

UNIVERGE SV9500

FP95-114 V4

Data Programming Manual - OAI

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UNIVERGE SV9500

Data Programming Manual - OAI

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CHAPTER 1

INTRODUCTION

1. GENERAL

This manual describes the outline, installation procedures/installation tests, and various phases of maintenance work of an Open Application Interface (OAI) system that recognizes the Telephony Server and a computer system.

2. HOW TO FOLLOW THE MANUAL

2.1 Configuration of This Manual

Configuration of this manual is shown in Configuration of This Manual.

Configuration of This Manual

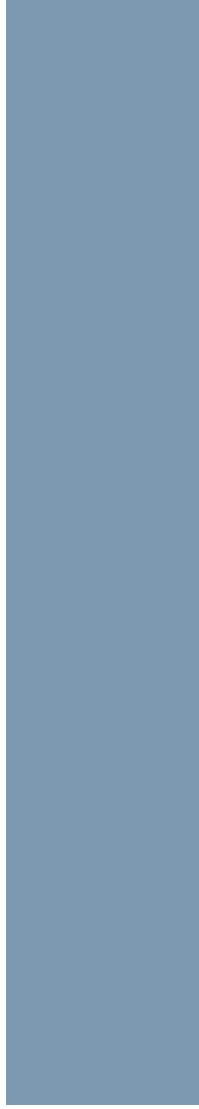
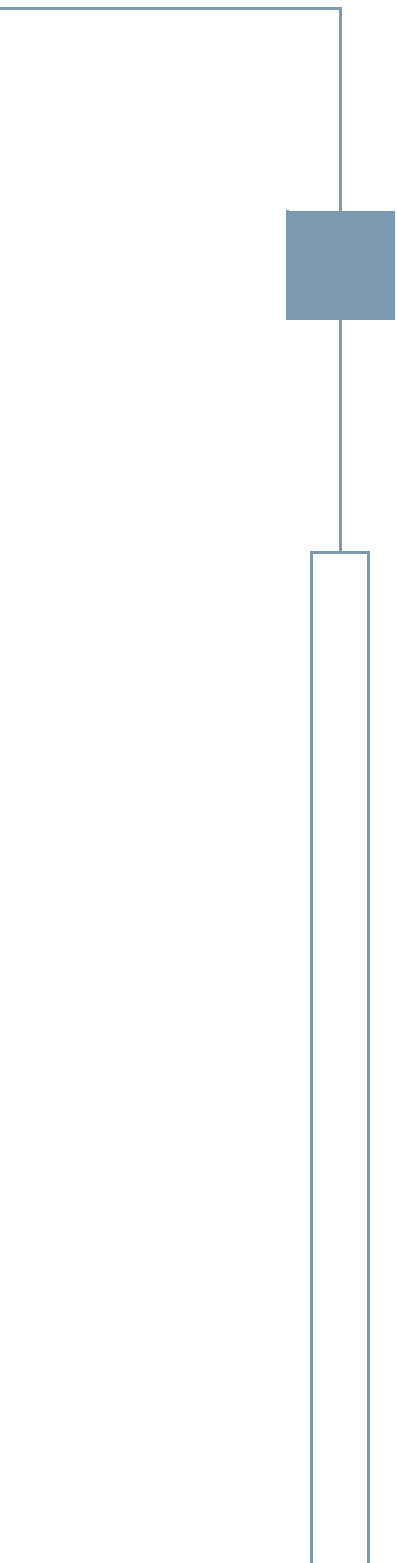
CHAPTER	TITLE	CONTENTS
2	SYSTEM OUTLINE	This chapter describes the concept, function and configuration of the OAI System
3	INSTALLATION PROCEDURE	This chapter describes the installation procedure for the OAI System
4	COMMANDS	This chapter describes the commands that are used in the OAI System
5	OFFICE DATA DESIGN	This chapter describes the procedure for setting the office data required in the OAI System
6	MAINTENANCE	This chapter describes the maintenance, fault diagnosis and fault repair procedure of the OAI System

2.2 Related Reference Manual

The jobs for the OAI System consist of the jobs pertaining to the OAI functions and to the Telephony Server system itself. Since this manual describes the jobs pertaining to the OAI functions, it must be used with the following manuals that describe jobs pertaining to the Telephony Server itself.

Related Reference Manual

MANUALS FOR TELEPHONY SERVER	RELATIONSHIP WITH THIS MANUAL
Appliance Model Installation Manual/ Prepackaged Server Model Installation and Operation Manual	When performing installation and installation tests of the OAI System, these manuals are to be used together with CHAPTER 3: “INSTALLATION PROCEDURE” and also with Circuit Card Description.
Data Programming Manual	
Operations and Maintenance Manual	When performing maintenance jobs on the OAI System, this manual is to be used together with CHAPTER 6: “MAINTENANCE” of this manual.
Command Manual	When performing installation tests and maintenance jobs on the OAI System, this manual is to be used together with CHAPTER 4: “COMMANDS” of this manual.



CHAPTER 2

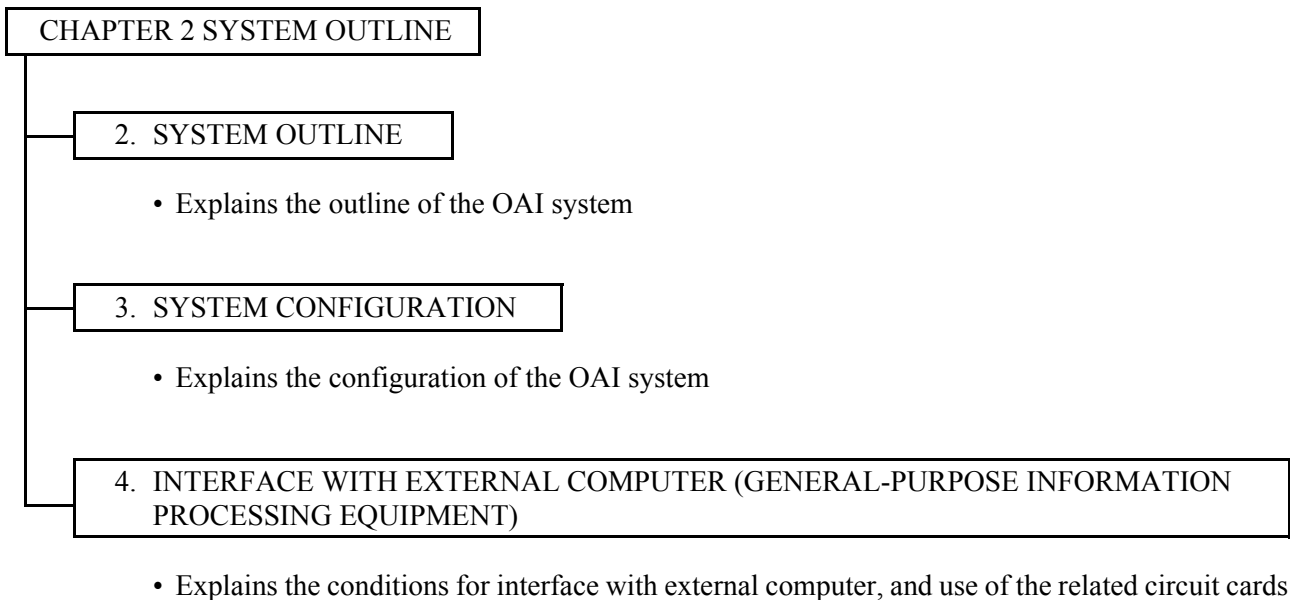
SYSTEM OUTLINE

1. GENERAL

This chapter describes the concept, functions, and configuration of the OAI System.

Before performing installation and/or maintenance of the OAI System, each technician must read this chapter to understand the system outline.

Chapter 2 consists of the following contents.



2. SYSTEM OUTLINE

2.1 Open Application Interface (OAI) System

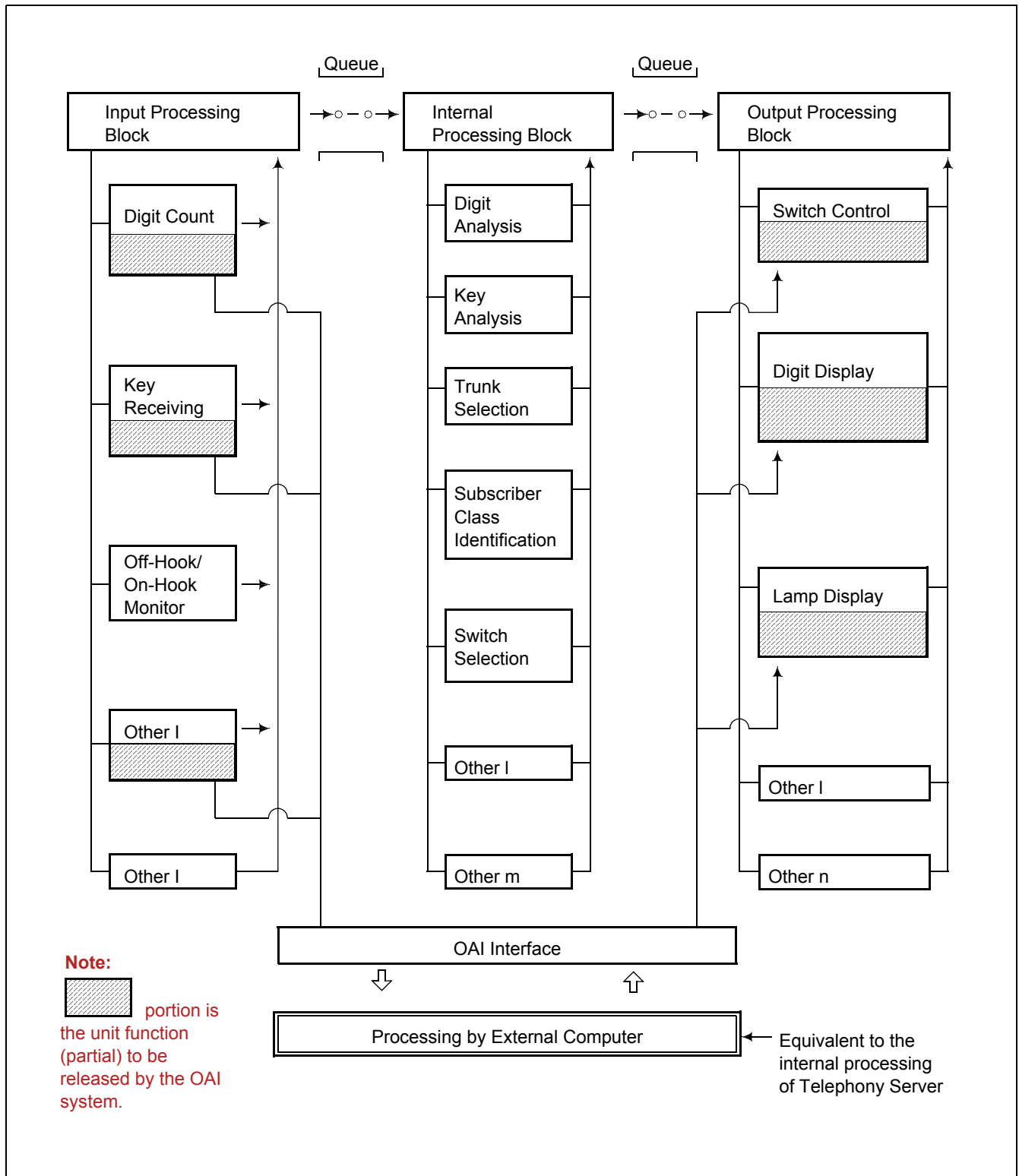
1. The OAI system is the interface that joins a variety of facilities of the Telephony Server to the application programs of the external computer (general-purpose information processing equipment) of the user.
2. The Telephony Server can be controlled by the external computer through the OAI system.
3. The OAI system diversifies the information processing functions of the Telephony Server, offering users unique added values.
4. For implementing the OAI system, Interface Processor (IP) is provided in the Telephony Server (except the external computer).
5. The IP controls the communication protocol between the Telephony Server and the User Application Processor of the external computer (UAP) in accordance with the basic reference model of the Open Systems Interconnection (OSI) standardized by the ISO.

