MGC number of itself (Primary Node).

Select LAN Interface: Choose **LAN1**.

ADTM[Assignment of Data for TCP/IP Module]

MGC Information

Self MGC No. :	1	Self MGC Kind : Primary Node
Operating MGC No. :	1	
MGC No. of Primary Node :	1	

MGC No.

1

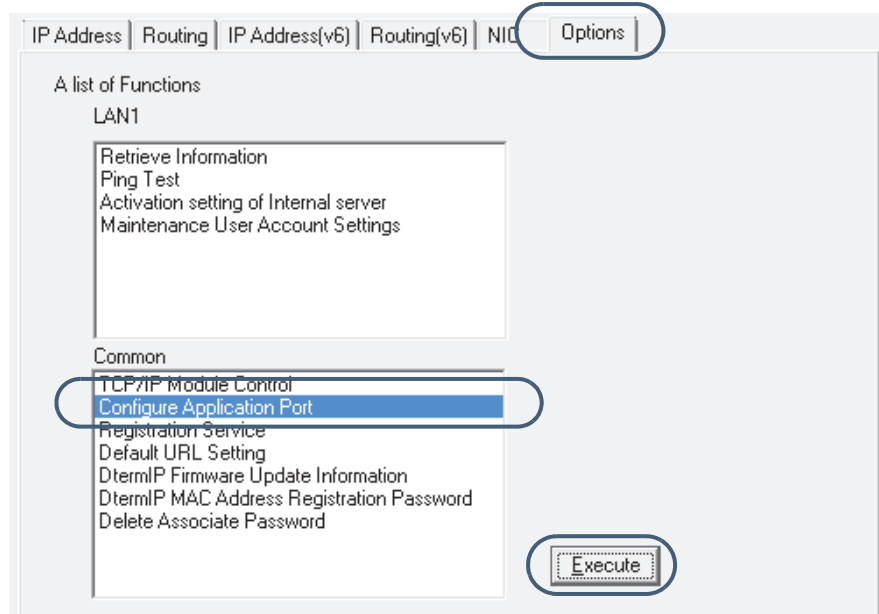
Select LAN Interface

☒ LAN1 ☐ LAN2

Get Exit

2

- (1) Click the **Options** tab.
- (2) In the **Common** list, select **Configure Application Port**.
- (3) Click the **Execute** button.



3

- (1) Select **LAN1** under **LAN Interface to be used in MAT**.
- (2) Click the **Apply** button.

Configure Application Port

Configure Application Port	LAN Interface to be used	Port Number (1024-65534)	Default Value
MAT	(TCP) ☒ LAN1 ☐ LAN2	0	60000
SMDR	(TCP) ☐ LAN1 ☒ LAN2	0	60010
MCI	(TCP) ☐ LAN1 ☒ LAN2	0	60020
DAI	(TCP) ☐ LAN1 ☒ LAN2	0	60030
MIS	(TCP) ☐ LAN1 ☒ LAN2	0	60040
CS Report	(TCP) ☐ LAN1 ☒ LAN2	0	60080
PMS	(TCP) ☐ LAN1 ☒ LAN2	0	60050
MCC	(TCP) ☐ LAN1 ☒ LAN2	0	60190
CCIS Cluster	(TCP) ☒ LAN1 ☐ LAN2	0	60001
FCCS Cluster	(TCP) ☐ LAN1 ☒ LAN2	0	60210

*If you want to change Port Number of "FCCS Cluster", you must use AFCMN command.

Internal PHI-PRI	(TCP) ☐ LAN1 ☒ LAN2	0	64000
Internal PHC	☐ LAN1 ☒ LAN2		
Client	(TCP)	0	65030
Server	(TCP)	0	57000
Internal PHF	(UDP) ☒ LAN1 ☐ LAN2	0	60180
	☒ LAN1 ☐ LAN2		
REG	(UDP)	0	3456
Internal PHE	(UDP)	0	60130
Internal PHI-BRI	(UDP)	*"Internal PHI-PRI" and "Internal PHI-BRI" use the same Port Number.	
SR-MGC/NMS			
NMS	(TCP)	0	60060
Health Check Receive MGC - SR-MGC (Server)	(UDP)	0	60110
Health Check Send MGC - SR-MGC (Client)	(UDP)	0	60120
SR-MGC Charge MGC Side	(TCP)	0	60140
SR-MGC Charge SR-MGC Side	(TCP)	0	60150
DNS	(UDP) ☐ LAN1 ☒ LAN2	0	53
SNTP	(UDP) ☐ LAN1 ☒ LAN2	0	123
PBUS over IP	(UDP) ☒ LAN1 ☐ LAN2	0	60220
Internal SIP Handler	☐ LAN1 ☐ LAN2 ☒ LAN1(ACT2)		
SIP Signaling	(UDP/TCP Server)	0	5060
DRS Registration	(UDP)	0	60300
Negotiation	(UDP/TCP Server)	0	60301
TLS	(TCP Server)	0	5061

*When the Port Number of "REG" is changed, it is necessary to set the same Port Number as DrsPort by the ASPC command. (SPconfig.conf,StaticInfo.txt)

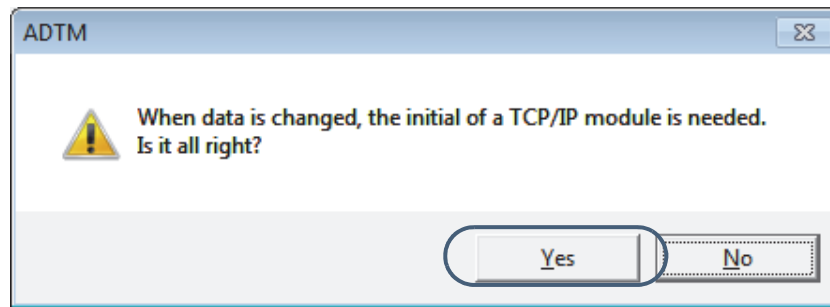
*When "Internal PHI-PRI" or "Internal PHI-BRI" or "Internal PHC" or "Internal PHF" or "Internal SIP Handler" is changed, it is necessary to initialize the module.

*When the Port Number of "Internal PHE" is changed, it is necessary to set the same Port Number as PHEPort by the ASPC command. (SPconfig.conf)

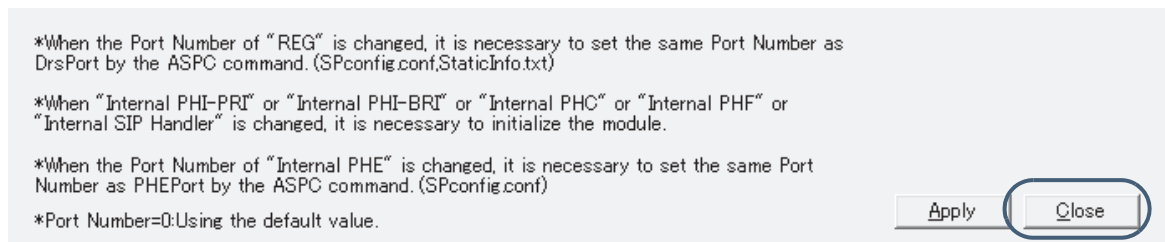
*Port Number=0:Using the default value.

Apply **Close**

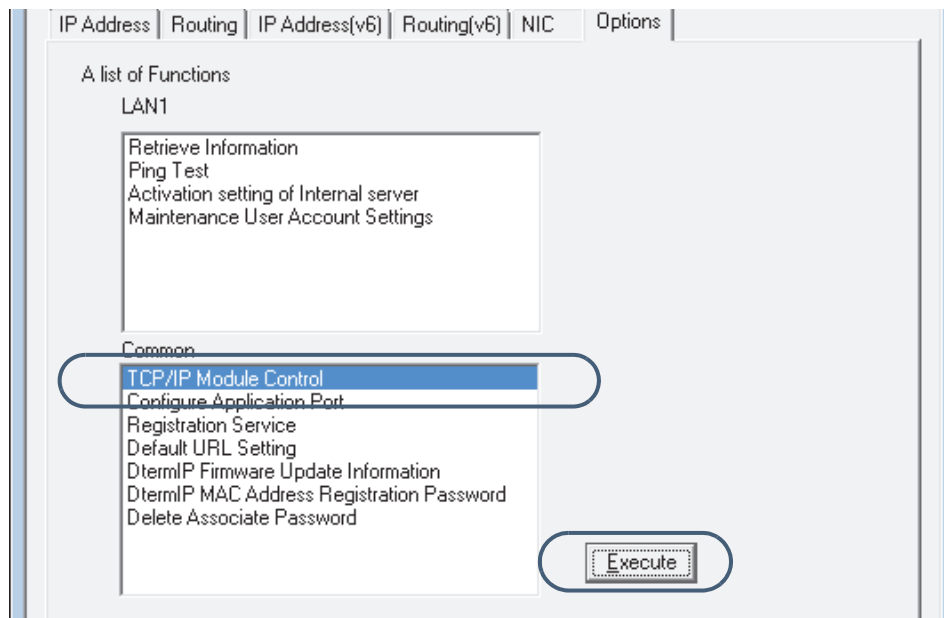
- 4 The confirmation message is displayed. Click the **Yes** button to apply the change.



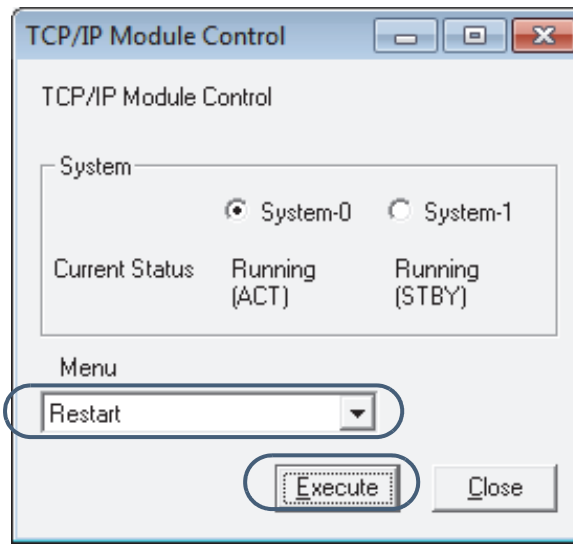
- 5 Click the **Close** button to close the **Configure Application Port** dialog box.



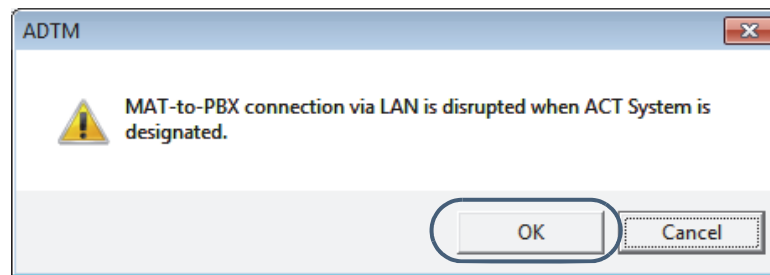
- 6 (1) Select **TCP/IP Module Control** in the **Common** list.
(2) Click the **Execute** button.



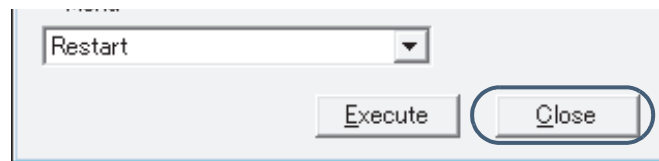
- 7 Select **Restart** in the **Menu** box and click the **Execute** button.



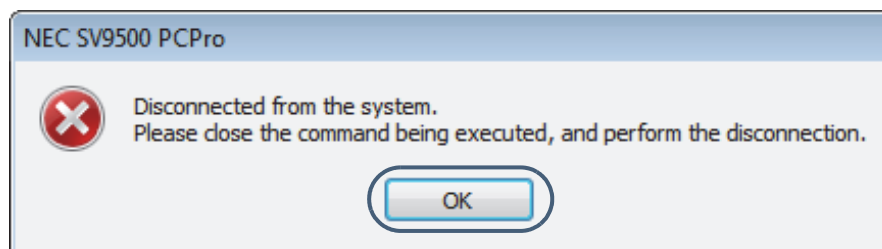
- 8 The following message is displayed. Click **OK** to close the message.



- 9 Click the **Close** button to close the **TCP/IP Module Control** dialog box.



- 10 The following message is displayed on PCPro. Click **OK** to close the message.



11 Click the **Exit** button to exit the **ADTM** command.

12 Select **Disconnect** on the **System** menu on PCPro.

Point: For detailed disconnecting procedure, refer to “Disconnecting the Communication Link” in Chapter 3 Setting Up PCPro in PCPro Setup Manual.

7.11 Assignment of GR-Node/SR-Node/SR-MGC (CMNT)

Connect PCPro with Primary Node in operating mode and assign IP addresses of Geo Redundant Nodes/Survivable Remote Nodes/SR-MGCs through the **CMNT** command.

1 Execute the **CMNT** command and click the **Setting** tab. Type an MGC number (0-255 **Note 1**) of a target MGC (Geo Redundant Node/Survivable Remote Node/SR-MGC) and then click the **Get** button.

The screenshot shows a web-based configuration interface for the CMNT command. At the top, there are several tabs: 'Setting' (which is selected and highlighted with a blue border), 'FTP Server Setting', 'Priority', 'Initialize', 'Change Operating', and 'File Control'. Below the tabs, there is a label 'MGC No.' followed by a text input field. To the right of the input field, there are three buttons: 'Get' (highlighted with a blue border), 'Set', and 'Del'.

Note 1: MGC number “0” is available only for SR-MGC used for [S-141] Survivable Remote MGC. Do not set “0” for Geo Redundant Node and Survivable Remote Node.

2

Assign the following parameters. After all the required parameters are set, click the **Set** button. For more details on each parameter of the **CMNT** command, refer to the Operations and Maintenance Manual.

<In the case of Geo Redundant Node>

MGC Kind: Choose “Geo Redundant Node.”

Configuration of CPU: Choose “Single” or “Dual” as CPU configuration of the specified Geo Redundant Node.

Use Physical PIR: Clear the check box (Fixed).

Office Name: Type the office name of the specified Geo Redundant Node (up to 20 digits).

IP Address: Blank (IP address is assigned with the **ADTM** command at a later step.)

Assigning MA-ID: Clear the check box (Fixed).

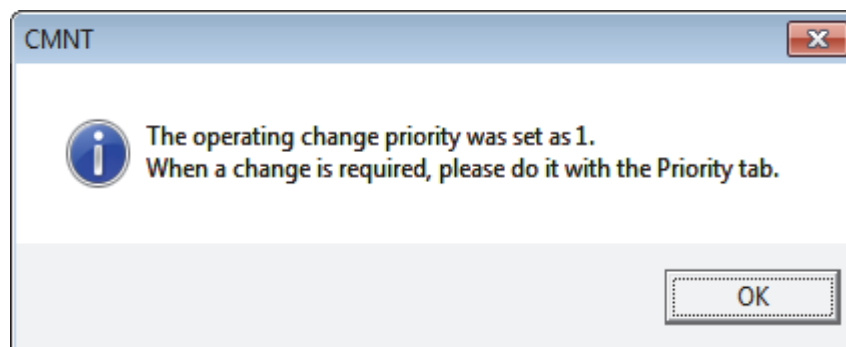
The screenshot shows a configuration window with the following fields and controls:

- MGC No.:** A text box containing the value "2".
- MGC Kind:** A dropdown menu set to "Geo Redundant Node".
- Configuration of CPU:** Two radio buttons, "Single" and "Dual", with "Dual" selected.
- Use Physical PIR:** A checkbox that is unchecked.
- Office Name:** A text box.
- IP Address:** A text box with a placeholder "(Please assign IP address with the ADTM command.)".
- Assigning MA-ID:** A checkbox that is unchecked.

On the right side of the window, there are three buttons: "Get", "Set" (which is circled in red), and "Del".

The following confirmation message is displayed.

Click the **OK** button to give the highest priority to the specified Geo Redundant Node. To change the priority data, click the **Priority** tab to change the data of **Setting of Operating Change Priority**.



<In the case of Survivable Remote Node>

MGC Kind: Choose “Survivable Remote Node.”

Model: Choose “E” (SV9500) to use SV9500 as Survivable Remote Node hardware type. Choose also “E” (SR-MGC(E)) to use SR-MGC(E) as Survivable Remote Node hardware type.

Configuration of CPU: Choose “Single” or “Dual” as CPU configuration of the specified Survivable Remote Node.

Office Name: Type the office name of the specified Survivable Remote Node (up to 20 digits).

Number of Ports: Enter the number of port licenses for the specified Survivable Remote Node. **Note 1**

IP Address: Blank (IP address is assigned with the **ADTM** command at a later step.)

Mode: Choose the specified Survivable Remote Node’s change over/change back timing.

Assigning MA-ID: Clear the check box (Fixed).

ACDP: Place a check mark to use Call Distribution. **Note 2**

Call Distribution: Choose “ACD” for using ACD call distribution method or “UCD” for using UCD call distribution method of ACDP for MGC. **Note 2**

The screenshot shows a web-based configuration interface for a Survivable Remote Node. The interface is divided into a main configuration area on the left and a control area on the right. The main area contains the following fields and controls:

- MGC No.:** A text input field containing the value "3".
- MGC Kind:** A dropdown menu set to "Survivable Remote Node".
- Model:** A dropdown menu set to "E".
- Configuration of CPU:** A section with two radio buttons: "Single" (unselected) and "Dual" (selected).
- Office Name:** A text input field.
- Number of Ports:** A text input field.
- IP Address:** A series of five small text input fields, followed by the text "(Please assign IP address with the ADTM command.)".
- Mode:** A text input field.
- Assigning MA-ID:** A checkbox that is currently unchecked.
- ACDP:** A checkbox that is currently checked.
- Call Distribution:** A section with two radio buttons: "ACD" (selected) and "UCD" (unselected).

On the right side of the interface, there are three buttons: "Get", "Set", and "Del". The "Set" button is highlighted with a red circle.

Note 1: The maximum 8192 port licenses can be purchased.

Note 2: This parameter is not used in North America market.

<In the case of SR-MGC>

MGC No.: Type an MGC number of a target SR-MGC.

MGC Kind: Choose "SR-MGC."

Office Name: Type the office name of the SR-MGC (up to 20 digits).

IP Address: Type the IP address of the SR-MGC.

Mode: Choose the SR-MGC's change over/change back timing.

Assigning MA-ID: When Flexible Network Re-routing service is enabled, place a check mark.

MA-ID: Type an MA-ID (0-9999) to be assigned to the SR-MGC when "Assigning MA-ID" parameter is ON.

FTP Server No.: Type FTP Server Number (1-256).

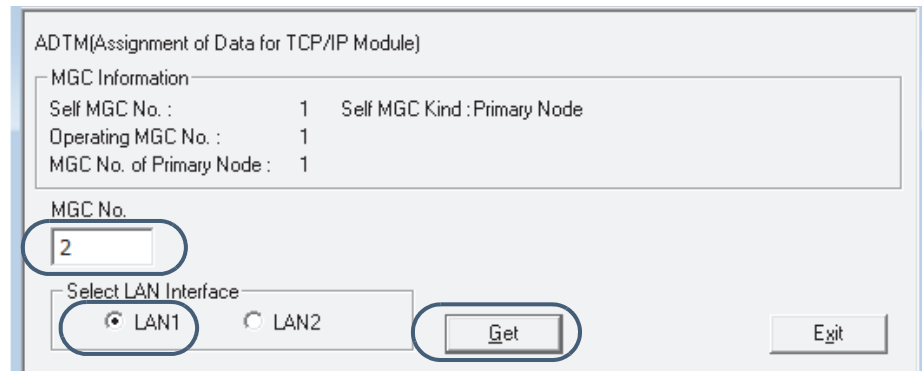
The screenshot shows a web-based configuration interface for an SR-MGC. The form is organized into two main sections. The top section contains the following fields: 'MGC No.' with a text input containing '0', 'MGC Kind' with a dropdown menu showing 'SR-MGC', 'Office Name' with a text input, 'IP Address' with a text input, 'Mode' with a text input, and a checkbox labeled 'Assigning MA-ID' which is checked. Below the checkbox is a sub-section containing 'MA-ID' with a text input. The bottom section contains 'FTP Server No.' with a text input. To the right of the form are three buttons: 'Get', 'Set', and 'Del'. The 'Set' button is highlighted with a red circle.

7.12 Assignment of IP Address for GR-Node/SR-Node (ADTM)

Assign IP addresses of Geo Redundant Nodes/Survivable Remote Nodes through the **ADTM** command.

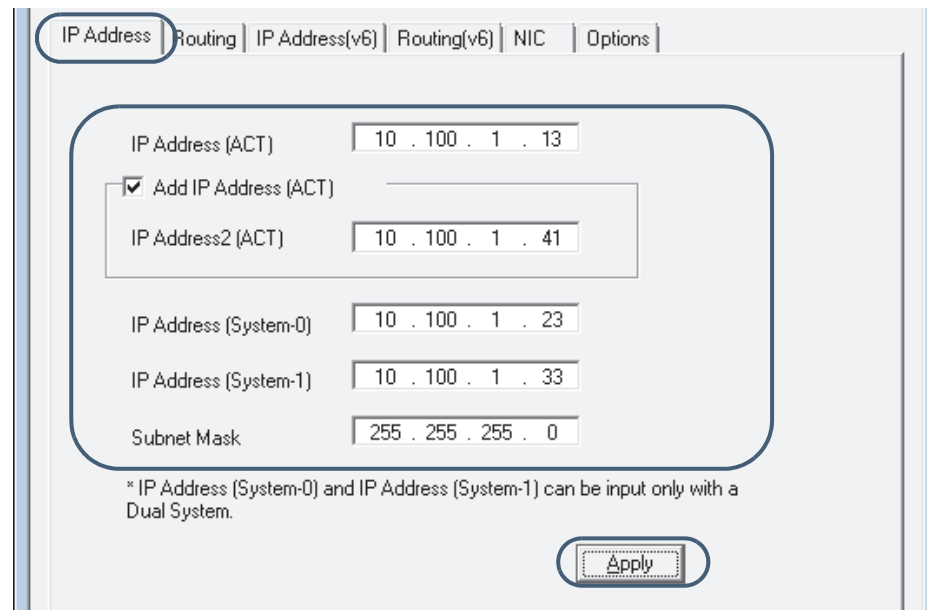
1

Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of a target MGC (Geo Redundant Node/Survivable Remote Node).
Select LAN Interface: Choose **LAN1**.

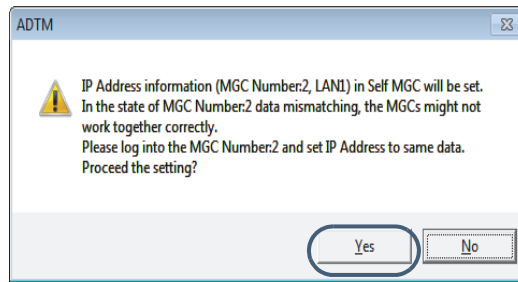


2

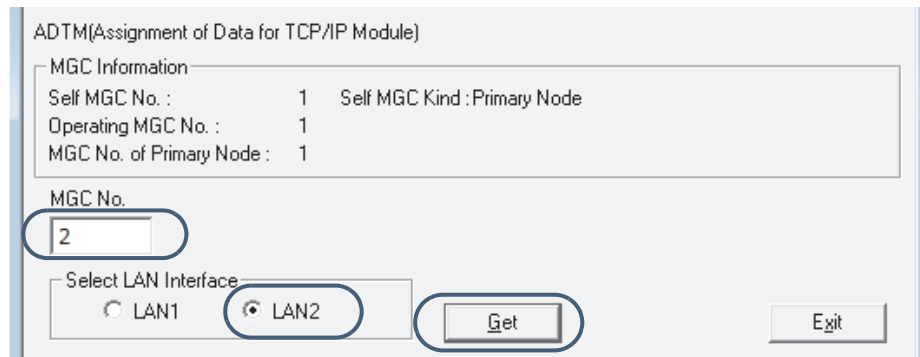
Click the **IP Address** tab and enter IP addresses and subnet mask for **IP Address (ACT)**, **IP Address2 (ACT)**, **IP Address (System-0)**, **IP Address (System-1)** and **Subnet Mask** according to your actual network environment. Then, click the **Apply** button.



- 3** The following confirmation message is displayed.
Click the **Yes** button to apply the new setting.

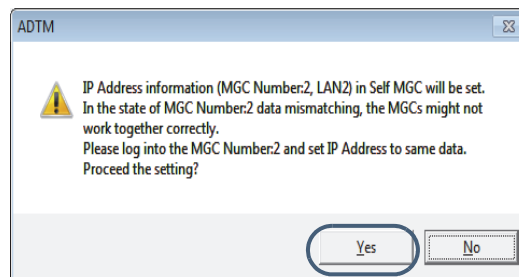


- 4** Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of a target MGC (Geo Redundant Node/Survivable Remote Node).
Select LAN Interface: Choose **LAN2**.



- 5** Click the **IP Address** tab and type IP address and subnet mask according to your actual network environment. Then, click the **Apply** button.

- 6** The following confirmation message is displayed.
Click the **Yes** button to apply the new setting.



- 7** Repeat the previous steps for necessary Geo Redundant Nodes and Survivable Remote Nodes.

7.13 LAN1 Network Configuration for GR-Node (ADTM) (IPv6)

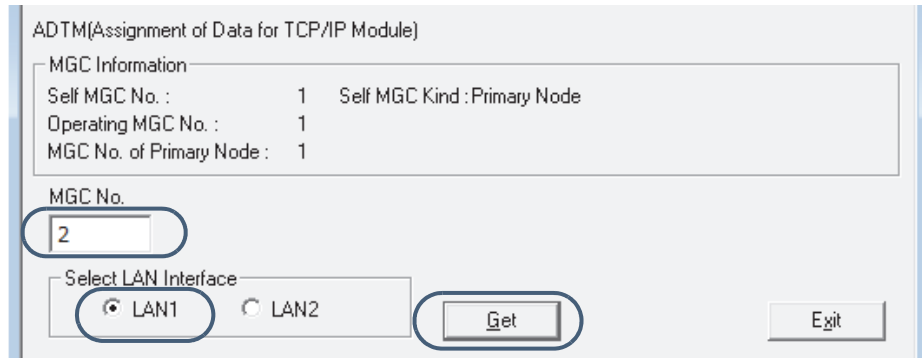
Set IPv6 addresses for LAN1 of System-0 and System-1.

Note: Note the following conditions for this setting.

- This data setting is for the Geo Redundant Node's IPv6 connection with PCPro. If you use only IPv4 addresses, this setting is not required.
- Programming for IPv4 must be done before programming in this section can be done.
- For detailed conditions of IPv6 addresses, refer to "IPv6 Connection with PCPro" in the System Description.

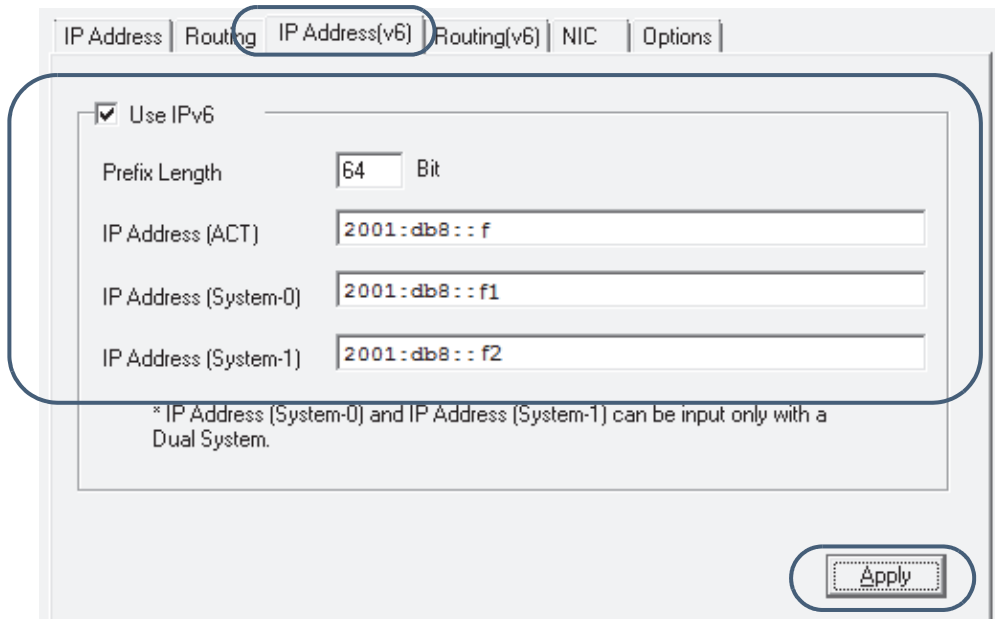
1

Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of a target MGC (Geo Redundant Node).
Select LAN Interface: Choose **LAN1**.



2

- (1) Click the **IP Address (v6)** tab.
- (2) Select the **Use IPv6** check box.
- (3) Set the values corresponding to your actual network environment for **Prefix Length**, **IP Address (ACT)**, **IP Address (System-0)** and **IP Address (System-1)**.
- (4) Click the **Apply** button.



Note: The data setting for the IPv6 address becomes valid after the change is applied.

7.14 Assignment for Routing Data/NIC Data for GR-Node/SR-Node (ADTM) (IPv4)

This section explains the procedure for configuring the network of the Telephony Server to conform to the actual network environment.

- 1 Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of a target MGC (Geo Redundant Node/Survivable Remote Node).
Select LAN Interface: Choose **LAN1**.

ADTM[Assignment of Data for TCP/IP Module]

MGC Information

Self MGC No. : 1 Self MGC Kind : Primary Node

Operating MGC No. : 1

MGC No. of Primary Node : 1

MGC No.

2

Select LAN Interface

☒ LAN1 ☐ LAN2

Get

Exit

- 2
 - (1) Click the **Routing** tab.
 - (2) Select the **Use Default Gateway** check box.
 - (3) Set the value corresponding to your actual network environment for **IP Address (Default Gateway)** and **Static Routing**.
 - (4) Click the **Apply** button.

IP Address Routing IP Address(v6) Routing(v6) NIC

☒ Use Default Gateway

IP Address (Default Gateway) 10 . 100 . 1 . 254

Static Routing

Apply

3

- (1) Click the **NIC** tab.
- (2) Select the value corresponding to your actual network environment for **Speed** and select **30 sec** or **60 sec** for **ARP Broadcasting Period**.
- (3) Click the **Apply** button.

IP Address | Routing | IP Address(v6) | Routing(v6) | **NIC**

Speed

- ☐ Fixed 10Mbps
- ☐ Fixed 100Mbps
- ☐ Auto Negotiation(1Gbps Only)
- ☒ Auto Negotiation(10Mbps-1Gbps)

ARP Broadcasting Period: **No Send** (dropdown menu open showing: No Send, 30sec, 60sec, 120sec)

Apply

Note: Please note the following conditions:

- When items other than **Auto Negotiation (10Mbps-1Gbps)** are selected as **Speed**, the **Duplex Mode** parameter appears. In that case, select **Half Duplex** or **Full Duplex**.
- As for the offices that frequently execute the CPU system changeover, select **30 sec** as **ARP Broadcasting Period**.

4

Select **LAN2** for **Select LAN Interface** and click the **Get** button.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. :	1	Self MGC Kind : Primary Node
Operating MGC No. :	1	
MGC No. of Primary Node :	1	

MGC No. **2**

Select LAN Interface

- ☐ LAN1
- ☒ **LAN2**

Get **Exit**

5

- (1) Click the **Routing** tab.
- (2) Select the **Use Default Gateway** check box.
- (3) Set the value corresponding to your actual network environment for **IP Address (Default Gateway)** and **Static Routing**.
- (4) Click the **Apply** button.

The screenshot shows a network configuration window with three tabs: "IP Address", "Routing", and "NIC". The "Routing" tab is selected and highlighted with a blue border. Inside the "Routing" tab, there is a section titled "Use Default Gateway" which contains a checked checkbox and a text input field for "IP Address (Default Gateway)" with the value "10 . 100 . 1 . 254". Below this, there is a button labeled "Static Routing". At the bottom right of the window, there is an "Apply" button. Blue rounded rectangles are drawn over the "Routing" tab, the "Use Default Gateway" section, the "IP Address (Default Gateway)" field, the "Static Routing" button, and the "Apply" button to indicate the steps in the instructions.

6

- (1) Click the **NIC** tab.
- (2) Select the value corresponding to your actual network environment for **Speed** and select **30 sec** or **60 sec** for **ARP Broadcasting Period**.
- (3) Click the **Apply** button.

The screenshot shows the 'NIC' configuration window. The 'Speed' section has four radio buttons: 'Fixed 10Mbps', 'Fixed 100Mbps', 'Auto Negotiation(1Gbps Only)', and 'Auto Negotiation(10Mbps-1Gbps)'. The 'Auto Negotiation(10Mbps-1Gbps)' option is selected. The 'ARP Broadcasting Period' section has a dropdown menu with options: 'No Send', '30sec', '60sec', and '120sec'. The '30sec' option is highlighted. An 'Apply' button is located at the bottom right.

Note: Please note the following conditions:

- When items other than **Auto Negotiation (10Mbps-1Gbps)** are selected as **Speed**, the **Duplex Mode** parameter appears. In that case, select **Half Duplex** or **Full Duplex**.
- As for the offices that frequently execute the CPU system changeover, select **30 sec** as **ARP Broadcasting Period**.

7

- Click the **Exit** button to exit the **ADTM** command.

7.15 Assignment for Routing Data for GR-Node (ADTM) (IPv6)

This section explains the procedure for configuring the network of the Telephony Server to conform to the actual network environment.

Note: Conditions for this operation is shown below:

- This data setting is for the Geo Redundant Node's IPv6 connection with PCPro. If you use only IPv4 addresses, this setting is not required.
- Programming for IPv4 must be done before programming in this section can be done.

- 1 Execute the ADTM command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of a target MGC (Geo Redundant Node).
Select LAN Interface: Choose **LAN1**.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. : 1 Self MGC Kind : Primary Node

Operating MGC No. : 1

MGC No. of Primary Node : 1

MGC No.

1

Select LAN Interface

☒ LAN1 ☐ LAN2

Get Exit

- 2
 - (1) Click the **Routing (v6)** tab.
 - (2) Set the value corresponding to your actual network environment for each item.
 - (3) Click the **Apply** button.

IP Address Routing IP Address(v6) Routing(v6) NIC

☒ Use Default Gateway

IP Address (Default Gateway) 2001:db8::1

Apply

- 3 Click the **Exit** button to exit the **ADTM** command.

7.16 Configuration of SIP Server (ASPC)

Note: This procedure is required only for Primary Node.

Set the office data for the SP part of the system through the **ASPC** command. For more details on the configuration of SIP Server (ASPC), see the configuration of SIP server (ASPC) section in Appliance Model Installation Manual.

8. Assignment of System Clock Data for Primary Node (ATIM)

Note: This procedure is required only for Primary Node.

Set the date and time for the system through the **ATIM** command. For more details on the **ATIM** command, see the Command Manual.

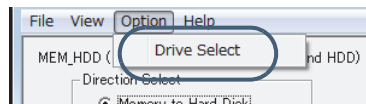
9. Backup of Office Data

Back up the office data using the MEM_HDD command.

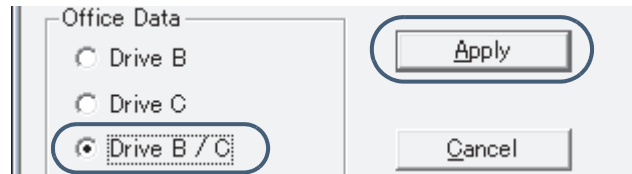
- 1** Execute the **MEM_HDD** command.



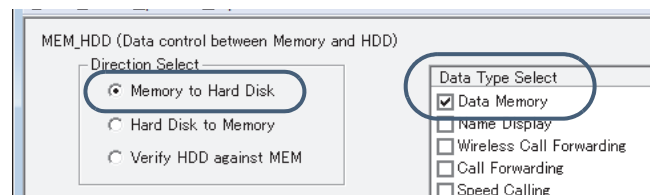
- 2** Select **Drive Select** from **Option** menu.



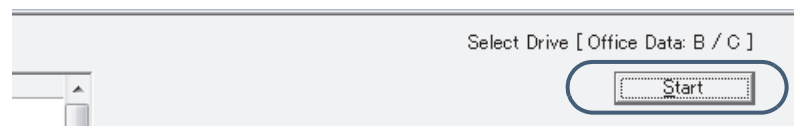
- 3** (1) Select **Drive B / C** for Office Data.
(2) Click the **Apply** button.



- 4** (1) Select **Memory to Hard Disk** for **Direction Select**.
(2) Place a check mark for **Data Memory** on **Data Type Select**.

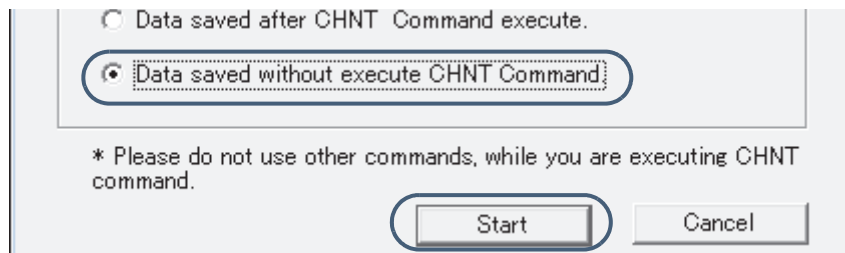


- 5** Click the **Start** button.
CHNT Execution Select screen appears.



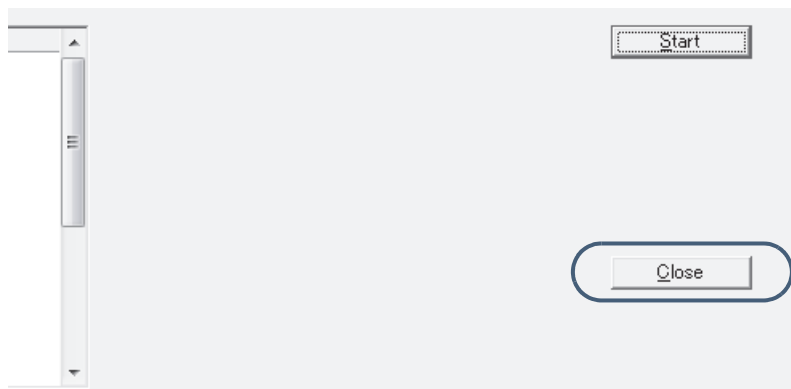
6

- (1) Select **Data saved without execute the CHNT Command** for **Execute Select**.
- (2) Click the **Start** button.
The data backup begins.



7

- After the backup is completed, click the **Close** button to exit the MEM_HDD command.



The backup process of office data is completed.

10. Download of Office Data

Download the office data in the Primary Node to the maintenance PC.

- 1** Start Internet Explorer and type "http://xxx.xxx.xxx.xxx:9801/" into the address bar.
"xxx.xxx.xxx.xxx" represents the LAN 1 IP address of Primary Node assigned in [3. CF Card Initialization](#).
- 2**
 - (1) **Telephony Server Maintenance Menu Login** screen appears. Type a user name and password.
 - (2) Click the **OK** button to log in to **Telephony Server Maintenance Menu**.
- 3**
 - (1) Click the **Download** button for **Office Data**.
The **Office Data Download** dialog box appears. Select **Drive B** or **Drive C**.
 - (2) Click **Download** in the **Office Data Download** screen.
 - (3) A download screen appears. Choose a folder to save the data.

The download of office data is completed.

11. Upload of License Data/Office Data

Upload the license data and office data in the maintenance PC to each Geo Redundant Node and Survivable Remote Node.

Note: Before uploading of license data and office data, be sure to finish the following operations on each Geo Redundant Node and Survivable Remote Node.

- [CF Card Initialization](#)
- [MGC Number Change](#)

11.1 For Target Node in Single Configuration

[Login to Telephony Server Maintenance Menu]

- 1 Start Internet Explorer and type "http://xxx.xxx.xxx.xxx:9801/" into the address bar.
"xxx.xxx.xxx.xxx" represents the LAN 1 IP address of active side on a target node (Geo Redundant Node or Survivable Remote Node) assigned in [3. CF Card Initialization](#).
- 2
 - (1) Type a user name and password.
 - (2) Click the **OK** button to log in to **Telephony Server Maintenance Menu**.
Telephony Server Maintenance Menu login screen appears.

[Installation of License Data (Maintenance PC -> Geo Redundant Node/Survivable Remote Node)]

- 1 Click the **Upload** button for **License**. The License **Upload** dialog box appears.
- 2 Select **Work** on the **License Upload** dialog box.
- 3 Click the **Browse** button on the dialog box and then specify the License file downloaded in [2. Downloading of License File](#).
- 4 Click the **Upload** button. When the uploading is complete, "Operation successfully completed" will be displayed. Click OK.

[Installation of Office Data (Maintenance PC -> Geo Redundant Node/Survivable Remote Node)]

- 1 In **Telephony Server Maintenance Menu**, click the **Upload** button for **Office Data**. The **Office Data Upload** dialog box appears.
- 2 Select **Drive B** as a destination drive.

- 3 Click the **Browse** button on the dialog box and then specify the office data file downloaded in the [10. Download of Office Data](#).
- 4 Click the **Upload** button on the dialog box. When the upload is complete, "Operation successfully completed." will be displayed. Click **OK**.

11.2 For Target Node in Dual Configuration

[Login to Telephony Server Maintenance Menu with LAN1 IP Address for System #1 Side]

- 1 Start Internet Explorer and type "http://xxx.xxx.xxx.xxx:9801/" into the address bar.
"xxx.xxx.xxx.xxx" represents the LAN1 IP address for System #1 side on a target node (Geo Redundant Node or Survivable Remote Node) assigned in [3. CF Card Initialization](#).
- 2
 - (1) Type a user name and password.
 - (2) Click the **OK** button to log in to **Telephony Server Maintenance Menu**.
Telephony Server Maintenance Menu login screen appears.

[Installation of License Data (Maintenance PC -> System #1 of Geo Redundant Node/Survivable Remote Node)]

- 1 Click the **Upload** button for **License**. The License **Upload** dialog box appears.
- 2 Select **Work** on the **License Upload** dialog box.
- 3 Click the **Browse** button on the dialog box and then specify the License file downloaded in [2. Downloading of License File](#).
- 4 Click the **Upload** button. When the uploading is complete, "Operation successfully completed" will be displayed. Click **OK**.

[Installation of Office Data (Maintenance PC -> System #1 of Geo Redundant Node/Survivable Remote Node)]

- 1 In **Telephony Server Maintenance Menu**, click the **Upload** button for **Office Data**. The **Office Data Upload** dialog box appears.
- 2 Select **Drive B** as a destination drive.
- 3 Click the **Browse** button on the dialog box and then specify the office data file downloaded in the [10. Download of Office Data](#).

- 4 Click the **Upload** button on the dialog box. When the upload is complete, "Operation successfully completed." will be displayed. Click **OK**.

[Login to Telephony Server Maintenance Menu with LAN1 IP Address for System #0 Side]

- 1 Start Internet Explorer and type "http://xxx.xxx.xxx.xxx:9801/" into the address bar.
"xxx.xxx.xxx.xxx" represents the LAN1 IP address for System #0 side on a target node (Geo Redundant Node or Survivable Remote Node) assigned in [3. CF Card Initialization](#).
- 2 (1) Type a user name and password.
(2) Click the **OK** button to log in to **Telephony Server Maintenance Menu**.
Telephony Server Maintenance Menu login screen appears.

[Installation of License (Maintenance PC -> System #0 of Geo Redundant Node/Survivable Remote Node)]

- 1 Install the office data to System #0 of Geo Redundant Node/Survivable Remote Node referring to [\[Installation of License Data \(Maintenance PC -> System #1 of Geo Redundant Node/Survivable Remote Node\)\]](#)

[Installation of Office Data (Maintenance PC -> System #0 of Geo Redundant Node/Survivable Remote Node)]

- 1 Install the office data to System #0 of Geo Redundant Node/Survivable Remote Node referring to [\[Installation of Office Data \(Maintenance PC -> System #1 of Geo Redundant Node/Survivable Remote Node\)\]](#).

The upload of license data and office data is completed.

12. Rebooting of Node

Reboot Geo Redundant Node and Survivable Remote Node through the Telephony Server Maintenance Menu. The procedures are the same as for the conventional case. When Geo Redundant Node and Survivable Remote Node is SV9500, see Program Installation in Chapter 6 System Startup of Appliance Model Installation Manual. When Survivable Remote Node is SR-MGC(E), see SR-MGC(E) [SN8178 MGCEV-B/SN8178 MGCEV-A] in Peripheral Equipment Description (IP Devices).

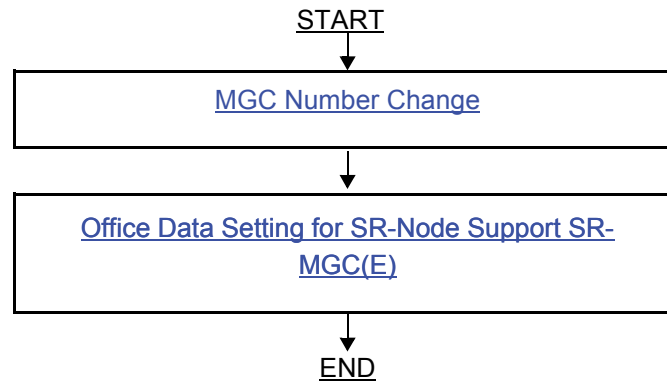
13. Assignment of System Clock Data for GR-Node/SR-Node (ATIM)

Note: This procedure is required only for Geo Redundant Node/Survivable Remote Node.

Set the date and time for the system through the **ATIM** command. For more details on the **ATIM** command, see the Command Manual.

14. SR-Node Support SR-MGC(E)

This section explains the initial startup procedure of the SR-MGC(E) used as Survivable Remote Node with Geographic Redundancy.



14.1 MGC Number Change

When you use an existing SR-MGC(E) as Survivable Remote Node, MGC numbers of Survivable Remote Nodes need to be adjusted, according to those of Primary Node. This section explains how to change MGC numbers of Survivable Remote Nodes through ssh or the DVD for enabling SR-Node Support SR-MGC(E).

14.1.1 Replacing Existing CF Card with New One for SR-Node Support SR-MGC(E)

Before you begin, you need to prepare the application handling ssh. Then, follow the steps below to assign the appropriate MGC numbers to Survivable Remote Nodes.

- 1** Execute 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).
- 2** Unplug a LAN cable from the LAN1 (Ether1) connector on the front panel of the SR-MGC(E).
- 3** Remove an existing CF card from the CF slot on the front panel of the SR-MGC(E).
- 4** Insert a new CF card supplied for enabling SR-Node Support SR-MGC(E) into the CF slot on the front panel of the SR-MGC(E).
- 5** Turn on power of the SR-MGC(E), where its operation is the following: booting up the system; reading default office data.
- 6** Check the lamps. Make sure that lamp states are as follow.
 - PWR: ON (green)
 - ONLINE: Slow flash (green)
- 7** Connect a maintenance PC to the SR-MGC(E) through the LAN1 connector on it.

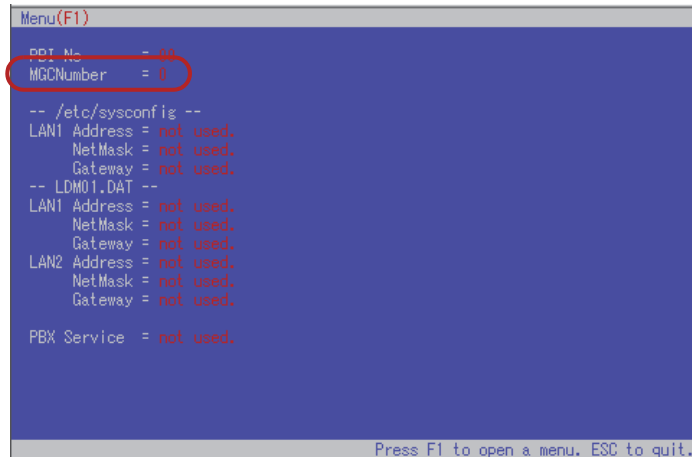
Note: If connecting them directly, use a LAN cable (crossover cable); if connecting via a HUB, use LAN cables (straight-through cables).

8

- (1) Activate the ssh application and connect with the target MGC.
- (2) Log in as "setpbimgcno" and type the password "S7#qzgrS0".

```
[setpbimgcno@nextsv_typ1 ~]$
```

MGCNumber on the screen indicate MGC numbers.



```
Menu(F1)
PBT No      = 00
MGCNumber   = 0
-- /etc/sysconfig --
LAN1 Address = not used.
NetMask      = not used.
Gateway      = not used.
-- LDM01.DAT --
LAN1 Address = not used.
NetMask      = not used.
Gateway      = not used.
LAN2 Address = not used.
NetMask      = not used.
Gateway      = not used.
PBX Service  = not used.

Press F1 to open a menu. ESC to quit.
```

9

Go to [Step 3](#) in [4. MGC Number Change](#) and continue the operation.

14.1.2 Using Existing CF Card by Upgrading Program Version

1

- (1) Turn on the maintenance PC to be used for CF card initialization.
- (2) Set the install DVD attached for enabling SR-Node Support SR-MGC(E) in the disk drive.
- (3) Change the maintenance PC setting to boot from DVD-ROM. For details, see a manual for the PC.
- (4) Turn off the power of the maintenance PC.

2

- (1) Insert the CF card into PCMCIA slot.
- (2) Turn on the power of the maintenance PC.

3

INSTALL DVD BOOT OPTIONS MENU screen appears. Select **2. Auto (Keyboard: US)** and then press the Enter key.

4

Go to [Step 9](#) in [3. CF Card Initialization](#) and continue the operation.

14.2 Office Data Setting for SR-Node Support SR-MGC(E)

When the Primary Node is SV9500 Appliance Model, see the following sections in this chapter.

- For Single Configuration, follow the procedure from [6. Office Data Setting for Single Configuration](#) to [13. Assignment of System Clock Data for GR-Node/SR-Node \(ATIM\)](#).
- For Dual Configuration, follow the procedure from [7. Office Data Setting for Dual Configuration](#) to [13. Assignment of System Clock Data for GR-Node/SR-Node \(ATIM\)](#).

When the Primary Node is SV9500 Prepackaged Server Model, follow the procedure from [5. Office Data Setting](#) to [12. Alarm Settings](#) in CHAPTER 4.

14.3 Trouble Shooting

The following shows restoring methods if the system started with invalid configuration such as mismatch of the license and the hardware.

		Process									
		Possible Symptoms	Diagnosis	Result 1	Result 2	Result 3	Result 4	Cause	Solution 1	Solution 2	Confirming Restoration
Operation	Attempting to Start Up SR-MGC(E) As Survivable Remote Node	(1) Registration of the IP equipment remains incomplete after a reasonable period of time.	(1) Access the ASYDL command through PCPro and check the data setting of SYS1, Index 1354, Bit 0.	ASYDL, SYS1, Index 1354, Bit 0 = 0 (out of service) is set.	-	-	-	The node starts up as an SV9500 server because the system data of Geographic Redundancy (ASYDL, SYS1, Index 1354, Bit 0) is set to 0 (out of service).	Set ASYDL, SYS1, Index 1354, Bit 0 = 1 (in service). Then save the office data with the MEM_HDD command.	Execute either of the following initialization with the SINZ command: • Office Data Load & System Initialize • Program & Office Data Load & System Initialize	(1) Ensure that ON LINE lamp is ON. (2) Ensure that MGC No. is displayed in the ADTM command window.
		(2) Connecting to PCPro using a LAN2 IP address of a Primary Node is available.	(2) Access the ADTM command through PCPro and check the display of the command window.								(3) Ensure that Self MGC Kind is displayed in the CMNT command window.
		(3) Most PCPro commands except ASYD, ASYDL, ASYDN, ADTM, ATIM and CMNT fail to overwrite the existing office data, generating a Command Error.	(3) Access the CMNT command through PCPro and check the display of the command window.		MGC No. is not displayed in the ADTM command window.	The Kind field of Self MGC is not displayed in the CMNT command window.	-		Upload the license file for enabling Geographic Redundancy with the Telephony Server Maintenance Menu.		
			(4) Access the config_tool.sh and check the MGC number. If config_tool.sh cannot be used, remove the CF card and check the MGC number set to Display Information in INSTALLATION MENU.	ASYDL, SYS1, Index 1354, Bit 0 = 1 (in service) is set.	MGC No. is displayed in the ADTM command window.	"Primary Node" is displayed for the Kind field of Self MGC in the CMNT command window.	MGC number is the one for Primary Node.	The node starts up as a Primary Node because the MGC number set during CF card initialization is the one for Primary Node.	Set the MGC number of Survivable Remote Node using config_tool.sh. If config_tool.sh cannot be used, set the MGC number of Survivable Remote Node by selecting Set MGC Number in INSTALLATION MENU. Change the MGC number which has been set to the CF card to a new one. Set MGC Kind to "Survivable Remote Node" for the new MGC number. Then save the office data from the memory to CF card with the MEM_HDD command. To use the MGC number which has been set to the CF card continuously, perform the startup operation again from the CF initialization process.	Execute Program & Office Data Load & System Initialize with the SINZ command.	

		Process						
		Possible Symptoms	Diagnosis	Result	Cause	Solution 1	Solution 2	Confirming Restoration
Operation	Setting Wrong MGC Number During CF Initialization	(1) Connecting to PC-Pro using a LAN2 IP address of a Primary Node is available.	Access the config_tool.sh and check the MGC number. If config_tool.sh cannot be used, remove the CF card and check the MGC number set to Display Information in INSTALLATION MENU.	MGC number is invalid.	The MGC number which has been set during CF Initialization is invalid. The node has not been started as a Geographic Redundancy node properly.	Set a valid MGC number using config.tool.sh. If config.tool.sh cannot be used, remove the CF card and set a valid MGC number by selecting Set MGC Number in INSTALLATION MENU.	Execute Program & Office Data Load & System Initialize with the SINZ command.	(1) Ensure that ON LINE lamp is ON.
	Changing Existing SR-MGC(E) to Survivable Remote Node	(2) When accessing ADTM or CMNT command, Unexecutable Command Error is generated due to an invalid MGC number setting.		MGC number is valid but "SR-MGC" is set to MGC Kind.	"SR-MGC" is set to MGC Kind with the CMNT command. The node has not been started as a Geographic Redundancy node properly.	From Primary Node, access to the CMNT command, change the MGC Kind of the target MGC number to the Survivable Remote MGC. Then save the office data from the memory to CF card with the MEM_HDD command. Finally, upload the office data downloaded using Telephony Server Maintenance Menu.		(2) Ensure that MGC No. is displayed in the ADTM command window. (3) Ensure that Self MGC Kind is displayed in the CMNT command window.



CHAPTER 4 SYSTEM STARTUP (SV9500 PREPACKAGED SERVER MODEL)

This chapter describes how to start up the SV9500 Prepackaged Server Model system with Geographic Redundancy.

The initial startup process of the system includes many procedures for setting and operation. The instructions in the following sections will help you perform the initial startup more easily by giving a detailed description on each setting.

In the sections of initial startup procedure, **Note** states the precautions required when performing each initial startup procedure. An error or failure may occur if these precautions are missed. Be sure to follow each precautions without exception. **Point** states tips and supplemental remarks to be considered when performing each initial startup procedure.

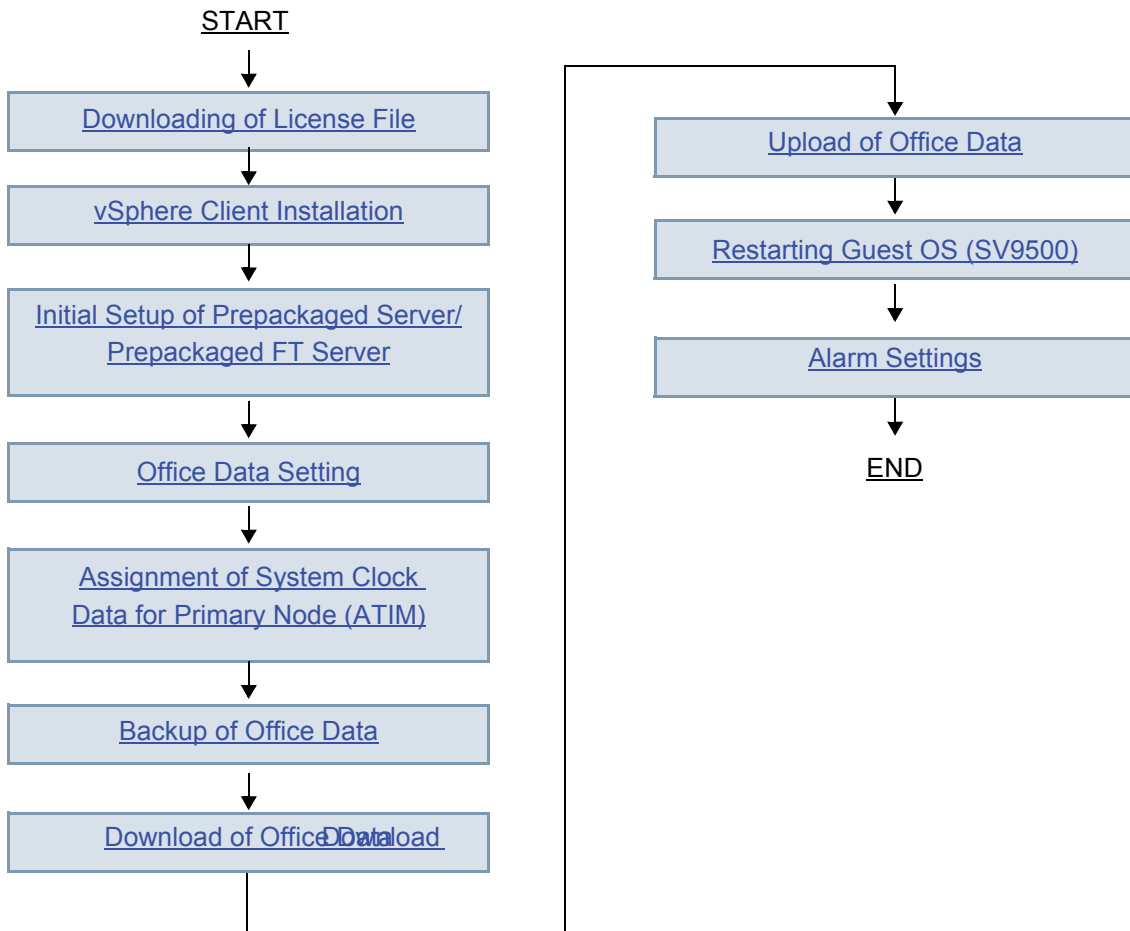
1. Initial Startup Procedure

This section explains the initial startup procedure of the SV9500 Prepackaged Server Model system with Geographic Redundancy. The following procedure is needed to be performed at each MGC site (Primary Node/Geo Redundant Node/Survivable Remote Node). Take notice that some parts of the procedure may differ between the Prepackaged Server Model and the Prepackaged FT Server Model.

Note: Be sure to note the following conditions.

- The Prepackaged Server Model system with Geographic Redundancy is supported since FP95-112 V2 in North American and since FP95-113 V3 in Asia.
- Connect the Prepackaged Server/Prepackaged FT Server Model to your actual network only after completing the entire setup process and the alarm settings.

Initial Startup Procedure



2. Downloading of License File

Access the License Management Server (LMS) to download a license file (svi.zip) and obtain Activation Code. A common license file for Geographic Redundancy is to be used among Primary Node, Geo Redundant Node and Survivable Remote Node (even when Appliance model and Prepackaged Server model coexist in a network).

Note: Be sure to note the following conditions.

- A new Registration Activation code is necessary when the license is upgraded.
- The SVI file is downloaded in a zip format. Do not unzip the SVI file since this file is used as is.
- You can rename the saved SVI file, but do not change the extension of the file.

3. vSphere Client Installation

Install vSphere Client on the maintenance PC.

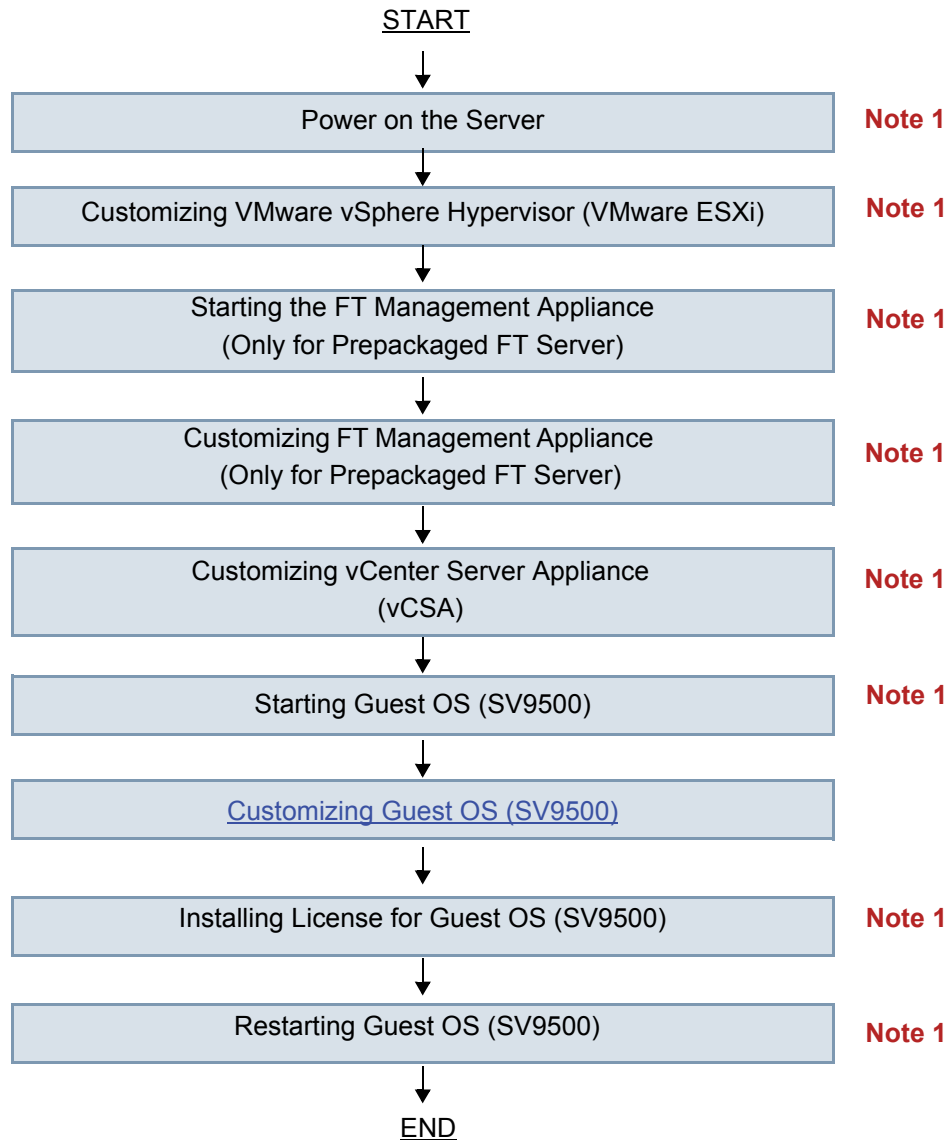
- 1 Connect to the VMware website and download the setup file for vSphere Client.
- 2 Open the setup file.
- 3 Follow the instructions for installation.

The process for the vSphere Client installation is finished.

4. Initial Setup of Prepackaged Server/Prepackaged FT Server

The initial setup procedure of the Prepackaged Server/Prepackaged FT Server is outlined in the flow chart below.

Initial Setup of Prepackaged Server/Prepackaged FT Server



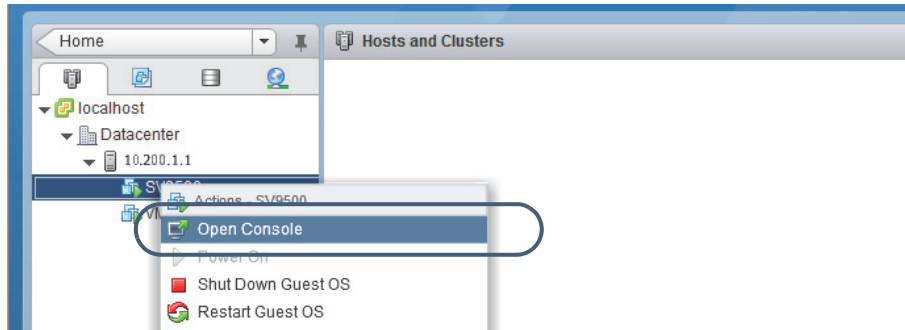
Note 1: The procedure is same as for the conventional case; see Prepackaged Server Model Installation Manual.

4.1 Customizing Guest OS (SV9500)

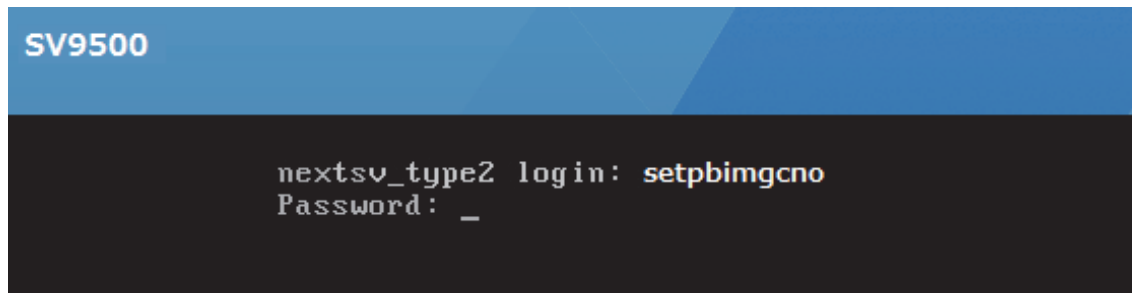
Configure network data for SV9500 (guest OS), such as the password and IP address information.

1 From the web browser of the maintenance PC, log in as root user to vCSA (<https://xxx.xxx.xxx:9443/>). (xxx.xxx.xxx.xxx is the vCSA IP address).

2 Open the console of the SV9500 virtual machine.
(1) Select **Hosts and Clusters (Inventories)** from **Home** tab.
(2) Right-click on SV9500 and select **Open Console**.



3 Log in to SV9500 from the login prompt as **setpbimgcno**.



Enter **S7#qzgrS0** for the password.

4

Modify the IP address of LAN 1 and LAN 2 respectively. Press the F1 key and select **IP Address**.

```
Menu (F1)
PBI No
P MGCNumber
M IP Address
PBX Service
- Exit
LAN1 Address = 10.1.101.30
NetMask = 255.255.0.0
Gateway = 10.1.101.254
-- LDM01.DAT --
LAN1 Address = 10.1.101.30
NetMask = 255.255.0.0
Gateway = 10.1.101.254
LAN2 Address = 10.1.101.33
NetMask = 255.255.0.0
Gateway = 10.1.101.254
PBX Service = on
Press F1 to open a menu. ESC to quit.
```

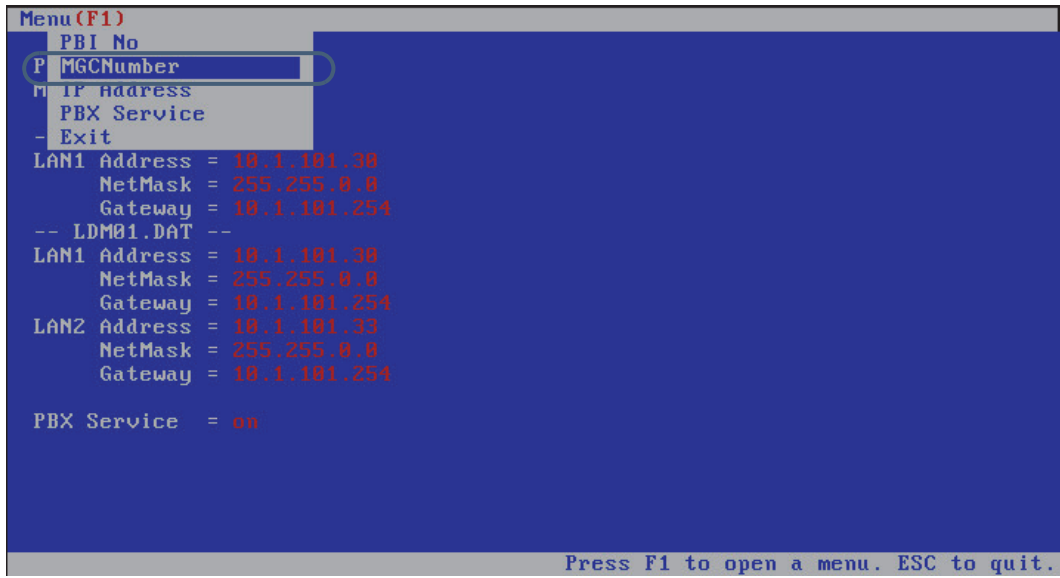
5

Modify the IP address of LAN 1 and LAN 2. After entering the **Gateway** data, press the Enter key.

```
Menu (F1)
PBI No = 00
MGCNumber = 0
-- /etc/sysconfig --
LAN1 Address = 10.1.101.30 => -
NetMask = 255.255.0.0 =>
Gateway = 10.1.101.254 =>
-- LDM01.DAT --
LAN1 Address = 10.1.101.30 =>
NetMask = 255.255.0.0 =>
Gateway = 10.1.101.254 =>
LAN2 Address = 10.1.101.33 =>
NetMask = 255.255.0.0 =>
Gateway = 10.1.101.254 =>
PBX Service = on
```

The monitor returns back to the previous screen.

- 6 Modify the MGC number. Press the F1 key and select **MGCNumber**.

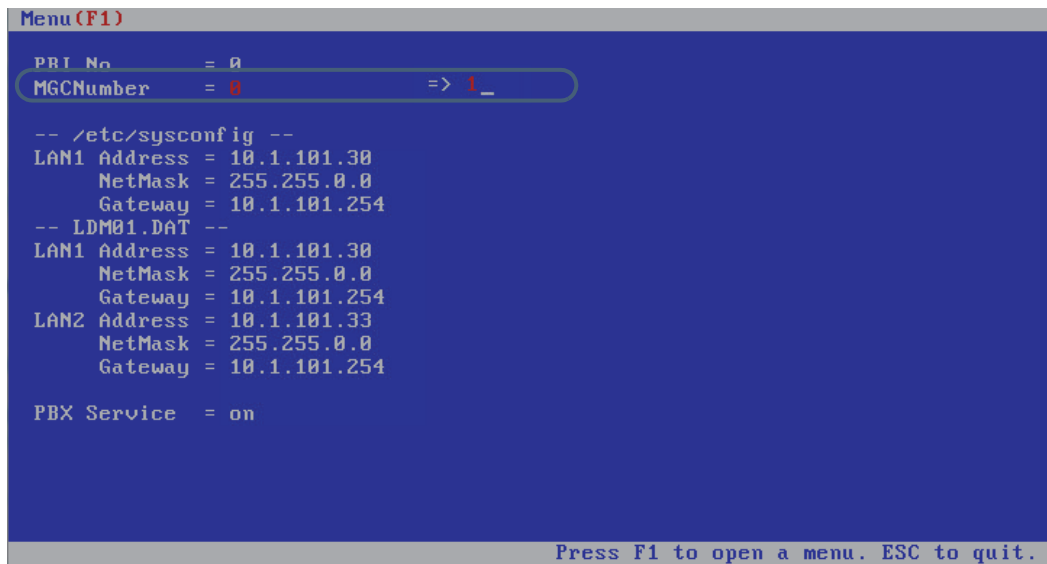


```
Menu(F1)
PBI No
P MGCNumber
M IP Address
PBX Service
- Exit
LAN1 Address = 10.1.101.30
NetMask = 255.255.0.0
Gateway = 10.1.101.254
-- LDM01.DAT --
LAN1 Address = 10.1.101.30
NetMask = 255.255.0.0
Gateway = 10.1.101.254
LAN2 Address = 10.1.101.33
NetMask = 255.255.0.0
Gateway = 10.1.101.254

PBX Service = on

Press F1 to open a menu. ESC to quit.
```

- 7 After entering the MGC number, press Enter key.



```
Menu(F1)
PBI No = 0
MGCNumber = 0 => 1_
-- /etc/sysconfig --
LAN1 Address = 10.1.101.30
NetMask = 255.255.0.0
Gateway = 10.1.101.254
-- LDM01.DAT --
LAN1 Address = 10.1.101.30
NetMask = 255.255.0.0
Gateway = 10.1.101.254
LAN2 Address = 10.1.101.33
NetMask = 255.255.0.0
Gateway = 10.1.101.254

PBX Service = on

Press F1 to open a menu. ESC to quit.
```

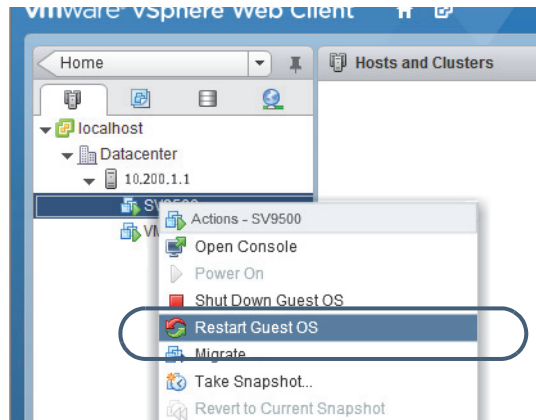
The monitor returns back to the previous screen.

- 8 Close the **Console** screen. Press the F1 key and select Exit.

9

Restart SV9500 virtual machine.

- (1) Select the SV9500 virtual machine.
- (2) Right-click and Select **Restart GuestOS**.



10

Change the IP address of the maintenance PC to connect to the network of the LAN1 IP address from Step 6.

11

Use the PING command from the maintenance PC and verify there is a response from the IP address of LAN1.

12

Log in to the Telephony Server Maintenance Menu from the maintenance PC web browser.

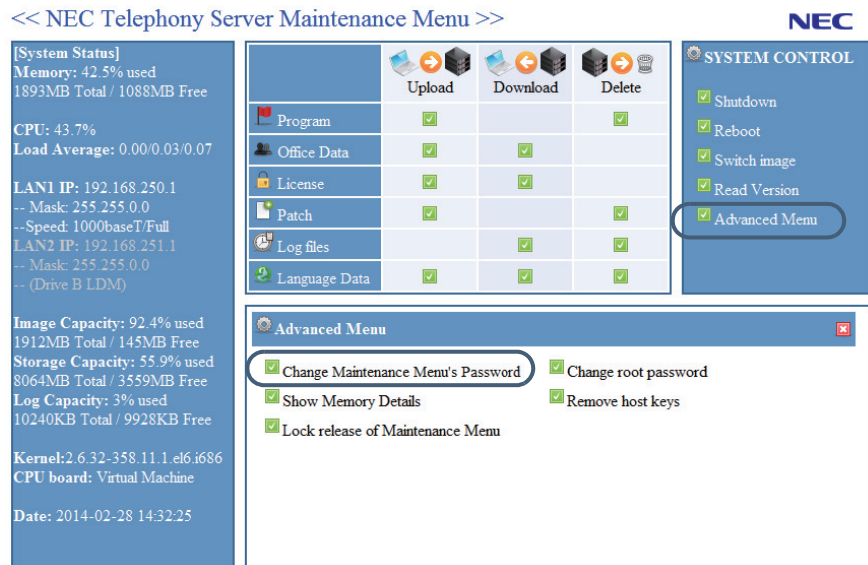
- (1) Launch the web browser from the maintenance PC, connect to Telephony Server Maintenance Menu (<http://xxx.xxx.xxx.xxx:9801/>). (xxx.xxx.xxx.xxx is the LAN1 IP address (ACT) of SV9500.)
- (2) Enter **admin** as user name.
- (3) Enter **admin** as password and press the **OK** button.

Note:

- Microsoft Internet Explorer® 7.0 or higher is required to access Telephony Server Maintenance Menu.
- After logging in to Telephony Server Maintenance Menu, do not use Back button on browser.

13

- (1) Select **Advanced Menu** from **SYSTEM CONTROL**.
- (2) Click **Change Maintenance Menu's Password**.



14

- (1) Enter admin on **Current username**.
- (2) Enter admin on **Current password**.
- (3) Enter a new user name on **New username**.
- (4) Enter a new password on **New password**.
- (5) Enter again the new password on **Confirm new password**.
- (6) Click the **Change** button.

The screenshot shows the 'Change Maintenance Menu's Password' window. It contains five input fields: 'Current username:', 'Current password:', 'New username:', 'New password:', and 'Confirm new password:'. A 'Change' button is located at the bottom left of the form.

Note: Use eight or more characters for the password. Create a password that is difficult to guess and periodically change it.

5. Office Data Setting

This section explains the procedure to set the basic office data for Primary Node/Geo Redundant Node/Survivable Remote Node in single configuration. Take notice that some parts of the procedure may differ between Primary Node and Geo Redundant Node/Survivable Remote Node.

Follow the steps below to set the basic office data.

Office Data Setting

STEP NO.	PROCEDURES	NOTES
1	Advance Preparation for PCPro	Same as for the conventional case; see Prepackaged Server Model Installation Manual.
2	Network Configuration of Maintenance PC	
3	Setting Activation Code (AACT)	See 5.1 Registration of Activation Code .
4	CPU Configuration (ASYD)	See 5.2 CPU Configuration .
5	Enable Geographic Redundancy (ASYDL)	See 5.3 Enable Geographic Redundancy .
6	Assignment of Self MGC (CMNT)	See 5.4 Assignment of Self MGC .
7	LAN1 Network Configuration (ADTM) (IPv6) Note 1	See 5.5 LAN1 Network Configuration (ADTM) (IPv6) .
8	Modifying Network Configuration of Maintenance PC	Same as for the conventional case; see Appliance Model Installation Manual.
9	Assignment for NIC Data (ADTM) (IPv4)	See 5.6 Assignment for NIC Data (ADTM) (IPv4) .
10	Assignment for Routing Data (ADTM) (IPv6) Note 1	See 5.7 Assignment for Routing Data (ADTM) (IPv6) .
11	Assignment for LAN Interface Data (ADTM) (IPv6) Note 1	See 5.8 Assignment for LAN Interface Data (ADTM) (IPv6) .
12	Modifying Network Configuration of Maintenance PC	Same as for the conventional case; see Appliance Model Installation Manual.
13	Assignment of Geo Redundant Node/Survivable Remote Node/SR-MGC (CMNT)	See 5.9 Assignment of GR-Node/SR-Node/SR-MGC (CMNT) .
14	Assignment of IP address for Geo Redundant Node/Survivable Remote Node (ADTM)	See 5.10 Assignment of IP Address for GR-Node/SR-Node (ADTM) .
15	LAN1 Network Configuration for Geo Redundant Node (ADTM) (IPv6) Note 1	See 5.11 LAN1 Network Configuration for GR-Node (ADTM) (IPv6) .
16	Assignment for NIC Data for Geo Redundant Node/Survivable Remote Node (ADTM) (IPv4)	See 5.12 Assignment for NIC Data (ADTM) for GR-Node/SR-Node (IPv4) .
17	Assignment for Routing Data for Geo Redundant Node (ADTM) (IPv6) Note 1	See 5.13 Assignment for Routing Data for GR-Node (ADTM) (IPv6) .
18	Configuration of SIP Server (ASPC)	See 5.14 Configuration of SIP Server (ASPC) .
19	System Configuration Data Assignment	See CHAPTER 6 OFFICE DATA SETTINGS .
20	Initial Data Assignment	

Note 1: These settings are only for the IPv6 connection. If you use only IPv4 addresses, these settings are not required.

5.1 Registration of Activation Code

Once the license file has been uploaded and the SV9500 has been reset, the SV9500 must be registered before you will be granted a PCPro access. See “Registration of Activation Code” in Prepackaged Server Model Installation and Operation Manual to register the activation code.

Note: You cannot be logged into the PCPro to use this operation.

5.2 CPU Configuration

- 1 Connect to PCPro using the connection account (e.g. LAN2_Default) assigned to the default IP address of the active (ACT) interface for LAN2 (172.16.253.0/16). The user ID and the password shown below need to be entered.

User ID: maintenance

Password: ty8*#02F

Note: If the user ID and the password are not entered, login is unavailable.

Point: For procedure to connect to PCPro, refer to “Communication Link with the Telephony Server” in Chapter 3. Setting Up PCPro in PCPro Setup Manual.

- 2 Execute the **ASYD** command and set the following data.
ASYD, SYS1, Index 58, Bit 0=0 (Configuration of CPU = Single)

Point: No modification is required since the default value is set for this data in normal cases. If a different value is set, modify the data to the value as given.

5.3 Enable Geographic Redundancy

Assign the system data below to enable Geographic Redundancy.

- 1 Execute the **ASYDL** command and set the following data.
ASYDL, SYS1, Index 1354, Bit 0=1 (Geographic Redundancy is enabled)

- 2 Exit the **ASYDL** command.

Note: Do not perform the system initialization when the CMNT data assignment has not been completed yet. If the system initialization is performed without completing the CMNT data assignment, CMNT command will be locked. If it happens, disable the Geographic Redundancy (ASYDL, SYS1, Index 1354, Bit 0=0), perform system initialization, and then follow the procedure again from [Step 1](#) under the condition that the Geographic Redundancy is disabled.

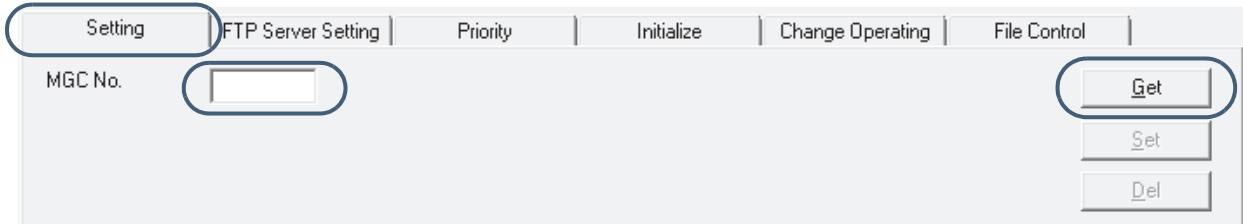
Note: After the setting of this system data, retry log in to PCPro.

5.4 Assignment of Self MGC

Assign an MGC number of itself (Primary Node) through the **CMNT** command.

1

Execute the **CMNT** command and click the **Setting** tab. Type an MGC number (1-255) of itself (Primary Node) and then click the **Get** button.



The screenshot shows the CMNT command interface with the 'Setting' tab selected. The 'MGC No.' field is empty, and the 'Get' button is highlighted. Other tabs include 'FTP Server Setting', 'Priority', 'Initialize', 'Change Operating', and 'File Control'. Below the 'MGC No.' field are 'Set' and 'Del' buttons.

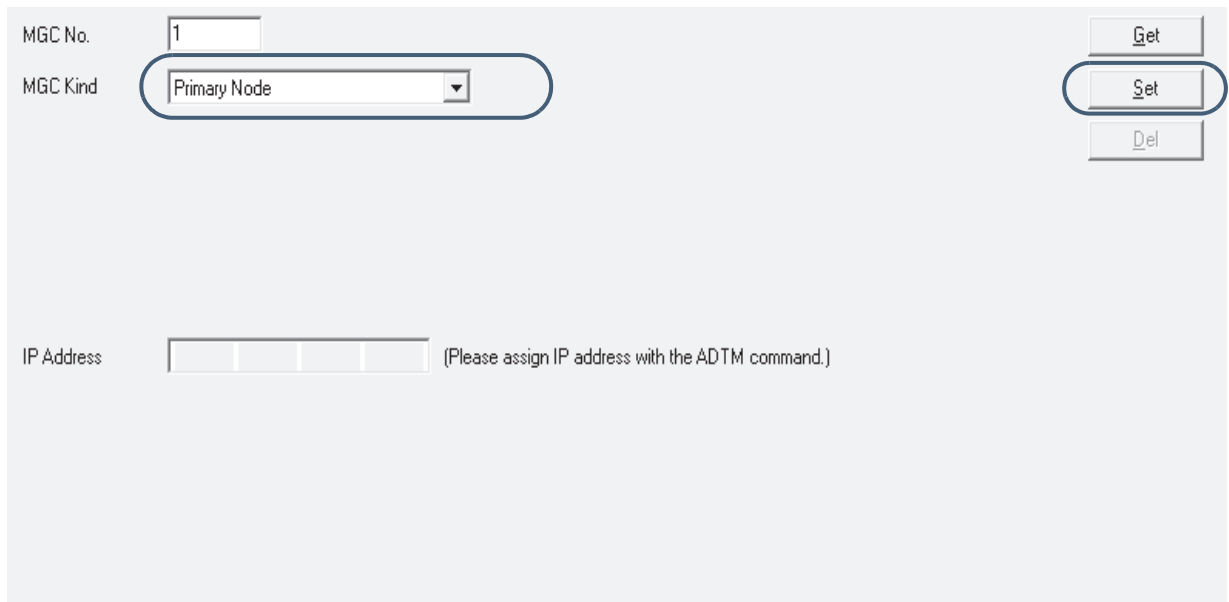
2

Assign the following parameters. After all the required parameters are set, click the **Set** button. For more details on each parameter of the **CMNT** command, refer to the Operations and Maintenance Manual.

<Primary Node>

MGC Kind: Choose "Primary Node."

IP Address: Blank (IP address is to be assigned through the ADTM command in the later step.)



The screenshot shows the CMNT command interface with the 'MGC No.' field set to '1' and the 'MGC Kind' dropdown menu set to 'Primary Node'. The 'Set' button is highlighted. The 'IP Address' field is empty, with a note: '(Please assign IP address with the ADTM command.)'. Other tabs include 'FTP Server Setting', 'Priority', 'Initialize', 'Change Operating', and 'File Control'. Below the 'MGC No.' field are 'Get', 'Set', and 'Del' buttons.