Note: ISO = International Organization for Standardization

2.2 Software Structure in the OAI System

The software structure in the OAI system is shown in the figure below. The software structure of the Telephony Server is generally categorized into three major blocks: Input Processing Block, Internal Processing Block, and Output Processing Block. When the Input Processing Block detects a call, the Internal Processing Block analyzes and identifies the call. In accordance with the result of this processing, the Output Processing Block executes required switching operations, controlling lamps/keys, etc. To meet these processing requirements, every time a request of the application software has arisen, the modules of the Input Processing Block and the Output Processing Block have been replaced with those corresponding to the request. However, in this OAI system, each unit function available for the computer in the Input Processing Block and the Output Processing Block is defined as a facility (each slant-lined portion in the figure below) in advance so that each facility may be directly controlled by the external computer through the OAI interface. For example, the key information input by processing of key receiving is not processed within the Telephony Server but is analyzed by the external computer, and as a result of this processing by the external computer, all related messages are shown on a digital display and a lamp display at pertaining terminals. The OAI interface has released the function of the conventional internal processing to the external computers.

Software Structure in the OAI System



2.2.1 Facilities

Each of the unit functions of the Telephony Server, such as switch-control function, terminal-control function, etc., that can be controlled by the application of the computer is referred to as a facility. The facilities can be categorized in two kinds per the operating pattern: Provider Facility and Performer Facility.

- Provider Facility

This facility is capable of communicating with one Application Program (AP) on the computer, and executes start-up, etc. of an AP on the computer.

- Performer Facility

This facility is capable of communicating with multiple Application Programs (AP) on the computer. It is activated from each AP as the common facility and executes required processing in accordance with the control information obtained from the AP.

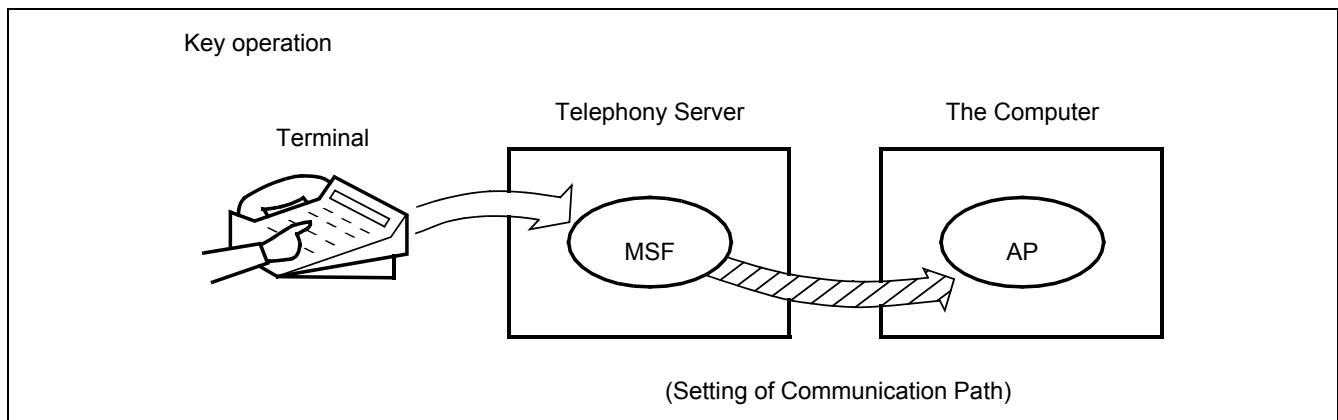
Each of the main facilities is outlined in the following.

1. Provider Facilities

(a) Terminal Mode Set Facility (MSF)

With a specific key pressed on a terminal, this facility sets terminal mode. When terminal mode is set by this facility, a communication path is set up between the terminal and the AP on the computer.

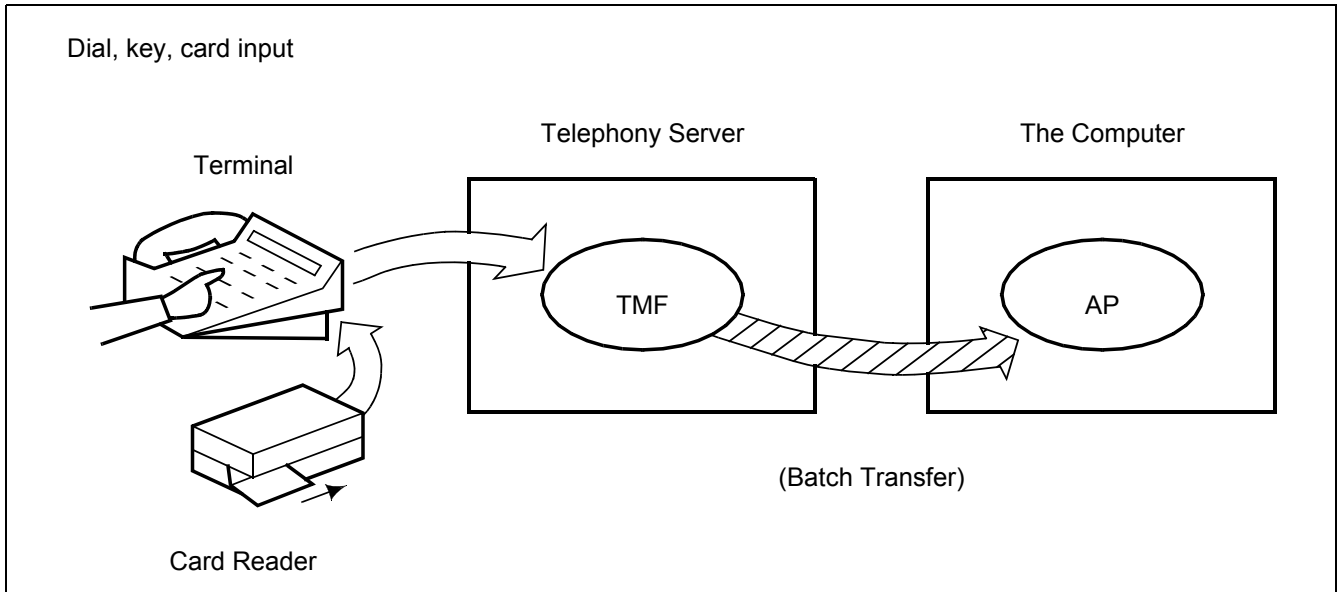
Concept of MSF



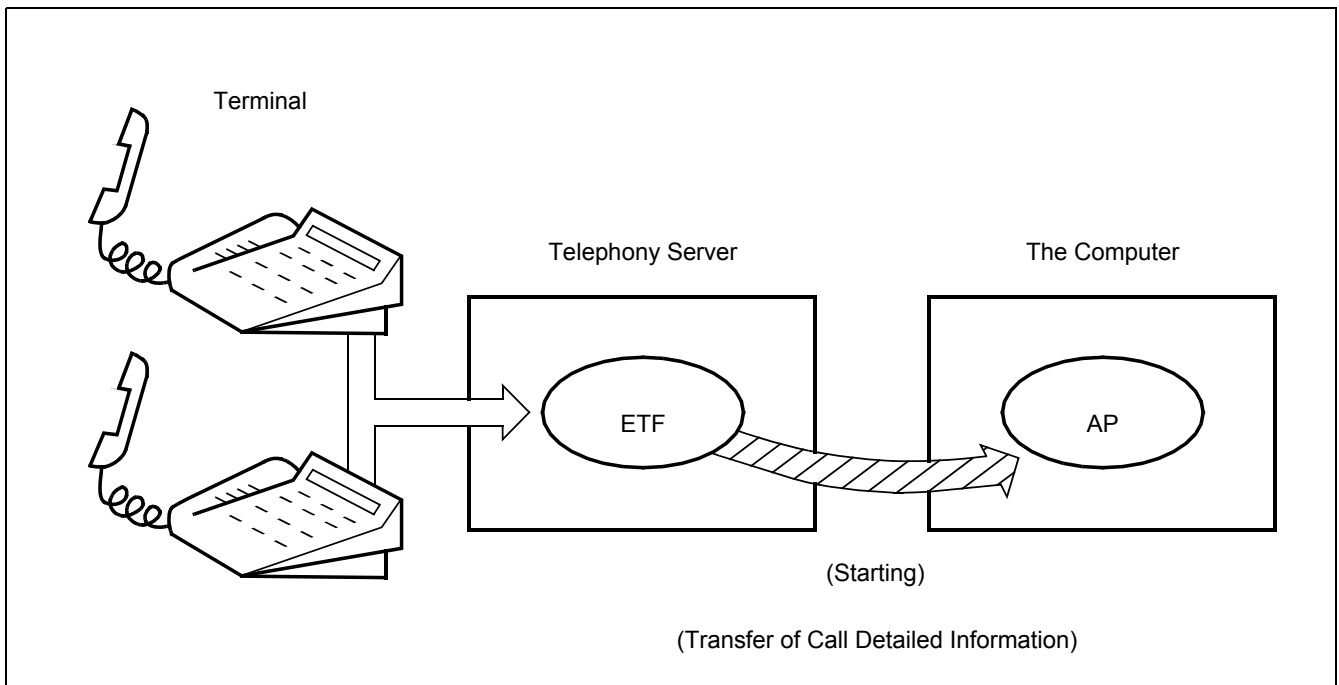
Note: The external computer is referred to as the computer.