5.5 LAN1 Network Configuration (ADTM) (IPv6)

Set IPv6 addresses (e.g. 2001:db8::c) for LAN1.

Note: Note the following conditions for this setting.

- This data setting is for the Primary Node's IPv6 connection with PCPro. If you use only IPv4 addresses, this setting is not required.
- Programming for IPv4 must be done before programming in this section can be done.
- For detailed conditions of IPv6 addresses, refer to "IPv6 Connection with PCPro" in the System Description.

1 Launch PCPro and connect it to the Telephony Server by using the connection account assigned to the IP address of LAN2 connector.

To connect, use the previously set user name and password.

Note: If the user ID and the password are not entered, login is unavailable.

2 Execute the **ADTM** command. Set the following parameters and then click the **Get** button.

MGC No.: Type an MGC number of itself (Primary Node).

Select LAN Interface: Choose **LAN1**.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. :	1	Self MGC Kind : Primary Node
Operating MGC No. :	1	
MGC No. of Primary Node :	1	

MGC No.

1

Select LAN Interface

☒ LAN1 ☐ LAN2

Get Exit

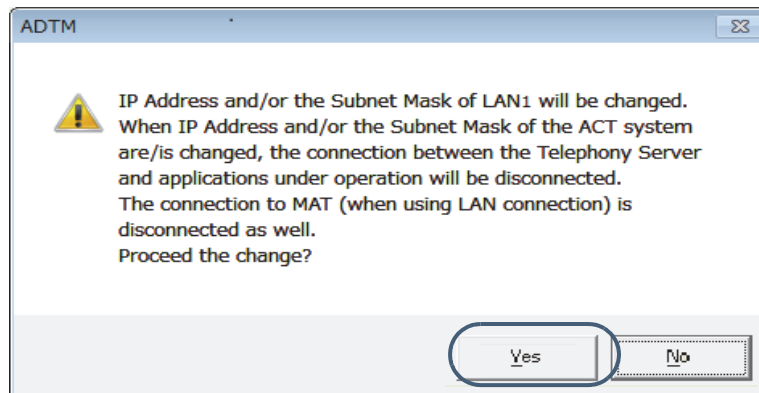
3

- (1) Click the **IP Address (v6)** tab.
- (2) Select the **Use IPv6** check box.
- (3) Set the values corresponding to your actual network environment for **Prefix Length** and **IP Address (ACT)**.
- (4) Click the **Apply** button.

The screenshot shows a configuration window with tabs: IP Address, Routing, IP Address(v6), Routing(v6), NIC, and Options. The 'IP Address(v6)' tab is selected. Inside, the 'Use IPv6' checkbox is checked. The 'Prefix Length' is set to 64 Bit. The 'IP Address (ACT)' field contains the value 2001:db8::c. Below these are empty fields for 'IP Address (System-0)' and 'IP Address (System-1)'. A note at the bottom states: '* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System.' An 'Apply' button is at the bottom right.

4

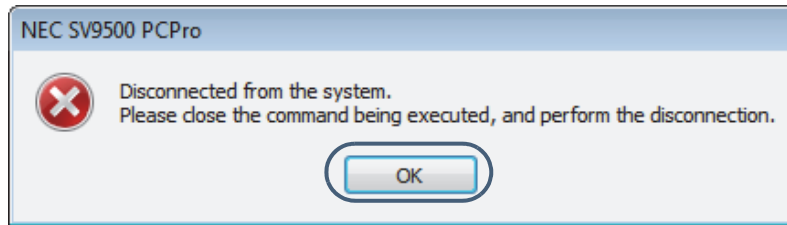
The following confirmation message is displayed.
Click the **Yes** button to apply the new setting.



Note: The data setting for the IPv6 address becomes valid after the change is applied.

Point: The connection to PCPro is disconnected when the data is modified.

- 5** The following message is displayed on PCPro.
Click **OK** to close the message.



- 6** Click the **Exit** button to exit the **ADTM** command.

- 7** Disconnect PCPro (on the **System** menu, click **Disconnect**) from the system.

Point: For detailed disconnecting procedure, refer to “Disconnecting the Communication Link” in Chapter 3 Setting Up PCPro in PCPro Setup Manual.

5.6 Assignment for NIC Data (ADTM) (IPv4)

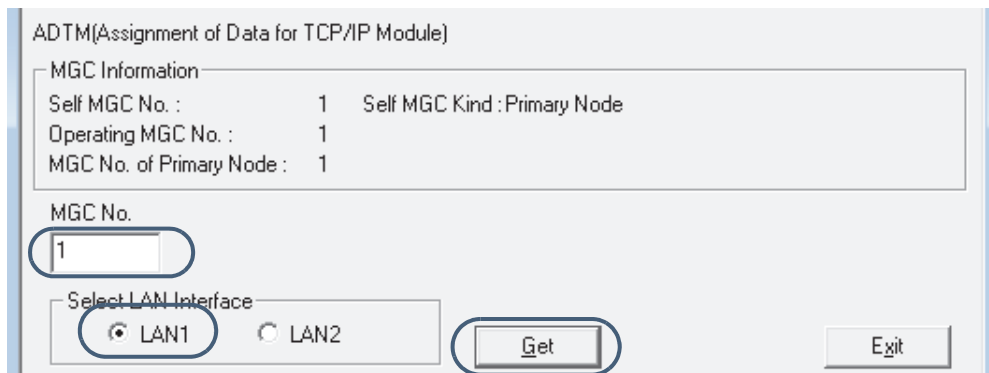
Configure the network data (NIC data) for the SV9500 server to conform to the actual network environment.

- 1** Connect to PCPro using the connection account assigned for the IP address of LAN2. Enter the user ID and the password that have been previously assigned to connect with PCPro.

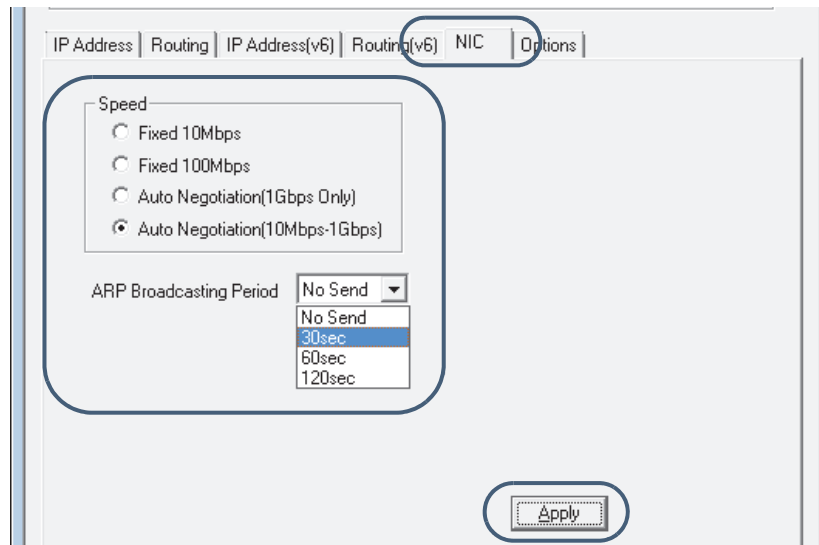
Note: If the user ID and the password are not entered, login is unavailable.

Point: For detailed procedure to connect to PCPro, refer to “Communication Link with the Telephony Server” in Chapter 3 Setting Up PCPro in PCPro Setup Manual.

- 2** Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of itself (Primary Node).
Select LAN Interface: Choose **LAN1**.

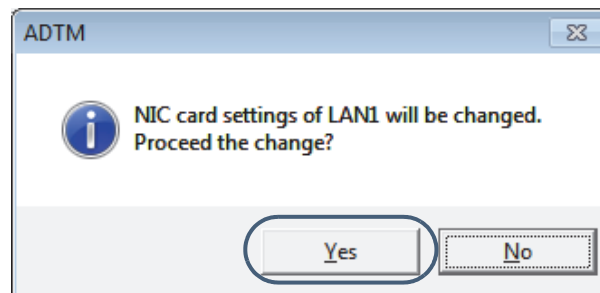


- 3 Click the **NIC** tab. Select **Auto Negotiation (10Mbps-1Gbps)** for **Speed** and select **30 sec** or **60 sec** for **ARP Broadcasting Period**. After the settings, click the **Apply** button.

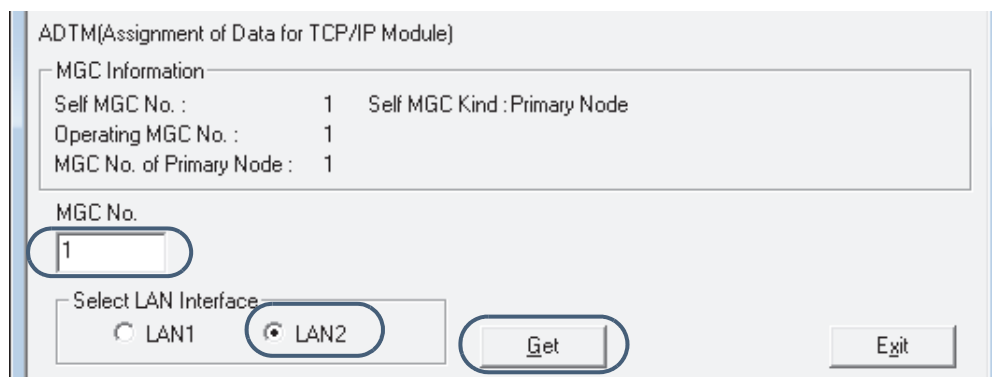


Note: Do not change the setting **Auto Negotiation (10Mbps-1Gbps)**.

- 4 The confirmation message is displayed. Click the **Yes** button to apply the change.

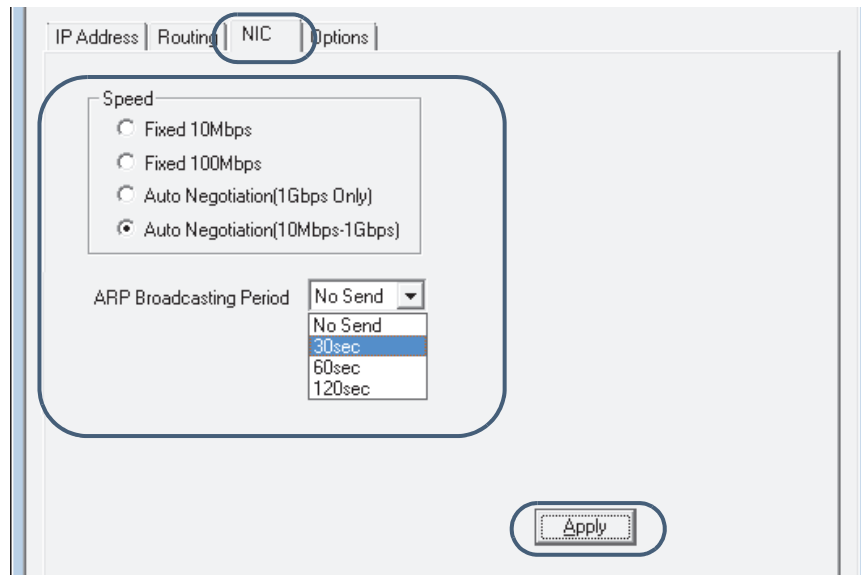


- 5 Choose **LAN2** for **Select LAN Interface** and click the **Get** button.



6

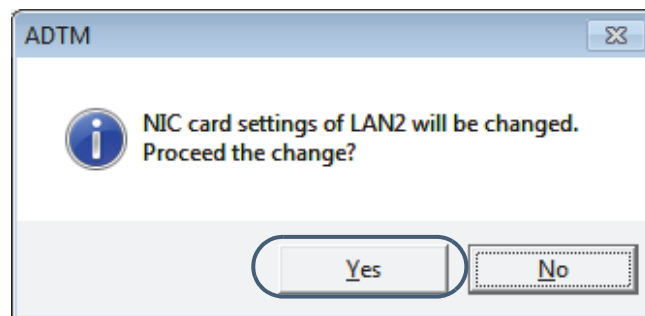
Click the **NIC** tab. Select **Auto Negotiation (10Mbps-1Gbps)** for **Speed**, select **30 sec** or **60 sec** for **ARP Broadcasting Period**, and then click the **Apply** button.



Note: Do not change the setting **Auto Negotiation (10Mbps-1Gbps)**.

7

The confirmation message is displayed. Click the **Yes** button to apply the change.



8

Click the **Exit** button to exit the **ADTM** command.

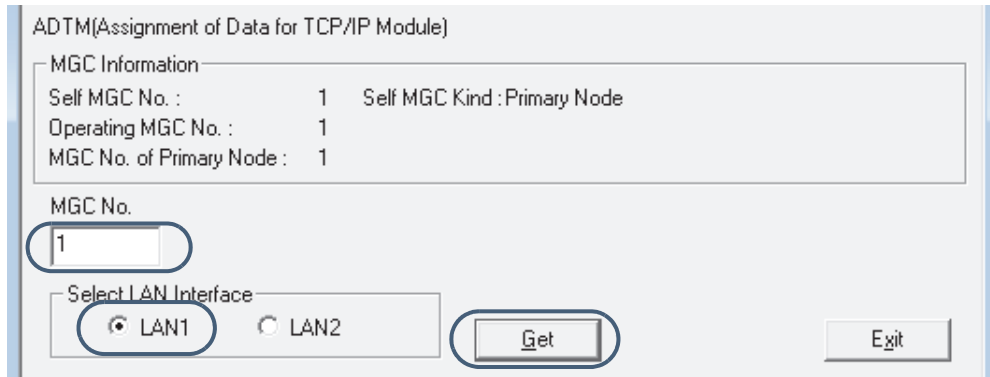
5.7 Assignment for Routing Data (ADTM) (IPv6)

Configure the network data (routing data) for the SV9500 server to conform to the actual network environment.

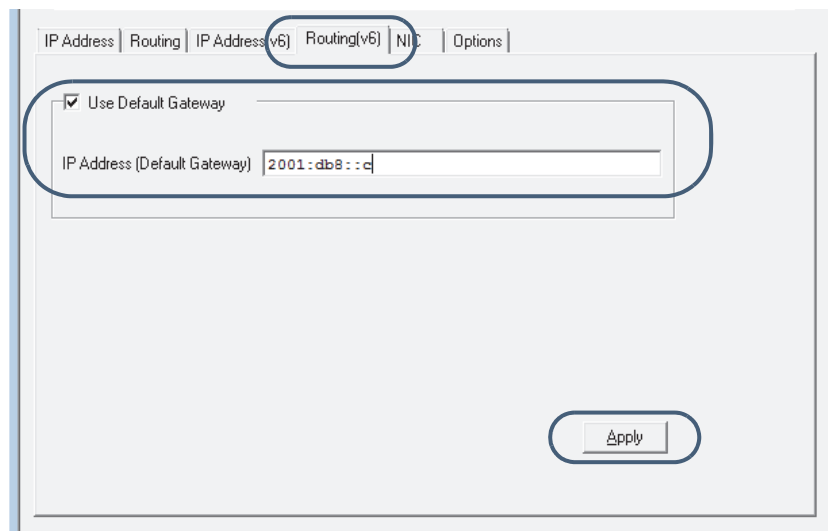
Note: Conditions for this operation is shown below:

- Programming for IPv4 must be done before programming in this section can be done.
- This data setting is for the IPv6 connection with PCPro. If you use only IPv4 addresses, this setting is not required

- 1** Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of itself (Primary Node).
Select LAN Interface: Choose **LAN1**.



- 2** (1) Click the **Routing (v6)** tab.
(2) Set the value corresponding to your actual network environment for each item.
(3) Click the **Apply** button.



- 3** Click the **Exit** button to exit the **ADTM** command.

5.8 Assignment for LAN Interface Data (ADTM) (IPv6)

Configure the LAN interface to connect to PCPro with IPv6 addresses.

Note: Conditions for this operation is shown below:

- This data setting is for the Primary Node's IPv6 connection with PCPro. If you use only

IPv4 addresses, this setting is not required.

- Programming for IPv4 must be done before programming in this section can be done.

1

Execute the **ADTM** command. Set the following parameters and then click the **Get** button.

MGC No.: Type an MGC number of itself (Primary Node).

Select LAN Interface: Choose **LAN1**.

2

(1) Click the **Options** tab.

(2) In the **Common** list, select **Configure Application Port**.

(3) Click the **Execute** button.

3

- (1) Select **LAN1** under **LAN Interface to be used in MAT**.
- (2) Click the **Apply** button.

Configure Application Port

Configure Application Port	LAN Interface to be used	Port Number (1024-65534)	Default Value
MAT	(TCP) ☒ LAN1 ☐ LAN2	0	60000
SMDR	(TCP) ☐ LAN1 ☒ LAN2	0	60010
MCI	(TCP) ☐ LAN1 ☒ LAN2	0	60020
OAI	(TCP) ☐ LAN1 ☒ LAN2	0	60030
MIS	(TCP) ☐ LAN1 ☒ LAN2	0	60040
CS Report	(TCP) ☐ LAN1 ☒ LAN2	0	60080
PMS	(TCP) ☐ LAN1 ☒ LAN2	0	60050
MCC	(TCP) ☐ LAN1 ☒ LAN2	0	60190
CCIS Cluster	(TCP) ☒ LAN1 ☐ LAN2	0	60001
FCCS Cluster	(TCP) ☐ LAN1 ☒ LAN2	0	60210

*If you want to change Port Number of "FCCS Cluster", you must use AFCCMN command.

Internal PHI-PRI	(TCP) ☐ LAN1 ☒ LAN2	0	64000
Internal PHC	☐ LAN1 ☒ LAN2		
Client	(TCP)	0	65030
Server	(TCP)	0	57000
Internal PHF	(UDP) ☒ LAN1 ☐ LAN2	0	60180
	☒ LAN1 ☐ LAN2		
REG	(UDP)	0	3456
Internal PHE	(UDP)	0	60130
Internal PHI-BRI	(UDP)	*If "Internal PHI-PRI" and "Internal PHI-BRI" use the same Port Number.	
SR-MGC/NMS			
NMS	(TCP)	0	60060
Health Check Receive MGC - SR-MGC (Server)	(UDP)	0	60110
Health Check Send MGC - SR-MGC (Client)	(UDP)	0	60120
SR-MGC Charge MGC Side	(TCP)	0	60140
SR-MGC Charge SR-MGC Side	(TCP)	0	60150
DNS	(UDP) ☐ LAN1 ☒ LAN2	0	53
SNTP	(UDP) ☐ LAN1 ☒ LAN2	0	123
PBUS over IP	(UDP) ☒ LAN1 ☐ LAN2	0	60220
Internal SIP Handler	☐ LAN1 ☐ LAN2 ☒ LAN1(ACT2)		
SIP Signaling	(UDP/TCP Server)	0	5060
DRS Registration	(UDP)	0	60300
Negotiation	(UDP/TCP Server)	0	60301
TLS	(TCP Server)	0	5061

*When the Port Number of "REG" is changed, it is necessary to set the same Port Number as DrsPort by the ASPC command. (SPconfig.conf,StaticInfo.txt)

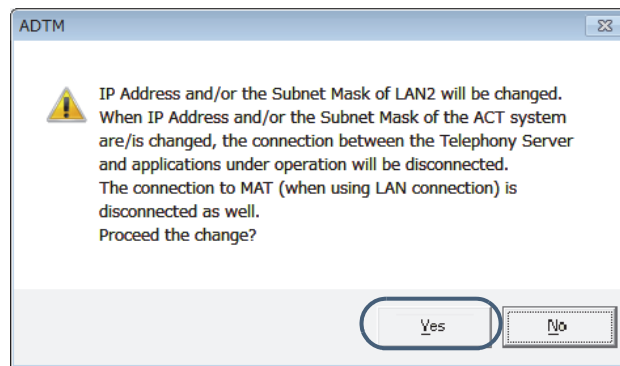
*When "Internal PHI-PRI" or "Internal PHI-BRI" or "Internal PHC" or "Internal PHF" or "Internal SIP Handler" is changed, it is necessary to initialize the module.

*When the Port Number of "Internal PHE" is changed, it is necessary to set the same Port Number as PHEPort by the ASPC command. (SPconfig.conf)

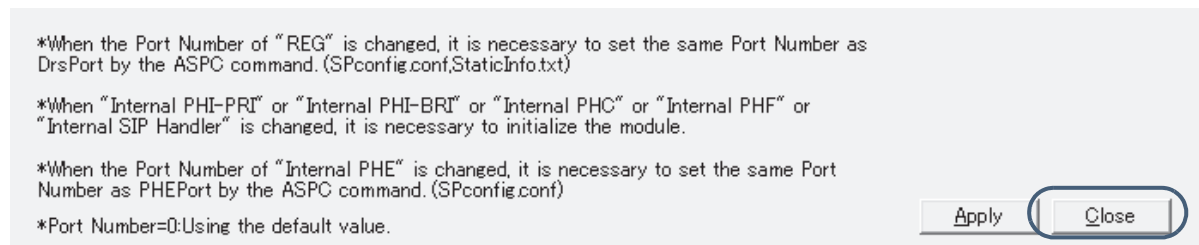
*Port Number=0:Using the default value.

Apply Close

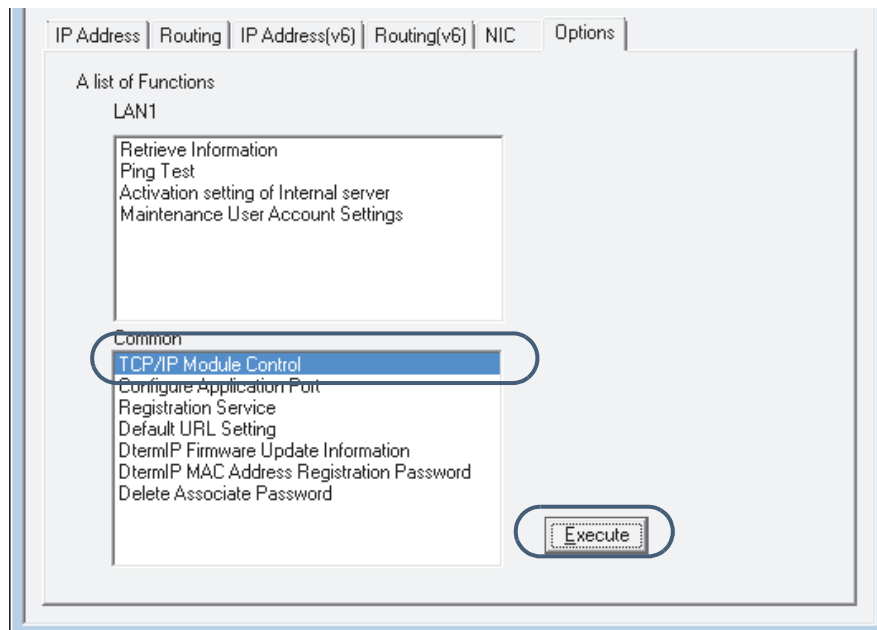
- 4 The confirmation message is displayed. Click the **Yes** button to apply the change.



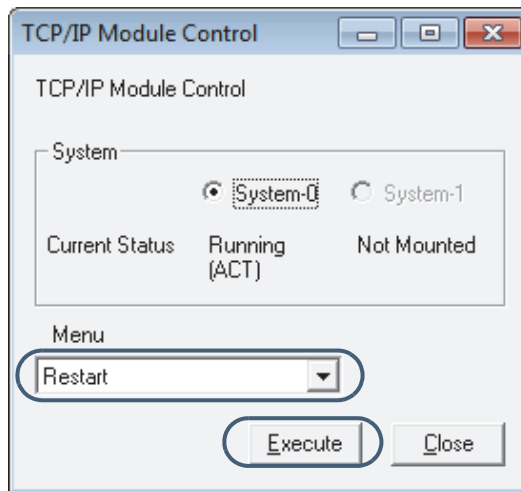
- 5 Click the **Close** button to close the **Configure Application Port** dialog box.



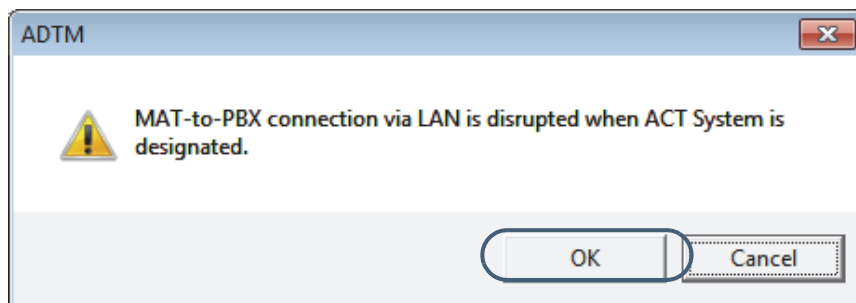
- 6 Select **TCP/IP Module Control** in the **Common** list and click the **Execute** button.



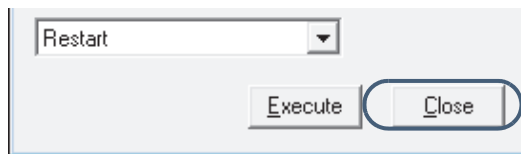
- 7 Select **Restart** in the **Menu** box and click the **Execute** button.



- 8 The following message is displayed. Click **OK** to close the message.



- 9 Click the **Close** button to close the **TCP/IP Module Control** dialog box.



- 10 Click the **Exit** button to exit the **ADTM** command.

- 11 Select **Disconnect** on the **System** menu on PCPro.

Point: For detailed disconnecting procedure, refer to "Disconnecting the Communication Link" in Chapter 3 Setting Up PCPro in PCPro Setup Manual.

5.9 Assignment of GR-Node/SR-Node/SR-MGC (CMNT)

Connect PCPro with Primary Node in operating mode and assign some necessary data for Geo Redundant Node/Survivable Remote Node/SR-MGC through the **CMNT** command.

- 1 Execute the **CMNT** command and click the **Setting** tab. Type an MGC number (0-255 **Note 1**) of a target MGC (Geo Redundant Node/Survivable Remote Node/SR-MGC) and then click the **Get** button.

The screenshot shows the CMNT command interface with the 'Setting' tab selected. The 'MGC No.' field is empty, and the 'Get' button is highlighted. Other tabs include 'FTP Server Setting', 'Priority', 'Initialize', 'Change Operating', and 'File Control'. Below the 'MGC No.' field are 'Set' and 'Del' buttons.

Note 1: MGC number "0" is available only for SR-MGC used for [S-141] Survivable Remote MGC. Do not set "0" for Geo Redundant Node and Survivable Remote Node.

- 2 Assign the following parameters. After all the required parameters are set, click the **Set** button. For more details on each parameter of the **CMNT** command, refer to the Operations and Maintenance Manual.

<In the case of Geo Redundant Node>

MGC Kind: Choose "Geo Redundant Node."

Configuration of CPU: Choose "Single" as CPU configuration of the specified Geo Redundant Node.

Use Physical PIR: Clear the check box (Fixed)

Office Name: Type the office name of the specified Geo Redundant Node (up to 20 digits).

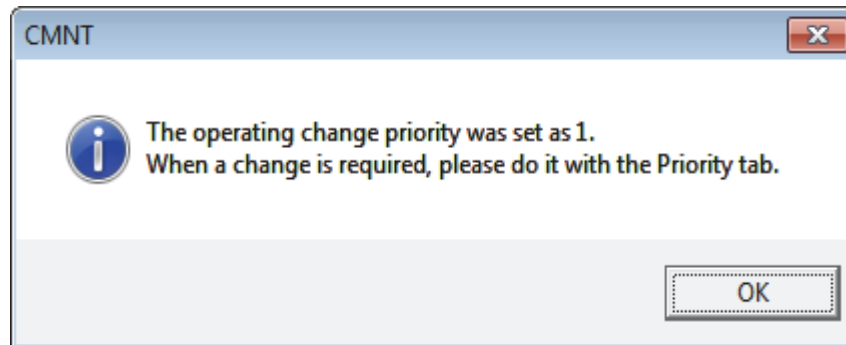
IP Address: Blank (IP address is assigned with the **ADTM** command at a later step.)

Assigning MA-ID: Clear the check box (Fixed).

The screenshot shows the CMNT command interface with the 'Setting' tab selected. The 'MGC No.' field contains the value '2'. The 'MGC Kind' dropdown menu is set to 'Geo Redundant Node'. Under 'Configuration of CPU', the 'Single' radio button is selected. The 'Use Physical PIR' checkbox is unchecked. The 'Office Name' field is empty. The 'IP Address' field is empty, with a note '(Please assign IP address with the ADTM command.)'. The 'Assigning MA-ID' checkbox is unchecked. The 'Set' button is highlighted.

The following confirmation message is displayed.

Click the **OK** button to give the highest priority to the specified Geo Redundant Node. To change the priority data, click the **Priority** tab to change the data of **Setting of Operating Change Priority**.



<In the case of Survivable Remote Node>

MGC Kind: Choose “Survivable Remote Node.”

Model: Choose “E” (SV9500) to use SV9500 as Survivable Remote Node hardware type. Choose also “E” (SR-MGC(E)) to use SR-MGC(E) as Survivable Remote Node hardware type.

Configuration of CPU: Choose “Single” as CPU configuration of the specified Survivable Remote Node.

Office Name: Type the office name of the specified Survivable Remote Node (up to 20 digits).

Number of Ports: Enter the number of port licenses for the specified Survivable Remote Node. **Note 1**

IP Address: (IP address is assigned with the **ADTM** command at a later step.)

Mode: Choose the specified Survivable Remote Node’s change over/change back timing.

Assigning MA-ID: Clear the check box (Fixed).

ACDP: Place a check mark to use Call Distribution. **Note 2**

Call Distribution: Choose “ACD” for using ACD call distribution method or “UCD” for using UCD call distribution method of ACDP for MGC. **Note 2**

The screenshot shows a configuration window for a Survivable Remote Node. The fields are as follows:

- MGC No.: 3
- MGC Kind: Survivable Remote Node
- Model: E
- Configuration of CPU: Single (selected), Dual
- Office Name: (empty text box)
- Number of Ports: (empty text box)
- IP Address: (empty text box) (Please assign IP address with the ADTM command.)
- Mode: (empty text box)
- Assigning MA-ID: (unchecked checkbox)
- ACDP: (checked checkbox)
- Call Distribution: ACD (selected), UCD

On the right side of the window, there are three buttons: Get, Set (which is circled in red), and Del.

Note 1: The maximum 8192 port licenses can be purchased.

Note 2: This parameter is not used in North America market.

<In the case of SR-MGC>

MGC No.: Type an MGC number of a target SR-MGC.

MGC Kind: Choose "SR-MGC."

Office Name: Type the office name of the SR-MGC (up to 20 digits).

IP Address: Type the IP address of the SR-MGC.

Mode: Choose the SR-MGC's change over/change back timing.

Assigning MA-ID: When Flexible Network Re-routing service is enabled, place a check mark.

MA-ID: Type an MA-ID (0-9999) to be assigned to the SR-MGC when "Assigning MA-ID" parameter is ON.

FTP Server No.: Type FTP Server Number (1-256).

The screenshot displays a configuration window for SR-MGC. On the left, a rounded rectangle contains the following fields: 'MGC No.' with a text box containing '0', 'MGC Kind' with a dropdown menu showing 'SR-MGC', 'Office Name' with an empty text box, 'IP Address' with an empty text box, 'Mode' with a checkbox and the label 'C_MGC', 'Assigning MA-ID' with a checkbox, and 'FTP Server No.' with an empty text box. To the right of this rectangle are three buttons: 'Get', 'Set', and 'Del'. The 'Set' button is circled with a blue oval.

5.10 Assignment of IP Address for GR-Node/SR-Node (ADTM)

Assign IP addresses of Geo Redundant Nodes/Survivable Remote Nodes through the ADTM command.

1

Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of a target MGC (Geo Redundant Node/Survivable Remote Node).
Select LAN Interface: Choose **LAN1**.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. : 1 Self MGC Kind : Primary Node
Operating MGC No. : 1
MGC No. of Primary Node : 1

MGC No.
2

Select LAN Interface
☒ LAN1 ☐ LAN2

Get Exit

2

Click the **IP Address** tab and enter values for **IP Address (ACT)**, **IP Address2 (ACT)** and **Subnet Mask** according to your actual network environment. Then, click the **Apply** button.

IP Address Routing IP Address(v6) Routing(v6) NIC

IP Address (ACT) 10 . 100 . 1 . 13

☒ Add IP Address (ACT)

IP Address2 (ACT) 10 . 100 . 1 . 43

IP Address (System-0) . . .

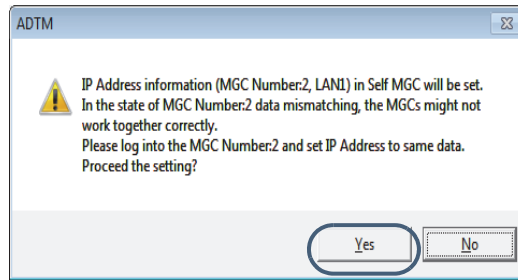
IP Address (System-1) . . .

Subnet Mask 255 . 255 . 255 . 0

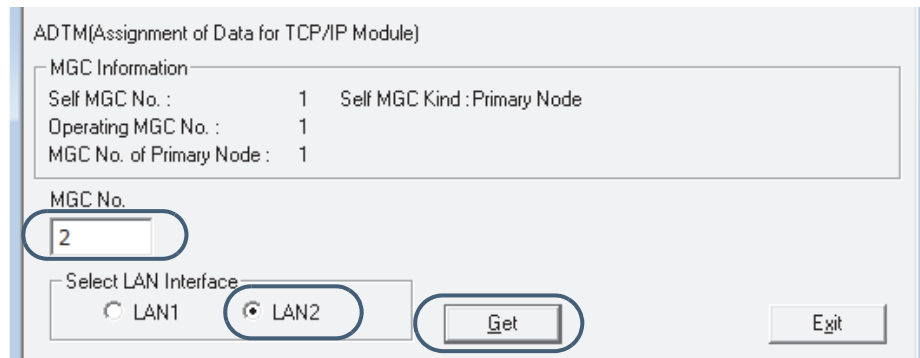
* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System.

Apply

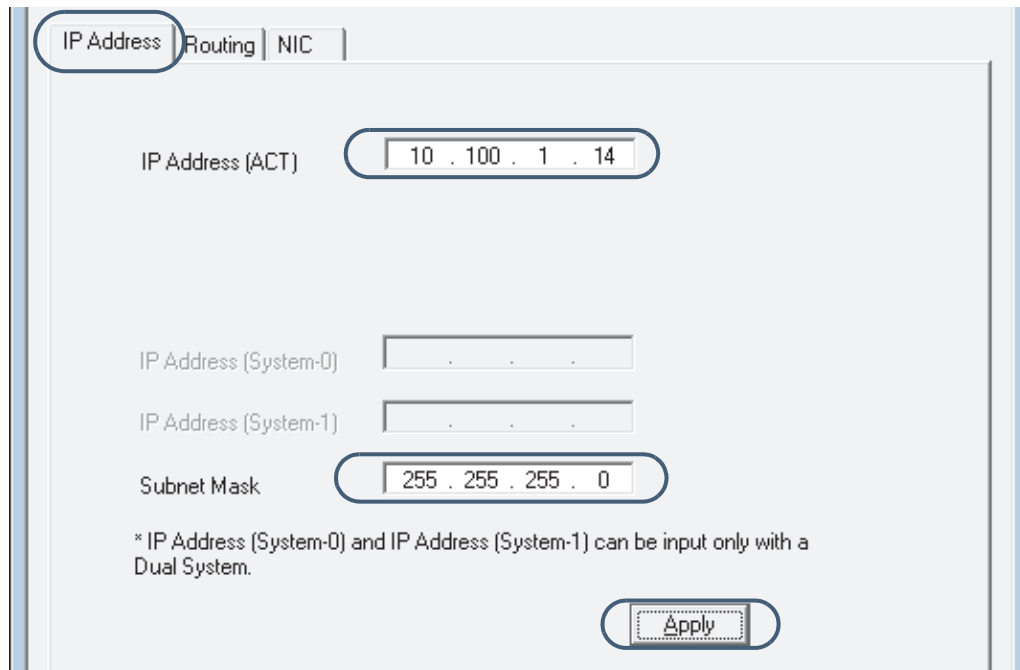
- 3 The following confirmation message is displayed.
Click the **Yes** button to apply the new setting.



- 4 Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of a target MGC (Geo Redundant Node/Survivable Remote Node).
Select LAN Interface: Choose **LAN2**.



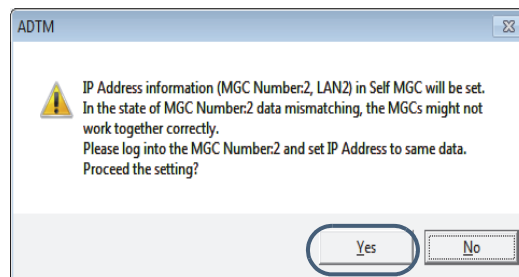
- 5** Click the **IP Address** tab and enter values for **IP Address (ACT)** and **Subnet Mask** according to your actual network environment. Then, click the **Apply** button.



The screenshot shows a configuration window with three tabs: "IP Address", "Routing", and "NIC". The "IP Address" tab is selected. It contains the following fields and controls:

- IP Address (ACT)**: A text box containing "10 . 100 . 1 . 14".
- IP Address (System-0)**: A text box containing "." . . .
- IP Address (System-1)**: A text box containing "." . . .
- Subnet Mask**: A text box containing "255 . 255 . 255 . 0".
- A note below the Subnet Mask field: "* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System."
- An **Apply** button at the bottom right.

- 6** The following confirmation message is displayed.
Click the **Yes** button to apply the new setting.



- 7** Repeat the previous steps for necessary Geo Redundant Nodes and Survivable Remote Nodes.

5.11 LAN1 Network Configuration for GR-Node (ADTM) (IPv6)

Set IPv6 addresses (e.g. 2001:db8::f) for LAN1.

Note: Note the following conditions for this setting.

- This data setting is for the Geo Redundant Node's IPv6 connection with PCPro. If you use only IPv4 addresses, this setting is not required.
- Programming for IPv4 must be done before programming in this section can be done.
- For detailed conditions of IPv6 addresses, refer to "IPv6 Connection with PCPro" in the System Description.

1 Launch PCPro and connect it to the Telephony Server by using the connection account assigned to the IP address of LAN2 connector.

To connect, use the previously set user name and password.

Note: If the user ID and the password are not entered, login is unavailable.

2 Execute the **ADTM** command. Set the following parameters and then click the **Get** button.

MGC No.: Type an MGC number of itself (Primary Node).

Select LAN Interface: Choose **LAN1**.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. : 1 Self MGC Kind : Primary Node

Operating MGC No. : 1

MGC No. of Primary Node : 1

MGC No.

2

Select LAN Interface

☒ LAN1 ☐ LAN2

Get Exit

3

- (1) Click the **IP Address (v6)** tab.
- (2) Select the **Use IPv6** check box.
- (3) Set the values corresponding to your actual network environment for **Prefix Length** and **IP Address (ACT)**.
- (4) Click the **Apply** button.

Note: The data setting for the IPv6 address becomes valid after the change is applied.

5.12 Assignment for NIC Data (ADTM) for GR-Node/SR-Node (IPv4)

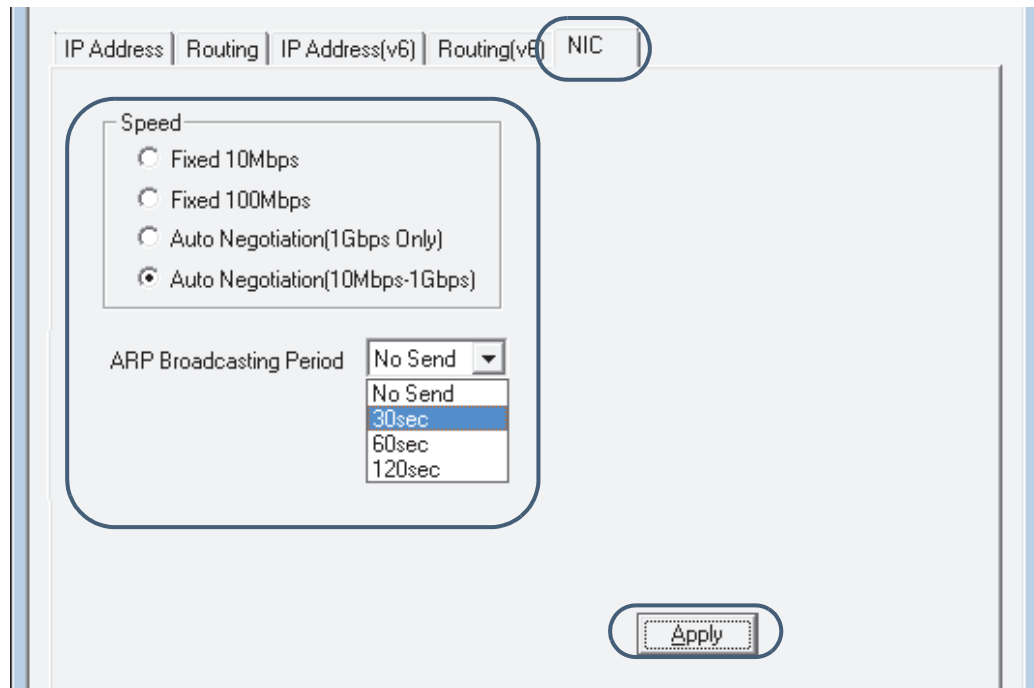
Configure the network data (NIC data) for the SV9500 server to conform to the actual network environment.

1

- Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of itself (Primary Node).
Select LAN Interface: Choose **LAN1**.

2

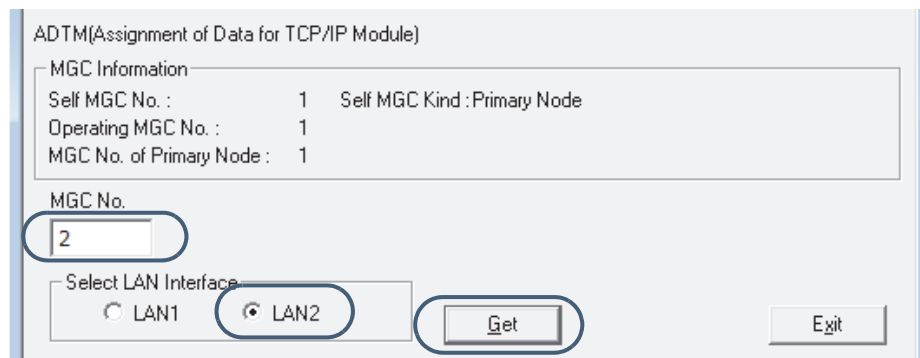
- (1) Click the **NIC** tab.
- (2) Select **Auto Negotiation (10Mbps-1Gbps)** for **Speed** and select **30 sec** or **60 sec** for **ARP Broadcasting Period**.
- (3) Click the **Apply** button.



Note: Do not change the setting **Auto Negotiation (10Mbps-1Gbps)**.