(b) Terminal Multiple Information Transfer Facility (TMF)

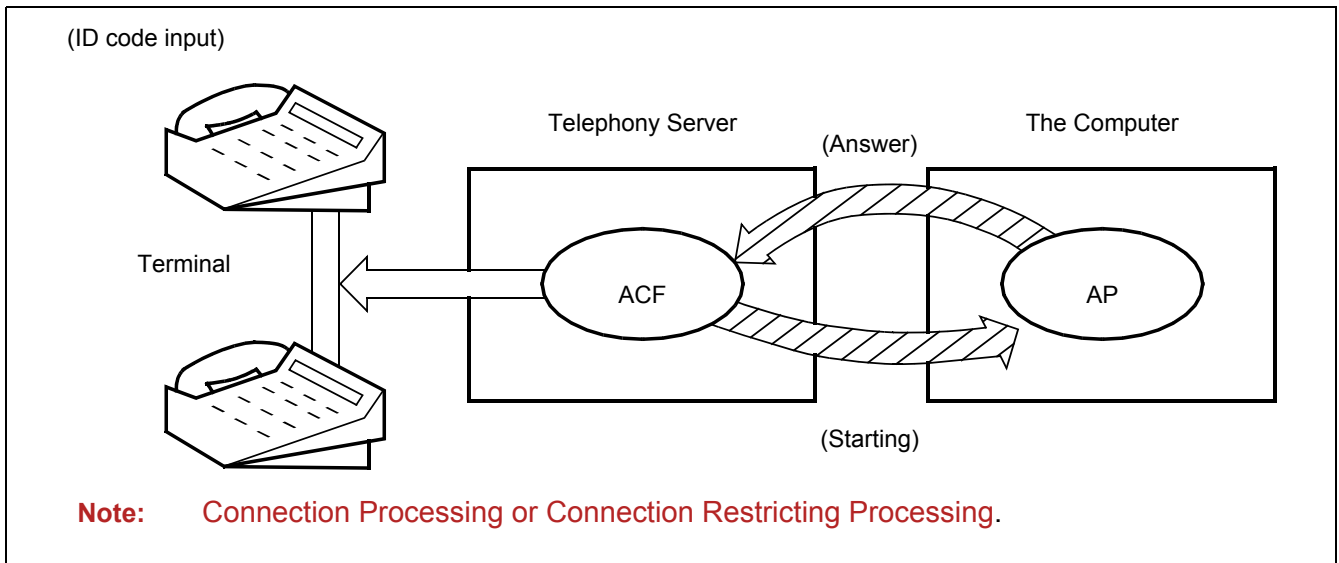
This facility executes batch transfer of dial number information entered from a terminal, card information provided from the card reader, etc. to the AP.

Concept of TMF(c) **Call Event Transfer Facility (ETF)**

This facility edits the detailed data (call duration, etc.) pertaining to calls at terminals accommodated in the Telephony Server, and provides the edited information to the computer.

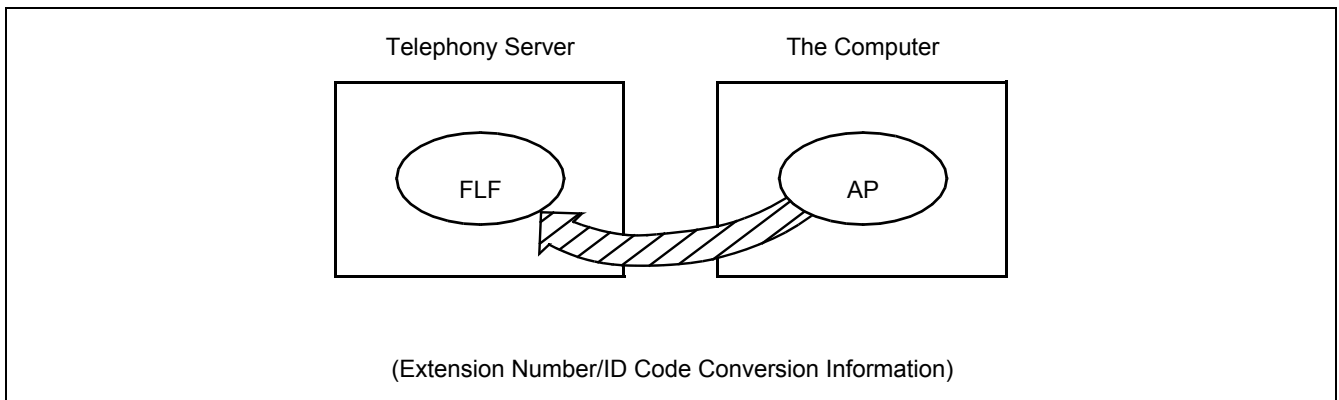
Concept of ETF(d) **Authorization Code Facility (ACF)**

Upon accepting a connection request and/or a service request from a terminal, this facility transfers the ID code of that specific terminal to the AP and executes either a connection processing or a connection restricting processing in accordance with the restriction class information returned from the computer.

Concept of ACF

(e) Free Location Facility (FLF)

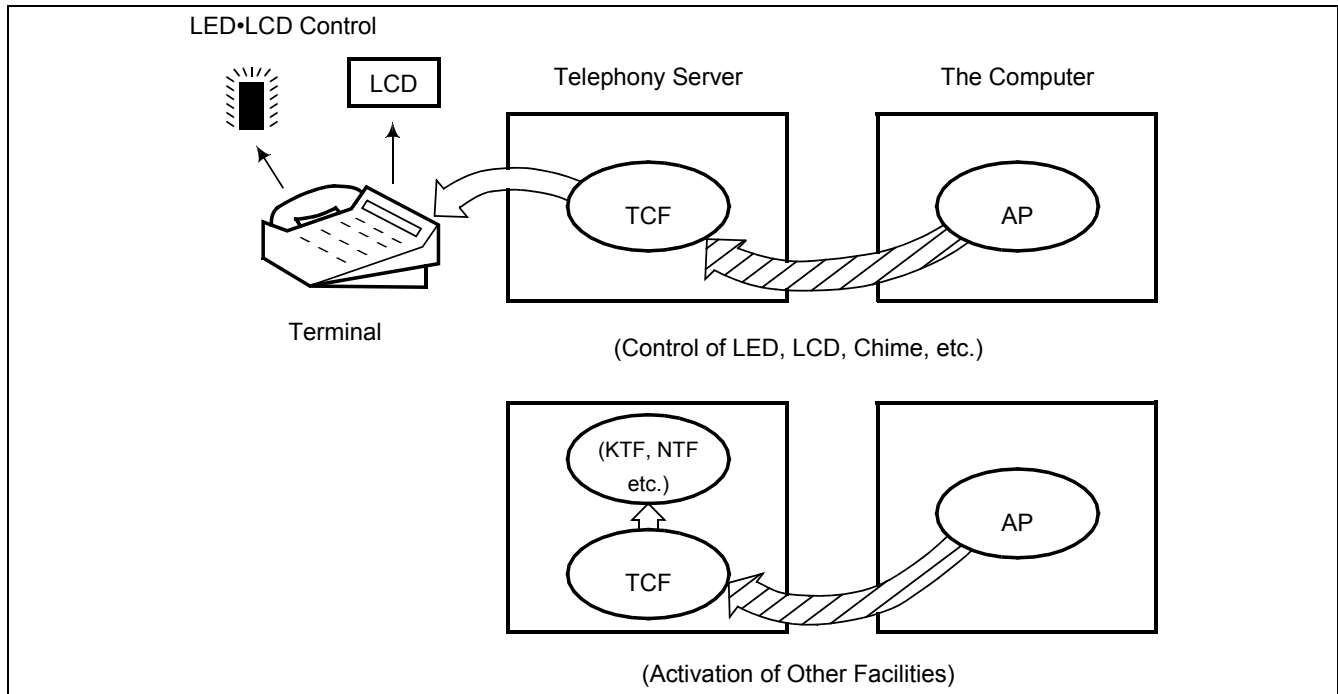
This facility establishes the correspondence between the extension number allocated to a terminal and the user's unique ID code in accordance with the number conversion information provided from the AP.

Concept of FLF

2. Performer Facilities

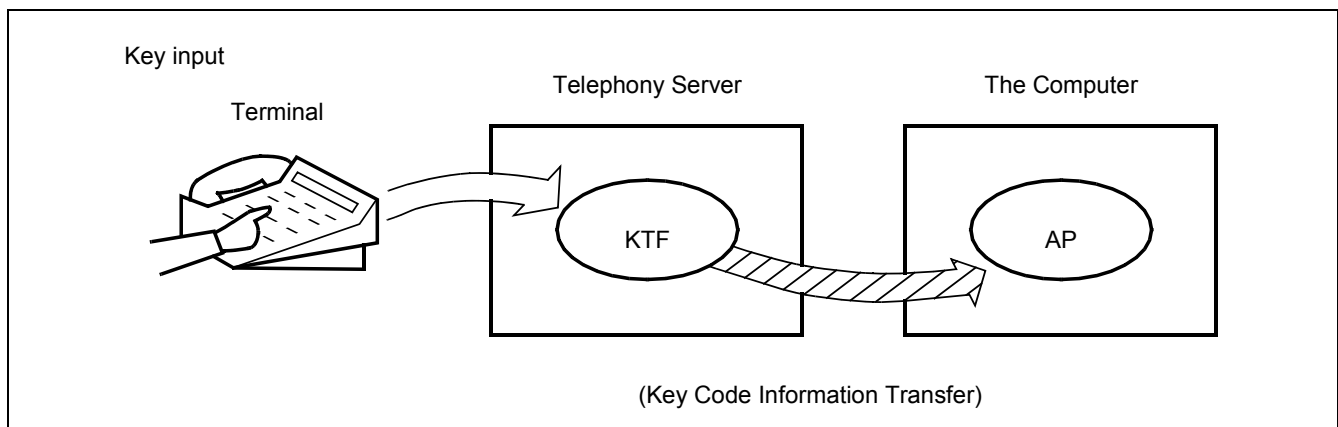
(a) Terminal Control Facility (TCF)

This facility controls the LCD, LED, etc. on a terminal concerned per a control order provided by the AP. It also activates the KTF, NTF, and CRF upon receiving a data read request provided from the AP.

Concept of TCF

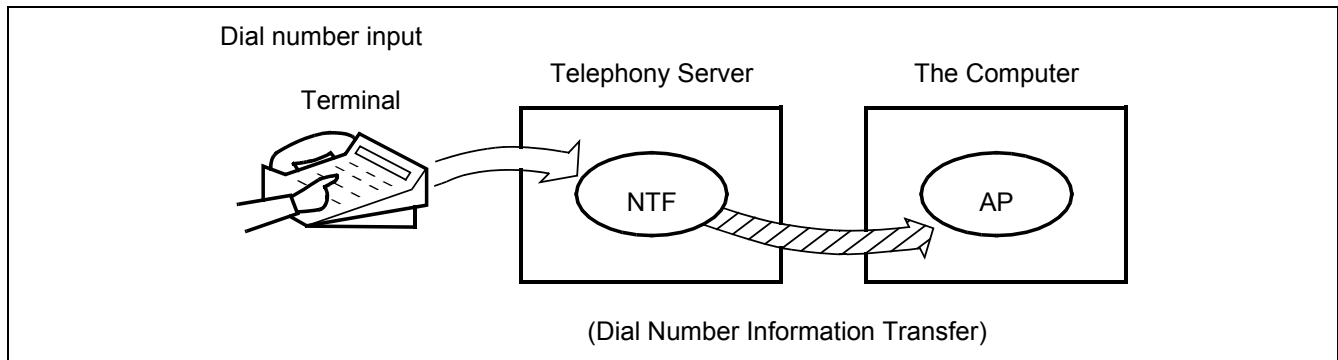
(b) Key Code Transfer Facility (KTF)

When a terminal concerned is on the terminal mode, this facility transfers the key code information from that specific terminal to the AP.

Concept of KTF

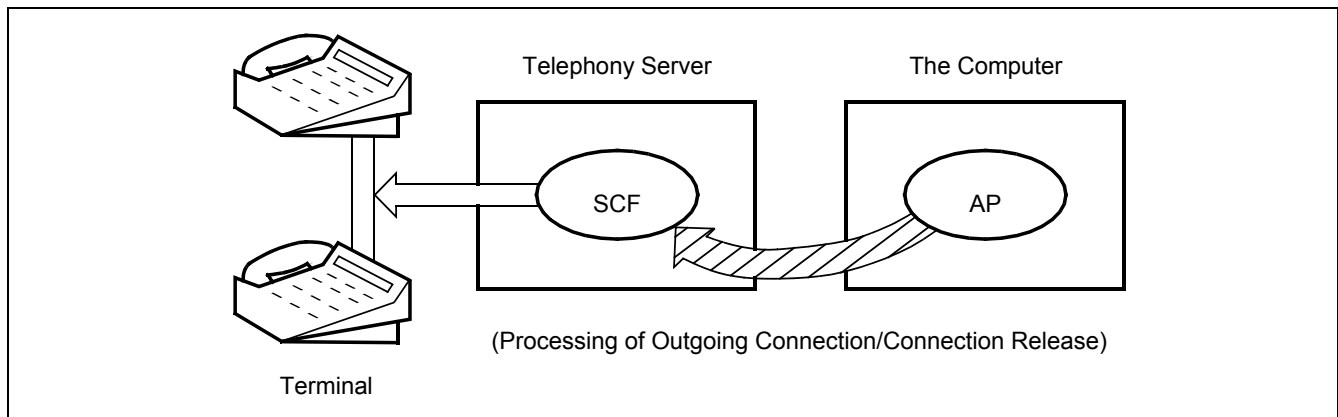
(c) Dial Number Transfer Facility (NTF)

When a terminal concerned is on the terminal mode, this facility transfers the dialed number information from that specific terminal to the AP.

Concept of NTF

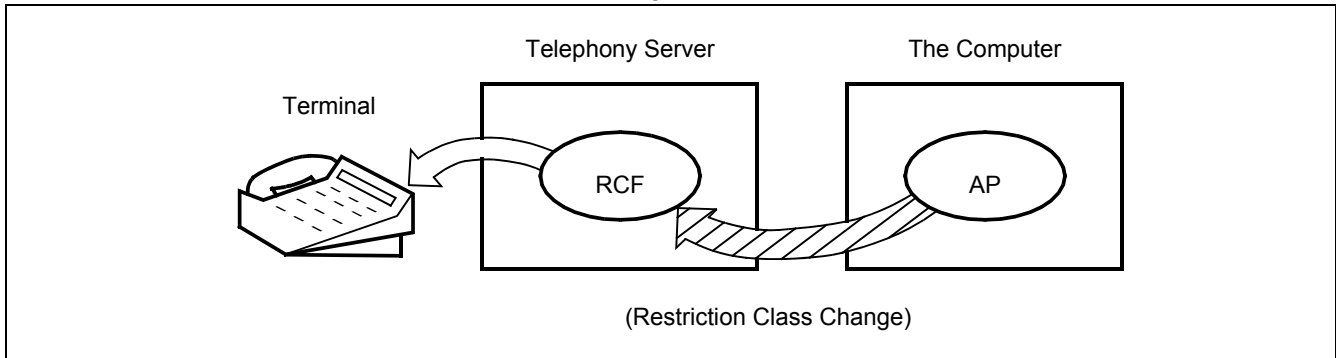
(d) Switch Control Facility (SCF)

This facility executes the processing of an outgoing connection or of releasing the connection between a terminal and another in accordance with the connection control information provided from the AP.

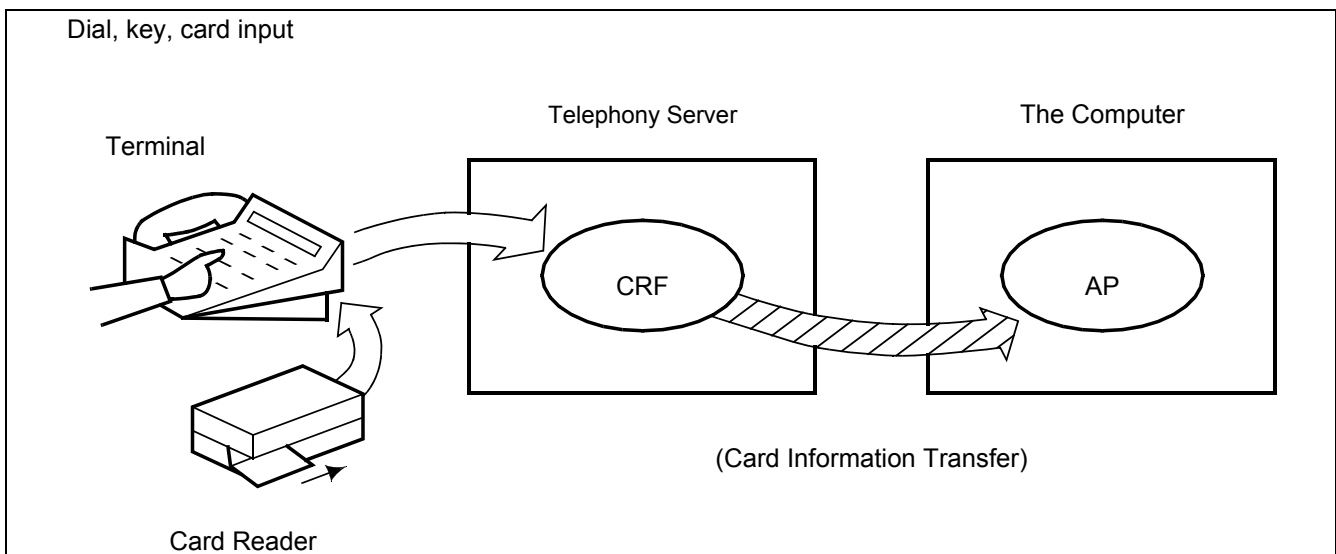
Concept of SCF

(e) Restriction Control Facility (RCF)