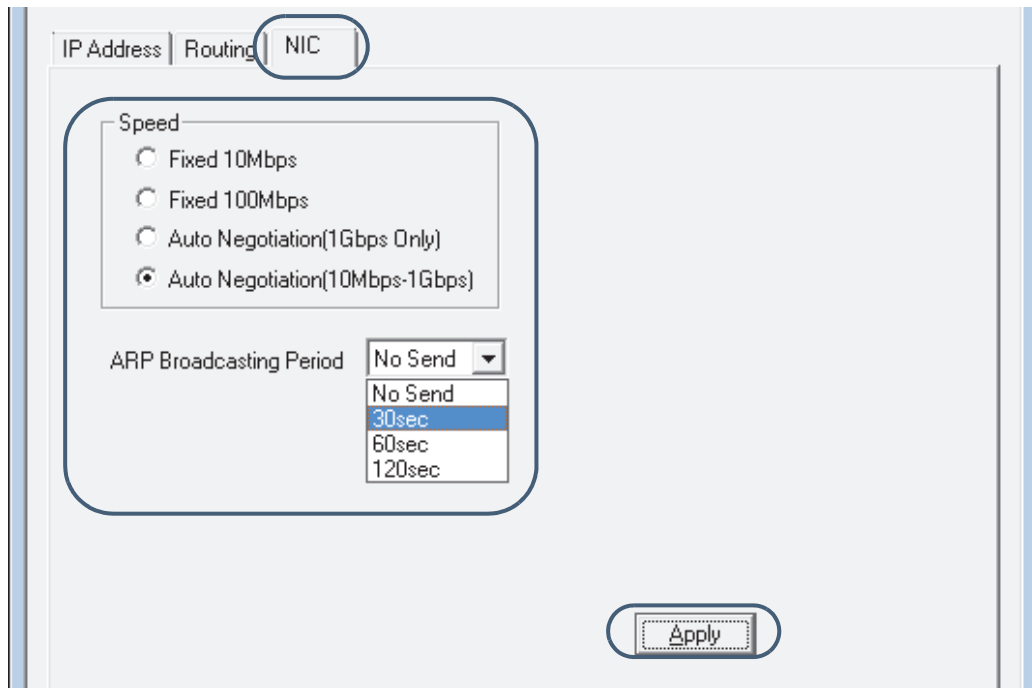
3

- Choose **LAN2** for **Select LAN Interface** and click the **Get** button.



4

- (1) Click the **NIC** tab.
- (2) Select the value corresponding to your actual network environment for **Speed** (**Note 1**) and select **30 sec** or **60 sec** for **ARP Broadcasting Period**.
- (3) Click the **Apply** button.



Note 1: Do not change the setting **Auto Negotiation (10Mbps-1Gbps)**.

5

- Click the **Exit** button to exit the **ADTM** command.

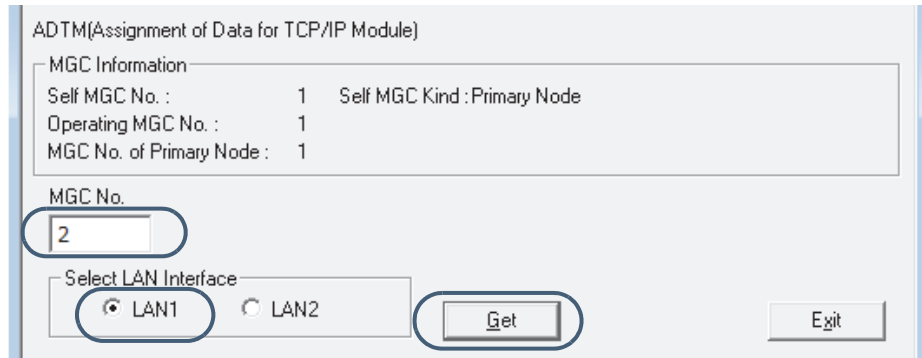
5.13 Assignment for Routing Data for GR-Node (ADTM) (IPv6)

Configure the network data (routing data) for the SV9500 server to conform to the actual network environment.

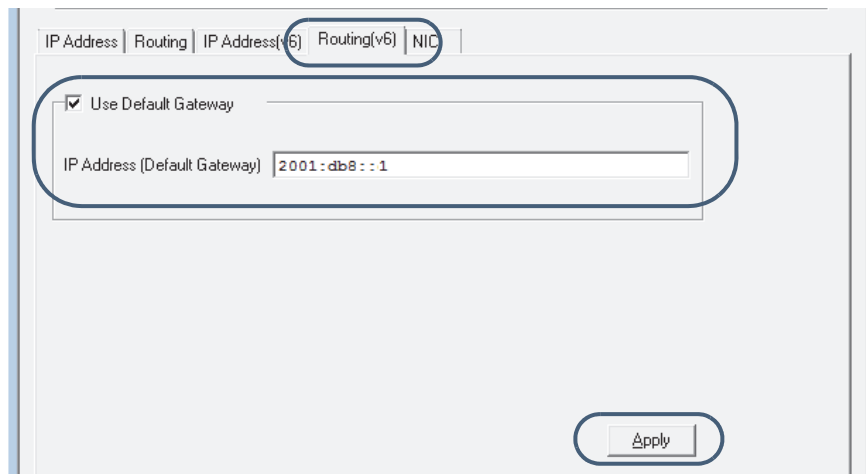
Note: Conditions for this operation is shown below:

- This data setting is for the Geo Redundant Node's IPv6 connection with PCPro. If you use only IPv4 addresses, this setting is not required.
- Programming for IPv4 must be done before programming in this section can be done.

- 1** Execute the **ADTM** command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of a target MGC (Geo Redundant Node).
Select LAN Interface: Choose **LAN1**.



- 2**
- (1) Click the **Routing (v6)** tab.
 - (2) Set the value corresponding to your actual network environment for each item.
 - (3) Click the **Apply** button.



- 3** Click the **Exit** button to exit the **ADTM** command.

5.14 Configuration of SIP Server (ASPC)

Note: This procedure is required only for Primary Node.

Set the office data for the SP part of the system through the **ASPC** command. For more details on the configuration of SIP Server (ASPC), see the configuration of SIP server (ASPC) section in Prepackaged Server Model Installation and Operation Manual.

6. Assignment of System Clock Data for Primary Node (ATIM)

Note: This procedure is required only for Primary Node.

Set the time zone for the system through the **ATIM** command. For more details on the **ATIM** command, see Command Manual.

7. Backup of Office Data

Back up the office data using the MEM_HDD command. For the procedure to back up the office data, refer to [9. Backup of Office Data](#) in Chapter 3 of this manual.

8. Download of Office Data

Download the office data in the Primary Node to the maintenance PC using Telephony Server Maintenance Menu. For the procedure to download the office data, refer to [10. Download of Office Data](#) in Chapter 3 of this manual.

9. Upload of Office Data

Upload the office data in the maintenance PC to each Geo Redundant Node and Survivable Remote Node using Telephony Server Maintenance Menu. For the procedure to upload the office data, refer to [11. Upload of License Data/Office Data](#) in Chapter 3 of this manual.

10. Restarting Guest OS (SV9500)

To activate the settings of the guest OS (SV9500) it must be restarted. The procedures are the same as for the conventional case; “Restarting Guest OS (SV9500)” in Chapter 2 Setup of Prepackaged Server Model Installation and Operation Manual.

11. Assignment of System Clock Data for GR-Node/ SR-Node (ATIM)

Note: This procedure is required only for Geo Redundant Node/Survivable Remote Node.

Set the time zone for the system through the **ATIM** command. For more details on the **ATIM** command, see Command Manual.

12. Alarm Settings

Setup an alarm for the virtual machine. The procedures are the same as for the conventional case; see “Alarm Setting” in Chapter 2 Setup of Prepackaged Server Model Installation and Operation Manual.



CHAPTER 5 UMGi SYSTEM STARTUP (APPLIANCE MODEL/PREPACKAGED SERVER MODEL)

This chapter describes how to start up the Geographic-Redundancy-Enabled UMGi system.

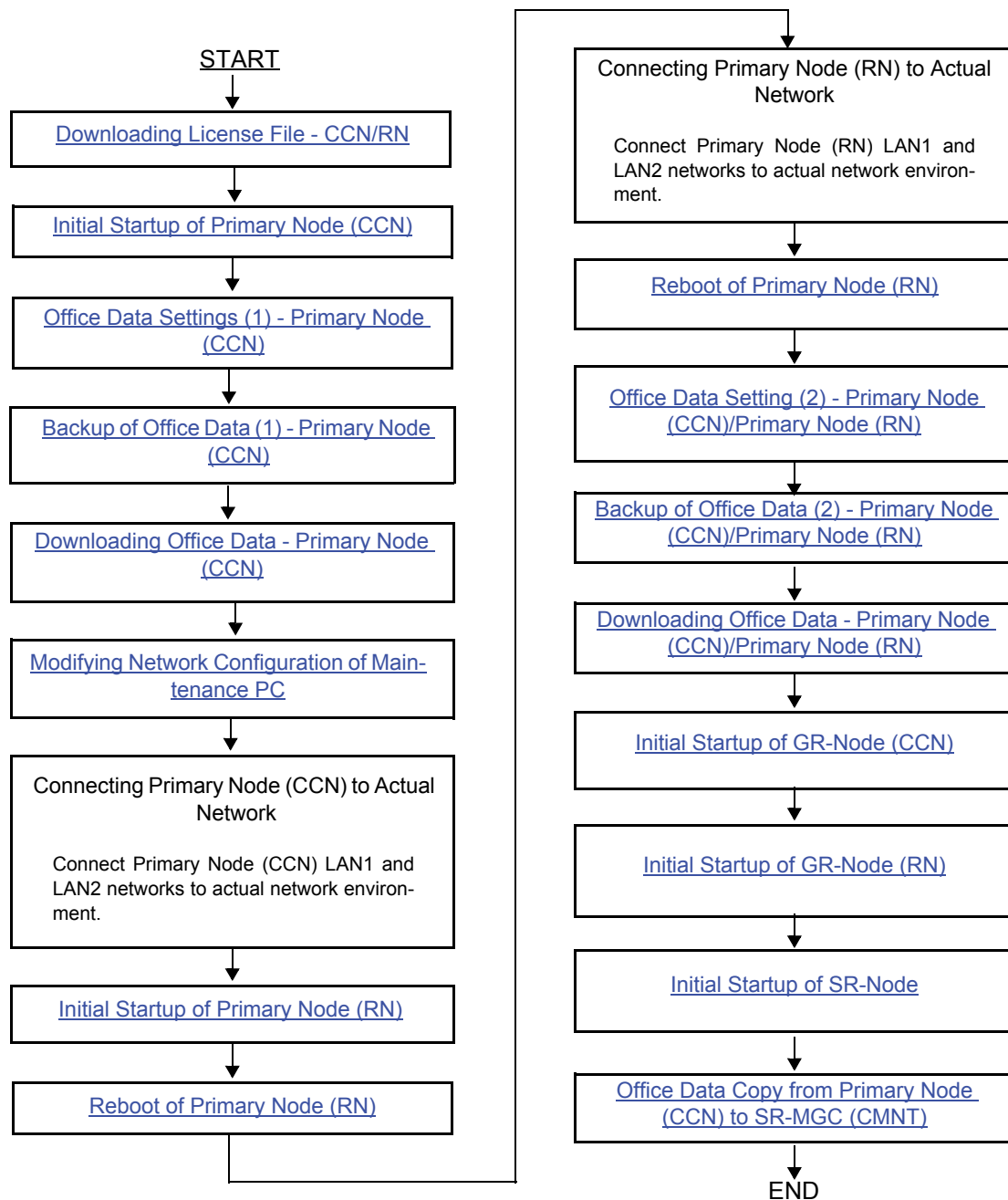
The initial startup process of the Telephony Server includes many procedures for setting and operation. The instructions in the following sections will help you perform the initial startup more easily by giving a detailed description on each setting.

In the sections of initial startup procedure, **Note** states the precautions required when performing each initial startup procedure. An error or failure may occur if these precautions are missed. Be sure to follow each precautions without exception. **Point** states tips and supplemental remarks to be considered when performing each initial startup procedure.

1. Initial Startup Procedure

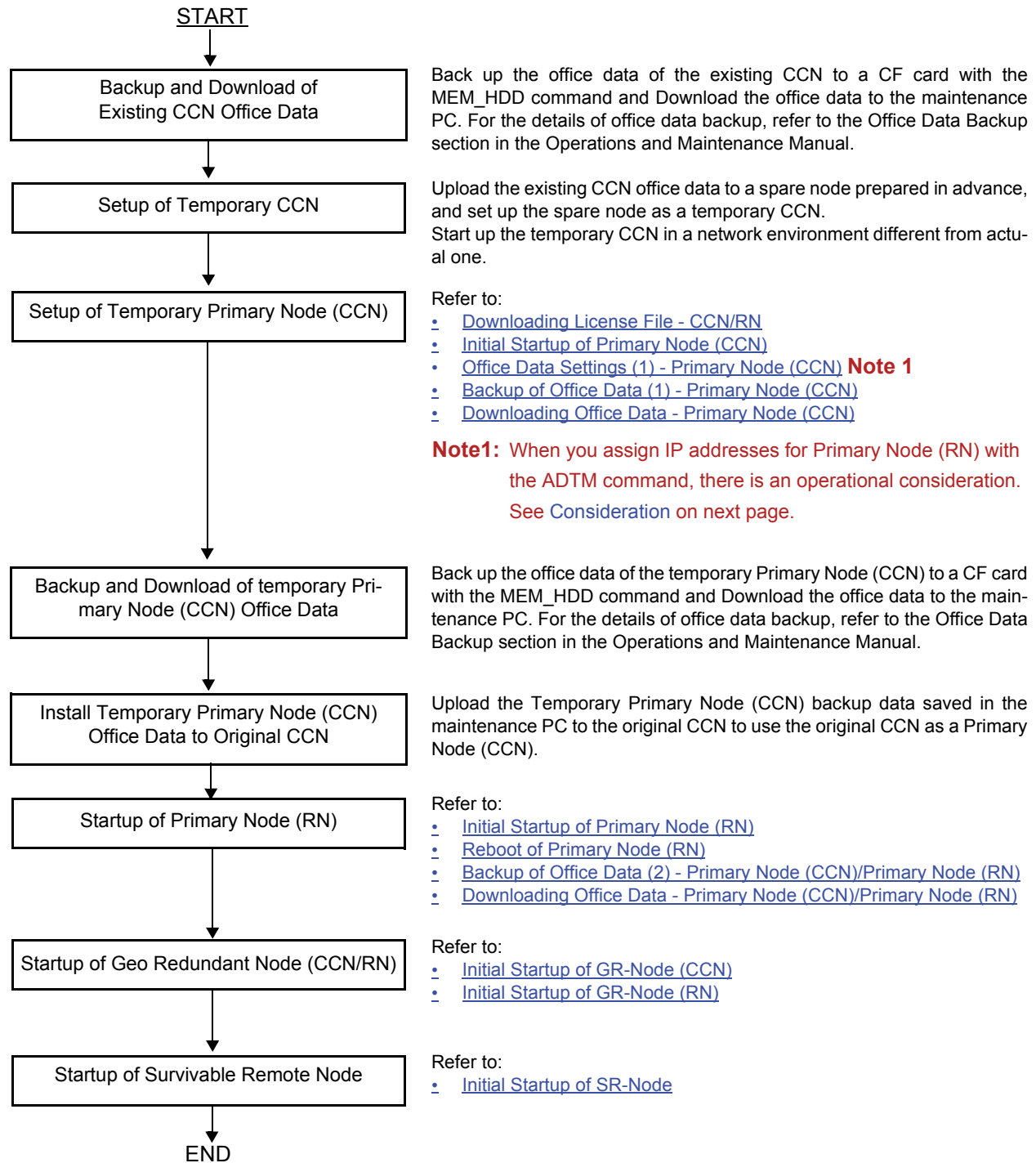
This section explains the initial startup procedure of the Geographic-Redundancy-enabled UMGi system. The following procedure is needed to be performed at each MGC site (Primary Node/Geo Redundant Node/Survivable Remote Node).

1.1 Newly Setting Up Geographic-Redundancy-Enabled UMGi System



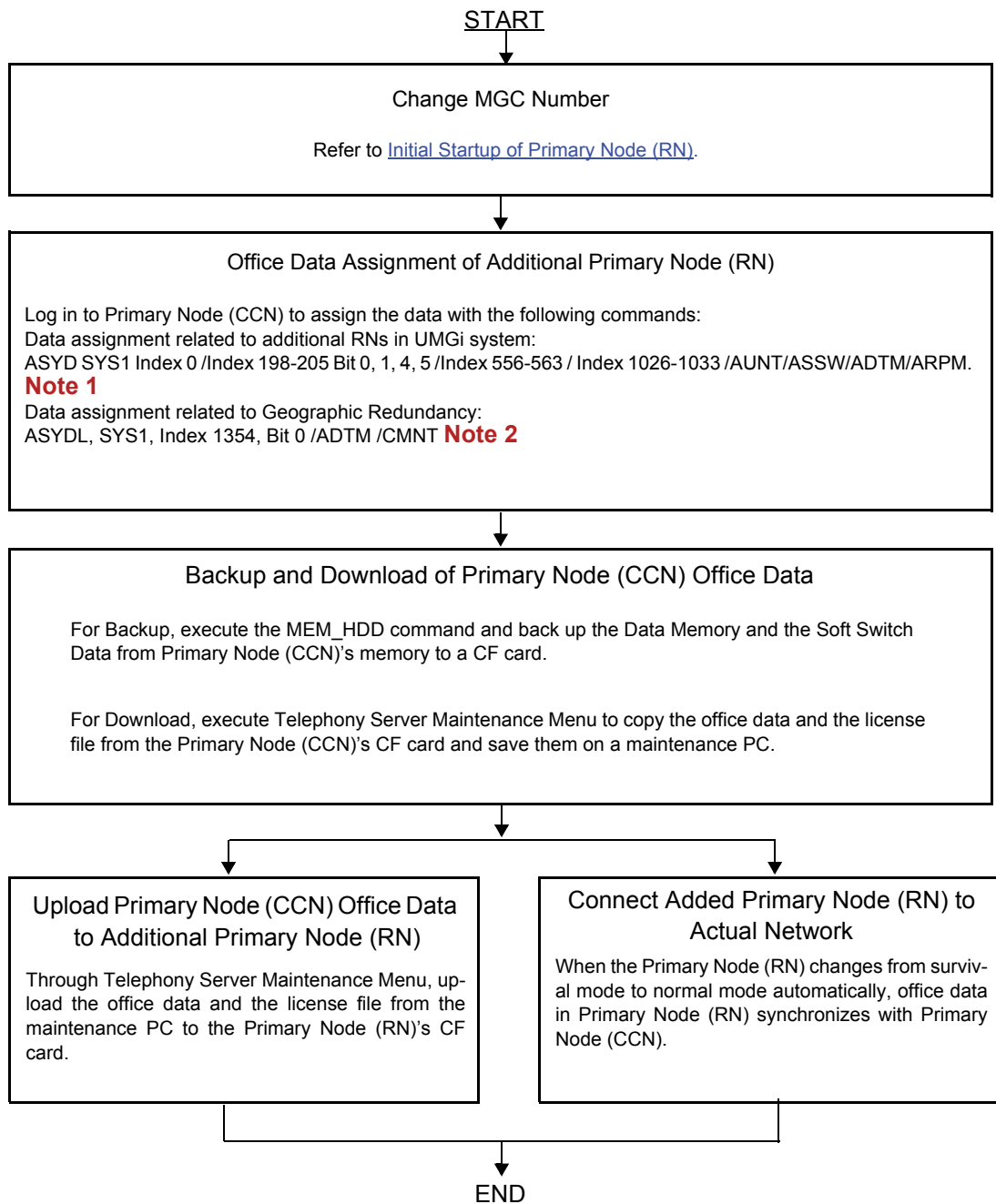
1.2 Providing Geographic-Redundancy in Existing UMGi System

Note: This procedure allows an existing UMGi system to enable Geographic Redundancy while the system is operating. Preparation of a spare node is needed in advance.



Consideration	To assign IP addresses for Primary Node (RN) with the ADTM command, note the following: When you click the IP Address tab of the ADTM command, existing IP addresses are displayed and the Apply button is in gray. To assign IP addresses for Primary Node (RN), you need to follow these steps. Step 1: Retype the existing IP addresses in the IP Address (ACT), IP Address (System-0) or IP Address (System-1) field. Step 2: Click the Apply button. (The Apply button becomes available after retyping the IP addresses.)

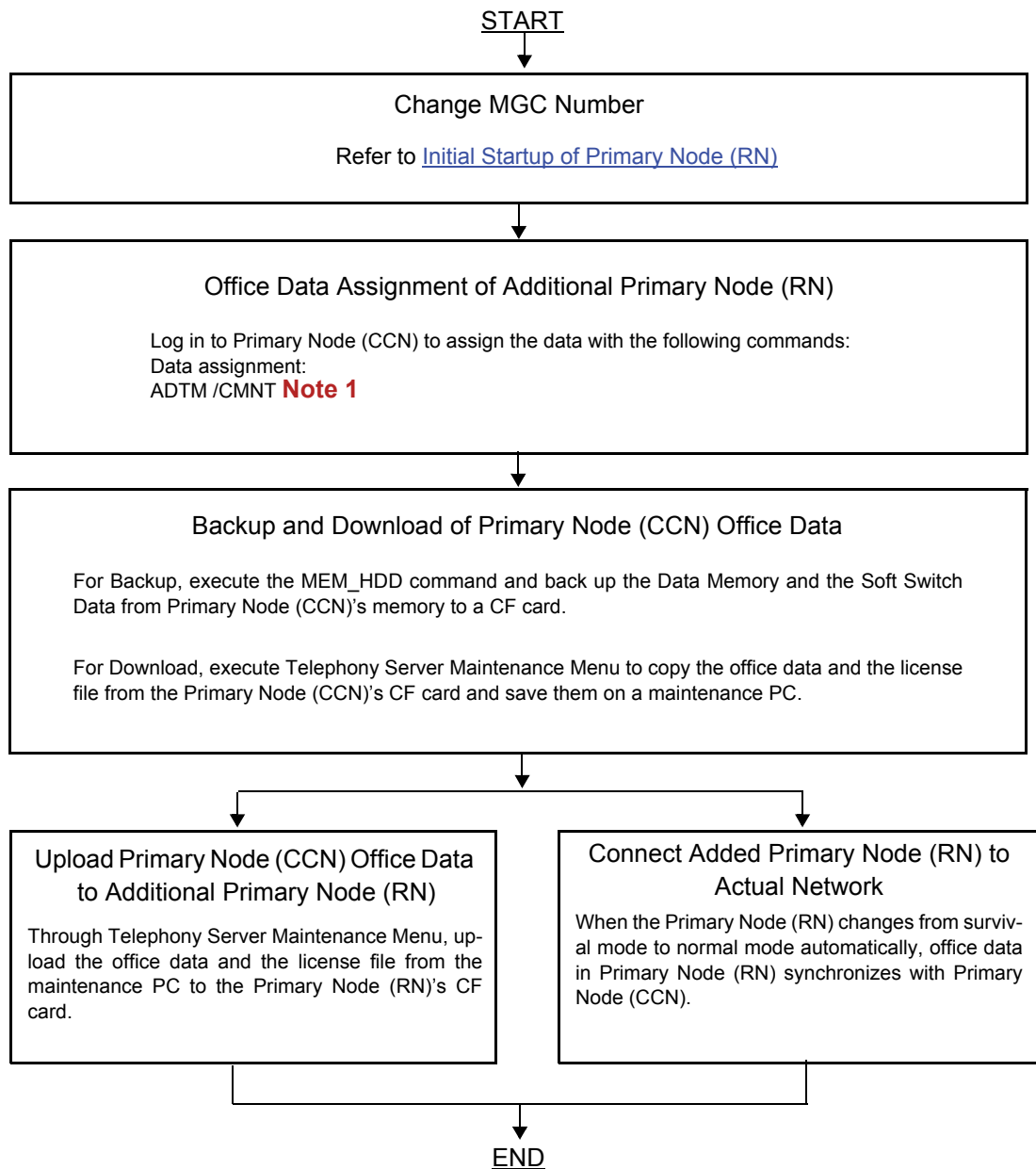
1.3 Install Additional Primary Node (RN)



Note 1: For the details of data assignment, refer to the Install Additional RN section in UMGi Configuration and Maintenance Guide.

Note 2: For the details of data assignment, refer to [8. Initial Startup of Primary Node \(RN\)](#).

1.4 Install Additional GR-Node (CCN)/GR-Node (RN)/SR-Node



Note 1: For the details of data assignment, refer to [8. Initial Startup of Primary Node \(RN\)](#).

1.5 Consideration Before Initial Startup

For the following UMGi and Geographic Redundancy functions, behaviors of the system will differ markedly depending on the data settings when a failure occurs.

- RN changeover from survival mode to normal mode (UMGi function)
- Priority of MGC (Geographic Redundancy function)

Merits and demerits for each combination of above functions are explained in (1) to (4).

Office Data Settings Patterns

			Geographic Redundancy	
			Priority of MGC	
			ASYDL, Index 1354, Bit 2=1 is set: Giving operation priority to the node in operating mode	ASYDL, Index 1354, Bit 2=0 is set: Giving operation priority to the Primary Node
UMGi	RN Changeover from Survival mode to Normal mode (ARPM)	Automatic Changeover	Office Data Settings Pattern 1 (Recommended)	Office Data Settings Pattern 3
		Manual Changeover	Office Data Settings Pattern 2	Office Data Settings Pattern 4

Note: For the conditions of calls when communication failures occur between IP devices/terminals and a controlling node (CCN/RN) due to Transition to Operating of the node, see the following manuals:

- “Registration Destination” in Chapter 1 in UMGi Configuration and Maintenance Guide
- “3. Hardware/Software Conditions” (7), (8) in Chapter 2 of this manual

(1) Office Data Settings Pattern 1

RN changeover from survival mode to normal mode: Automatic

Geographic Redundancy: Priority is given to the node in operating mode.

Merits:

- With an automatic process, the RN promptly recovers to normal mode without the intervention of the maintenance personnel.
- Even if the Primary node recovers, as the Geo Redundant Node continues operating, the number of IP devices reset due to the changeover is reduced.

Note: It is the shortest pattern from the moment a failure happens until operations in normal mode are resumed.

Demerits:

- With an automatic process, the timing of the resets of the IP devices accommodated in the RN is not decided by the maintenance personnel.
- As the Geo Redundant Node continues operating, more time may be needed until the moment from when the devices accommodated in the Primary Node PIRs can be used.

(2) Office Data Settings Pattern 2

RN changeover from survival mode to normal mode: Manual

Geographic Redundancy: Priority is given to the node in operating mode.

Merits:

- With a manual process the maintenance personnel can decide the timing of the change of the state of the RN accommodating the IP devices; therefore, the impact on the operations of the system can be minimized.
- Even if the Primary node recovers, as the Geo Redundant Node continues operating, the number of IP devices reset because of the changeover is reduced.

Note: It is the pattern where less IP devices are reset and MGC initialized.

Demerits:

- The state of the RN does not change until the maintenance personnel intervene, therefore the restart of the operations in normal mode may take more time.
- As the Geo Redundant Node continues operating, more time may be needed until the moment from when the devices accommodated in the Primary Node PIRs can be used.

(3) Office Data Settings Pattern 3

RN changeover from survival mode to normal mode: Automatic

Geographic Redundancy: Priority is given to the Primary Node.

Merits:

- With an automatic process the RN promptly recovers to normal mode without the intervention of the maintenance personnel.
- As the Primary node takes over automatically the operations of the Geo Redundant Node, the devices accommodated in the PIRs of the Primary Node can be promptly used.

Demerits:

- With an automatic process the timing of the resets of the IP devices accommodated in the RN is not decided by the maintenance personnel.
- As the Primary Node recovers and takes over automatically the operations of the Geo Redundant Node, the timing of the initialization of the systems is not decided by the maintenance personnel (when the CCN changes over, all the systems are initialized, when an RN changes over, only the RN is initialized).

Note: It is the pattern where more IP devices are reset and MGC initialized.

(4) Office Data Settings Pattern 4

RN changeover from survival mode to normal mode: Manual

Geographic Redundancy: Priority is given to the Primary Node.

Merits:

- With a manual process the maintenance personnel can decide the timing of the change of the state of the RN accommodating the IP devices and therefore the impact on the operations of the system can be minimized.
- As the Primary node takes over automatically the operations of the Geo Redundant Node, the devices accommodated in the PIRs of the Primary Node can be promptly used.

Demerits:

- The state of the RN does not change until the maintenance personnel intervene, therefore the restart of the operations in normal mode may take more time.
- As the changeover of operations happens the moment the Primary Node recovers, the normal mode relation between the CCN and the RNs changes more.

Note: It is the pattern where the RN stays longer in survival mode.

2. Downloading License File - CCN/RN

Access the License Management Server (LMS) to download a license file (svi.zip) and obtain Activation Code. A common license file for Geographic Redundancy is to be used among Primary Node, Geo Redundant Node and Survivable Remote Node (even when Appliance model and Prepackaged Server model coexist in a network).

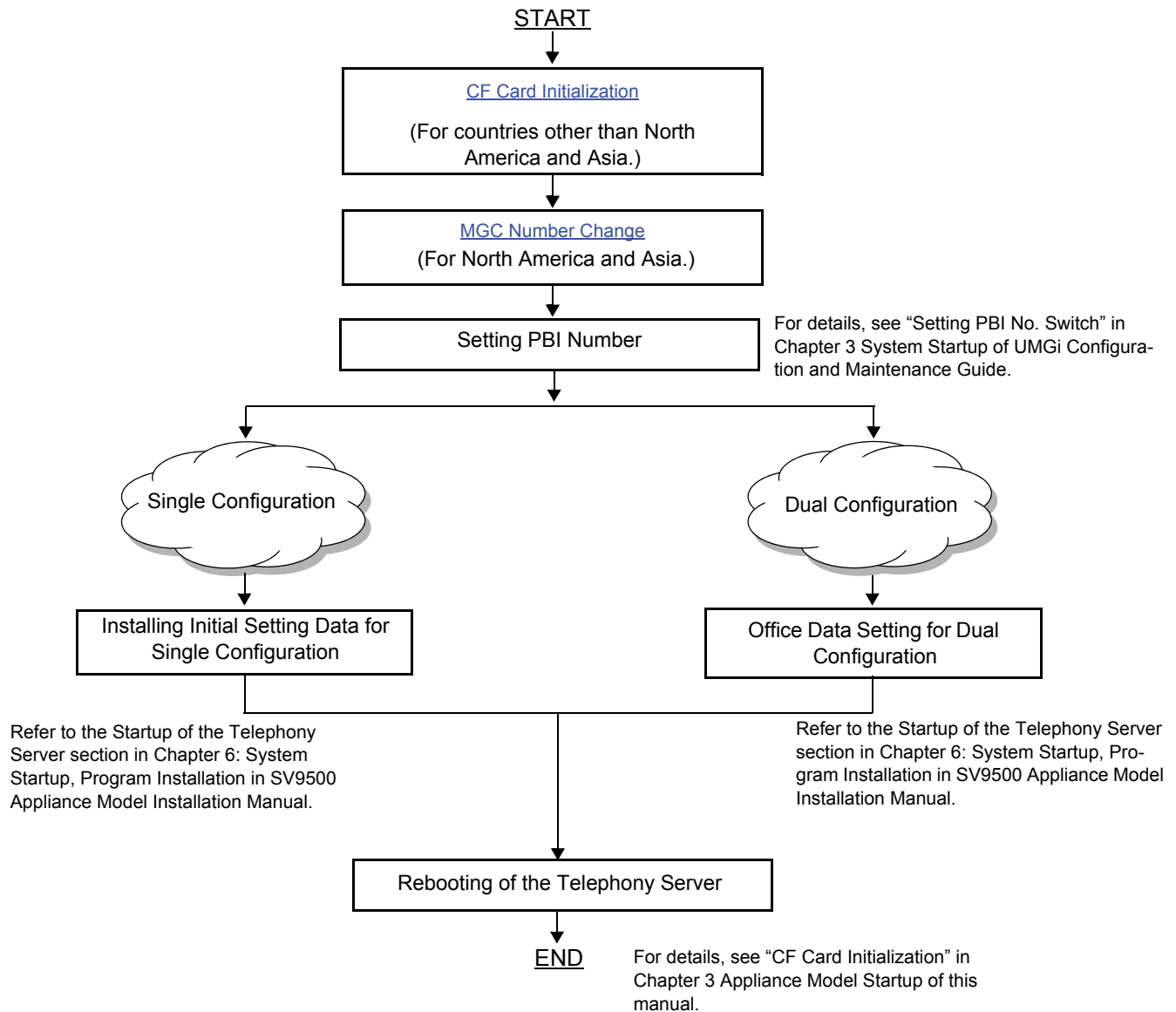
Note: Be sure to note the following conditions.

- A new Registration Activation code is necessary when the license is upgraded.
- The SVI file is downloaded in a zip format. Do not unzip the SVI file since this file is used as is.
- You can rename the saved SVI file, but do not change the extension of the file.
- A new Registration Activation code is necessary when the license is upgraded.

3. Initial Startup of Primary Node (CCN)

3.1 Primary Node (CCN) Startup Procedure - Appliance Model

Follow the flow chart below to startup Primary Node (CCN) - Appliance Model.



3.1.1 CF Card Initialization

Follow the steps below to initialize the CF Card, to set IP address (LAN1) and to set an MGC number (0-255 **Note 1**).

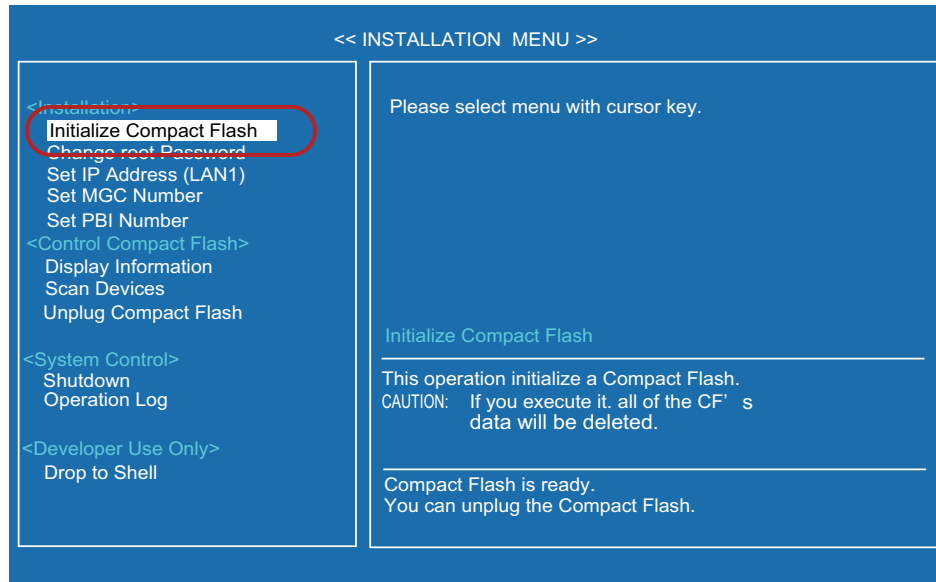
Note: For North America and Asia, the CF card is shipped pre-loaded. Only use this procedure when the CF card must be re-loaded. If this procedure is not required, skip this section and go to [3.1.2 MGC Number Change](#).

Note 1: Set a MGC number in a range of 1-255 for Primary Node, Geo Redundant Node and Survivable Remote Node. Do not set MGC number "0" for these nodes.

- 1**
 - (1) Turn on the maintenance PC to be used for CF card initialization.
 - (2) Set the install DVD "GENERIC SOFTWARE" in the disk drive.
 - (3) Change the maintenance PC setting to boot from DVD-ROM. For details, see a manual for the PC.
 - (4) Turn off the power of the maintenance PC.
- 2**
 - (1) Insert the CF card into PCMCIA slot.
 - (2) Turn on the power of the maintenance PC.
- 3** **INSTALL DVD BOOT OPTIONS MENU** screen appears. Select **2. Auto (Keyboard: US)** and then press the Enter key.

4

- (1) **Installation Menu** screen appears about five minutes later. Select **Initialize Compact Flash** under <Installation> by using the arrow keys on the keyboard and then press the Enter key.
- (2) A confirmation message appears. Select **OK** and press the Enter key.



Note: When your PC is slow in CF card writing speed, an error may occur. If an error occurs during the installation, the following action is required.

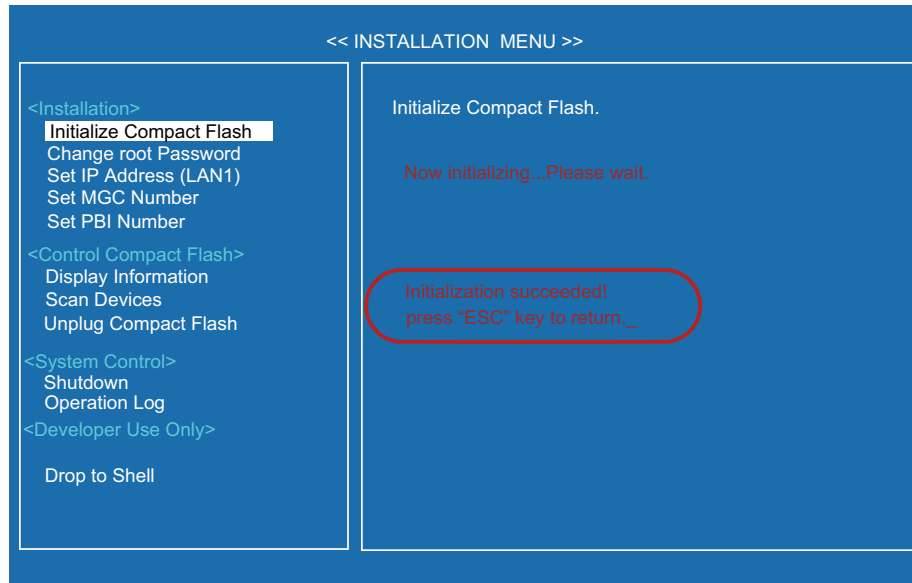
- When the installation process is aborted, take DVD-ROM out of the tray manually.
- When the PC failed to recognize the CF card, the message “Compact Flash is NOT found...” is displayed. In that case, perform “Scan Devices” under <Control Compact Flash>. If the problem still remains unsolved, you need to use another PC to perform the installation.

Note:

- The time to complete the initialization (OS and program Installation) varies depending on the PC used.
- When the CF card is not detected by the PC, the installation cannot be executed. In that case, select **Scan Devices** under <Control Compact Flash> to have the card detected, then execute the initialization again by selecting **Initialize Compact Flash**.

5

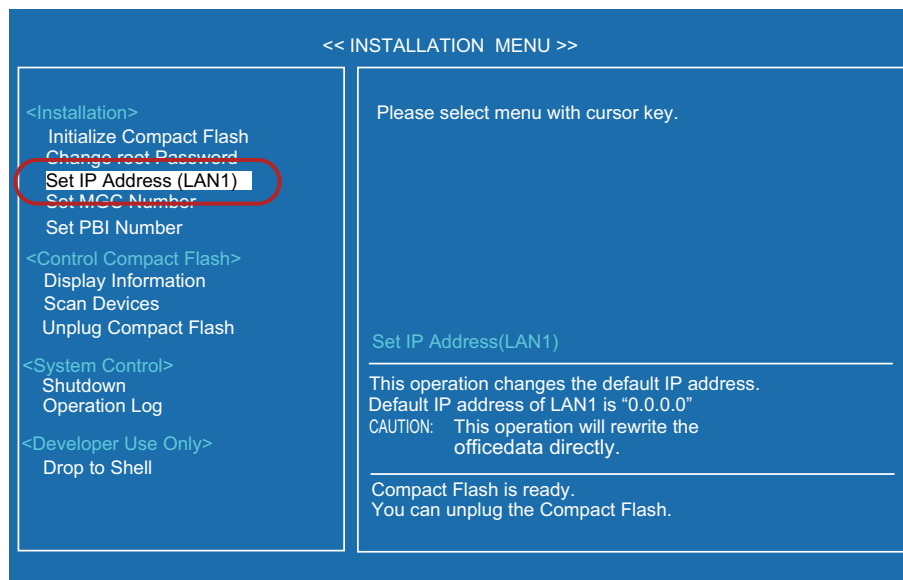
When the initialization is complete, the message “Initialization succeeded! press ESC key to return” is displayed. It takes about 20 minutes to complete the initialization.



Note: The time to complete the initialization (OS and program Installation) varies depending on the PC used.

6

Select **Set IP Address (LAN1)** under <Installation> by using the arrow keys on the keyboard and then press the Enter key.



7

- (1) Regarding a target node, select “Single” for the single configuration or “Dual” for the dual configuration and then press the Enter key.
- (2) Set the values corresponding to your actual network environment for the following items.

Setting Items for Single Configuration

Items	Setting Values	Example	
		CCN	RN
IP Address [ACT]	IP address of LAN1	10.1.101.1	10.1.101.30
Subnet Mask	Subnet mask	255.255.255.0	255.255.255.0
Default Gateway	Default gateway	10.1.101.254	10.1.101.254

Setting Items for Dual Configuration

Items	Setting Values	Example	
		CCN	RN
IP Address [ACT]	IP address (ACT) of LAN1	10.1.101.1	10.1.101.30
IP Address [CPU-0]	IP address (System #0) of LAN1	10.1.101.2	10.1.101.31
IP Address [CPU-1]	IP address (System #1) of LAN1	10.1.101.3	10.1.101.32
Subnet Mask	Subnet mask	255.255.255.0	255.255.255.0
Default Gateway	Default gateway	10.1.101.254	10.1.101.254

- (3) After the setting is complete, select **OK** and then press the Enter key.
- (4) The message “WARNING! this operation will change the setting in Compact Flash” is displayed. Select **OK** and press the Enter key.
- (5) The message “Succeed. press ESC key to return” is displayed. Press the ESC key.