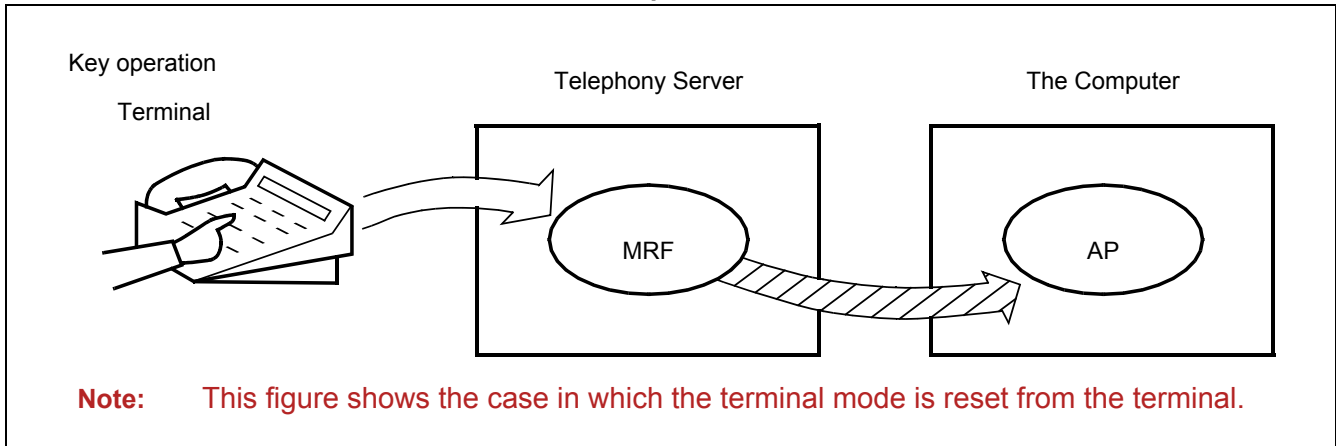
This facility changes the restriction class of a terminal in accordance with a directive given by the AP. The restriction class changing can be made on the basis of each terminal, each group, or each system.

Concept of RCF**(f) Card Reader Facility (CRF)**

When a terminal concerned is on the terminal mode, this facility transfers the card information input from the card reader to the AP.

Concept of CRF**(g) Terminal Mode Reset Facility (MRF)**

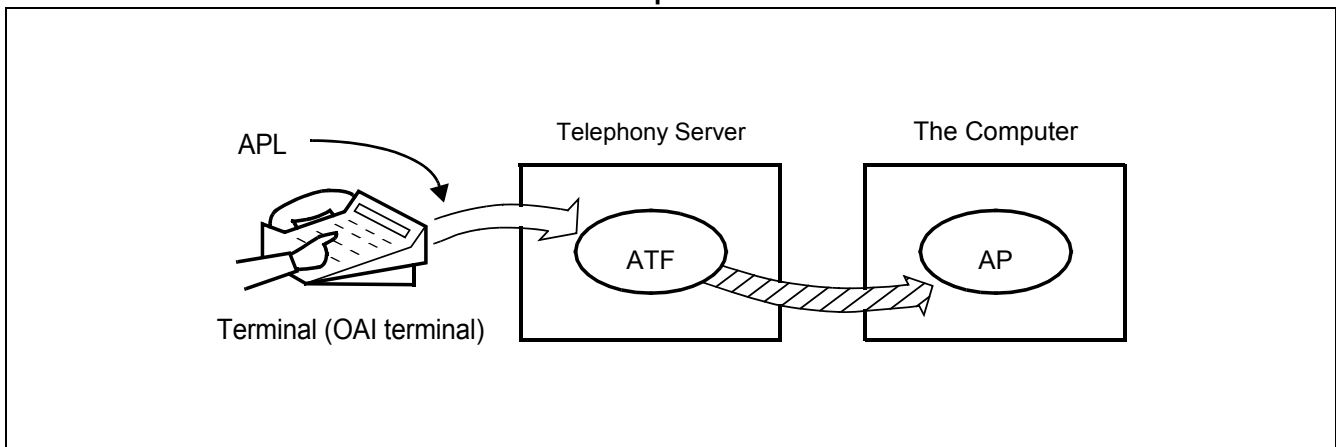
By pressing keys on a terminal or receiving a signal from the AP, this facility resets terminal mode. When terminal mode is reset by this facility; the current communication path (terminal mode status) is released.

Concept of MRF

(h) Application Language Transfer Facility (ATF)

By pressing keys on an OAI terminal or receiving a signal from the AP, this facility sends out the APL (Application Language) information input from an OAI terminal to the AP.

The system does not care about the contents of the APL information at all.

Concept of ATF**2.2.2 Joint of Facilities and Application**

1. When a facility of the Telephony Server is controlled by the Application Program (AP) on the computer, the AP and that facility must be connected first. The following is the procedure of this connection.

[1] Set-up of Association

A communication path is opened so that the AP can communicate with the facility.

[2] Opening of Facility

The facility that the AP uses is declared to the Telephony Server, and then the AP and the declared facility are joined.

2. Set-up of Association and Opening of Facility

Association is set up by activation from the AP first. Without this association, the AP cannot communicate with the facility and cannot control the facility. Then, the association is released with the stop of the AP. Next, the facility must be opened to allow the AP to communicate with the facility through the communication path opened by setting up of the association. Opening of the facility is executed on each facility basis.

As a result of the above procedure, the AP becomes able to freely control each of the facilities of the Telephony Server, and a variety of applications can be programmed on the computer.

Note: In FCCS Network, set the waiting timer in the AP to 90 seconds for the time interval between the opening of SMFN facility (Subscribe) and the performing of SMFR facility through the AP.

2.2.3 Cope of Application in Changeover of CPU System

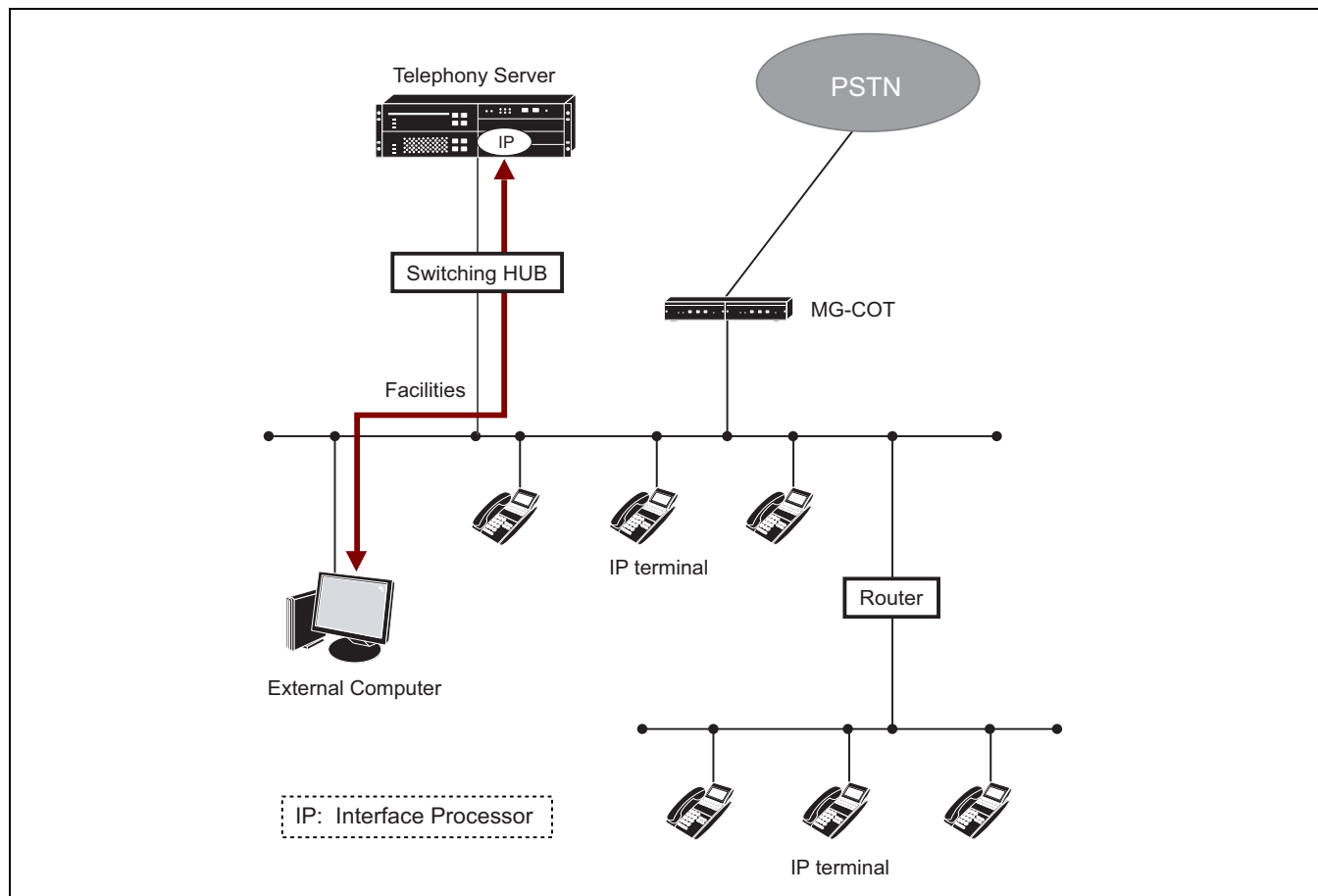
Association established between the Telephony Server and External computer is released when changeover of CPU system is executed.

Therefore, set up association again after changeover of CPU system.

3. SYSTEM CONFIGURATION

The OAI System can be implemented in the Built-in Type configuration: the Interface Processor (IP) is built in the CPU of the Telephony Server. The configuration of the OAI System is as follows:

System Configuration



Note: A sufficient number of channels for IPPAD should be provided in advance in order to prevent channels from all-busy state. When there is shortage of the IPPAD channels, IP terminal cannot answer the incoming call.

The following equipment and terminals can be used in the ACD/OAI system.

In a Single-path connection, an audio breakup occurs at the start/end of the monitoring when IP devices are used. To prevent this problem, enable Silent Monitor (Multi-path Monitor).

Note: To enable Silent Monitor (Multi-path Monitor), the following are required, set “1” for ASYDL/ASYDN, SYS 1, Index 874, Bit 0 to enable Multi-path Monitor Connection.

Availability of Telephony Devices for ACD/OAI System

X: Available, C: Conditionally Available, N: Not Available, -: Not Applicable

Terminal/Equipment			ACD	OAI	Silent Monitor		Remarks
					Agent/ Super- visor	Oppo- site Party	
Digital terminal	DT400 Series	DT430	C	C	N	N	DESI-Less terminal is not supported.
		DT410	N	×	N	N	
	DT300 Series	DT330	C	C	N	N	DESI-Less terminal is not supported.
		DT310	N	×	N	N	
	Dterm Series <i>i</i>		×	×	N	N	
IP terminal	DtermIP		×	×	×	×	Note 1, Note 2
	Dterm Series <i>i</i> with IP adapter		×	×	×	×	Note 1
Softphone	Soft Client SP350		×	×	×	×	Note 1, Note 2, Note 3, Note 15
	DtermSP30 Note 4		×	×	×	×	Note 1, Note 2

X: Available, C: Conditionally Available, N: Not Available, -: Not Applicable

Terminal/Equipment			ACD	OAI	Silent Monitor		Remarks
					Agent/ Super- visor	Oppo- site Party	
SIP Multiple Line terminal	DT800 Series	DT830	C	C	C	×	DESI-Less terminal is not supported. Note 1, Note 2, Note 3
		DT830G	×	×	×	×	Note 1, Note 2, Note 3
		DT820	N	C	N	×	Supported for 6 button type and 8 button type (DESI-Less) only. For DESI-Less terminal, 16 button type and 32 button type are not supported. Note 1, Note 2, Note 3
	DT700 Series	DT770G	N	N	N	N	
		DT750	N	×	N	×	Note 1, Note 2, Note 3
		DT730	C	C	C	×	DESI-Less terminal is not supported. Note 1, Note 2, Note 3
		DT730G	×	×	×	×	Note 1, Note 3
		DT710	N	×	N	×	Note 1, Note 2, Note 3
	DtermIP (SIP)		×	×	N	N	Note 1

X: Available, C: Conditionally Available, N: Not Available, -: Not Applicable

Terminal/Equipment			ACD	OAI	Silent Monitor		Remarks
					Agent/ Super- visor	Oppo- site Party	
SIP terminal	SP Controlled	WLAN Hand- set (MH Se- ries)	N	×	N	N	MH250
		Standard SIP Voice terminal (Third-party SIP terminal)	N	N	N	N	
		Standard SIP Video termi- nal (Third-party SIP termi- nal)	N	N	N	N	
	SIP Handler Controlled	Standard SIP Voice terminal (Third-party SIP terminal)	C	C	N	N	Note 5, Note 10, Note 11,
		Standard SIP Video termi- nal (Third-party SIP terminal)	N	N	N	N	
PS	PHS/PCS		N	×	N	N	
VS32 Note 6	VS32 CARD [SCA-VS32VA- B/SCA-VS32VA]		×	×	-	-	with Voice Compression (VC) Note 14
	VS32 BOX [MG-VS32VA]						
Analog MC	Analog 2MC		×	×	-	N	
	8LC Card [SCA-8LCC/SCA- 8LCC-EMEA]		×	×	-	N	
	8LC Card [SCA-8LCA/SCA- 8LCA-EMEA]						
MC&MG-COT	MCMG Card [SCA-4LC2CO- TA]		×	×	-	N	
	MCMG Box [MG-4LC2CO- TA]						
	MC&MG-COT with PFT		×	×	-	N	
MG-COT	MG-COT Card [SCA-6COTC]		×	×	-	N	
	MG-COT Card [SCA-6COTB]		×	×	-	N	
	MG-COT Card [SCA-6COTA]		×	×	-	N	

X: Available, C: Conditionally Available, N: Not Available, -: Not Applicable

Terminal/Equipment		ACD	OAI	Silent Monitor		Remarks
				Agent/ Super- visor	Oppo- site Party	
MG(BRI)	MG(BRI) Card [SCA-2BRIA-B/SCA-2BRIA]	×	×	-	N	
	MG(BRI) Box [MG-2BRIA]					
MG(PRI)	MG(PRI) Card [SCA-24PRIA]	×	×	-	×	Note 2, Note 7, Note 12
	MG(PRI) Box [MG-24PRIA]					
	MG(PRI) Card [SCA-30PRIA]	×	×	-	×	Note 2, Note 7, Note 13
	MG(PRI) Box [MG-30PRIA]					
MG-T1(SIP)	MG-T1(SIP) Card [SCA-24DTIA-B/SCA-24DTIA]	-	-	-	N	
MG(SIP)	MG-SIP16 Card [SCA-16SIP-MGA]	×	×	-	×	Note 2, Note 8
	MG-SIP16 Box [MG-16SIPMGA]					Note 2, Note 8
	MG-SIP16 Card [SCA-16SIP-MG(US)]	×	×	-	×	Note 8
	MG-SIP96	×	×	-	×	Note 8
	MG-SIP128 [MG-128SIP-MGL-A]	×	×	-	×	Note 8
	MG-SIP128 [MG-128SIP-MGG-B/MG-128SIPMGG]	×	×	-	×	Note 8
	MG-SIP128 [MG-128SIP-MGJ-B/MG-128SIPMGJ]	×	×	-	×	Note 8
	Software-based MG-SIP	×	×	-	×	Note 8
IPG Digital		N	N	N	N	
IPG Analog		N	N	N	N	
Internal PHC		×	×	-	N	CCIS over IP Note 9
Circuit card accommodat- ed in PIR	PRT	×	×	-	×	
	BRT	×	×	-	N	
	COT	×	×	-	N	
	Three-party Conference Trunk	×	×	-	N	CFT embedded in PIR

X: Available, C: Conditionally Available, N: Not Available, -: Not Applicable

Terminal/Equipment			ACD	OAI	Silent Monitor		Remarks
					Agent/ Super- visor	Oppo- site Party	
UG50	Multi-slot	UG50 (DLC)	×	×	×	×	
		UG50 (LC) [Proprietary Protocol/SIP]	×	×	-	N	
		UG50 (PRT 1.5M) [Proprietary Protocol/SIP]	C	C	-	C	Available for Proprietary Protocol only.
		UG50 (PRT 2M) [Proprietary Protocol/SIP]	C	C	-	C	Available for Proprietary Protocol only.
		UG50 (COT-TYPE1)	×	×	-	N	
		UG50 (COT-TYPE2) [Proprietary Protocol/SIP]	×	×	-	N	
		UG50 (PGT-TYPE1)	×	×	-	N	
		UG50 (PGT-TYPE2) [Proprietary Protocol/SIP]	×	×	-	N	
	IPG	UG50-IPG (Digital)	N	N	-	N	
		UG50-IPG (Analog)	N	N	-	N	
UG50	Retrofit	UG50-2MC	×	×	-	N	
		UG50-8LC	×	×	-	N	
		UG50-24PRIA [Proprietary Protocol/SIP]	C	C	-	C	Available for Proprietary Protocol only.
		UG50-30PRIA [Proprietary Protocol/SIP]	C	C	-	C	Available for Proprietary Protocol only.
		UG50-4LC2COTA (COT)	×	×	-	N	
		UG50-4LC2COTA (PGT)	×	×	-	N	
		UG50-6COT [Proprietary Protocol/SIP]	×	×	-	N	

Note: Equipment and terminals not listed in the above table are not supported in ACD/OAI system.

Note: ACD/OAI system does not support the following:

- VoIP Encryption [V-27]
- Attendant Console

Note: Hotel features are only available on administration stations.

Note 1: When ACD/OAI keys which have assigned with AOKC command are pressed continuously, no tone is provided.

Note 2: When the party you are calling does not support Silent Monitor (Multi-Path Monitor), Single-Path Monitor is used. When the following terminals/equipment uses Silent Monitor (Multi-Path Monitor), the firmware shown below is required.

Terminal/Equipment	Available Firmware
DtermSP30	Software Version 18 or later (Proprietary Protocol only)
DT820	Firmware Issue 1.0.0.0 or later
DT830	Firmware Issue 3.0.0.0 or later
DT830G	Firmware Issue 3.0.0.0 or later
DT710	Firmware Issue 5.0.0.0 or later
DT730	Firmware Issue 5.0.0.0 or later
DT730G	Firmware Issue 1.0.0.0 or later
DT750	Firmware Issue 5.0.0.0 or later
Soft Client SP350	R5 or later
MG(PRI) Card [SCA-24PRIA] (Proprietary Protocol mode)	Available since the first version
MG(PRI) Box [MG-24PRIA] (Proprietary Protocol mode)	
MG(PRI) Card [SCA-24PRIA] (SIP mode)	Firmware SP-3884 MG PRI PROG-A Issue 21 or later
MG(PRI) Box [MG-24PRIA] (SIP mode)	
MG(PRI) Card [SCA-30PRIA] (SIP mode)	
MG(PRI) Box [MG-30PRIA] (SIP mode)	
MG-SIP16	Available since the first version
MG-SIP16 Card [SCA-16SIP-MG(US)]	
MG-SIP16 [SCA-16SIP-MG(US)-B]	
MG-SIP96	
MG-SIP128 [MG-128SIPMGL-A]	
MG-SIP128 [MG-128SIPMGG]	
MG-SIP128 [MG-128SIPMGG-B]	
MG-SIP128 [MG-128SIPMGJ]	
MG-SIP128 [MG-128SIPMGJ-B]	
Software-based MG-SIP	

Terminal/Equipment	Available Firmware
MG-SIP16 Card [SCA-16SIPM-GA]	Firmware SP-3905 MG SIP (16) PROG-A 02.01.00.00 or later
MG-SIP16 Box [MG-16SIPM-GA]	
UG50 (PRT 1.5M) [Proprietary Protocol/SIP]	Available since the first version (Proprietary Protocol only)
UG50 (PRT 2M) [Proprietary Protocol/SIP]	
UG50-24PRIA [Proprietary Protocol/SIP]	
UG50-30PRIA [Proprietary Protocol/SIP]	

Note 3: To enable Silent Monitor (Multi-path Monitor) connection on SIP Multiple Line terminal, set "1" for ASYDL/ASYDN, SYS1, Index 679, Bit 1 (Multiple Session for SIP Multiple Line Terminals is enabled). You need to re-register the terminals to reflect the change.