<< INSTALLATION MENU >>

<Installation>
Initialize Compact Flash
Change root Password
Set IP Address (LAN1)
Set MGC Number
Set PBI Number

<Control Compact Flash>
Display Information
Scan Devices
Unplug Compact Flash

<System Control>
Shutdown
Operation Log

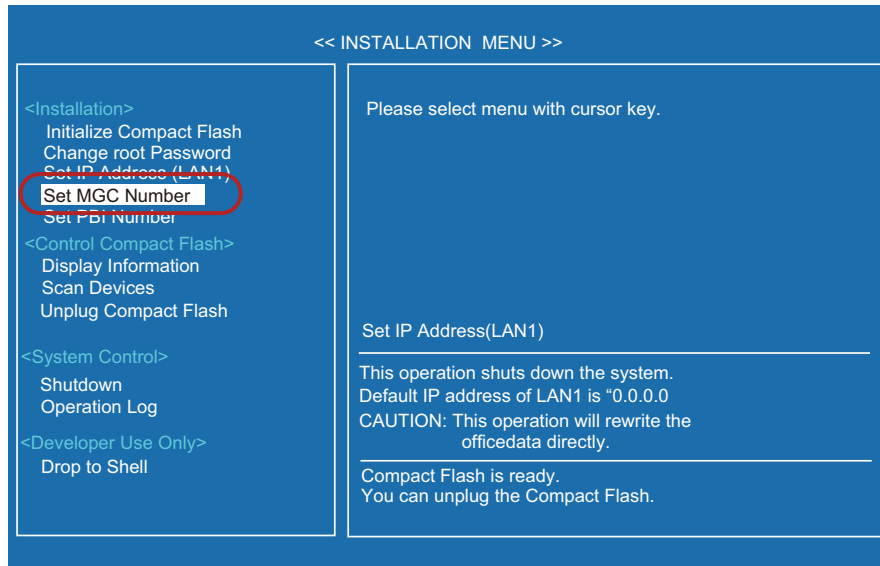
<Developer Use Only>
Drop to Shell

Please select the CPU redundancy.
(Do NOT set it for SR-MAC-REV (S1)) (1)
[Single] [Dual]

(2)
IP Address[ACT] :
IP Address[CPU-0] :
IP Address[CPU-1] :
Subnet Mask :
Default Gateway :

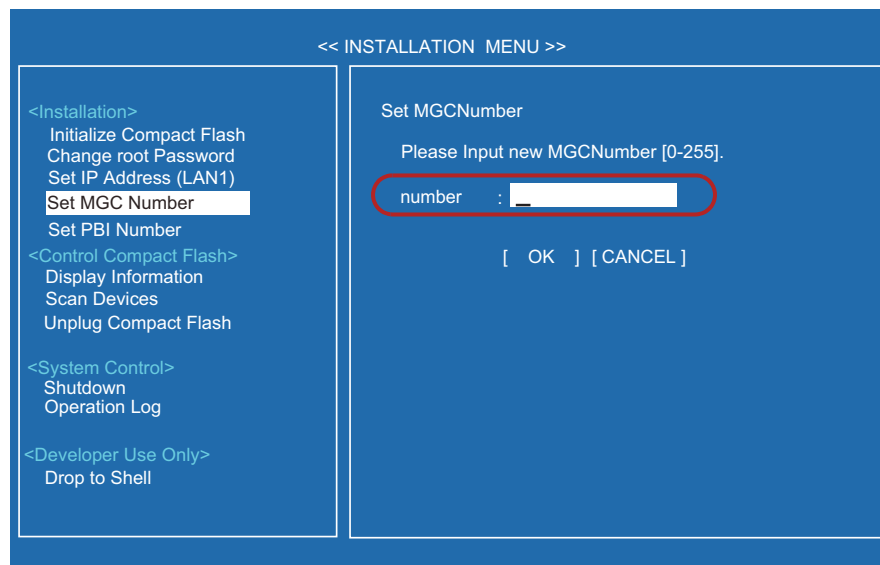
8

- (1) Select **Set MGC Number** under <Installation> by using the arrow keys on the keyboard and then press the **Enter** key.



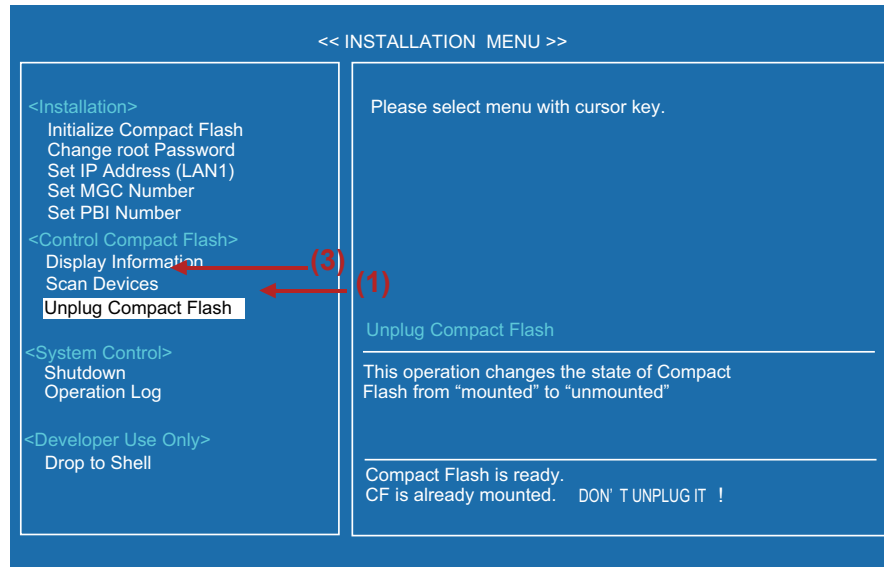
9

- (1) Type an MGC number [0-255] in the number box.
- (2) After the setting is complete, select **OK** and then press the Enter key.
- (3) The message “WARNING! this operation will change the setting in Compact Flash” is displayed. Select **OK** and press the Enter key.
- (4) The message “Succeed. press ESC key to return” is displayed. Press the ESC key.



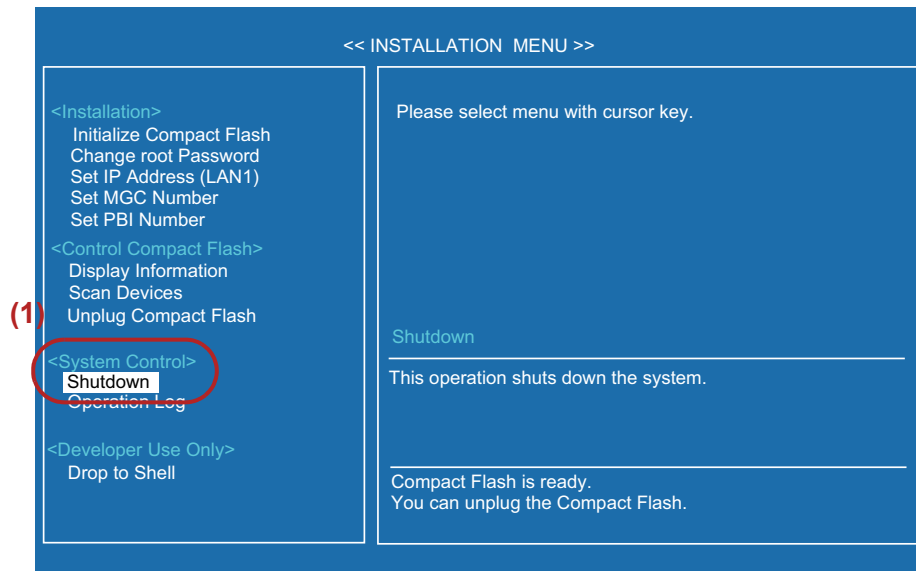
10

- (1) Select **Unplug Compact Flash** under <Control Compact Flash> by using the arrow keys on the key-board and then press the Enter key.
- (2) Take the inserted CF card out of the slot and then insert the second CF card into the slot.
- (3) Select **Scan Devices** under <Control Compact Flash> to have the card detected.
- (4) Repeat the procedure Step 4 to Step 9.



11

- (1) Select **Shutdown** under <System Control> by using the arrow keys on the keyboard and then press the Enter key.
- (2) A confirmation message appears. Select **OK** and then press the Enter key.
- (3) The DVD tray is automatically ejected and the PC is turned off.
- (4) Take the CF card out of the slot.



12

When you have changed the PC setting to boot from DVD-ROM, restore the setting.

3.1.2 MGC Number Change

Note: This operation is required for North America and Asia. If not, skip this section.

This section explains how to change PBI and MGC numbers of Primary Node/Geo Redundant Node/Survivable Remote Node through ssh.

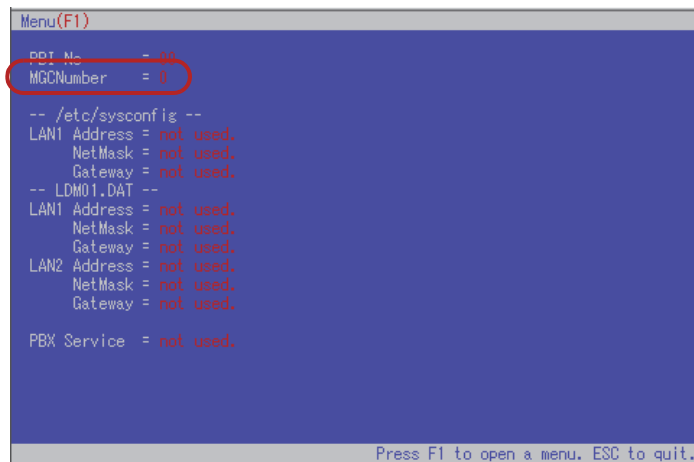
Before you begin, you need to prepare the application handling ssh. After preparing it, follow the steps below to assign the appropriate PBI and MGC numbers to Primary Node/Geo Redundant Node/Survivable Remote Node.

1

- (1) Activate the ssh application and connect with the target MGC.
- (2) Log in as “setpbimgcno” and type the password “S7#qzgrS0”.

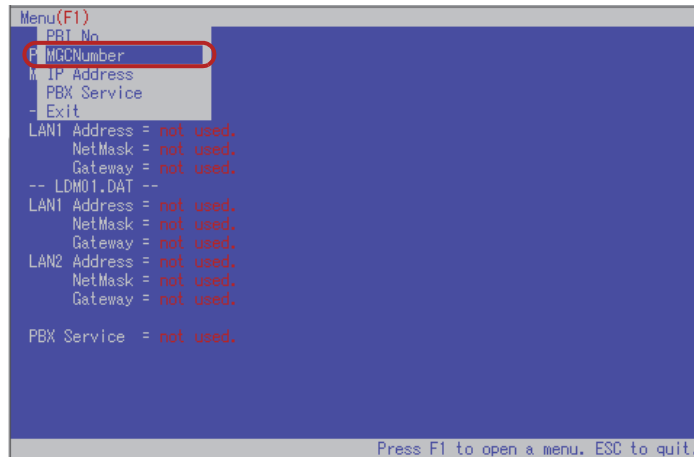
```
[setpbimgcno@nextsv_ttyp1 ~]$
```

MGCNumber on the screen indicate MGC number.

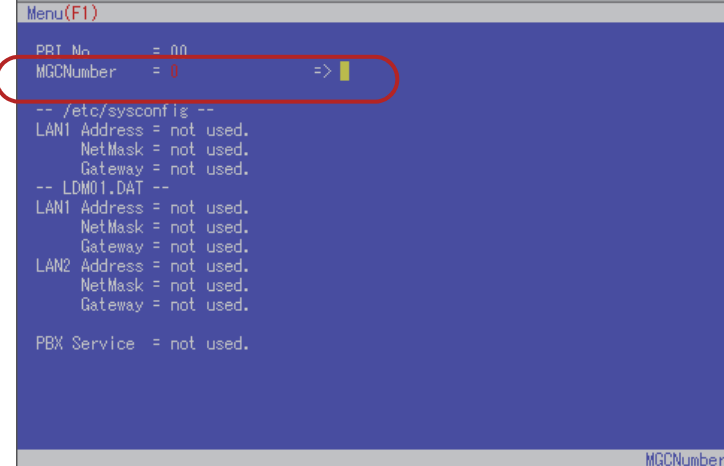


```
Menu(F1)
PBI No      = 00
MGCNumber   = 0
-- /etc/sysconfig --
LAN1 Address = not used.
NetMask     = not used.
Gateway     = not used.
-- LDM01.DAT --
LAN1 Address = not used.
NetMask     = not used.
Gateway     = not used.
LAN2 Address = not used.
NetMask     = not used.
Gateway     = not used.
PBX Service  = not used.
Press F1 to open a menu. ESC to quit.
```

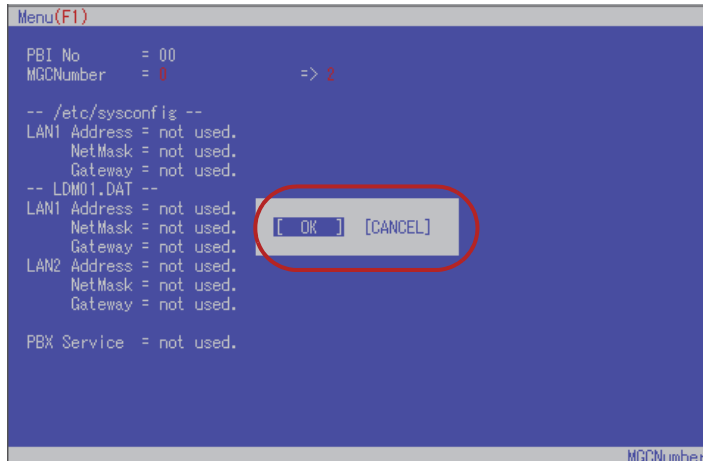
- 2 (1) Press F1 or M key to display items under **Menu**.
- (2) Select **MGCNumber** from the menu.



- 3 Enter the appropriate MGC number.



- 4 Select **OK** to save the value and press the Enter key.



5

Make sure the value in **MGCNumber** is changed, and then press the Enter key.

```
Menu(F1)
PBI No      = 00
MGCNumber   = 2
-- /etc/sysconfig --
LAN1 Address = not used,
NetMask     = not used,
Gateway     = not used,
-- LDM01.DAT --
LAN1 Address = not used,
NetMask     = not used,
Gateway     = not used,
LAN2 Address = not used,
NetMask     = not used,
Gateway     = not used,
PBX Service  = not used,

Press F1 to open a menu, ESC to quit.
```

6

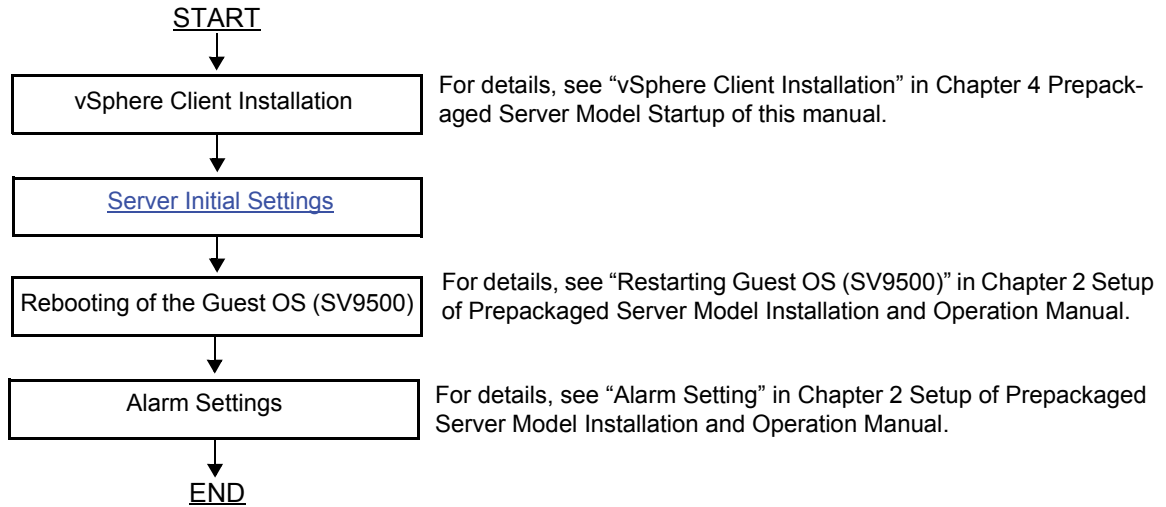
- (1) Press F1 or M key to display items under **Menu**.
- (2) Select **Exit** from the menu.

```
Menu(F1)
PBI No
P MGCNumber
M IP Address
PBX Service
- Exit
LAN1 Address = not used,
NetMask     = not used,
Gateway     = not used,
-- LDM01.DAT --
LAN1 Address = not used,
NetMask     = not used,
Gateway     = not used,
LAN2 Address = not used,
NetMask     = not used,
Gateway     = not used,
PBX Service  = not used,

Press F1 to open a menu, ESC to quit.
```

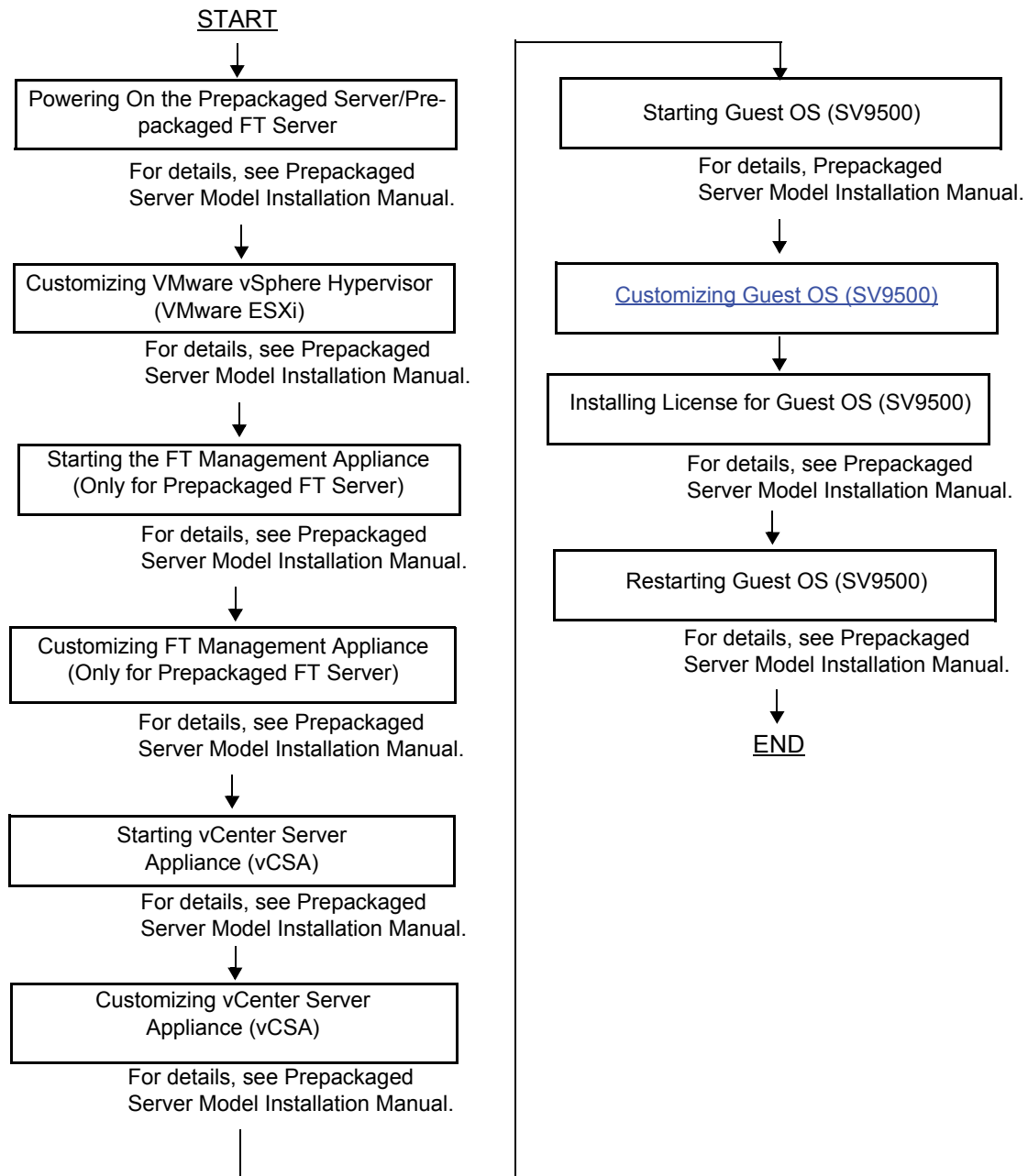
3.2 Primary Node (CCN) Startup Procedure - Prepackaged Server Model

Follow the flow chart below to startup Primary Node (CCN) - Prepackaged Server Model.



3.2.1 Server Initial Settings

Follow the steps below to set the initial data for Host/Guest OS.

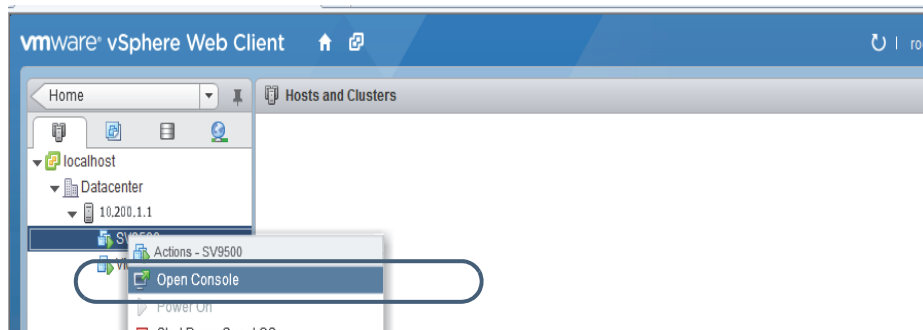


3.2.1.1 Customizing Guest OS (SV9500)

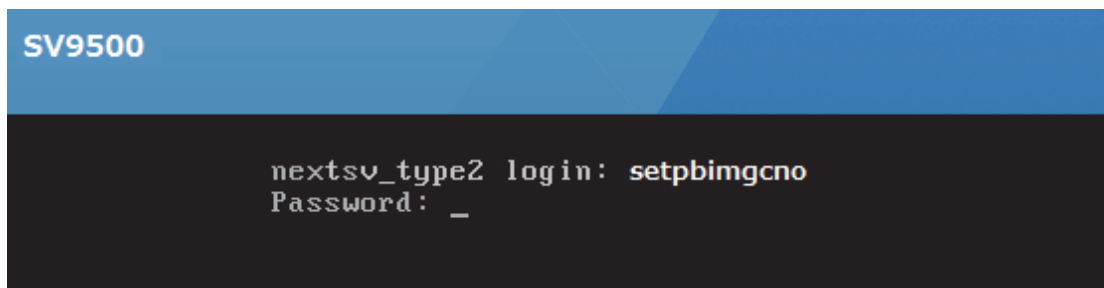
Configure network settings for SV9500 (guest OS), such as the password, IP address, PBI number and MGC number.

1 From the web browser of the maintenance PC, log in as root user to vCSA (<https://xxx.xxx.xxx:9443/>). (xxx.xxx.xxx.xxx is the vCSA IP address).

2 Open the console of the SV9500 virtual machine.
(1) Select **Hosts and Clusters (Inventories)** from **Home** tab.
(2) Right-click on SV9500 and select **Open Console**.



3 Log in to SV9500 from the login prompt as **setpbimgcno**.



Enter **S7#qzgrS0** for the password.

4

Modify the IP address of LAN 1 and LAN 2 respectively. Press the F1 key and select **IP Address**.

```
Menu (F1)
PBI No
P MGCNumber
1 IP Address
PBX Service
- Exit
LAN1 Address = 10.1.101.30
NetMask = 255.255.0.0
Gateway = 10.1.101.254
-- LDM01.DAT --
LAN1 Address = 10.1.101.30
NetMask = 255.255.0.0
Gateway = 10.1.101.254
LAN2 Address = 10.1.101.33
NetMask = 255.255.0.0
Gateway = 10.1.101.254
PBX Service = on
Press F1 to open a menu. ESC to quit.
```

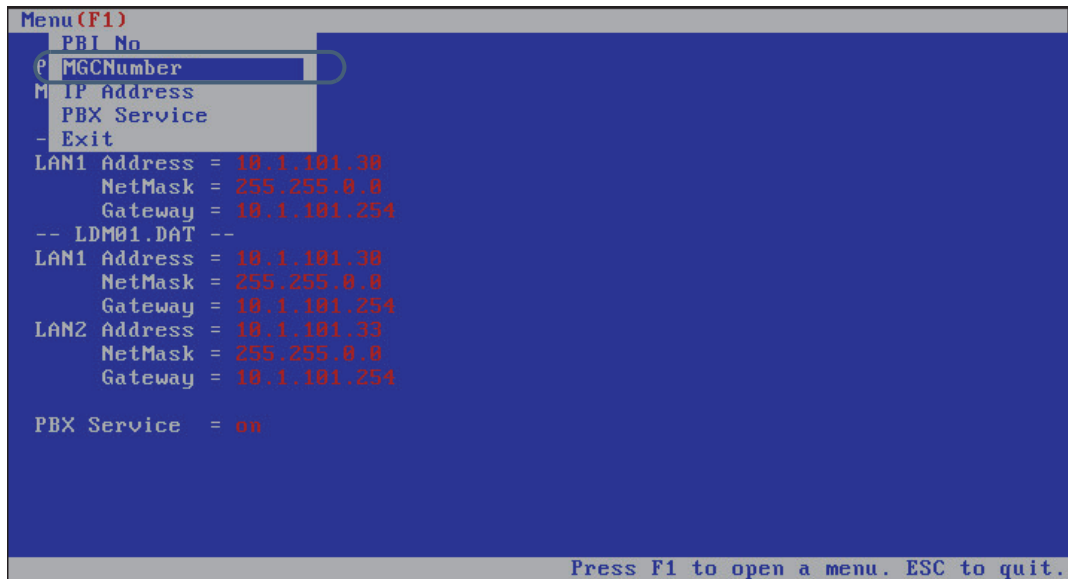
5

Modify the IP address of LAN 1 and LAN 2. After entering the **Gateway** data, press the Enter key.

```
Menu (F1)
PBI No = 00
MGCNumber = 0
-- /etc/sysconfig --
LAN1 Address = 10.1.101.30 => -
NetMask = 255.255.0.0 =>
Gateway = 10.1.101.254 =>
-- LDM01.DAT --
LAN1 Address = 10.1.101.30 =>
NetMask = 255.255.0.0 =>
Gateway = 10.1.101.254 =>
LAN2 Address = 10.1.101.33 =>
NetMask = 255.255.0.0 =>
Gateway = 10.1.101.254 =>
PBX Service = on
```

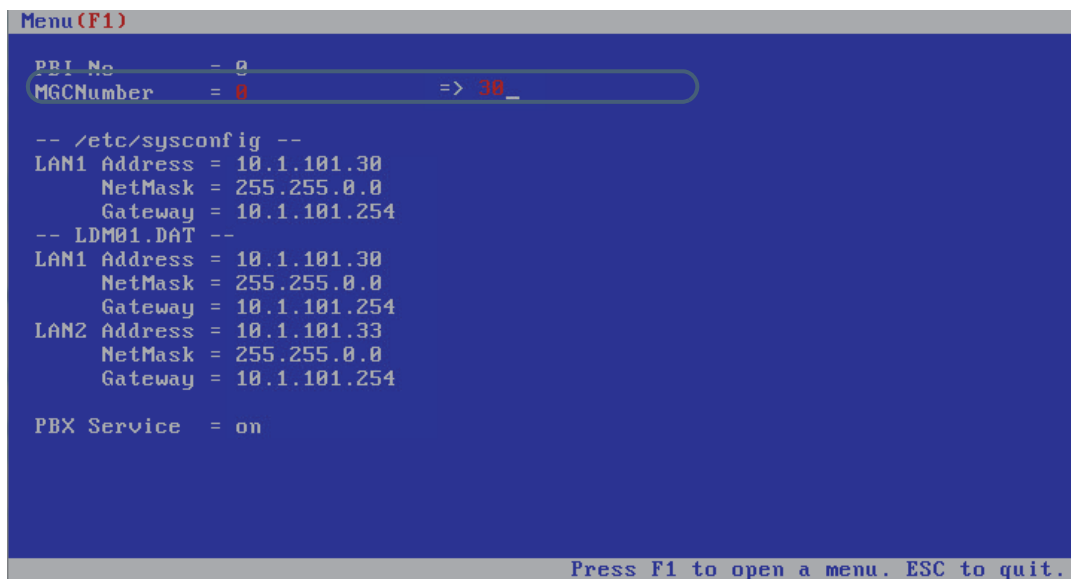
The monitor returns back to the previous screen.

- 6 Modify the MGC number. Press the F1 key and select **MGCNumber**.



```
Menu (F1)
PBI No
P MGCNumber
M IP Address
PBX Service
- Exit
LAN1 Address = 10.1.101.30
NetMask = 255.255.0.0
Gateway = 10.1.101.254
-- LDM01.DAT --
LAN1 Address = 10.1.101.30
NetMask = 255.255.0.0
Gateway = 10.1.101.254
LAN2 Address = 10.1.101.33
NetMask = 255.255.0.0
Gateway = 10.1.101.254
PBX Service = on
Press F1 to open a menu. ESC to quit.
```

- 7 After entering the MGC number, press Enter key.



```
Menu (F1)
PBI No - 0
MGCNumber = 0 => 30_
-- /etc/sysconfig --
LAN1 Address = 10.1.101.30
NetMask = 255.255.0.0
Gateway = 10.1.101.254
-- LDM01.DAT --
LAN1 Address = 10.1.101.30
NetMask = 255.255.0.0
Gateway = 10.1.101.254
LAN2 Address = 10.1.101.33
NetMask = 255.255.0.0
Gateway = 10.1.101.254
PBX Service = on
Press F1 to open a menu. ESC to quit.
```

The monitor returns back to the previous screen.

8

Modify PBI Number. Press the F1 key and select **PBI No.**

```
Menu(F1)
PBI No
P MGCNumber
M IP Address
PBX Service
- Exit
LAN1 Address = 10.1.101.30
NetMask = 255.255.0.0
Gateway = 10.1.101.254
-- LDM01.DAT --
LAN1 Address = 10.1.101.30
NetMask = 255.255.0.0
Gateway = 10.1.101.254
LAN2 Address = 10.1.101.33
NetMask = 255.255.0.0
Gateway = 10.1.101.254
PBX Service = on

Press F1 to open a menu. ESC to quit.
```

9 After entering PBI Number, press Enter key.

```
Menu(F1)
PBI No      = 00      => 30_
MGCNumber   = 30

-- /etc/sysconfig --
LAN1 Address = 10.1.101.30
NetMask      = 255.255.0.0
Gateway      = 10.1.101.254
-- LDM01.DAT --
LAN1 Address = 10.1.101.30
NetMask      = 255.255.0.0
Gateway      = 10.1.101.254
LAN2 Address = 10.1.101.33
NetMask      = 255.255.0.0
Gateway      = 10.1.101.254

PBX Service  = on

Press F1 to open a menu. ESC to quit.
```

- PBI No. (CCN Side)

PBI No.	Processor
0x30	CCN

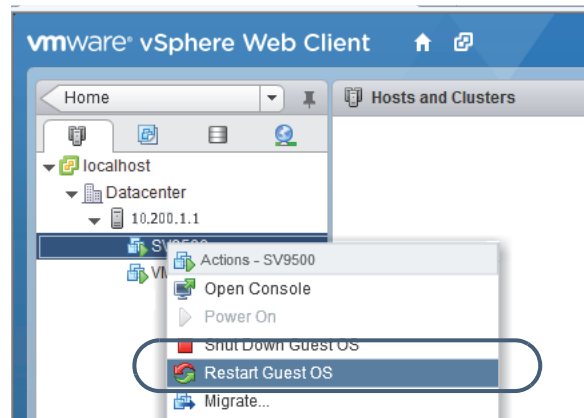
- PBI No. (RN Side)

PBI No.	Processor
0x40	RN (LP08)
0x50	RN (LP16)
0x60	RN (LP24)

The monitor returns back to the previous screen.

10 Close the **Console** screen. Press the F1 key and select Exit.

- 11** Restart SV9500 virtual machine.
- (1) Select the SV9500 virtual machine.
 - (2) Right-click and Select **Restart GuestOS**.



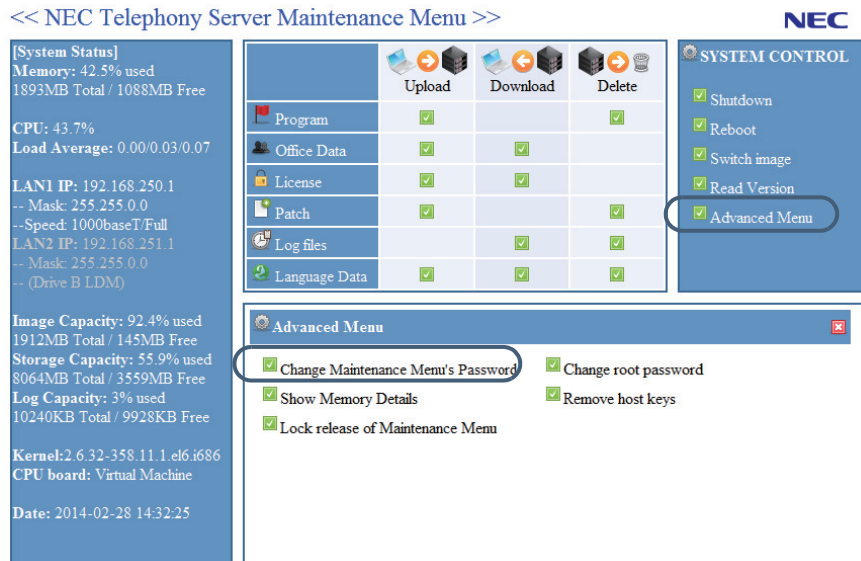
- 12** Change the IP address of the maintenance PC to connect to the network of the LAN1 IP address from Step 6.
- 13** Use the PING command from the maintenance PC and verify there is a response from the IP address of LAN1.
- 14** Log in to the Telephony Server Maintenance Menu from the maintenance PC web browser.
- (1) Launch the web browser from the maintenance PC, connect to Telephony Server Maintenance Menu (<http://xxx.xxx.xxx.xxx:9801/>). (xxx.xxx.xxx.xxx is the LAN1 IP address (ACT) of SV9500.)
 - (2) Enter **admin** as user name.
 - (3) Enter **admin** as password and press the **OK** button.

Note:

- Microsoft Internet Explorer® 7.0 or higher is required to access Telephony Server Maintenance Menu.
- After logging in to Telephony Server Maintenance Menu, do not use Back button on browser.

15

- (1) Select **Advanced Menu** from **SYSTEM CONTROL**.
- (2) Click **Change Maintenance Menu's Password**.



16

- (1) Enter admin on **Current username**.
- (2) Enter admin on **Current password**.
- (3) Enter a new user name on **New username**.
- (4) Enter a new password on **New password**.
- (5) Enter again the new password on **Confirm new password**.
- (6) Click the **Change** button.

Change Maintenance Menu's Password

Current username:

Current password:

New username:

New password:

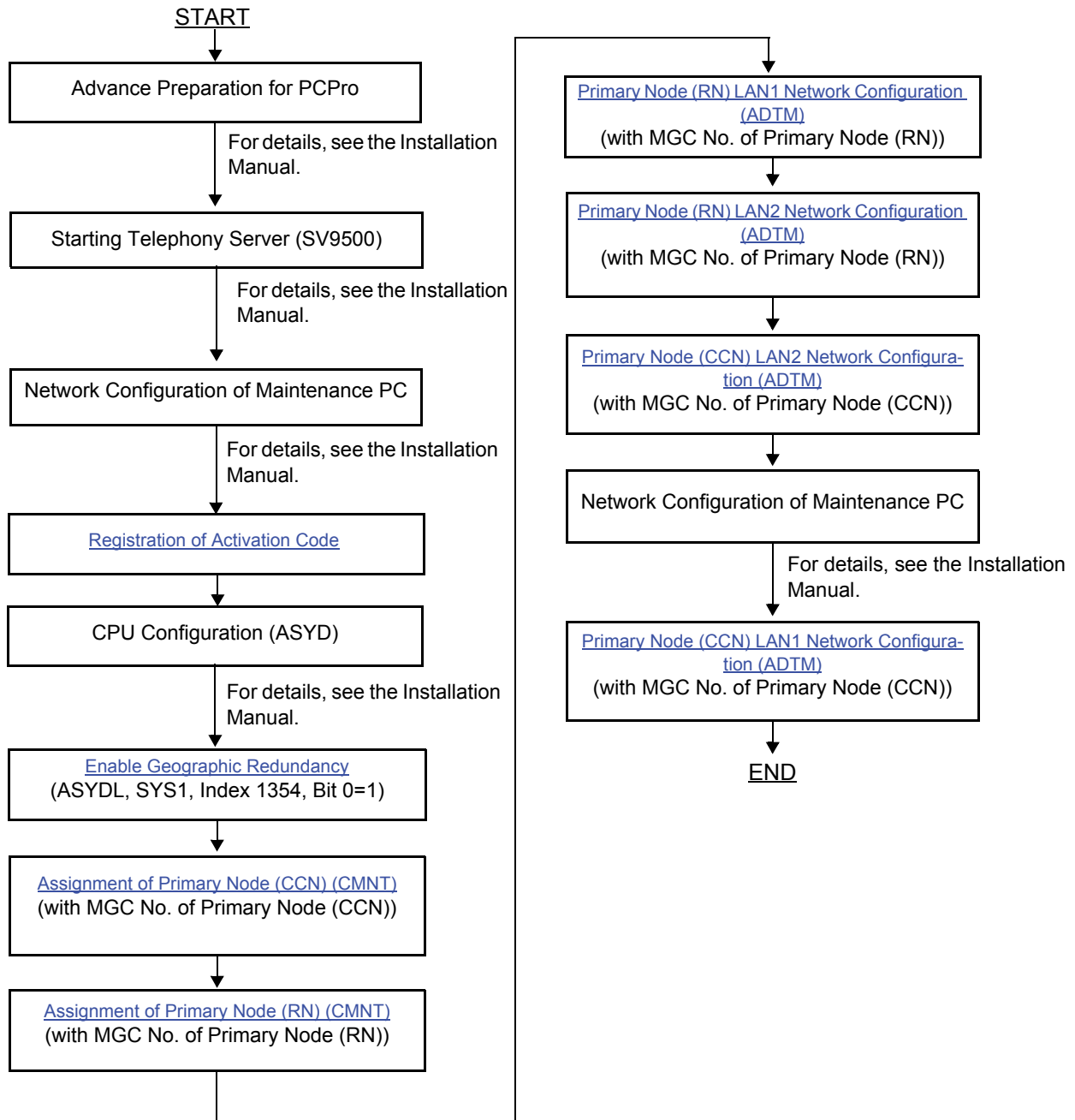
Confirm new password:

Change

Note: Use more than 8 characters for the password. Create a password that is difficult to guess and periodically change it.

4. Office Data Settings (1) - Primary Node (CCN)

Follow the steps below to set the office data for Primary Node (CCN).



4.1 Registration of Activation Code

Register an activation code you have received from the LMS server.

For procedure to register an activation code, refer to the Registration of Activation Code section (for single configuration and dual configuration):

- Chapter 6: System Startup in UNIVERGE SV9500 Appliance Model Installation Manual.
- Chapter 2: Setup in UNIVERGE SV9500 Prepackaged Server Model Installation and Operation Manual.

Note: Note the following conditions:

- Activation Code Certificate is required only for CCN. It is not required for RNs.
- In the case of Prepackaged Server Model CCN, register the Activation Code after you set the IP address of Prepackaged Server Model CCN LAN1 active side. If you change the IP address of LAN1 active side after your Certify Status is “Certify OK”, it will change to “Certify NG (HKC)” (only for IPv4). In that case, see the appendix of UNIVERGE SV9500 Prepackaged Server Model Installation and Operation Manual.

4.2 Enable Geographic Redundancy

Assign the system data below to enable Geographic Redundancy.

1

Connect to PCPro using the connection account (e.g. LAN2_Default) assigned to the default IP address of the active (ACT) interface for LAN2 (172.16.253.0/16). The user ID and the password shown below need to be entered.

User ID: maintenance

Password: ty8*#02F

Note: If the user ID and the password are not entered, login is unavailable.

Point: For procedure to connect to PCPro, refer to “Communication Link with the Telephony Server” in Chapter 3. Setting Up PCPro in PCPro Setup Manual.

2

Execute the **ASYDL** command and set the following data.
ASYDL, SYS1, Index 1354, Bit 0=1 (Geographic Redundancy is enabled)

3

Exit the **ASYDL** command.

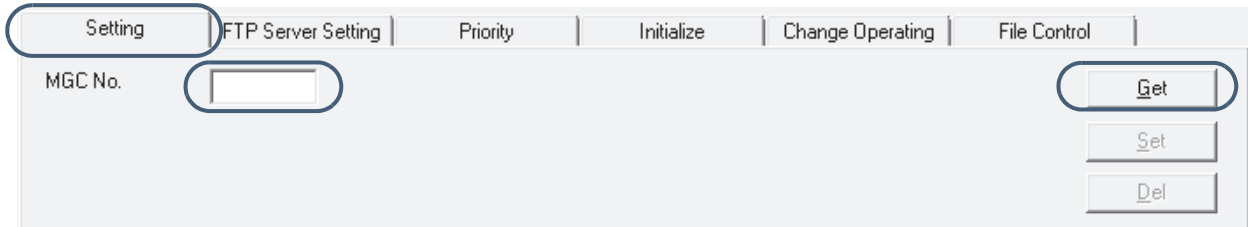
Note: Do not perform the system initialization when the CMNT data assignment has not been completed yet. If the system initialization is performed without completing the CMNT data assignment, CMNT command will be locked. If it happens, disable the Geographic Redundancy (ASYDL, SYS1, Index 1354, Bit 0=0), perform system initialization, and then follow the procedure again from [Step 1](#) under the condition that the Geographic Redundancy is disabled.

Note: When ASYDL, SYS1, Index 1354, Bit 0 is changed in the UMGi system, perform the PCPro login operation again.

4.3 Assignment of Primary Node (CCN) (CMNT)

Assign an MGC number of Primary Node (CCN) through the **CMNT** command.

- 1 Execute the **CMNT** command and click the **Setting** tab. Type an MGC number (1-255 **Note 1**) of Primary Node (CCN) in the **MGC No.** box and then click the **Get** button.



The screenshot shows the CMNT command interface with the **Setting** tab selected. The **MGC No.** field is empty, and the **Get** button is highlighted. Other tabs include **FTP Server Setting**, **Priority**, **Initialize**, **Change Operating**, and **File Control**. Below the **Get** button are **Set** and **Del** buttons.

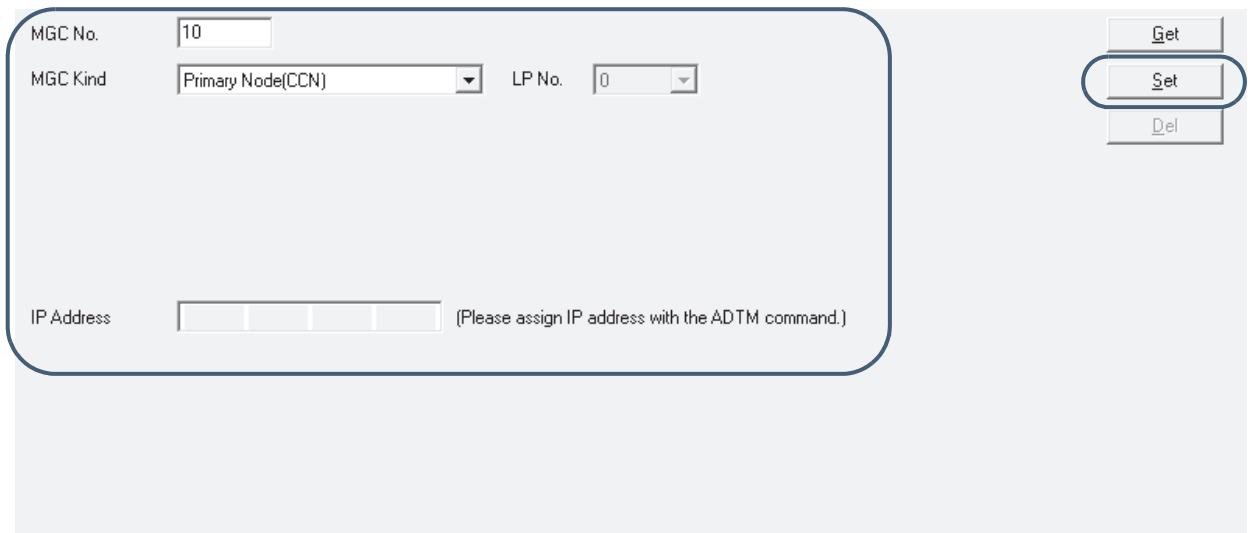
Note1: MGC number “0” is available only for SR-MGC used for [S-141] Survivable Remote MGC.

- 2 Assign the following parameters. After all the required parameters are set, click the **Set** button. For more details on each parameter of the **CMNT** command, refer to the Operations and Maintenance Manual.

MGC Kind: Choose “Primary Node(CCN).”

LP No.: Displays LP Number of the logged-in destination node.

IP Address: Blank (IP address is to be assigned through the ADTM command in the later step.)



The screenshot shows the CMNT command interface with the **Setting** tab selected. The **MGC No.** field contains the value 10. The **MGC Kind** dropdown menu is set to **Primary Node(CCN)**. The **LP No.** dropdown menu is set to 0. The **IP Address** field is blank, with a note: (Please assign IP address with the ADTM command.) The **Set** button is highlighted. Other tabs include **FTP Server Setting**, **Priority**, **Initialize**, **Change Operating**, and **File Control**. Below the **Set** button are **Get** and **Del** buttons.

4.4 Assignment of Primary Node (RN) (CMNT)

Assign an MGC number of Primary Node (RN) through the **CMNT** command.

- 1 Execute the **CMNT** command and click the **Setting** tab. Type an MGC number (1-255 **Note 1**) of Primary Node (RN) in the **MGC No.** box and then click the **Get** button.

The screenshot shows the CMNT command interface with the 'Setting' tab selected. The 'MGC No.' field is empty, and the 'Get' button is highlighted. Other tabs include 'FTP Server Setting', 'Priority', 'Initialize', 'Change Operating', and 'File Control'. Below the 'MGC No.' field are 'Set' and 'Del' buttons.

Note1: MGC number "0" is available only for SR-MGC used for [S-141] Survivable Remote MGC.

- 2 Assign the following parameters. After all the required parameters are set, click the **Set** button. For more details on each parameter of the **CMNT** command, refer to the Operations and Maintenance Manual.

MGC Kind: Choose "Primary Node(RN)."

LP No.: Set LP Number of the target Primary Node (RN).

IP Address: Blank (IP address is to be assigned through the ADTM command in the later step.)

The screenshot shows the CMNT command interface with the 'Setting' tab selected. The 'MGC No.' field contains '30', 'MGC Kind' is set to 'Primary Node(RN)', 'LP No.' is set to '8', and 'IP Address' is blank. The 'Set' button is highlighted. A note next to the IP Address field states: '(Please assign IP address with the ADTM command.)'. Other tabs include 'FTP Server Setting', 'Priority', 'Initialize', 'Change Operating', and 'File Control'. Below the 'MGC No.' field are 'Set' and 'Del' buttons.

4.5 Primary Node (RN) LAN1 Network Configuration (ADTM)

Follow the steps below to set IP addresses of LAN1 for Primary Node (RN) through the ADTM command.

- 1 Execute the ADTM command. Set the following parameters and then click the Get button.
MGC No.: Type an MGC number of Primary Node (RN).
Select LAN Interface: Choose LAN1.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. :	10	Self MGC Kind : Primary Node(CCN)	Self LP No. : 0
Operating MGC No. :	10		
MGC No. of Primary Node :	10		

MGC No.

30

Select LAN Interface

☒ LAN1 ☐ LAN2

Get Exit

2

- (1) Click the **IP Address** tab.
- (2) Set the following corresponding to your actual network environment.
 - IP Address (ACT)
 - IP Address (System-0) *Only for a dual CPU configuration system
 - IP Address (System-1) *Only for a dual CPU configuration system
 - Subnet Mask
 - Place a check mark to the Add IP Address (ACT) check box.
*Only for SIP Handler Controlled SIP terminals
 - IP Address 2 (ACT) *Only for SIP Handler Controlled SIP terminals
- (3) Click the **Apply** button.

IP Address (ACT) 10 . 1 . 101 . 30

☒ Add IP Address (ACT)

IP Address2 (ACT) 10 . 1 . 101 . 51

IP Address (System-0) 10 . 1 . 101 . 31

IP Address (System-1) 10 . 1 . 101 . 32

Subnet Mask 255 . 255 . 255 . 0

* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System.

Apply

Note: The figure shows when the Primary Node (RN) is an Appliance Model dual configuration system as an example. When the Primary Node (RN) is a single configuration system, the following parameters are not displayed.

- IP address (System-0)
- IP address (System-1)

3

The confirmation message is displayed. Click the **Yes** button to apply the change.

4

- (1) Click the **Routing** tab.
- (2) Select the **Use Default Gateway** check box.
- (3) Set the values corresponding to your actual network environment for each necessary parameter.
- (4) Click **Apply** button.

☒ Use Default Gateway

IP Address (Default Gateway) 10 . 1 . 101 . 254

Static Routing

Apply

5

- (1) Click the **NIC** tab.
- (2) Set the values corresponding to your actual network environment for each necessary parameter.
- (3) Click **Apply** button.

Speed

☐ Fixed 10Mbps

☐ Fixed 100Mbps

☒ Auto Negotiation(1Gbps Only)

☐ Auto Negotiation(10Mbps-1Gbps)

Duplex Mode

☐ Half Duplex

☒ Full Duplex

ARP Broadcasting Period 30sec

No Send

30sec

60sec

120sec

Apply

Note: For an Appliance Model (in a dual configuration), note the following:

- Be sure to disable spanning tree protocol (STP) on the data switch used for SV9500 LAN port. If STP is enabled, the length of disconnection time for packet communications may get long after CPU changeover.
- It is recommended to set the ARP Broadcasting Period parameter to 30 sec. If CPU change-over occurs during a broadcast storm, there is a case where an IP address is not reflected due to Gratuitous ARP packet loss after the system changeover.

Note: Set to **Auto Negotiation (10Mbps-1Gbps)** for a Prepackaged Server Model.

4.6 Primary Node (RN) LAN2 Network Configuration (ADTM)

Follow the steps below to assign the network, routing and NIC card data for an Primary Node (RN) LAN2 connector.

1

Execute the ADTM command. Set the following parameters and then click the **Get** button.

MGC No.: Type an MGC number of Primary Node (RN).

Select LAN Interface: Choose **LAN2**.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. :	10	Self MGC Kind : Primary Node(CCN)	Self LP No. : 0
Operating MGC No. :	10		
MGC No. of Primary Node :	10		

MGC No.

30

Select LAN Interface

☐ LAN1 ☒ LAN2

Get Exit

2

- (1) Click the **IP Address** tab.
- (2) Set the following corresponding to your actual network environment.
 - IP Address (ACT)
 - IP Address (System-0) *Only for a dual CPU configuration system
 - IP Address (System-1) *Only for a dual CPU configuration system
 - Subnet Mask
- (3) Click the **Apply** button.

IP Address (ACT) 10 . 1 . 101 . 33

IP Address (System-0) 10 . 1 . 101 . 34

IP Address (System-1) 10 . 1 . 101 . 35

Subnet Mask 255 . 255 . 255 . 0

* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System.

Apply

Note: The figure shows when the Primary Node (RN) is an Appliance Model dual configuration system as an example. When the Primary Node (RN) is a single configuration system, the following parameters are not displayed.

- IP address (System-0)
- IP address (System-1)

3

The confirmation message is displayed. Click the **Yes** button to apply the change.

4

- (1) Click the **Routing** tab.
- (2) Select the **Use Default Gateway** check box.
- (3) Set the values corresponding to your actual network environment for each necessary parameter.
- (4) Click **Apply** button.

The screenshot shows the 'Routing' tab in the 'Office Data Settings (1) - Primary Node (CCN)' window. A blue rounded rectangle highlights the 'Use Default Gateway' checkbox, which is checked. Below it, the 'IP Address (Default Gateway)' field is set to '10 . 1 . 101 . 254'. A 'Static Routing' button is visible below the IP address field. At the bottom right of the window, an 'Apply' button is highlighted with a blue rounded rectangle.

5

- (1) Click the **NIC** tab.
- (2) Set the values corresponding to your actual network environment for each necessary parameter.
- (3) Click **Apply** button.

The screenshot shows the 'NIC' tab in the 'Office Data Settings (1) - Primary Node (CCN)' window. A blue rounded rectangle highlights the 'Speed' and 'Duplex Mode' sections. In the 'Speed' section, the 'Auto Negotiation(1Gbps Only)' radio button is selected. In the 'Duplex Mode' section, the 'Full Duplex' radio button is selected. Below these, the 'ARP Broadcasting Period' dropdown menu is open, showing options: 'No Send', '30sec' (highlighted), '60sec', and '120sec'. At the bottom right of the window, an 'Apply' button is highlighted with a blue rounded rectangle.

Note: For an Appliance Model (in a dual configuration), note the following:

- Be sure to disable spanning tree protocol (STP) on the data switch used for SV9500 LAN port. If STP is enabled, the length of disconnection time for packet communications may get long after CPU changeover.
- It is recommended to set the ARP Broadcasting Period parameter to 30 sec. If CPU change-over occurs during a broadcast storm, there is a case where an IP address is not reflected due to Gratuitous ARP packet loss after the system changeover.

Note: Set to **Auto Negotiation (10Mbps-1Gbps)** for a Prepackaged Server Model.

4.7 Primary Node (CCN) LAN2 Network Configuration (ADTM)

Follow the steps below to assign an IP address of Primary Node (CCN) LAN2.

1

Execute the ADTM command. Set the following parameters and then click the **Get** button.

MGC No.: Type an MGC number of Primary Node (CCN).

Select LAN Interface: Choose **LAN2**.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. :	10	Self MGC Kind : Primary Node(CCN)	Self LP No. : 0
Operating MGC No. :	10		
MGC No. of Primary Node :	10		

MGC No.

10

Select LAN Interface

☐ LAN1 ☒ LAN2

Get Exit

2

- (1) Click the **Routing** tab.
- (2) Select the **Use Default Gateway** check box.
- (3) Set the values corresponding to your actual network environment for each necessary parameter.
- (4) Click **Apply** button.

The screenshot shows a configuration window for the Routing tab. At the top, there is a checked checkbox labeled "Use Default Gateway". Below it, the "IP Address (Default Gateway)" is set to "10 . 1 . 101 . 254". A "Static Routing" button is visible below the IP address field. At the bottom right of the window is an "Apply" button.

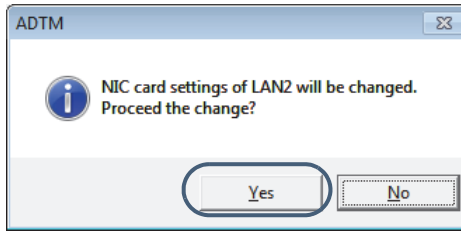
3

- (1) Click the **NIC** tab.
- (2) Set the values corresponding to your actual network environment for each necessary parameter.
- (3) Click the **Apply** button.

The screenshot shows a configuration window for the NIC tab. It is divided into two main sections: "Speed" and "Duplex Mode". In the "Speed" section, there are four radio button options: "Fixed 10Mbps", "Fixed 100Mbps", "Auto Negotiation(1Gbps Only)" (which is selected), and "Auto Negotiation(10Mbps-1Gbps)". In the "Duplex Mode" section, there are two radio button options: "Half Duplex" and "Full Duplex" (which is selected). Below these sections, there is a dropdown menu for "ARP Broadcasting Period" with options: "No Send", "30sec" (highlighted), "60sec", and "120sec". At the bottom right of the window is an "Apply" button.

4

The confirmation message is displayed. Click the **Yes** button to apply the change.



Note: For an Appliance Model (in a dual configuration), note the following:

- Be sure to disable spanning tree protocol (STP) on the data switch used for SV9500 LAN port. If STP is enabled, the length of disconnection time for packet communications may get long after CPU changeover.
- It is recommended to set the ARP Broadcasting Period parameter to 30 sec. If CPU changeover occurs during a broadcast storm, there is a case where an IP address is not reflected due to Gratuitous ARP packet loss after the system changeover.

Note: Set to **Auto Negotiation (10Mbps-1Gbps)** for a Prepackaged Server Model.

5

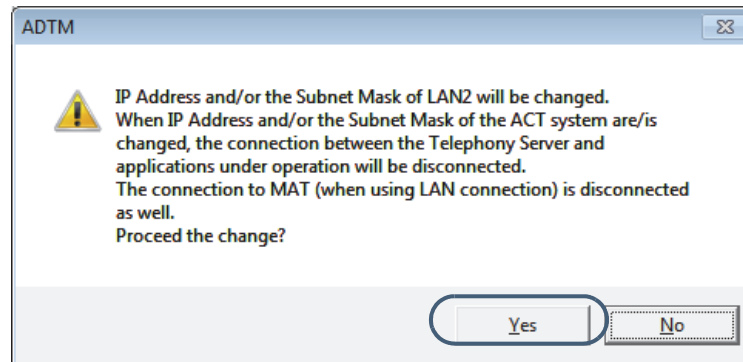
- (1) Click the **IP Address** tab.
- (2) Set the following corresponding to your actual network environment.
 - IP Address (ACT)
 - IP Address (System-0) *Only for a dual CPU configuration system
 - IP Address (System-1) *Only for a dual CPU configuration system
 - Subnet Mask
- (3) Click the **Apply** button.

The screenshot shows a configuration window with a light gray background. Inside, there is a rounded rectangle containing four input fields. The first field is labeled 'IP Address (ACT)' and contains the text '10 . 1 . 101 . 4'. The second field is labeled 'IP Address (System-0)' and contains '10 . 1 . 101 . 5'. The third field is labeled 'IP Address (System-1)' and contains '10 . 1 . 101 . 6'. The fourth field is labeled 'Subnet Mask' and contains '255 . 255 . 255 . 0'. Below these fields, there is a note: '* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System.' At the bottom right of the rounded rectangle is a button labeled 'Apply'.

Note: The figure shows when the Primary Node (CCN) is an Appliance Model dual configuration system as an example. When the Primary Node (CCN) is a single configuration system, the following parameters are not displayed.

- IP address (System-0)
- IP address (System-1)

- 6** The following confirmation message will be displayed.
Click the **Yes** button to apply the modification.



Point: The connection to PCPro will be disconnected when the data is modified.

4.8 Primary Node (CCN) LAN1 Network Configuration (ADTM)

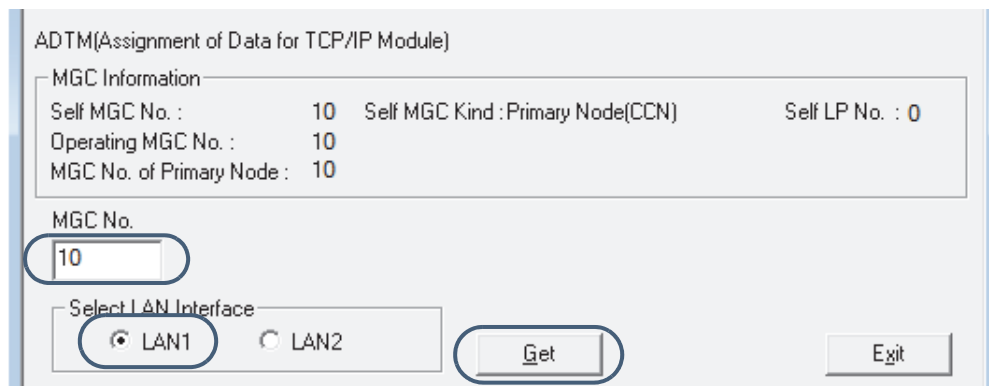
Follow the steps below to set IP addresses of LAN1 for Primary Node (CCN) through the ADTM command.

- 1** Connect to PCPro using the connection account (e.g. NewOffice#1) assigned for the IP address of LAN2 connector. Enter the user ID and the password that have been previously assigned to connect to PCPro.

Note: If the user ID and password are not entered, login is unavailable.

Point: For detailed procedure to connect to PCPro, refer to "Communication Link with the Telephony Server" in Chapter 3 Setting Up PCPro in PCPro Setup Manual.

- 2** Execute the ADTM command. Set the following parameters and then click the **Get** button.
MGC No.: Type an MGC number of Primary Node (CCN).
Select LAN Interface: Choose LAN1.



3

- (1) Click the **Routing** tab.
- (2) Select the **Use Default Gateway** check box.
- (3) Set the values corresponding to your actual network environment for each necessary parameter.
- (4) Click **Apply** button.

☒ Use Default Gateway

IP Address (Default Gateway) 10 . 1 . 101 . 254

Static Routing

Apply

4

- (1) Click the **NIC** tab.
- (2) Set the values corresponding to your actual network environment for each necessary parameter.
- (3) Click **Apply** button.

Speed

☐ Fixed 10Mbps

☐ Fixed 100Mbps

☒ Auto Negotiation(1Gbps Only)

☐ Auto Negotiation(10Mbps-1Gbps)

Duplex Mode

☐ Half Duplex

☒ Full Duplex

ARP Broadcasting Period 30sec

No Send

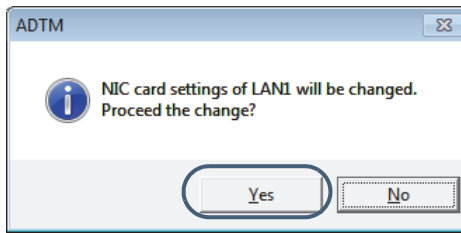
30sec

60sec

120sec

Apply

- 5** The confirmation message is displayed. Click the **Yes** button to apply the change.

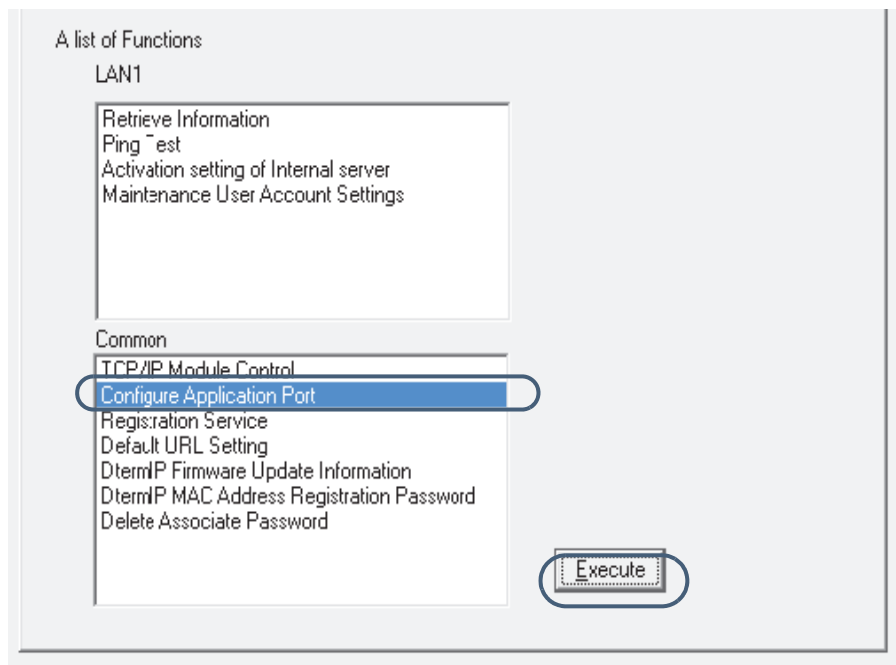


Note: For an Appliance Model (in a dual configuration), note the following:

- Be sure to disable spanning tree protocol (STP) on the data switch used for SV9500 LAN port. If STP is enabled, the length of disconnection time for packet communications may get long after CPU changeover.
- It is recommended to set the ARP Broadcasting Period parameter to 30 sec. If CPU changeover occurs during a broadcast storm, there is a case where an IP address is not reflected due to Gratuitous ARP packet loss after the system changeover.

Note: Set to **Auto Negotiation (10Mbps-1Gbps)** for a Prepackaged Server Model.

- 6**
- (1) Click the **Options** tab.
 - (2) In the **Common** list, select **Configure Application Port**.
 - (3) Click the **Execute** button.



7

- (1) Select **LAN1** under **LAN Interface to be used for Internal PHF**.
- (2) Select **LAN1** under **LAN Interface to be used for REG**.
- (3) Click the **Apply** button.
- (4) Click the **Close** button.

Configure Application Port	LAN Interface to be used	Port Number (1024-65534)	Default Value
MAT	(TCP) ☒ LAN1 ☐ LAN2	0	60000
SMDR	(TCP) ☐ LAN1 ☒ LAN2	0	60010
MCI	(TCP) ☐ LAN1 ☒ LAN2	0	60020
DAI	(TCP) ☐ LAN1 ☒ LAN2	0	60030
MIS	(TCP) ☐ LAN1 ☒ LAN2	0	60040
CS Report	(TCP) ☐ LAN1 ☒ LAN2	0	60080
PMS	(TCP) ☐ LAN1 ☒ LAN2	0	60050
MCC	(TCP) ☐ LAN1 ☒ LAN2	0	60190
CCIS Cluster	(TCP) ☒ LAN1 ☐ LAN2	0	60001
FCCS Cluster	(TCP) ☐ LAN1 ☒ LAN2	0	60210
*If you want to change Port Number of "FCCS Cluster", you must use AFCMN command.			
Internal PHI-PRI	(TCP) ☐ LAN1 ☒ LAN2	0	64000
Internal PHC	☐ LAN1 ☒ LAN2		
Client	(TCP)	0	65030
Server	(TCP)	0	57000
Internal PHF	(UDP) ☒ LAN1 ☐ LAN2	0	60180
REG	(UDP) ☒ LAN1 ☐ LAN2	0	3456
Internal PHE	(UDP)	0	60130
Internal PHI-BRI	(UDP)		*"Internal PHI-PRI" and "Internal PHI-BRI" use the same Port Number.
SR-MGC/NMS			
NMS	(TCP)	0	60060
Health Check Receive MGC - SR-MGC (Server)	(UDP)	0	60110
Health Check Send MGC - SR-MGC (Client)	(UDP)	0	60120
SR-MGC Charge MGC Side	(TCP)	0	60140
SR-MGC Charge SR-MGC Side	(TCP)	0	60150
DNS	(UDP) ☐ LAN1 ☒ LAN2	0	53
SNTP	(UDP) ☐ LAN1 ☒ LAN2	0	123
PBUS over IP	(UDP) ☒ LAN1 ☐ LAN2	0	60220
Internal SIP Handler	☐ LAN1 ☐ LAN2 ☒ LAN1(ACT2)		
SIP Signaling	(UDP/TCP Server)	0	5060
DRS Registration	(UDP)	0	60300
Negotiation	(UDP/TCP Server)	0	60301
TLS	(TCP Server)	0	5061

*When the Port Number of "REG" is changed, it is necessary to set the same Port Number as DrsPort by the ASPC command. (SPconfig.conf,StaticInfo.txt)

*When "Internal PHI-PRI" or "Internal PHI-BRI" or "Internal PHC" or "Internal PHF" or "Internal SIP Handler" is changed, it is necessary to initialize the module.

*When the Port Number of "Internal PHE" is changed, it is necessary to set the same Port Number as PHEPort by the ASPC command. (SPconfig.conf)

*Port Number=0:Using the default value.

Apply Close

8

The following confirmation message will be displayed. Click the **OK** button to apply the modification.

9

- (1) Click the **IP Address** tab.
- (2) Set the following corresponding to your actual network environment.
 - IP Address (ACT)
 - IP Address (System-0) *Only for a dual CPU configuration system
 - IP Address (System-1) *Only for a dual CPU configuration system
 - Subnet Mask
 - Place a check mark to the Add IP Address (ACT) check box.
*Only for SIP Handler Controlled SIP terminals
 - IP Address 2 (ACT) *Only for SIP Handler Controlled SIP terminals
- (3) Click the **Apply** button.

The screenshot shows a configuration window with the following fields and values:

Field	Value
IP Address (ACT)	10 . 1 . 101 . 1
☒ Add IP Address (ACT)	
IP Address2 (ACT)	10 . 1 . 101 . 10
IP Address (System-0)	10 . 1 . 101 . 2
IP Address (System-1)	10 . 1 . 101 . 3
Subnet Mask	255 . 255 . 255 . 0

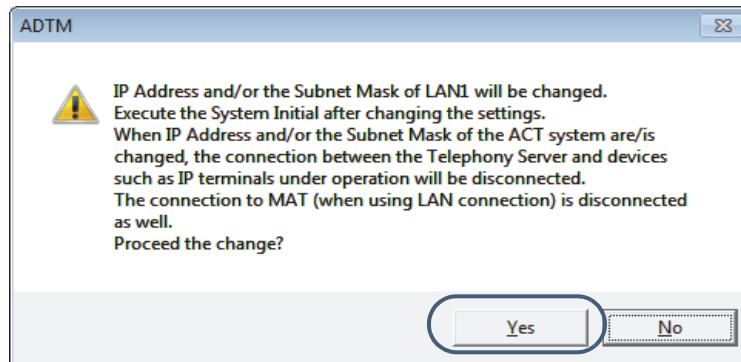
* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System.

Apply

Note: The figure shows when the Primary Node (CCN) is an Appliance Model dual configuration system as an example. When the Primary Node (CCN) is a single configuration system, the following parameters are not displayed.

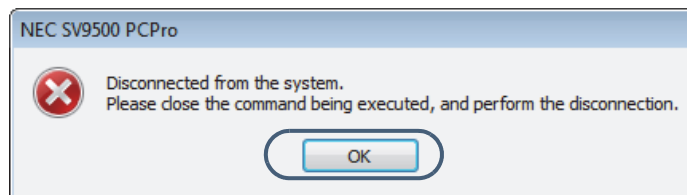
- IP address (System-0)
- IP address (System-1)

- 10** The following confirmation message will be displayed.
Click the **Yes** button to apply the modification.



Point: The connection to PCPro will be disconnected when the data is modified.

- 11** The following message will be displayed by PCPro.
Click **OK** to close the message box.



- 12** Click the **Exit** button to exit the **ADTM** command.
- 13** Disconnect PCPro (on the **System** menu, click **Disconnect**) from the system.

Point: For detailed disconnecting procedure, refer to "Disconnecting the Communication Link" in Chapter 3 Setting Up PCPro in PCPro Setup Manual.

5. Backup of Office Data (1) - Primary Node (CCN)

Back up the office data of Primary Node (CCN) to a CF card with the MEM_HDD command. For detailed procedure, see “Backup of Office Data (1) - CCN” in Chapter 3 System Startup of UMGi Configuration and Maintenance Guide.

6. Downloading Office Data - Primary Node (CCN)

Download the office data of Primary Node (CCN) to a maintenance PC For detailed procedure, see “Downloading Office Data - CCN” in Chapter 3 System Startup of UMGi Configuration and Maintenance Guide.

7. Modifying Network Configuration of Maintenance PC

Modify the network configuration of the maintenance PC to connect to the IP address (ACT side) of LAN2 connector in Primary Node (CCN) to the actual environment (e.g. 10.1.101.4).

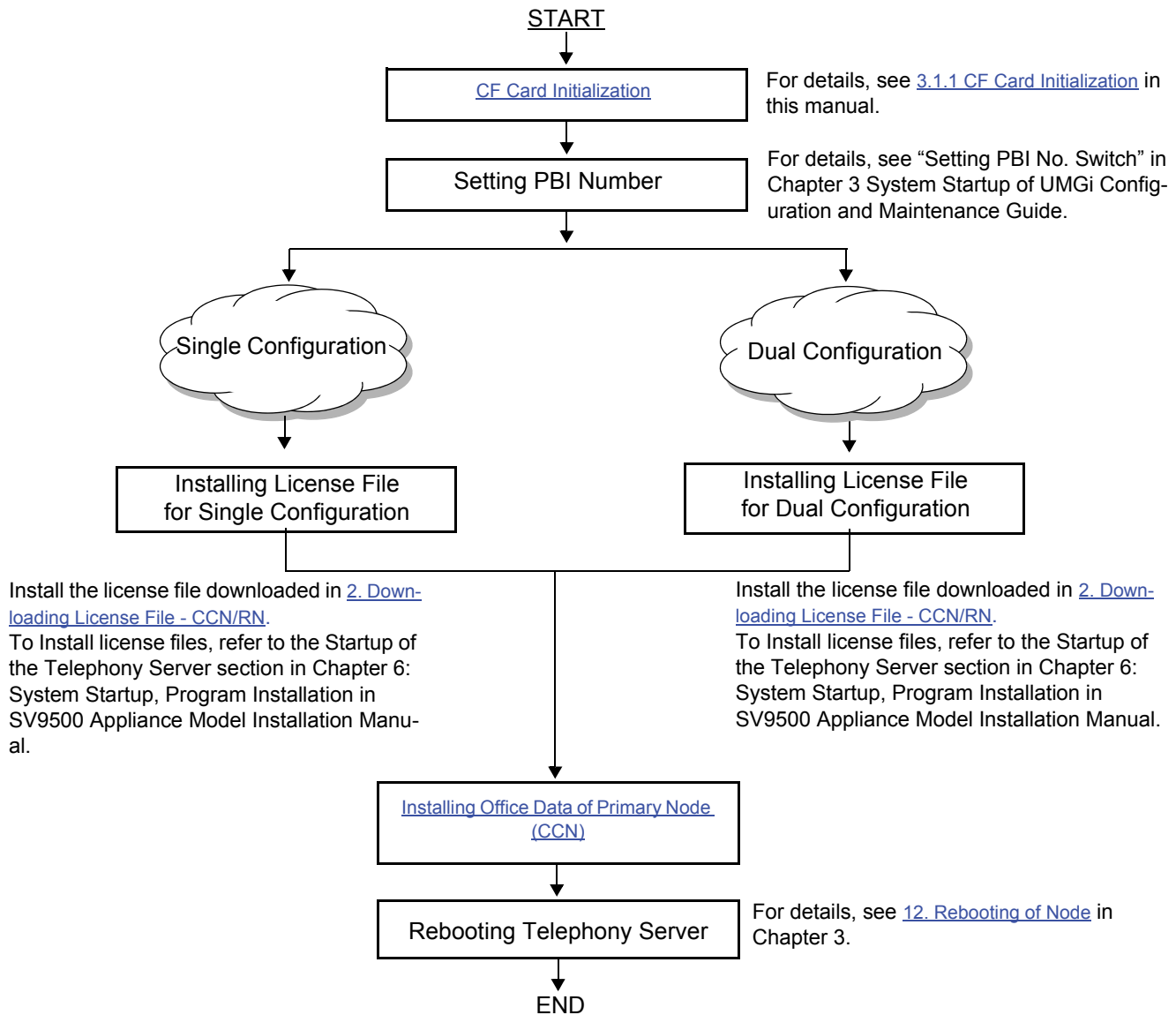
For details of the procedure, see the Modifying Network Configuration of Maintenance PC section in SV9500 Appliance Model Installation Manual.

8. Initial Startup of Primary Node (RN)

This section explains about the initial startup procedure of Primary Node (RN).

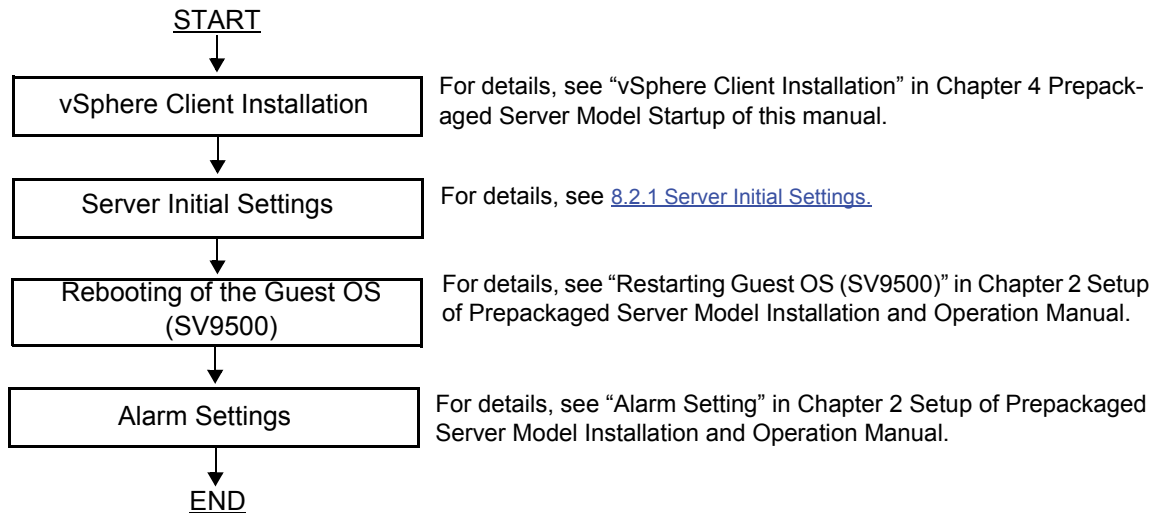
8.1 Primary Node (RN) Startup Procedure - Appliance Model

Follow the flow chart below to start up Primary Node (RN) - Appliance Model.



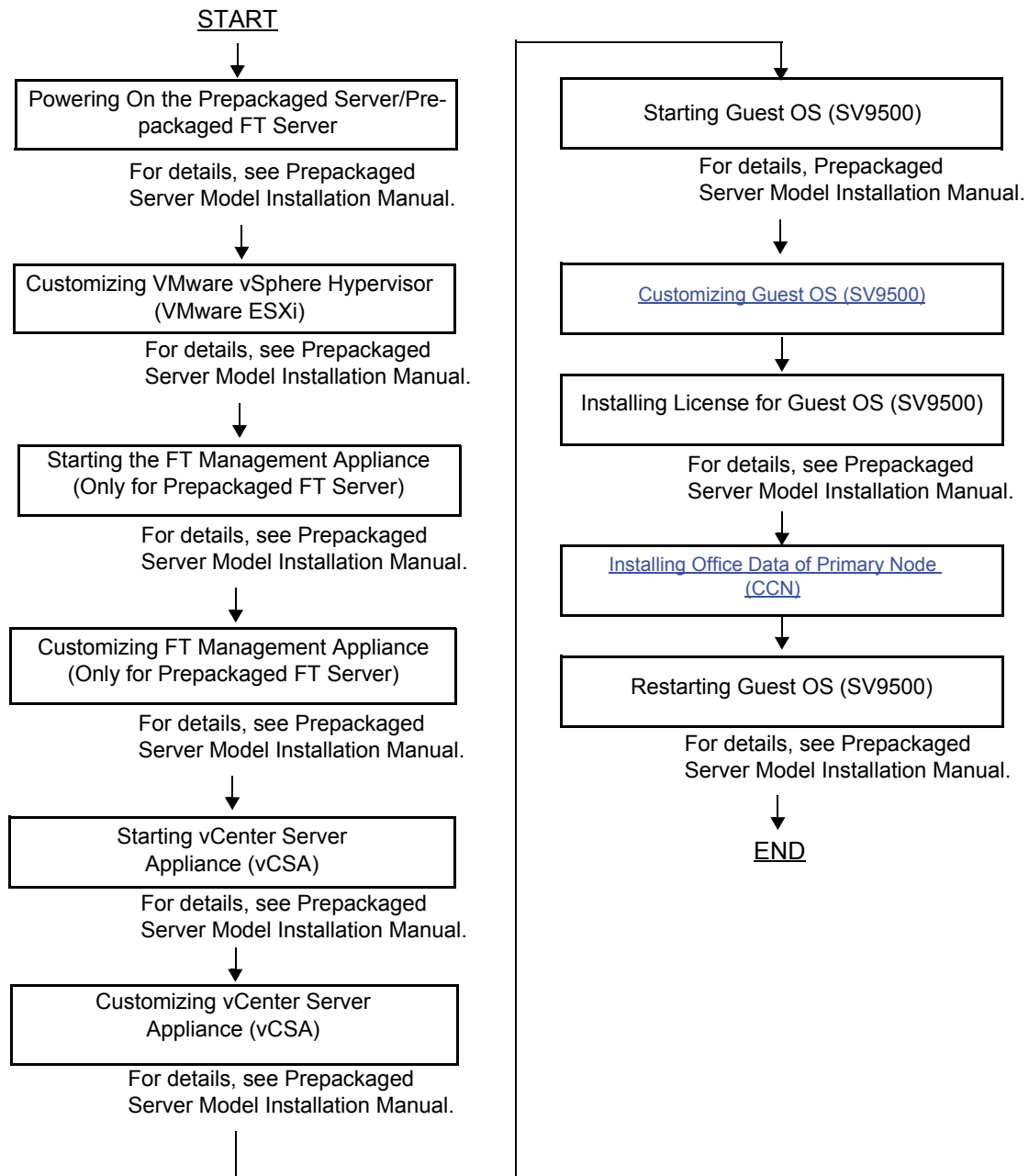
8.2 Primary Node (RN) Startup Procedure - Prepackaged Server Model

Follow the flow chart below to startup Primary Node (CCN) - Prepackaged Server Model.



8.2.1 Server Initial Settings

Follow the steps below to set the initial data for Host/Guest OS.



9. Installing Office Data of Primary Node (CCN)

Install the office data of Primary Node (CCN) previously saved in the maintenance PC onto the CF card of Primary Node (RN). Use Telephony Server Maintenance Menu and upload the office data of Primary Node (CCN) to Primary Node (RN).

- 1 Start Internet Explorer on a Maintenance PC, and type "http://xxx.xxx.xxx.xxx:9801/" into the address bar. Enter as "xxx.xxx.xxx.xxx" the LAN1 IP address of Primary Node (RN).

Note:

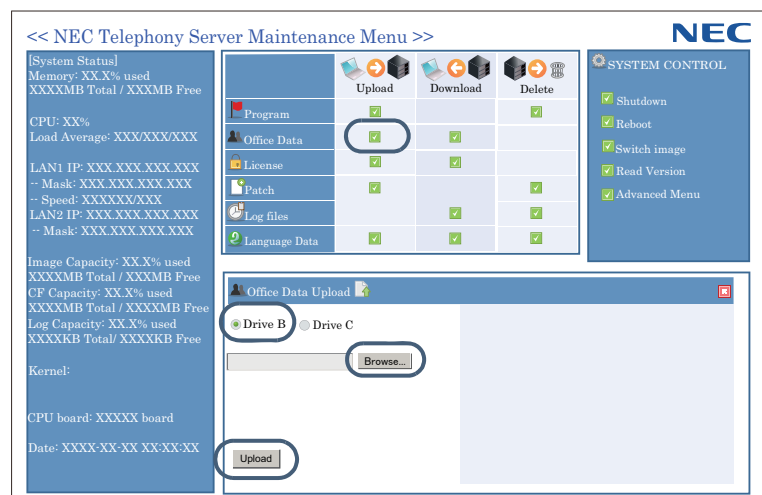
- Enter the IP address pre-loaded in the CF card.
- Microsoft Internet Explorer® 7.0 or higher is required to access Telephony Server Maintenance Menu.

- 2 (1) **Telephony Server Maintenance Menu Login** screen appears. Type a user name and password.
- (2) Click **OK** to log in to **Telephony Server Maintenance Menu**.

Note:

- The default for both user name and password is "admin". You are recommended to change user name and password from **Advanced Menu**.
- Contact NEC maintenance personnel if you forget your User Name and Password.
- After logging in to Telephony Server Maintenance Menu, do not use Back button on the browser.

- 3 (1) Click **Upload** for **Office Data** in the **SYSTEM CONTROL** area. The **Office Data Upload** dialog box appears.
- (2) Select **Drive B**.
- (3) Click "Browse" in the Office Data Upload area and specify the office data file downloaded in [6. Downloading Office Data - Primary Node \(CCN\)](#).
- (4) Click the **Upload** button. When the uploading is complete, "Operation successfully completed" will be displayed.
- (5) Click **OK**.



Note: When the office data upload is not successful, "An error occurred! Please check the logs." is displayed and the details are displayed in the lower right portion of the screen.

10. Reboot of Primary Node (RN)

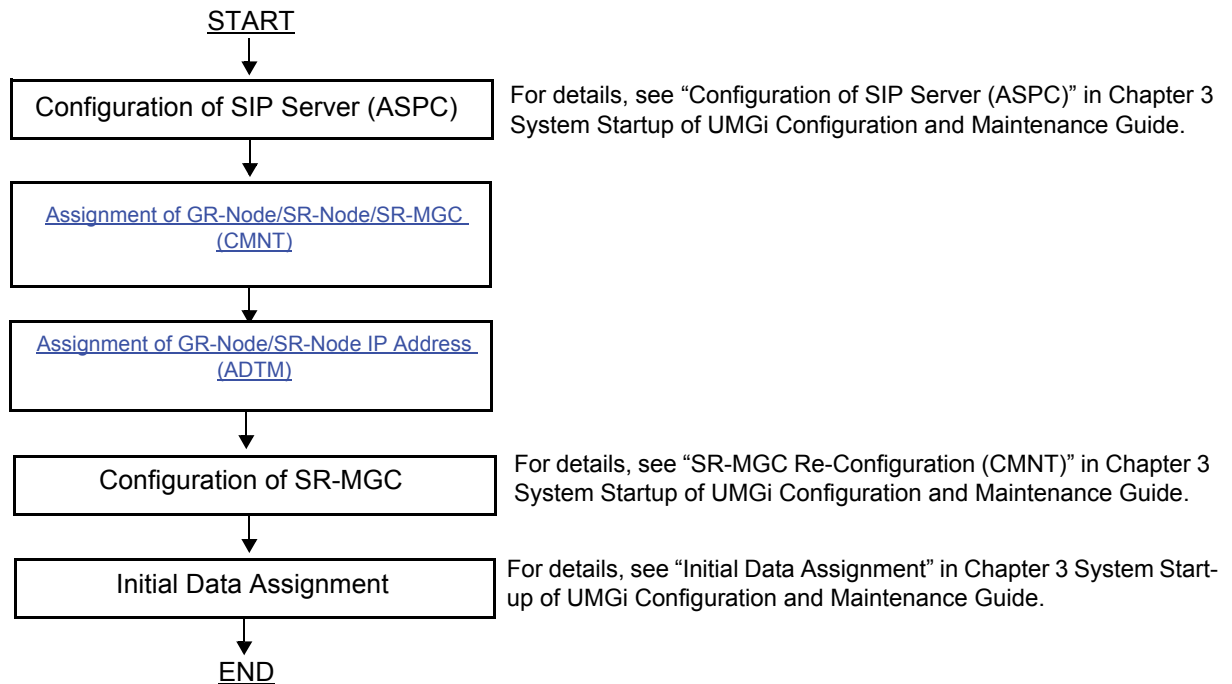
Reboot each Primary Node (RN) with Telephony Server Maintenance Menu. For detailed procedure, see “Reboot of Appliance Model RN” in Chapter 3 System Startup of UMGi Configuration and Maintenance Guide.