Note 4: DtermSP30(SIP) can be used as agent position. When using DtermSP30 with Thin-Client terminal, refer to the Softphone User Guide and the manual of the Thin-Client terminal. DtermSP30 (VPCC mode) is available to use with Thin-Client terminal since version 18. Under the condition that a USB handset (with hook switch) is used along with DtermSP30, the SPEAKER key will light up when the handset user goes Off-Hook. It does not affect the terminal's operation.

Note 5: NEC Connection test is required in advance.

Note 6: The following firmware is required to be equipped on VS32.

Terminal/Equipment	Available Firmware
VS32 CARD [SCA-VS32VA-B/ SCA-VS32VA]	SP-3891 CA-VS32 PROG-A or later
VS32 BOX [MG-VS32VA]	

Note 7: In ACD/OAI system, this equipment is available also in SIP mode. Check the firmware version in the below table. UG50 is not supported.

Terminal/Equipment	Available Firmware
MG(PRI) Card [SCA-24PRIA]	SP-3884 MG PRI PROG-A Issue 21 or later
MG(PRI) Box [MG-24PRIA]	
MG(PRI) Card [SCA-30PRIA]	
MG(PRI) Box [MG-30PRIA]	

- Note 8:** To use Silent Monitor (Multi-Path Monitor) connection on SIP Multiple Line terminal, enable “multisession” of set command on the MG side. For details on the setting of the configuration command, refer to Peripheral Equipment Description (IP Devices) for all the devices except Software-based MG-SIP. For the Software-based MG-SIP, see the Software-based MG-SIP chapter in Prepackaged Server Model Installation and Operation Manual. Software-based MG-SIP can use ACD only from FP95-112 V2 and if it is registered to Appliance Server model.
- Note 9:** Internal PHC does not support all the monitoring related functions including silent monitoring (Multi-Path Monitor).
- Note 10:** This terminal can be used as a Hot position only in the ACD system. For the details, refer to “HOT SPLIT - ACD [H-31A]” in the Data Programming Manual-ACD.
- Note 11:** When this terminal is used in the OAI system, there are restrictions depending on the facilities. For details, refer to “SIP Handler Controlled SIP Terminal in OAI System” in this manual.
- Note 12:** In the case of using Silent Monitor (Multi-Path Monitor), set the payload cycle to 20ms or longer.
- Note 13:** In the case of using Silent Monitor (Multi-Path Monitor), set the payload cycle to 30ms or longer.
When you set the payload cycle to 20ms the number of channels available will be 23. Because of that, set all the unnecessary channels to make-busy.
- Note 14:** In the OAI system, this equipment can be used only in proprietary protocol mode.
- Note 15:** SP350 can use VPCC mode since R4. Refer to the Softphone User Guide and the manual of the Thin-Client terminal.

4. INTERFACE WITH EXTERNAL COMPUTER

4.1 Conditions for Interface with External Computer

The circuit card for interfacing with the external computer (general-purpose information processing equipment). The interface conditions are shown in Interface Conditions of the Circuit Card.

Interface Conditions of the Circuit Card

INTERFACE CONDITIONS	
Physical Interface	10BASE-T/100BASE-TX (LAN2 is used for LAN interface.)
Communication Protocol	TCP/IP
IP address	1 address/system (Class A, B, C is available Note 1)
TCP port	1 Port/IP address 60030 Note 2
Data Transfer Speed	10 Mbps/100 Mbps
Number of OAI Associations	16 connections/system
Number of Interface Ports	1 port/card (16 logical channels/port)

Note 1: This data is assigned by ADTM (Default value is "172. 16. 253. 0.").

Note 2: TCP Port number is assigned by ADTM. The assigned ADTM data is automatically written into the System Data (ASYDL, System Data 1, Index 980 & 981).



CHAPTER 3 INSTALLATION PROCEDURE

1. GENERAL

This chapter explains the installation procedure for the OAI System.

- Cable Connections with External Computer
- OAI Software Installation
- Upgrading OAI System from ICS/IMX to the Telephony Server

2. CABLE CONNECTIONS WITH EXTERNAL COMPUTER

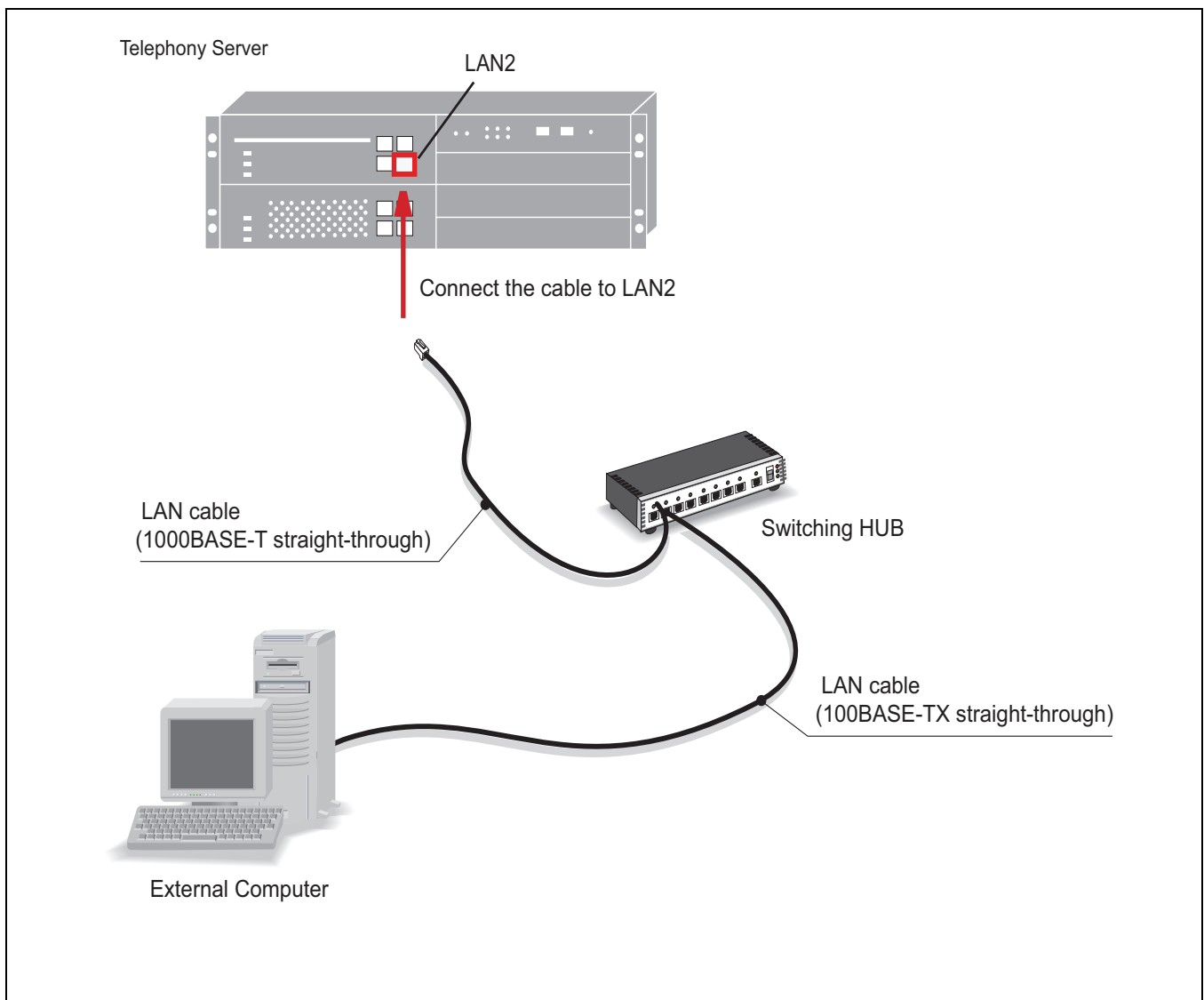
This section explains cable connections between the OAI System and the external computer.

2.1 Cable Connections between OAI System and External Computer

The following shows the cable connections between the OAI system and the external computer.

(a) Connection diagram

- When the OAI system and the external computer are connected on the LAN/using Ethernet + TCP/IP interface



3. OAI SOFTWARE INSTALLATION

This section explains the installation procedure for adding the OAI software to the Node in off-line operation. For more detailed information about the program install procedure before the OAI application software installation, see Appliance Model Installation Manual.

[Operation Procedure]

Note: Merging software does not apply to North America.

STEP 1: Save all data to the Flash Card using the MEM_HDD command.

STEP 2: Turn OFF all the power of Telephony Server in the order of the Telephony Server --> PIR0 --> PIR1 --> PIRn.

STEP 3: Merge the Standard Service Software with the following software, referring to Chapter 2, “21. ADDING/UPDATING LICENSE FILE,” in Operations and Maintenance Manual.
- OAI Option Service Software (for OAI Terminal Anywhere service) (SV95 NW-ACD/OAI LICS)

Note 1

STEP 4: Turn ON all the power of Telephony Server in the order of PIR0 --> PIR1 --> PIRn --> Telephony Server.

STEP 5: Assign the System data written in NDM.
This data is necessary when using the OAI FCCS services.
ASYDN SYS1
Index 514- NDM usage
Index 533- FPC of the node that provides C-VNDM

STEP 6: Program the basic system data for the OAI system, referring to Chapter 5, Section 2.1 Basic Data for OAI System.

STEP 7: Check the station-to-station connection and confirm no fault status occurs or system messages are output (such as cable connection fault, LCD display fault, memory alarm fault, abnormal interrupt, etc.).

STEP 8: Program the OAI office data. Also, program the FCCS data to make OAI service effective through FCCS network, if necessary. Refer to Chapter 5, “PROCEDURE FOR SETTING BASIC OFFICE DATA FOR OAI SYSTEM” and “OAI FCCS.”

STEP 9: Broadcast VNDM data from VNDM Center Node to all VNDM Local Nodes in FCCS network, by using CBCV command. (This procedure is necessary when using the OAI FCCS services.)