Note: This step is required only for Appliance Model RN. Skip this step in the case of Prepackaged Server Model RN.

11. Office Data Setting (2) - Primary Node (CCN)/Primary Node (RN)

Follow the steps below to set the office data for Primary Node (CCN)/Primary Node (RN).

Note: This section needs to be performed when each Primary Node (RN) connects to Primary Node (CCN) and operates in normal mode after rebooting each Primary Node (RN) is completed.



11.1 Assignment of GR-Node/SR-Node/SR-MGC (CMNT)

Note: This procedure is required only for Primary Node.

Assign MGC numbers of Geo Redundant Node/Survivable Remote Node/SR-MGC through the **CMNT** command.

1

Execute the **CMNT** command and click the **Setting** tab. Type an MGC number (0-255 **Note 1**) of Geo Redundant Node/Survivable Remote Node/SR-MGC in the **MGC No.** box and then click the **Get** button.

The screenshot shows the CMNT command interface with the 'Setting' tab selected. The 'MGC No.' field is empty, and the 'Get' button is highlighted. Other tabs include 'FTP Server Setting', 'Priority', 'Initialize', 'Change Operating', and 'File Control'. Below the 'MGC No.' field are 'Set' and 'Del' buttons.

Note1: MGC number “0” is available only for SR-MGC used for [S-141] Survivable Remote MGC. Do not set “0” for Geo Redundant Node and Survivable Remote Node.

2

Assign the following parameters. After all the required parameters are set, click the **Set** button. For more details on each parameter of the **CMNT** command, refer to the Operations and Maintenance Manual.

<In the case of Geo Redundant Node (CCN)>

MGC Kind: Choose “Geo Redundant Node(CCN).”

LP No.: Displays LP Number of the logged-in destination node.

Configuration of CPU Choose “Single” or “Dual” as CPU configuration of the specified Geo Redundant Node.

Office Name: Type the office name of the specified Geo Redundant Node (up to 20 digits).

IP Address: Blank (IP address is to be assigned through the ADTM command in the later step.)

Assigning MA-ID: Clear the check box (Fixed).

The screenshot shows the CMNT command interface with the 'Setting' tab selected. The 'MGC No.' field is filled with '20'. The 'MGC Kind' dropdown is set to 'Geo Redundant Node(CCN)'. The 'LP No.' dropdown is set to '0'. The 'Configuration of CPU' section has 'Single' selected. The 'Office Name' field is empty. The 'IP Address' field is empty, with a note '(Please assign IP address with the ADTM command.)'. The 'Assigning MA-ID' checkbox is unchecked. The 'Set' button is highlighted.

<In the case of Geo Redundant Node (RN)>

MGC Kind: Choose “Geo Redundant Node(RN).”

LP No.:Set a LP Number of the specified Geo Redundant Node.

Configuration of CPU: Choose “Single” or “Dual” as CPU configuration of the specified Geo Redundant Node.

Office Name: Type the office name of the specified Geo Redundant Node (up to 20 digits).

IP Address: Blank (IP address is to be assigned through the ADTM command in the later step.)

Assigning MA-ID: Clear the check box (Fixed).

MGC No. 40

MGC Kind Geo Redundant Node(RN) LP No. 8

Configuration of CPU

☒ Single ☐ Dual

Office Name

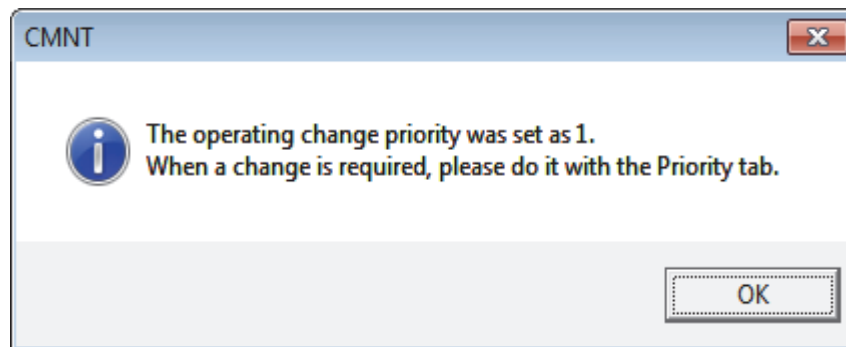
IP Address (Please assign IP address with the ADTM command.)

☐ Assigning MA-ID

Get Set Del

The following confirmation message is displayed.

Click the **OK** button to give the highest priority to the specified Geo Redundant Node (CCN/RN). To change the priority data, click the **Priority** tab to change the data of **Setting of Operating Change Priority**.



<In the case of Survivable Remote Node>

MGC Kind: Choose “Survivable Remote Node.”

LP No.: Set a LP Number of the target Survivable Remote Node.

Model: Choose “E” (SV9500) to use SV9500 as Survivable Remote Node hardware type. Choose also “E” (SR-MGC(E)) to use SR-MGC(E) as Survivable Remote Node hardware type.

Configuration of CPU: Choose “Single” or “Dual” as CPU configuration of the specified Survivable Remote Node.

Office Name: Type the office name of the specified Survivable Remote Node (up to 20 digits).

Number of Ports: Enter the number of port licenses for the specified Survivable Remote Node. **Note 2**

IP Address: Blank (IP address is to be assigned through the ADTM command in the later step.)

Mode: Choose the specified Survivable Remote Node’s change over/change back timing.

Assigning MA-ID: Clear the check box (Fixed).

ACDP: Place a check mark to use Call Distribution. **Note 3**

Call Distribution: Choose “ACD” for using ACD call distribution method or “UCD” for using UCD call distribution method of ACDP for MGC. **Note 3**

MGC No. 50

MGC Kind Survivable Remote Node LP No. 8 Model E

Configuration of CPU

☒ Single ☐ Dual

Office Name

Number of Ports

IP Address (Please assign IP address with the ADTM command.)

Mode

☐ Assigning MA-ID

☒ ACDP

Call Distribution ☒ ACD ☐ UCD

Get Set Del

Note 2: The maximum 8192 port licenses can be purchased.

Note 3: This parameter is not used in North America.

<In the case of SR-MGC>

MGC Kind: Choose "SR-MGC."

LP No.: Set a LP Number of the target SR-MGC.

Office Name: Type the office name of the specified SR-MGC (up to 20 digits).

IP Address: Enter the IP address of SR-MGC, not the default IP address but the actual IP address to be allocated to the target SR-MGC.

Mode: Specify a type of changeover and recovery to be executed (1-3).

Assigning MA-ID: When Flexible Network Re-routing service is enabled, place a check mark.

MA-ID: Type an MA-ID (0-9999) to be assigned to the SR-MGC when "Assigning MA-ID" parameter is ON.

FTP Server No.: Enter the number to be allocated to the FTP number (1-256).

The screenshot shows a configuration window for SR-MGC. It contains several input fields and buttons. The 'MGC No.' field is set to 100. The 'MGC Kind' dropdown is set to SR-MGC. The 'LP No.' dropdown is set to 0. There are empty text boxes for 'Office Name', 'IP Address', and 'FTP Server No.'. The 'Mode' field has a small dropdown. The 'Assigning MA-ID' checkbox is checked, and there is an 'MA-ID' field next to it. On the right side of the window, there are three buttons: 'Get', 'Set', and 'Del'. The 'Set' button is highlighted with a red circle.

11.2 Assignment of GR-Node/SR-Node IP Address (ADTM)

Note: This procedure is required only for Primary Node.

Assign IP addresses of Geo Redundant Node (CCN)/Geo Redundant Node (RN)/Survivable Remote Nodes through the ADTM command.

1

Execute the **ADTM** command. Set the following parameters and then click the **Get** button.

MGC No.: Type an MGC number of a target MGC (Geo Redundant Node (CCN)/Geo Redundant Node (RN)/Survivable Remote Node).

<In the case of Geo Redundant Node (CCN)>

Select LAN Interface: Choose **LAN1**.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. :	10	Self MGC Kind : Primary Node(CCN)	Self LP No. : 0
Operating MGC No. :	10		
MGC No. of Primary Node :	10		

MGC No.

30

Select LAN Interface

☒ LAN1 ☐ LAN2

Get

Exit

Click the **IP Address** tab and type IP address and subnet mask according to your actual network environment. Then, click the **Apply** button.

IP Address (ACT) 10 . 1 . 101 . 7

☒ Add IP Address (ACT)

IP Address2 (ACT) 10 . 1 . 101 . 10

IP Address (System-0) 10 . 1 . 101 . 8

IP Address (System-1) 10 . 1 . 101 . 9

Subnet Mask 255 . 255 . 255 . 0

* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System.

Apply

Note: The figure shows when the Geo Redundant Node (CCN) is an Appliance Model dual configuration system as an example. When the Geo Redundant Node (CCN) is a single configuration system, the following parameters are not displayed.

- IP address (System-0)
- IP address (System-1)

Select LAN Interface: Choose **LAN2**.

Then set IP address and subnet mask with the same operations as above according to your actual network environment.

<In the case of Geo Redundant Node (RN)>

Select LAN Interface: Choose **LAN1**.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. :	10	Self MGC Kind : Primary Node(CCN)	Self LP No. : 0
Operating MGC No. :	10		
MGC No. of Primary Node :	10		

MGC No.

40

Select LAN Interface

☒ LAN1 ☐ LAN2

Get

Exit

Click the **IP Address** tab and type IP address and subnet mask according to your actual network environment. Then, click the **Apply** button.

IP Address (ACT) 10 . 1 . 101 . 36

☒ Add IP Address (ACT)

IP Address2 (ACT) 10 . 1 . 101 . 51

IP Address (System-0) 10 . 1 . 101 . 37

IP Address (System-1) 10 . 1 . 101 . 38

Subnet Mask 255 . 255 . 255 . 0

* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System.

Apply

Note: The figure shows when the Geo Redundant Node (RN) is an Appliance Model dual configuration system as an example. When the Geo Redundant Node (RN) is a single configuration system, the following parameters are not displayed.

- IP address (System-0)
- IP address (System-1)

Select LAN Interface: Choose **LAN2**.

Then set IP address and subnet mask with the same operations as above according to your actual network environment.

<In the case of Survivable Remote Node>

Select LAN Interface: Choose **LAN1**.

ADTM(Assignment of Data for TCP/IP Module)

MGC Information

Self MGC No. : 10 Self MGC Kind : Primary Node(CCN) Self LP No. : 0

Operating MGC No. : 10

MGC No. of Primary Node : 10

MGC No.

50

Select LAN Interface

☒ LAN1 ☐ LAN2

Get

Exit

Click the **IP Address** tab and type IP address and subnet mask according to your actual network environment. Then, click the **Apply** button.

IP Address (ACT) 10 . 1 . 101 . 41

☒ Add IP Address (ACT)

IP Address2 (ACT) 10 . 1 . 101 . 61

IP Address (System-0) 10 . 1 . 101 . 42

IP Address (System-1) 10 . 1 . 101 . 43

Subnet Mask 255 . 255 . 255 . 0

* IP Address (System-0) and IP Address (System-1) can be input only with a Dual System.

Apply

Note: The figure shows when the Survivable Remote Node is an Appliance Model dual configuration system as an example. When the Primary Node (RN) is a single configuration system, the following parameters are not displayed.

- IP address (System-0)
- IP address (System-1)

Select LAN Interface: Choose **LAN2**.

Then set IP address and subnet mask with the same operations as above according to your actual network environment.

2

Repeat the previous steps for necessary Geo Redundant Nodes and Survivable Remote Nodes.

12. Backup of Office Data (2) - Primary Node (CCN)/Primary Node (RN)

Back up the office data of Primary Node (CCN)/Primary Node (RN) to a CF card with the MEM_HDD command. For detailed procedure, see “Backup of Office Data (2) - CCN/RN” in Chapter 3 System Startup of UMGi Configuration and Maintenance Guide.

13. Downloading Office Data - Primary Node (CCN)/Primary Node (RN)

Download the office data of Primary Node (CCN)/Primary Node (RN) to a maintenance PC. For detailed procedure, see “Downloading Office Data - CCN” in Chapter 3 System Startup of UMGi Configuration and Maintenance Guide.

14. Initial Startup of GR-Node (CCN)

As in the case of Geo Redundant Node (CCN), upload the Primary Node (CCN) office data which has been downloaded in “[13. Downloading Office Data - Primary Node \(CCN\)/Primary Node \(RN\)](#)” process when installing the license. For details on the procedure, see [8. Initial Startup of Primary Node \(RN\)](#).

15. Initial Startup of GR-Node (RN)

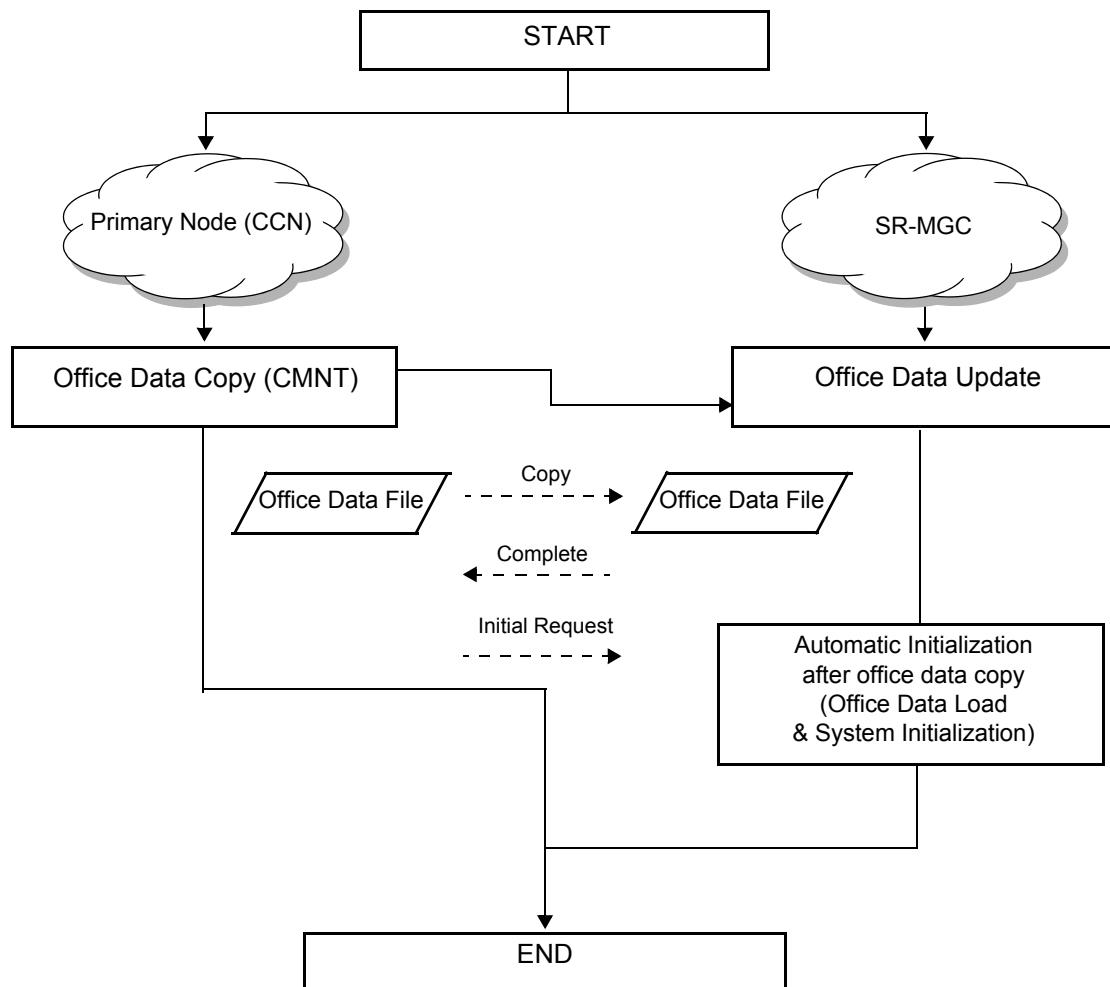
As in the case of Geo Redundant Node (RN), upload the Primary Node (CCN) office data which has been downloaded in “[13. Downloading Office Data - Primary Node \(CCN\)/Primary Node \(RN\)](#)” process when installing the license. For details on the procedure, see [8. Initial Startup of Primary Node \(RN\)](#).

16. Initial Startup of SR-Node

As in the case of Survivable Remote Node, upload the Primary Node (CCN) office data which has been downloaded in “[13. Downloading Office Data - Primary Node \(CCN\)/Primary Node \(RN\)](#)” process when installing the license. For details on the procedure, see [8. Initial Startup of Primary Node \(RN\)](#).

17. Office Data Copy from Primary Node (CCN) to SR-MGC (CMNT)

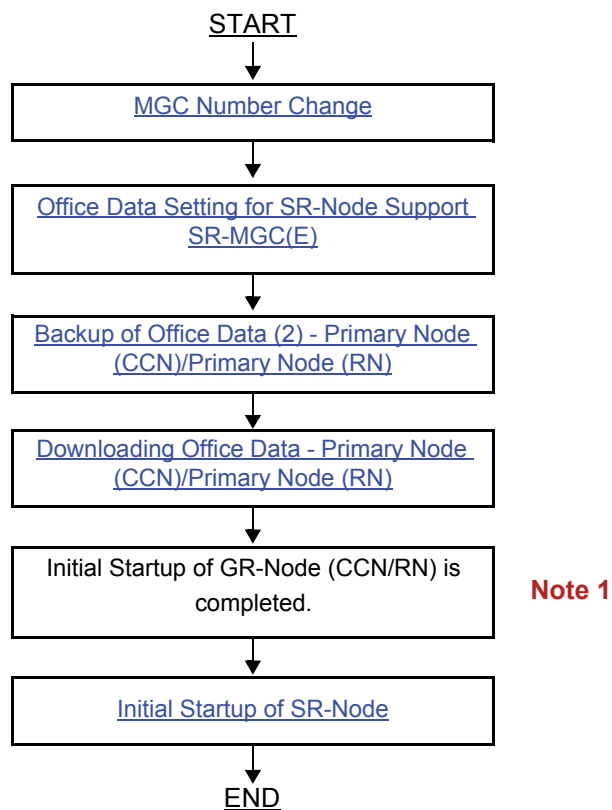
Follow the steps below to copy the office data from Primary Node (CCN) to SR-MGC. For detailed procedure, see “Office Data Copy from Primary Node to GR-Node/SR-Node/SR-MGC” in Chapter 3 (for Appliance Model)/Chapter 4 (for Prepackaged Server Model) of this manual/CMNT command of the Operations and Maintenance Manual.



18. SR-Node Support SR-MGC(E)

This section explains the initial startup procedure of the SR-MGC(E) used as Survivable Remote Node in the Geographic-Redundancy-Enabled UMGi system. The following procedure needs to be performed at each MGC site (Survivable Remote Node).

- Note:** Ensure that operations in the following sections in this chapter are completed by Primary Node (CCN/RN) beforehand.
- Downloading License File - CCN/RN
 - Initial Startup of Primary Node (CCN)
 - Office Data Settings (1) - Primary Node (CCN)
 - Backup of Office Data (1) - Primary Node (CCN)
 - Downloading Office Data - Primary Node (CCN)
 - Modifying Network Configuration of Maintenance PC
 - Connecting Primary Node (CCN) to Actual Network
 - Initial Startup of Primary Node (RN)
 - Reboot of Primary Node (RN)
 - Connecting Primary Node (RN) to Actual Network
 - Reboot of Primary Node (RN)



Note 1: Refer to [Initial Startup of GR-Node \(CCN\)](#) and [Initial Startup of GR-Node \(RN\)](#) for the operating procedure.

18.1 Install Additional SR-Node

To install additional Survivable Remote Node, follow steps shown in [Install Additional GR-Node \(CCN\)/GR-Node \(RN\)/SR-Node](#) in this chapter.

18.2 MGC Number Change

When you use existing SR-MGCs as Survivable Remote Nodes, MGC numbers of Survivable Remote Nodes need to be adjusted, according to those of Primary Node (CCN/RN). This section explains how to change MGC numbers of Survivable Remote Node through ssh or the DVD for enabling SR-Node Support SR-MGC(E).

- Note:** Conditions for this operation is shown below:
- Do not set MGC number “0” for Survivable Remote Nodes.
 - PBI number is not required for Survivable Remote Node.

18.2.1 Replacing Existing CF Card with New One for SR-Node Support SR-MGC(E)

Before you begin, you need to prepare the application handling ssh. Then, follow the steps below to assign the appropriate MGC numbers to Survivable Remote Nodes.

- 1 Execute 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).
- 2 Unplug a LAN cable from the LAN1 (Ether1) connector on the front panel of the SR-MGC(E).
- 3 Remove an existing CF card from the CF slot on the front panel of the SR-MGC(E).
- 4 Insert a new CF card supplied for enabling SR-Node Support SR-MGC(E) into the CF slot on the front panel of the SR-MGC(E).
- 5 Turn on power of the SR-MGC(E), where its operation is the following: booting up the system; reading default office data.
- 6 Check the lamps. Make sure that lamp states are as follow.
 - PWR: ON (green)
 - ONLINE: Slow flash (green)

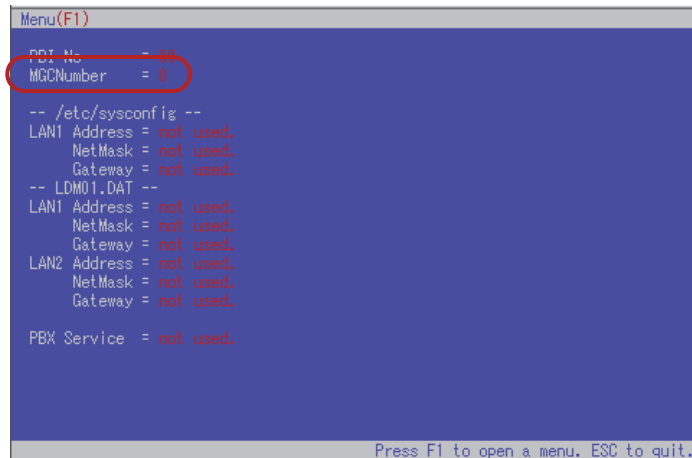
7 Connect a maintenance PC to the SR-MGC(E) through the LAN1 connector on it.

Note: If connecting them directly, use a LAN cable (crossover cable); if connecting via a HUB, use LAN cables (straight-through cables).

- 8** (1) Activate the ssh application and connect with the target MGC.
(2) Log in as “setpbimgcno” and type the password “S7#qzgrS0”.

```
[setpbimgcno@nextsv_typ1 ~]$
```

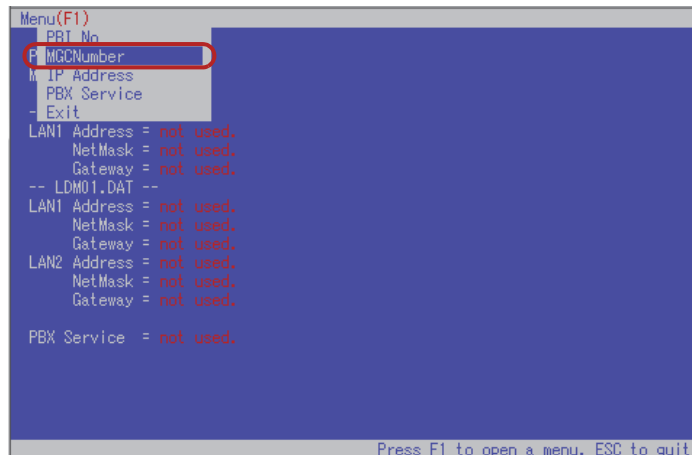
MGCNumber on the screen indicates the MGC number.



```
Menu(F1)
PBT No      = 00
MGCNumber   = 0
-- /etc/sysconfig --
LAN1 Address = not used.
NetMask      = not used.
Gateway      = not used.
-- LDM01.DAT --
LAN1 Address = not used.
NetMask      = not used.
Gateway      = not used.
LAN2 Address = not used.
NetMask      = not used.
Gateway      = not used.
PBX Service  = not used.

Press F1 to open a menu. ESC to quit.
```

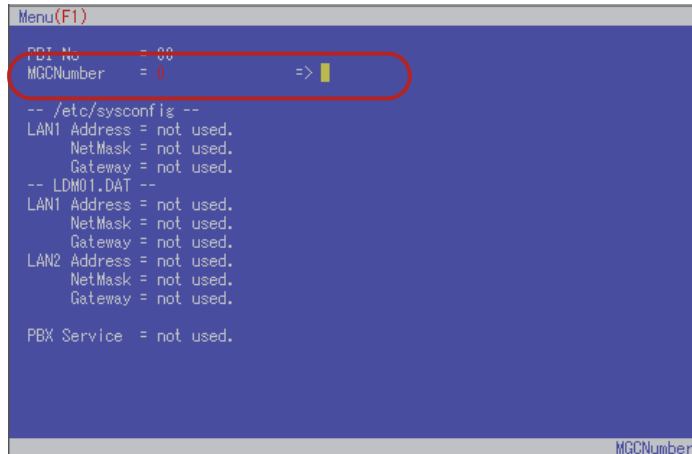
- 9** (1) Press F1 or M key to display items under **Menu**.
(2) Select **MGCNumber** from the menu.



```
Menu(F1)
PBT No
M MGCNumber
M IP Address
M PBX Service
- Exit
LAN1 Address = not used.
NetMask      = not used.
Gateway      = not used.
-- LDM01.DAT --
LAN1 Address = not used.
NetMask      = not used.
Gateway      = not used.
LAN2 Address = not used.
NetMask      = not used.
Gateway      = not used.
PBX Service  = not used.

Press F1 to open a menu. ESC to quit.
```

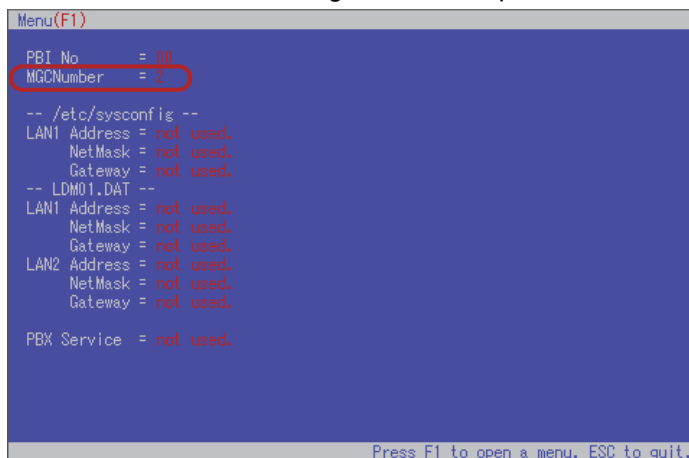
10 Enter the appropriate MGC number.



11 Select **OK** to save the value and press the Enter key.

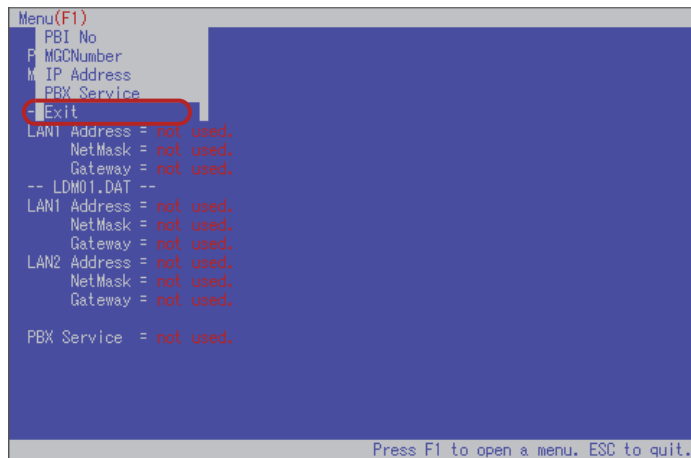


12 Make sure the value in **MGCNumber** is changed, and then press the Enter key.



13

- (1) Press F1 or M key to display items under **Menu**.
- (2) Select **Exit** from the menu.



18.2.2 Using Existing CF Card by Upgrading Program Version

1

- (1) Turn on the maintenance PC to be used for CF card initialization.
- (2) Set the install DVD attached for enabling SR-Node Support SR-MGC(E) in the disk drive.
- (3) Change the maintenance PC setting to boot from DVD-ROM. For details, see a manual for the PC.
- (4) Turn off the power of the maintenance PC.

2

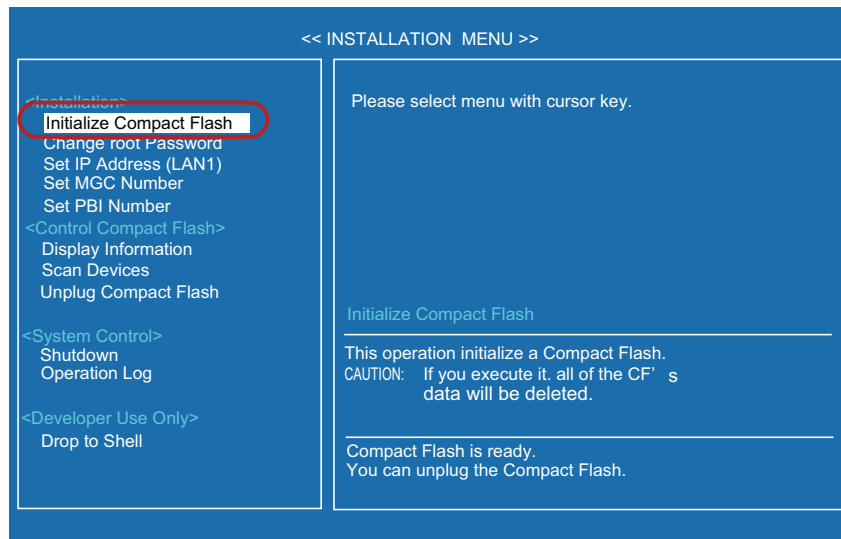
- (1) Insert the CF card into PCMCIA slot.
- (2) Turn on the power of the maintenance PC.

3

INSTALL DVD BOOT OPTIONS MENU screen appears. Select **2. Auto (Keyboard: US)** and then press the Enter key.

4

- (1) **INSTALLATION MENU** screen appears about five minutes later. Select **Initialize Compact Flash** under <Installation> by using the arrow keys on the keyboard and then press the Enter key.
- (2) A confirmation message appears. Select **OK** and press the Enter key.

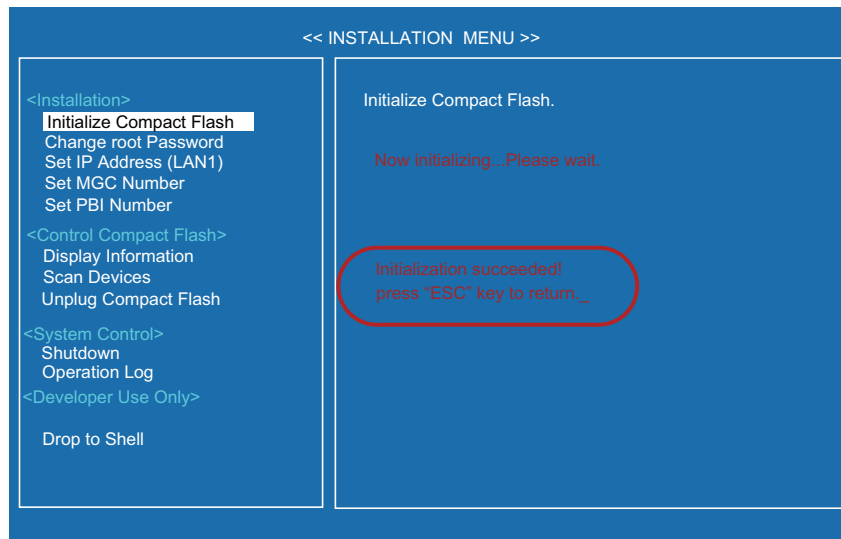


Note: If processing speed of your PC is slow when writing to the CF card, an error may occur. If an error occurs during the installation, the following action is required.

- When the installation process is aborted, remove the DVD-ROM from the tray manually.
- When the PC fails to recognize the CF card, the message "Compact Flash is NOT found..." is displayed. In that case, perform "Scan Devices" under <Control Compact Flash>. If the problem still remains unsolved, you need to use another PC to perform the installation.
- The time to complete the initialization (OS and program Installation) varies depending on the PC used.
- When the CF card is not detected by the PC, the installation cannot be executed. In that case, select **Scan Devices** under <Control Compact Flash> to have the card detected, then execute the initialization again by selecting **Initialize Compact Flash**.

5

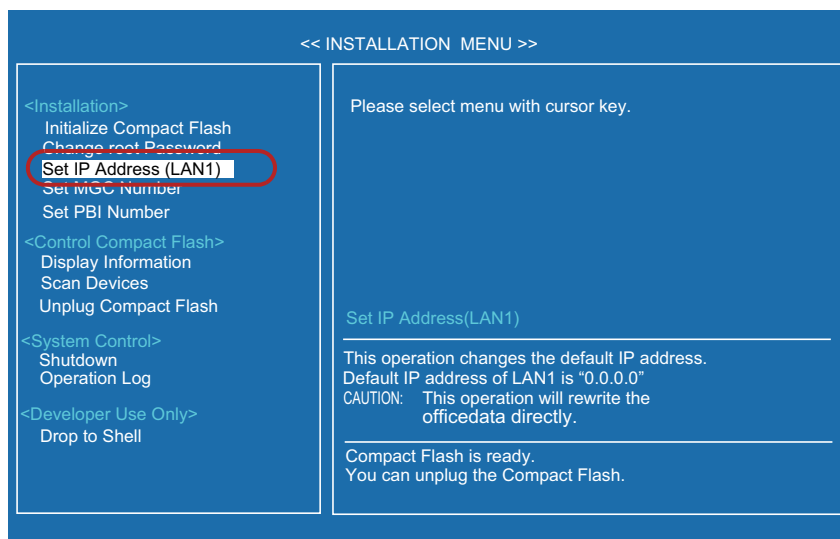
When the initialization is complete, the message “Initialization succeeded! press “ESC” key to return” is displayed. It takes about 20 minutes to complete the initialization.



Note: The time to complete the initialization (OS and program Installation) varies depending on the PC used.

6

Select **Set IP Address (LAN1)** under <Installation> by using the arrow keys on the keyboard and then press the Enter key.



7

- (1) Select "Single" and then press the Enter key.
- (2) Set the values corresponding to your network environment for the following items.

Setting Items

Items	Setting Values
IP Address[ACT]	IP address of LAN1 (e.g. 10.100.1.11)
Subnet Mask	Subnet mask (e.g. 255.255.255.0)
Default Gateway	Default gateway (e.g. 10.100.1.1)

- (3) After the setting is complete, select **OK** and then press the Enter key.
- (4) The message "WARNING! this operation will change the setting in Compact Flash" is displayed. Select **OK** and press the Enter key.
- (5) The message "Succeed. press ESC key to return" is displayed. Press the ESC key.

The screenshot displays the "<< INSTALLATION MENU >>" interface. On the left, a menu lists options: "<Installation>" (with sub-options: Initialize Compact Flash, Change root Password, Set IP Address (LAN1), Set MGC Number, Set PBI Number), "<Control Compact Flash>" (with sub-options: Display Information, Scan Devices, Unplug Compact Flash), "<System Control>" (with sub-options: Shutdown, Operation Log), and "<Developer Use Only>" (with sub-option: Drop to Shell). The right panel shows a prompt: "Please select the CPU redundancy. (Do NOT set it for SR-MGC (E)) (S) ". Two options are visible: "[Single]" and "[Dual]". Below this, a red rounded rectangle highlights the network configuration fields: "IP Address[ACT] : " followed by a text input field, "Subnet Mask :", and "Default Gateway :".

8

Select **Set MGC Number** under <Installation> by using the arrow keys on the keyboard and then press the Enter key.

<< INSTALLATION MENU >>

<Installation> - Initialize Compact Flash - Change root Password - Set IP Address (LAN1) Set MGC Number - Set PBI Number <Control Compact Flash> - Display Information - Scan Devices - Unplug Compact Flash <System Control> - Shutdown - Operation Log <Developer Use Only> - Drop to Shell	Please select menu with cursor key. Set IP Address(LAN1) This operation shuts down the system. Default IP address of LAN1 is "0.0.0.0 CAUTION: This operation will rewrite the officedata directly. Compact Flash is ready. You can unplug the Compact Flash.

9

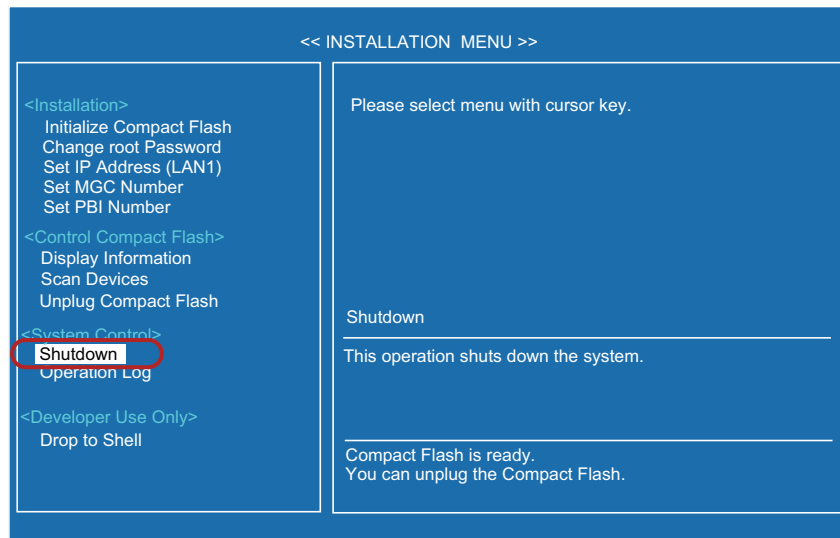
- (1) Type an MGC number [0-255] in the **number** box.
- (2) After the setting is complete, select **OK** and then press the Enter key.
- (3) The message "WARNING! this operation will change the setting in Compact Flash" is displayed. Select **OK** and press the Enter key.
- (4) The message "Succeed. press ESC key to return" is displayed. Press the ESC key.

<< INSTALLATION MENU >>

<Installation> - Initialize Compact Flash - Change root Password - Set IP Address (LAN1) Set MGC Number - Set PBI Number <Control Compact Flash> - Display Information - Scan Devices - Unplug Compact Flash <System Control> - Shutdown - Operation Log <Developer Use Only> - Drop to Shell	Set MGCNumber Please Input new MGCNumber [0-255]. number : [OK] [CANCEL]

10

- (1) Select **Shutdown** under <System Control> by using the arrow keys on the keyboard and then press the Enter key.
- (2) A confirmation message appears. Select **OK** and then press the Enter key.
- (3) The DVD tray is automatically ejected and the PC is turned off.
- (4) Take the CF card out of the slot.



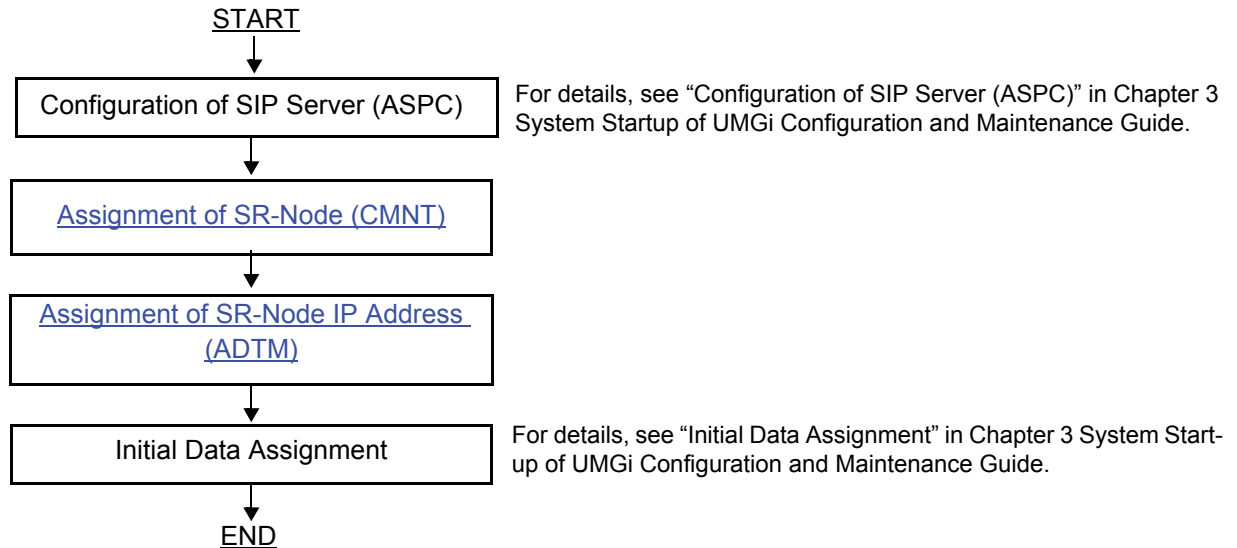
11

If you have changed the PC setting to boot from DVD-ROM, restore the setting.

18.3 Office Data Setting for SR-Node Support SR-MGC(E)

Follow the steps below to set the office data for SR-Node Support SR-MGC(E).

Note: This section needs to be performed when each Primary Node (RN) connects to Primary Node (CCN) and operates in normal mode after rebooting each Primary Node (RN) is completed.



18.3.1 Assignment of SR-Node (CMNT)

Note: This procedure is required only for Primary Node.

Assign MGC numbers of Survivable Remote Node through the **CMNT** command.

1

Execute the **CMNT** command and click the **Setting** tab. Type an MGC number (1-255 **Note 1**) of Survivable Remote Node in the **MGC No.** box and then click the **Get** button.

The screenshot shows a web-based interface for the CMNT command. At the top, there are several tabs: "Setting" (which is selected and highlighted with a blue border), "FTP Server Setting", "Priority", "Initialize", "Change Operating", and "File Control". Below the tabs, there is a label "MGC No." followed by a text input field. To the right of the input field, there are three buttons: "Get" (highlighted with a blue border), "Set", and "Del".

Note1: Survivable Remote Nodes use MGC numbers in a range of 1-255. MGC number "0" is not available for Survivable Remote Nodes.

2

Assign the following parameters. After all the required parameters are set, click the **Set** button. For more details on each parameter of the **CMNT** command, refer to the Operations and Maintenance Manual.

<Configuration of Survivable Remote Node>

MGC Kind: Choose “Survivable Remote Node.”

LP No.: Set a LP Number of the target Survivable Remote Node.

Model: Choose “E (SR-MGC(E))” as Survivable Remote Node hardware type.

Configuration of CPU: Choose “Single” as CPU configuration of the specified Survivable Remote Node.

Office Name: Type the office name of the specified Survivable Remote Node (up to 20 digits).

Number of Ports: Enter the number of port licenses for the specified Survivable Remote Node. **Note 2**

IP Address: Blank (IP address is to be assigned through the ADTM command in the later step.)

Mode: Choose the specified Survivable Remote Node’s change over/change back timing.

Assigning MA-ID: Clear the check box (Fixed).

ACDP: Place a check mark to use Call Distribution. **Note 3**

Call Distribution: Choose “ACD” for using ACD call distribution method or “UCD” for using UCD call distribution method of ACDP for MGC. **Note 3**

Note 2: The maximum 8192 port licenses can be purchased.

Note 3: This parameter is not used in North America.

18.3.2 Assignment of SR-Node IP Address (ADTM)

Note: This procedure is required only for Primary Node.

Assign IP addresses of Survivable Remote Nodes through the ADTM command. For detailed procedure, see “Assignment of IP Address for SR-Node (ADTM)” in Chapter 3 (for Appliance Model)/Chapter 4 (for Prepackaged Server Model) of this manual.

18.4 Backup of Office Data (2) - Primary Node (CCN)/Primary Node (RN)

Back up the office data of Primary Node (CCN)/Primary Node (RN) to a CF card with the MEM_HDD command. For detailed procedure, see “Backup of Office Data (2) - CCN/RN” in Chapter 3 System Startup of UMGi Configuration and Maintenance Guide.

18.5 Downloading Office Data - Primary Node (CCN)/Primary Node (RN)

Download the office data of Primary Node (CCN)/Primary Node (RN) to a maintenance PC For detailed procedure, see “Downloading Office Data - CCN” in Chapter 3 System Startup of UMGi Configuration and Maintenance Guide.

18.6 Initial Startup of SR-Node

As in the case of Survivable Remote Node, upload the Primary Node (CCN) office data which has been downloaded in “[18.5 Downloading Office Data - Primary Node \(CCN\)/Primary Node \(RN\)](#)” process when installing the license. For details on the procedure, see [8. Initial Startup of Primary Node \(RN\)](#) in Chapter 5.

18.7 Trouble Shooting

Restoring methods if the system started with invalid configuration such as mismatch of the license and the hardware, see [14.3 Trouble Shooting](#) in Chapter 3.

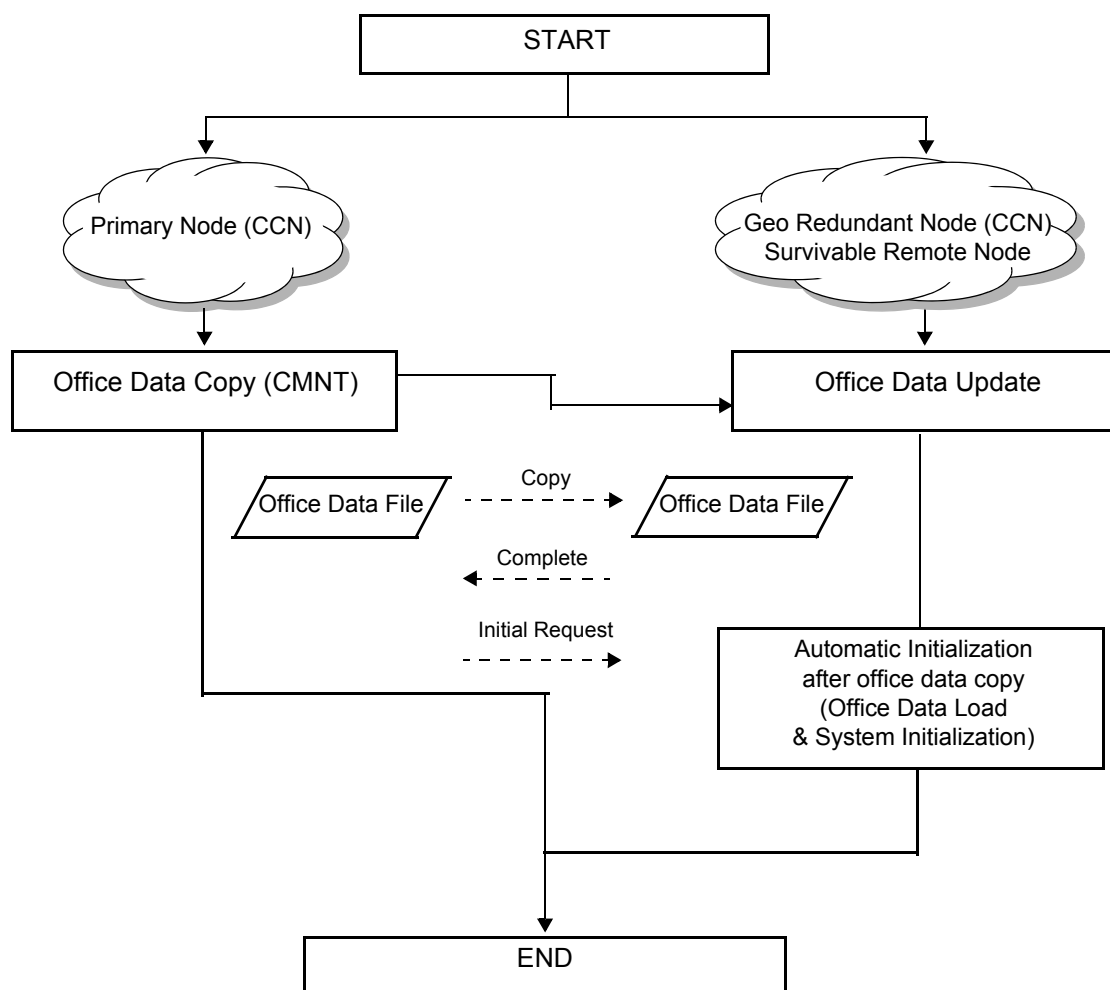
19. Office Data Copy While Operating

This section explains the procedure to copy the office data while the system is operating after the system startup in completed.

19.1 From Primary Node (CCN) to GR-Node (CCN)/SR-Node (CMNT)

Follow the steps below to copy the office data from Primary Node (CCN) to Geo Redundant Node (CCN) /Survivable Remote Node (**Note 1**) while the system is operating. For detailed procedure, see “Office Data Copy from Primary Node to GR-Node/SR-Node/SR-MGC” in Chapter 3 (for Appliance Model)/Chapter 4 (for Pre-packaged Server Model) of this manual/CMNT command of the Operations and Maintenance Manual.

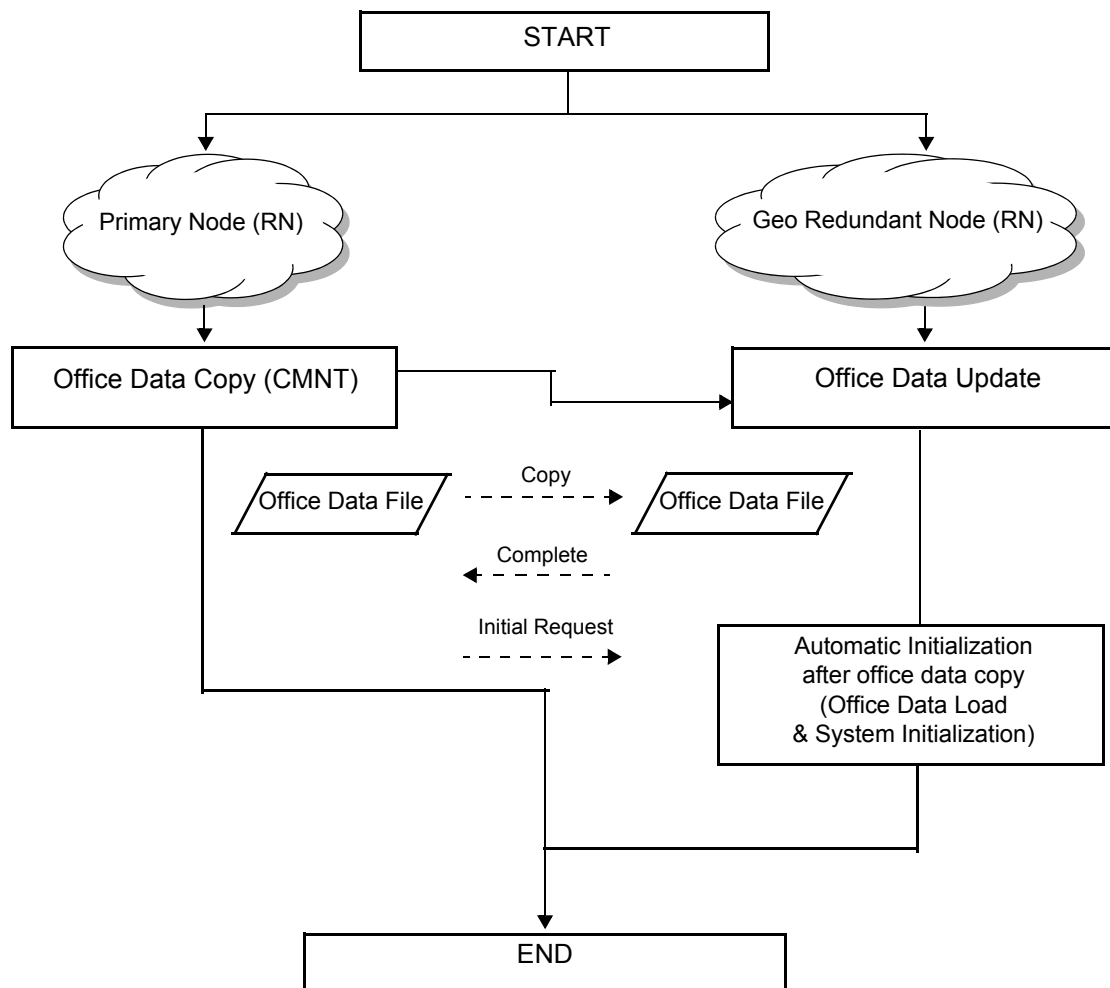
Note 1: Office data copy from Geo Redundant Node (CCN) in operating mode to Primary Node (CCN) in standby mode is also available.



19.2 From Primary Node (RN) to GR-Node (RN) (CMNT)

Follow the steps below to copy the office data from Primary Node (RN) to Geo Redundant Node (RN) within the same LP number (**Note 1**) while the system is operating. For detailed procedure, see “Office Data Copy from Primary Node to GR-Node/SR-Node/SR-MGC” in Chapter 3 (for Appliance Model)/Chapter 4 (for Prepackaged Server Model) of this manual/CMNT command of the Operations and Maintenance Manual.

Note 1: Office data copy from Geo Redundant Node (RN) in operating mode to Primary Node (RN) in standby mode is also available.





CHAPTER 6

OFFICE DATA SETTINGS

This chapter describes office data settings concerning Geographic Redundancy.

1. Initial Data Assignments

The following describes only the specific office data settings for Geographic Redundancy. The other necessary basic office data settings for starting up the system are the same as for the conventional case; see “System Configuration Data Assignment” and “Initial Data Assignment” in Chapter 6 System Startup of the Appliance Model Installation Manual.

Note: Necessary office data settings on SR-MGC are the same as the conventional case; see [S-141] Survivable Remote MGC on the Data Programming Manual and Peripheral Equipment Description - IP Devices.

1.1 Data Assignment of Primary Node

[1] Assignment of System Data (ASYD)

Assign the system data show in the table below.

System Data	Index	Bit	Description
ASYD, SYS1	182, 183	b0-b7	Centralized billing Point Code - In the case where a Geo Redundant Node exists 00 HEX (fixed) - In the case where a Geo Redundant Node does not exist (a combination of Primary Node and Survivable Remote Node/SR-MGC) To operate the node as Center Node, assign 00 HEX. To operate the node as a Local Node, assign the Point Code of Center Node. Note: Assign 00 HEX (fixed) when CCIS Networking via IP [C-163] by PHC is not used in combination with Geographic Redundancy.
	184, 185	b0-b7	Centralized Management Report Point Code - In the case where a Geo Redundant Node exists 00 HEX (fixed) - In the case where a Geo Redundant Node does not exist (a combination of Primary Node and Survivable Remote Node/SR-MGC) To operate the node as Center Node, assign 00 HEX. To operate the node as a Local Node, assign the Point Code of Center Node. Note: Assign 00 HEX (fixed) when CCIS Networking via IP [C-163] by PHC is not used in combination with Geographic Redundancy.

[2] Assignment of System Data (ASYDL)

Assign the system data show in the table below.

System Data	Index	Bit	Description
ASYDL, SYS1	844, 845	b0-b7	Specify the total number of Geo Redundant Nodes + Survivable Remote Node and SR-MGC) to which office data is automatically copied after the routine diagnosis.
	847	b0-b3	Specify a time required until IP Station Registration Changeover is executed. 00 HEX. = 70 minutes (default) 01 - 0E HEX. = set value x 5 minutes (5 to 70 minutes) 0F HEX. = Reset of IP Station Registration Changeover is not executed.
		b4	Tone sending for Rest of IP stations 0=Tone is not sent. 1=Tone is sent.
		b6	Office Data Copy Method 0 = Automatic (fixed)
	850	b0-b7	Health Check cycle (Note 1 , Note 2) between: - Primary Node - Geo Redundant Node - Primary Node (or Geo Redundant Node) - Survivable Remote Node - Primary Node (or Geo Redundant Node) - SR-MGC 00 HEX. = 30 seconds (default) 01 - 0F HEX. = 15 seconds (Not allowed to set) 10 - FE HEX. =16 - 254 seconds Note 1: It is recommended to assign at least 30 seconds (default) for Health Check cycle when 200 or more SR-MGC units are set for a MGC. Note 2: To change the health check data with the ASYDL, SYS1, Index 850, follow the procedure explained in Command Manual. For details, see the note on ASYDL, SYS1, Index 850 in Command Manual.
	851	b0-b7	Time-out to receive Health Check response between: - Primary Node - Geo Redundant Node - Primary Node (or Geo Redundant Node) - Survivable Remote Node - Primary Node (or Geo Redundant Node) - SR-MGC 00 HEX. = 5 seconds (default) 01 - 05 HEX. = 5 seconds 06 HEX. - FE HEX. = 6 - 254 seconds

System Data	Index	Bit	Description
ASYDL, SYS1	852	b0-b3	Error Detection and determination of the number of times of Health Check error to consider the communication failure between: - Primary Node - Geo Redundant Node - Primary Node (or Geo Redundant Node) - Survivable Remote Node - Primary Node (or Geo Redundant Node) - SR-MGC 00 HEX. = Twice (default) 01 - 02 HEX. = Twice 03 - 0F HEX. = 3 - 15 times
		b4	System Message output for [10-F] Communication Failure and [10-G] Communication Recovery between: - Primary Node (or Geo Redundant Node) - Survivable Remote Node - Primary Node (or Geo Redundant Node) - SR-MGC 0/1 = Out of service/In service
		b5	IP Station Registration Changeover 0/1 = Manual Changeover/Automatic Changeover
	1354	b0	Geographic Redundancy service 1 = In service
		b1	Office Data management restrictions in a network with Geographic Redundancy [For Non-UMGi system] 0 = Permit the creation, editing and deletion of Office data only on the Primary Node 1 = Permit the creation, editing and deletion of Office data on the Primary Node or operating Geo Redundant Node [For UMGi-enabled Geographic Redundancy system] 0 = Permit the creation, editing and deletion of Office data only on the Primary Node (CCN) 1 = Permit the creation, editing and deletion of Office data on the Primary Node (CCN) or operating Geo Redundant Node (CCN) (Recommended)
		b2	Priority of Automated Transition to Standby 0/1 = Giving priority to Primary Node/Giving priority to the node in operating mode Note: Normally, assign "0".
		b3	Ongoing call retention when IP Station Registration Changeover is manually performed 0/1 = Out of service/In service Note: This data is valid when ASYDL, SYS1, Index 852, Bit 5 = 0 (Manual Changeover). Note: This Ongoing call retention is available on the Primary Node and the Geo Redundant Node only (not available on Survivable Remote Node and SR-MGC).

System Data	Index	Bit	Description
ASYDL, SYS1	1354	b4	Not used.
		b5	System message output (10-T/10-U) for Health Check error (for Primary Node and Geo Redundant Node) 0/1 = Out of service/In service
		b6	Automatic copy of Office Data to standby Geo Redundant Nodes (RN) after routine diagnosis 0/1 = Out of service/In service Note: The automatic copy function is available only when the Geo Redundant Node (RN) as the copy source is operating in normal mode.

[3] Assignment of Key Data for IP station (**AKYD**)

Assign the Visitor feature to the Line/Feature Key of the terminal, which makes it re-register to the Primary Node.

KYI=1 (Function Key)

FKY:156 (Visitor)

[4] Control of MGC Maintenance Data (**CMNT**)

- Register an MGC number of the self MGC. For details on the settings, see the followings:
For single configuration of Appliance Model: [6.4 Assignment of Self MGC](#) in Chapter 3
For dual configuration system of Alliance Model: [7.4 Assignment of Self MGC](#) in Chapter 3
For Prepackaged Server Model: [5.4 Assignment of Self MGC](#) in Chapter 4
- Register all the Geo Redundant Nodes, Survivable Remote Nodes and SR-MGCs. For details on the settings, see the followings:
For single configuration of Appliance Model: [6.12 Assignment of IP Address for GR-Node/SR-Node \(ADTM\)](#) in Chapter 3
For dual configuration system of Alliance Model: [7.11 Assignment of GR-Node/SR-Node/SR-MGC \(CMNT\)](#) in Chapter 3
For Prepackaged Server Model: [5.9 Assignment of GR-Node/SR-Node/SR-MGC \(CMNT\)](#) in Chapter 4
- Set the priority order of Geo Redundant Nodes through the **Setting of Operating Change Priority** parameter on the **Priority** tab. For details on the settings, see the Operations and Maintenance Manual.

[5] Assignment of Data for TCP/IP Module (**ADTM**)

Assign IP address, routing data and NIC data of all the Primary Node/Geo Redundant Nodes/Survivable Remote Nodes. For details on the setting, see the startup section of Chapter 3/ Chapter 4 or the Command Manual.

[6] Data Control Between Memory and HDD (**MEM_HDD**)

Back up the office data to the memory to the hard disk. For details on the settings, see the Operations and Maintenance Manual.

1.2 Data Assignment of GR-Node/SR-Node

[1] Assignment of System Data (**ASYDL**)

Assign the system data show in the table below.

System Data	Index	Bit	Description
ASYDL, SYS1	1354	b0	Geographic Redundancy service 1 = In service

[2] Control of MGC Maintenance Data (**CMNT**)

- Register an MGC number of the self MGC. For details on the settings, see the followings:

For single configuration of Appliance Model: [6.11 Assignment of GR-Node/SR-Node/SR-MGC \(CMNT\)](#) in Chapter 3

For dual configuration system of Alliance Model: [7.11 Assignment of GR-Node/SR-Node/SR-MGC \(CMNT\)](#) in Chapter 3

For Prepackaged Server Model: [5.9 Assignment of GR-Node/SR-Node/SR-MGC \(CMNT\)](#) in Chapter 4

For SR-MGC(E): [14.2 Office Data Setting for SR-Node Support SR-MGC\(E\)](#) in Chapter 3

[3] Assignment of Data for TCP/IP Module (**ADTM**)

Assign IP address, routing data and NIC data of the self MGC. For details on the setting, see the startup section of Chapter 3/ Chapter 4 or the Command Manual.

[4] Assignment of Date and Time (**ATIM**)

Set the date and time for the system through the ATIM command. For more details on the ATIM command, see the Command Manual.

[5] Data Control Between Memory and HDD (**MEM_HDD**)

Back up the office data to the memory to the hard disk. For details on the settings, see the Operations and Maintenance Manual.

1.3 Data Assignment for Inter-Node Information Synchronization

To synchronize SIP terminal authentication information and Day/Night mode information in Primary Node with those in Geo Redundant Nodes in the Geographic Redundancy system, the following data settings are required.

Note: This feature is available since FP95-114 V4.

[1] Assignment of System Data (ASYDL)

Assign the system data show in the table below.

System Data	Index	Bit	Description
ASYDL, SYS1	1357	b0	Synchronization of SIP terminal authentication information 0 = In service 1 = Out of service
		b1	Synchronization of Day/Night mode information 0 = In service 1 = Out of service Note 1

Note 1: In the either of the following cases, synchronization of Day/Night mode information cannot be used. Set ASYDL, SYS1, Index 1357, Bit 1=1(Out of service).

- Night mode attendant console (Night Mode 1) is used.
- External key (Night Mode 2) is used.
Trunk Answer from Any Station (TAS) is in service (ASYD, SYS2, Index 11, Bit 6=1 is set).

2. Data Assignment For Other Services

2.1 Data Assignment for FCCS Redundancy

When a system using Geographic Redundancy is included in a FCCS network as NCN/LN, the following data settings are required in addition to the conventional settings for FCCS over IP. These data settings are required to all the NCN/LNs originating FCCS calls to a node in the Geographic Redundancy system.

For details on the conventional settings of FCCS over IP, see FCCS Networking via IP [F-36] in the Data Programming Manual.

[1] Assignment of FCCS over IP Data (**AFIPN**)

Assign a FPC of the Geographic-Redundancy node and IP addresses of the Primary Node and Geo Redundant Nodes (up to 8 addresses).

FPC: Enter a FPC of the Primary Node.

FCCS IP Address Redundancy Function: Click the check box.

[IP Address list]

CNT: Number of IP address (1-8)

IP Address: Assign IP addresses of the Primary Node and Geo Redundant Nodes (LAN1 ACT).

2.2 Data Assignment for CCIS Networking via IP

The following describes only the specific office data settings to enable CCIS Networking via IP (By PHC) [C-163] in Geo Redundant Nodes. These data settings are required to all the nodes originating a CCIS call to a node in the Geographic Redundancy system.

For the other information on office data settings, see CCIS Networking via IP [C-163] in Data Programming Manual - CCIS.

Note: Geo Redundant Nodes support CCIS Networking via IP [C-163] since FP95-114 V4.

[1] Assignment of System Data (**ASYDL**)

Assign the system data show in the table below.

System Data	Index	Bit	Description
ASYDL, SYS1	671	b0-3	Timer for alternate routing (response message "no-receiving" timer) if IP network failure occurs Note 1
	803	b3	Health Check in CCIS Networking via IP 0 = Valid
		b7	Alternate routing to PHC (Peer-to-Peer) 0 = Executed
	804	b7	Preference of alternated destination for alternate routing in CCIS Networking via IP connection 1 = IP address of destination node

Note 1: Time Length Until Call Arrival = Time Out x Number of Alternative Routings

[2] Assignment of IP Address Data for Point Code (APIPL)

PC: Assign the Point Code of the destination node.

CNT: Assign the counter number. (1-8)

IP ADDRESS: Assign the IP address for the destination point code

Note: Assign the IP address for the destination point code in the APIPL command as shown in the table below.

If the Setting of Operating Change Priority data is changed in the Priority tab of the CMNT command, update the registration order of the counter number (CNT) to match the CMNT data.

CNT	Destination Node		IP Address to Be Assigned
CNT1	IMG/MMG		Assign IP address of Primary Node.
	UMGi	CCN	Assign IP address of Primary Node (CCN)
CNT2 to CNT8	IMG/MMG		Assign IP address of Geo Redundant Nodes according to a priority order assigned in the CMNT command.
	UMGi	CCN	Assign IP address of Geo Redundant Nodes (CCN) according to a priority order assigned in the CMNT command.

MODE: Choose “Switched Virtual Connection”.

LKRCN: 1 (Link Reconnection can be provided when more than 3-link configuration between two nodes in CCIS Networking via IP (Point to Multipoint)).

Keep Destination IP Address: ON

The IP address for the destination PC is retained. Each call will arrive at the destination node of the assigned IP address. The destination of alternative routing changes in the order of CNT registration. After a call reroutes to the node registered to the last CNT, it returns to the head of the order.

Note: When this parameter is set to OFF, the first destination of each call follows CIC number and then the destination of alternative routing changes in the order of CNT registration.

*The rest of the data above is to be assigned according to your network condition.

The table below shows the relationship among parameters in the data assignments for CCIS Networking via IP.

CIC Group Number in ACSC (GROUP)	Count Number in APIPL (CNT)	Circuit Identification Code (CIC)							IP Address for Destination Point Code in APIPL (IP ADDRESS)
0	1	-	8	16	24	32	to	992	IP Address written in APIPL CNT1
1	2	1	9	17	25	33	to	993	IP Address written in APIPL CNT2
2	3	2	10	18	26	34	to	994	IP Address written in APIPL CNT3
3	4	3	11	19	27	35	to	995	IP Address written in APIPL CNT4
4	5	4	12	20	28	36	to	996	IP Address written in APIPL CNT5
5	6	5	13	21	29	37	to	997	IP Address written in APIPL CNT6
6	7	6	14	22	30	38	to	998	IP Address written in APIPL CNT7
7	8	7	15	23	31	39	to	999	IP Address written in APIPL CNT8



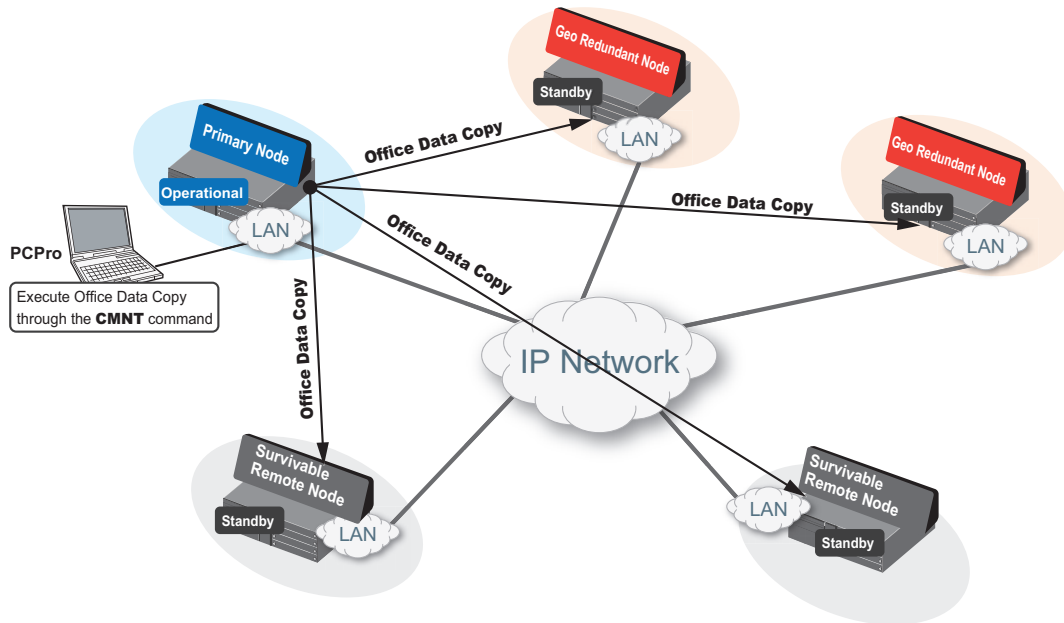
CHAPTER 7 OPERATION AND MAINTENANCE

This chapter describes operation and maintenance of Geographic Redundancy.

1. Office Data Copy

For IMG/MMG system, while the Geographic Redundancy system is operating normally, the office data copy from Primary Node to all nodes (Geo Redundant Node/Survivable Remote Node /SR-MGC) is available with the CMNT command. The office data copy is operated from Primary Node.

Office Data Copy from Primary Node to GR-Node/SR-Node

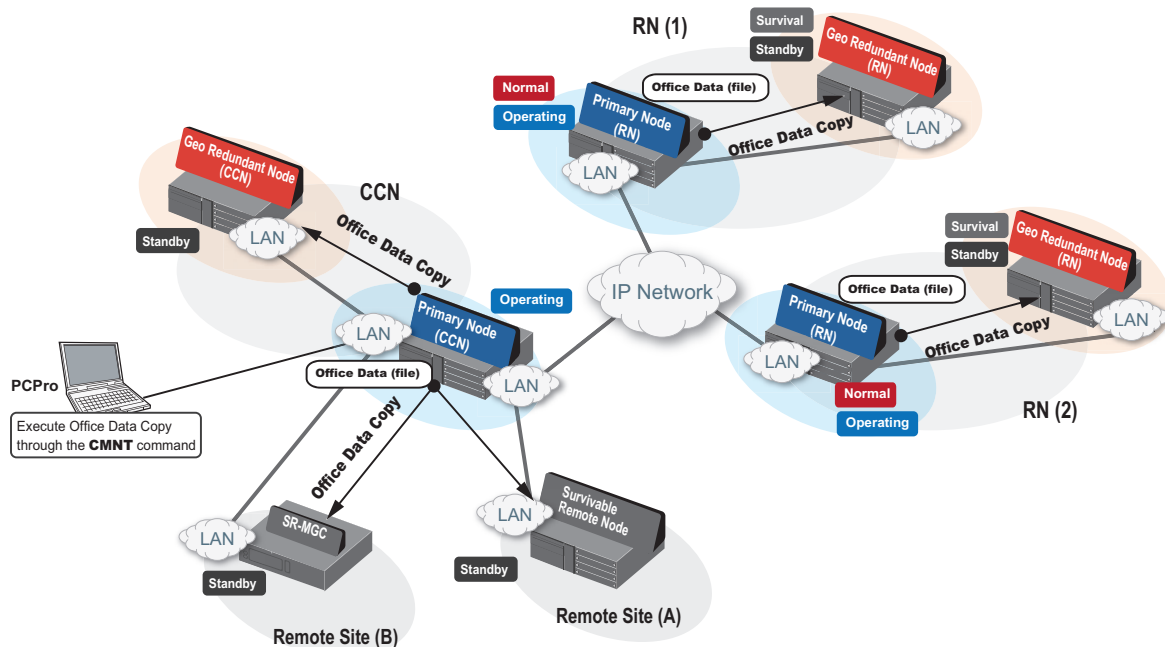


When the value “1” is set to ASYDL, SYS1, Index 1354, Bit 1 (Office Data management restrictions in a network with Geographic Redundancy), office data can be copied from Primary Node or an operating-mode Geo Redundant Node to all nodes (Geo Redundant Node/Survivable Remote Node /SR-MGC/standby-mode node) with the CMNT command. In this case, office data copy is operated either from Primary Node an operating-mode Geo Redundant Node.

Note: Whether Primary Node is in operating mode or not, the Primary Node can copy the office data to Geo Redundant Node, Survivable Node, SR-MGC and standby-mode nodes.

For UMGi system, while the Geographic Redundancy system is operating normally, the office data copy from Primary Node (CCN) to Geo Redundant Node (CCN)/Survivable Remote Node /SR-MGC) with the CMNT command. The office data copy is operated from Primary Node (CCN).

As for RN, the office data copy from Primary Node (RN) to Geo Redundant Node (RN)) is available. The office data copy is operated from Primary Node (RN)



When the value “1” is set to ASYDL, SYS1, Index 1354, Bit 1 (Office Data management restrictions in a network with Geographic Redundancy), office data can be copied from Primary Node (CCN) or an operating-mode Geo Redundant Node (CCN) to standby-mode Geo Redundant Node (CCN)/standby-mode Primary Node (CCN)/Survivable Remote Node /SR-MGC with the CMNT command. The office data copy is operated either from Primary Node (CCN) or an operating-mode Geo Redundant Node (CCN).

As for RN, office data can be copied from Primary Node (RN) or an operating-mode Geo Redundant Node (RN) to standby-mode Geo Redundant Node (RN)/standby-mode Primary Node (RN). The office data copy is operated either from Primary Node (RN) or an operating-mode Geo Redundant Node (RN).

Note: Please note the following conditions:

- Whether Primary Node (CCN) is in operating mode or not, the Primary Node (CCN) can copy the office data to Geo Redundant Node, Survivable Node, SR-MGC and standby-mode nodes. Whether Primary Node (RN) is in operating mode or not, the Primary Node (RN) can copy the office data as well.
- With the CMNT command, office data copy is not available from Primary Node (CCN)/Geo Redundant Node (CCN) to Primary Node (RN)/Geo Redundant Node (RN) and vice versa.

Office Data Copy

Type of System	ASYDL, SYS1, Index 1354, Bit 1		Office Data Copy	
			Copy From (Executed by)	Copy To
IMG/MMG system	0	Permit the creation, editing and deletion of Office data only on the Primary Node	Primary Node	- Geo Redundant Node - Survivable Remote Node - SR-MGCs
UMGi system		Permit the creation, editing and deletion of Office data only on the Primary Node (CCN)	Primary Node (CCN)	- Geo Redundant Node (CCN) - Survivable Remote Node - SR-MGC
			Primary Node (RN)	Geo Redundant Node (RN)
IMG/MMG system	1	Permit the creation, editing and deletion of Office data on the Primary Node or operating Geo Redundant Node	- Primary Node or - Operating-mode Geo Redundant Node	- Standby-mode Geo Redundant Node - Survivable Remote Node - SR-MGC
UMGi system		Permit the creation, editing and deletion of Office data on the Primary Node (CCN) or operating Geo Redundant Node (CCN) (Recommended)	- Primary Node (CCN) or - Operating-mode Geo Redundant Node (CCN)	- Standby-mode Primary Node (CCN) - Standby-mode Geo Redundant Node (CCN) - Survivable Remote Node - SR-MGC
			- Primary Node (RN) or - Operating-mode Geo Redundant Node (RN)	- Standby-mode Primary Node (RN) - Standby-mode Geo Redundant Node (RN)

Follow the steps below to copy the office data from Primary Node to all the Geo Redundant Nodes/Survivable Remote Nodes/SR-MGCs.

1

Connect the PCPro with a node executing the office data copy.

Note: The node executing the office data copy differs depending on the system data setting (ASYDL, SYS1, Index 1354, Bit 1).

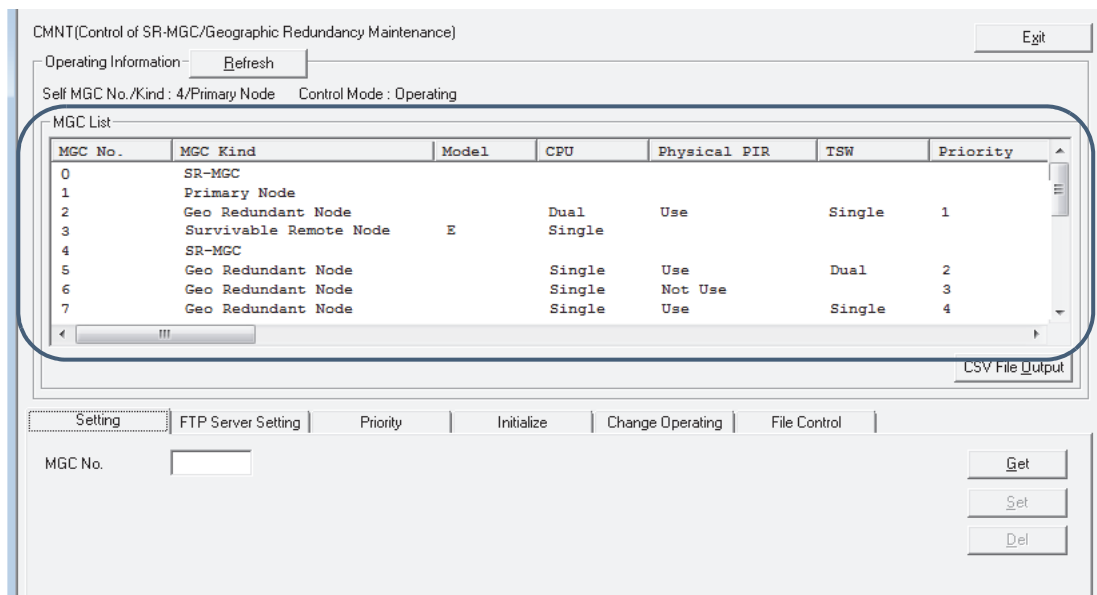
- When ASYDL, SYS1, Index 1354, Bit 1=0 is set, connect the PCPro with Primary Node (in case of UMGi system, Primary Node (CCN)).
- When ASYDL, SYS1, Index 1354, Bit 1=1 is set, connect the PCPro with Primary Node or an operating-mode Geo Redundant Node (in case of UMGi system, Primary Node (CCN) or an operating-mode Geo Redundant Node (CCN)).

2

Execute the **CMNT** command. Check the status of each MGC in the **MGC List** box. To execute the office data copy, **Control Mode** of each MGC must be **Standby**. For details on each item of the **MGC List** box, see the Maintenance Command section in Operation and Maintenance Manual.

Note: For conditions concerning the office data copy, see [Chapter 2 SERVICE CONDITIONS](#) in this manual.

Note: When you try to perform the first office data copy from the Primary Node during the initial setup, “NG” will be displayed in the **STS** column of **MGC List**. However, the office data copy is available.



3

Click the **File Control** tab. Choose **Office Data Copy & Load** for **PROCESS TYPE** and click the **Select All** button to copy the office data to all the Geo Redundant Nodes/Survivable Remote Nodes/SR-MGCs. The meanings of displayed data are as follows:

COLOR	STATUS
Gray	MGC number is not assigned/Not applicable
Cyan	Cannot execute, because the target MGC is the self MGC or either of the following nodes which manage office data: Primary Node and Geo Redundant Node Note 1
White	No processing request
Yellow	On standby (Already requested to execute the process)
Blue	Under processing
Green	Succeeded in processing
Red	Failed in processing

PROCESS TYPE

☒ Office Data Copy & Load ☐ Program Copy ☐ Program Switch

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

MGC No. Filtering

☒ Select All

MGC Kind

☒ SR-MGC

☒ Survivable Remote Node

☒ Geo Redundant Node

☒ Primary Node

Note 1: For UMGi system, Primary Node (CCN), Geo Redundant Node (CCN), Primary Node (RN) and Geo Redundant Node (RN) are applied.

4

Click the **Execute** button to start the office data copy.

Note: To cancel the office data copy during the process, click the **Stop** button. The message "Executed process was stopped." appears.

5

After the office data copy to all the MGCs is completed successfully, the message "Executed process succeeded." appears.

If any of the MGCs failed in the office data copy, the message "Executed process failed." appears.

2. Program Version Upgrade

Program Version Upgrade is performed on each node in a Geographic Redundancy system. Before starting the Program Version Upgrade operation, be sure to change the mode of each node to standby mode and change the registration destination of IP devices/stations to another node if they are under the node to be upgraded.

Program Version Upgrade procedure on each node is the same as for the conventional case. See the following manuals:

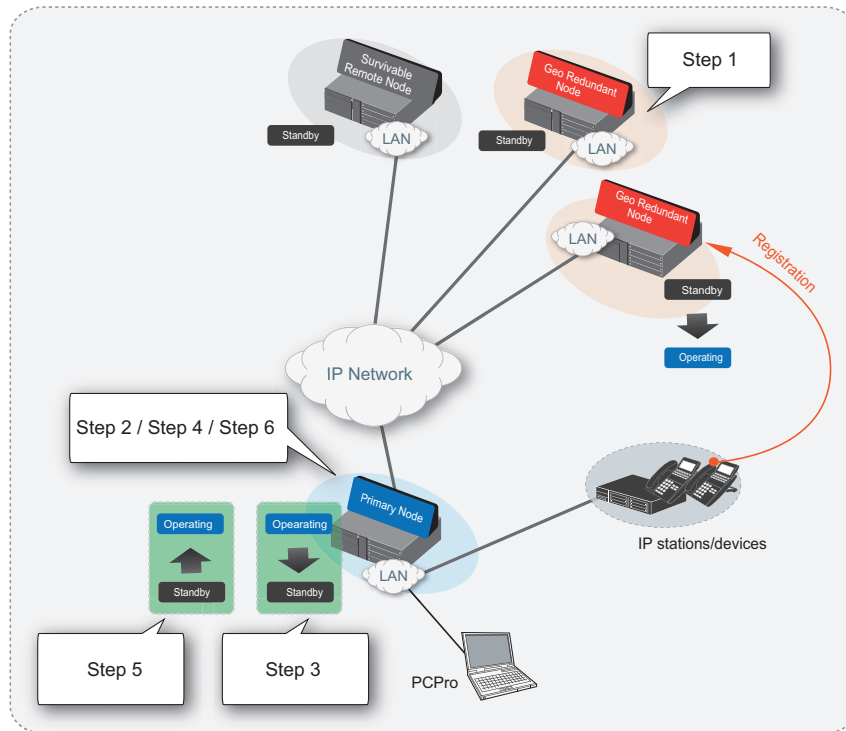
- SV9500 Appliance Model
Program Version Upgrade section in Chapter 6 of SV9500 Appliance Model Installation Manual
- SV9500 Prepackaged Server Model
Program Version Upgrade section in Chapter 3 of SV9500 Prepackaged Server Model Installation and Operation Manual **Note 1**
- SV9500 UMGi
Program Version Upgrade section in Chapter 5 of SV9500 UMGi Configuration and Maintenance Guide

Note 1: For minor program version upgrade of SV9500 Prepackaged Server Model, in the Change of the Guest OS (SV9500) Settings section, Primary Node's IP addresses are displayed in the console during the step that you select "PBX service" from Menu.
This applies to any Geographic-Redundancy node even if it is not Primary Node.

Note: While the Geographic Redundancy system is operating, Primary Node and all the Geo Redundant Nodes must have the same version and issue of SV9500 software. (The version and issue of the software on the Survivable Remote Node must be same or higher than that on the Primary Node/Geo Redundant Node.) In the case of the Program Version Upgrade operation, it is possible to operate the Geographic Redundancy system even if each node has the different version and issue of SV9500 software.

An example of operating procedure for program version upgrade is explained below when the following number of nodes are contained in a Geographic Redundancy system:

- Primary Node: 1
- Geo Redundant Node: 2
- Survivable Remote Node: 1



- Operation in the Geo Redundant Node/Survivable Remote Node side

Step1: Upgrade the program version on each standby-mode node (Geo Redundant Node/ Survivable Remote Node).

- Operation in the Primary Node side

Step2: In the **MGC List** of the **CMNT** command, ensure the following display in the row of **MGC Kind: Geo Redundant Node**. **Note 2**

- In the **STS** column, "OK" is displayed.
- In the **Control Mode** column, "Standby" is displayed.

Step3: For the operating-mode node (Primary Node), with the CMNT command, change its mode to standby mode in order to change the registration destination of devices/stations registered to the Primary Node to a Geo Redundant Node. **Note 2**

Step4: In the **MGC List** of the **CMNT** command, ensure the following display in the row of **MGC Kind: Primary Node**.

- In the **Control Mode** column, “Standby” is displayed.
- In the **Connect CNT** column, “0” is displayed (no device/terminal registrations).

When the Primary Node is in the state where devices/stations are not registered, upgrade the program version of the node. **Note 2**

- Operation in the Primary Node side in the case of returning the Primary Node to operating mode

Step5: Change the mode of the Primary Mode to operating mode with the CMNT command (change the mode of the Geo Redundant Node, which was changed to operating mode in [Step 3](#), to standby mode in order to change the registration destination of devices/stations registered to the Geo Redundant Node to Primary Node). **Note 2**

Step6: In the **MGC List** of the **CMNT** command, ensure the following display in the row of **MGC Kind: Primary Node**.

- In the **Control Mode** column, “Operating” is displayed.
- Geo Redundant Node which is in operating mode in [Step 3](#) is changed to standby mode (**Control Mode: Standby**). Ensure that devices/terminals which are registered to the Geo Redundant Node in [Step 3](#) are re-registered to the Primary Node (determined by the number in the **Connect CNT** column). **Note 2**

Note 2: For details of **CMNT** command, see Operations and Maintenance Manual.

UNIVERGE SV9500

Geographic Redundancy Configuration Manual

NWD-180351-001

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