STEP 10: Save the data memory into the Flash Card by using MEM_HDD.

Note 1: Merge this software at all nodes that provide the OAI services.

4. UPGRADING OAI SYSTEM

4.1 Upgrading Procedure from ICS to the Telephony Server

Note: Merging software does not apply to North America.

STEP 1: Make preparations for shutting down of the External Computer.

STEP 2: Shut down the External Computer by the appropriate procedure.

STEP 3: Merge the Standard Service Software with the following software, referring to Chapter 6, “System Startup,” in Appliance Model Installation Manual.

- OAI Option Service Software (for Terminal Anywhere service) (SV95 NW-ACD/OAI LICS)

Note 1

STEP 4: Perform the system upgrade referring to the Appliance Model Installation Manual.

STEP 5: Start up the External Computer. **Note 2**

Note 1: When using OAI Trunk for FCCS or OAI Terminal Anywhere, this software must be merged at all the nodes which provide the OAI service.

Note 2: When connecting the External Computer and the Telephony Server by using Ethernet, TCP port number 60030 must be used. For more detailed information on the connection between the External Computer and the Telephony Server, refer to Chapter 2, the section entitled “INTERFACE WITH EXTERNAL COMPUTER” in this manual.

4.2 Upgrading Procedure from IMX to the Telephony Server (Replacement of LPR)

Note: Merging software does not apply to North America.

STEP 1: Make preparations for shutting down of the External Computer.

STEP 2: Shut down the External Computer by the appropriate procedure.

STEP 3: Merge the Standard Service Software with the following software, referring to Chapter 6, “System Startup,” in Appliance Model Installation Manual.

- OAI Option Service Software (for OAI Terminal Anywhere service) (SV95 NW-ACD/OAI LICS)

Note 1

Note 1: When using OAI Trunk for FCCS or OAI Terminal Anywhere, this software must be merged at all the nodes which provide the OAI service.

STEP 4: Perform the system upgrade referring to the Appliance Model Installation Manual.

STEP 5: Start up the External Computer.

4.3 Upgrading Procedure from IMX to the Telephony Server (Replacement of CPR)

Note: Merging software does not apply to North America.

STEP 1: Merge the Standard Service Software with the following software, referring to Chapter 6, “System Startup,” in Appliance Model Installation Manual.

- OAI Option Service Software (for OAI Terminal Anywhere service) (SV95 NW-ACD/OAI LICS)

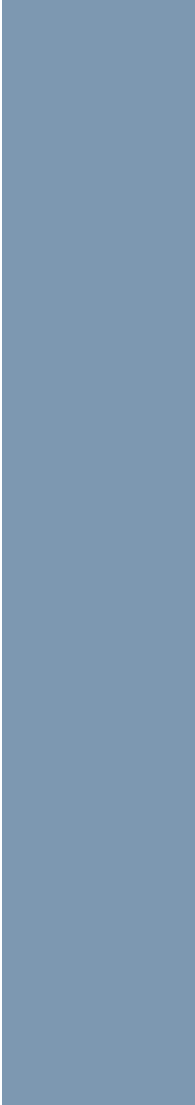
Note 1

Note 1: When OAI terminal and external computer use the Provider Facilities, merge this software at all nodes that provide the OAI services.

STEP 2: Perform the system upgrade referring to the Appliance Model Installation Manual.



CHAPTER 4 COMMANDS

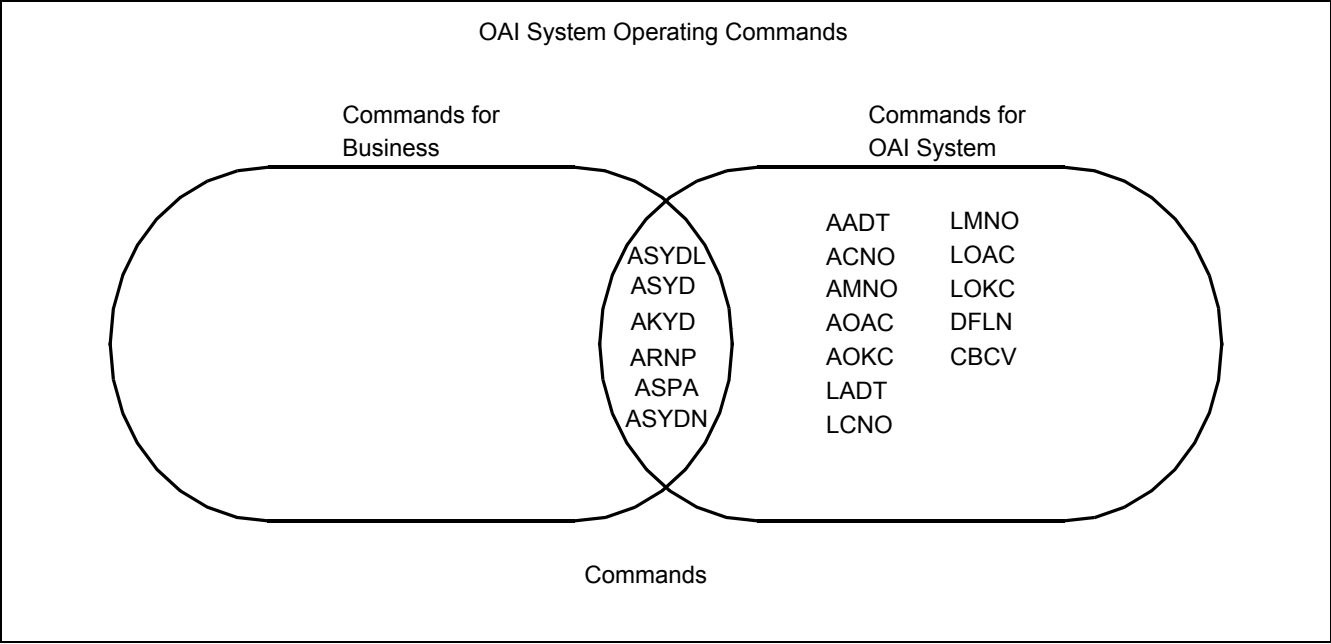


This Chapter explains the configuration of the commands used for the OAI System. For each command’s detailed explanation, see Command Manual and Operations and Maintenance Manual.

1. CONFIGURATION OF COMMANDS

The configuration of the commands in use in the OAI System is shown in the figure below.

Configuration of Commands of the OAI System



2. LIST OF COMMANDS

The following table shows a list of commands used for the OAI System.

OAI System Command Table List

ABBREV. COMMAND	COMMAND
AADT	Assignment of Announcement/Dictation Trunks
ACNO	Assignment of Conversion Number Data
AKYD	Assignment of Key Data for Dterm
AMNO	Assignment of Monitored Number
AOAC	Assignment of OAI Access Code
AOKC	Assignment of OAI Key Code
ARNP **	Assignment of Reverse Numbering Plan Data
ASPA	Assignment of Specific Attendant Number
ASYD ASYDN ASYDL	Assignment of System Data
DFLN	Display of Location Free Numbering
CBCV	Control of Broad Casting for VNDM
LADT *	List Up of Announcement/Dictation Trunks
LCNO *	List Up of Conversion Number Data
LMNO *	List Up of Monitor Number
LOAC *	List Up of OAI Access Code
LOKC *	List Up of OAI Key Code

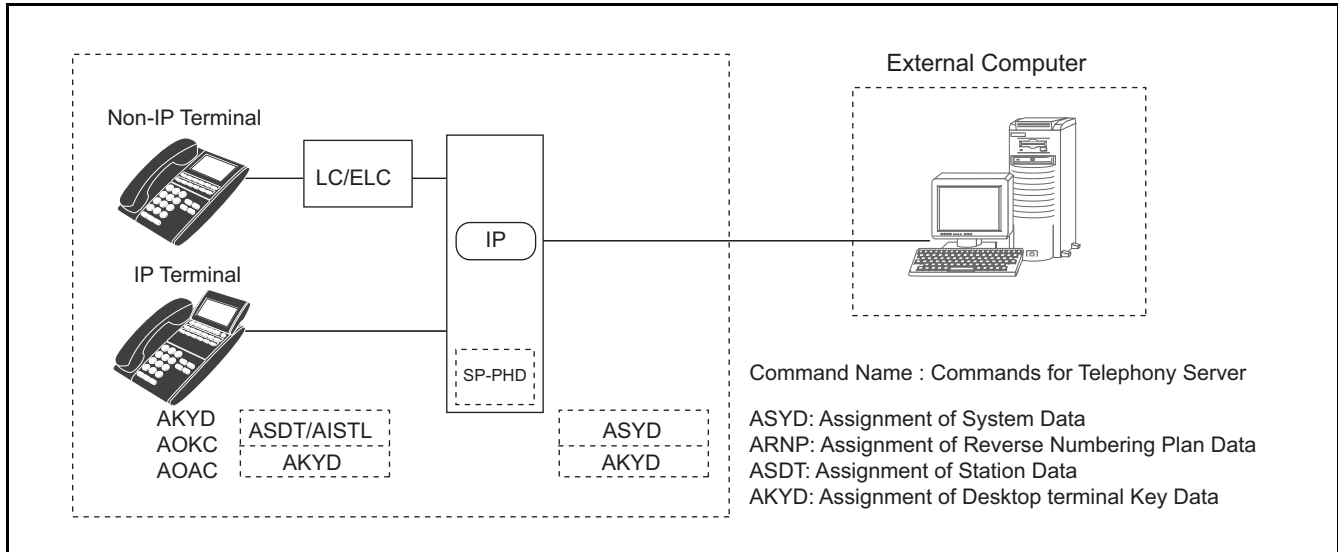
* : Each command marked with an asterisk (*) is used for listing up the assigned data.

** : For this command, refer to the Data Programming Manual, Command Manual and Operations and Maintenance Manual.

3. OUTLINE OF COMMANDS FOR OAI SYSTEM

The interrelation among the commands to be used in the OAI System is illustrated in Interrelation Among OAI System Commands.

Interrelation Among OAI System Commands



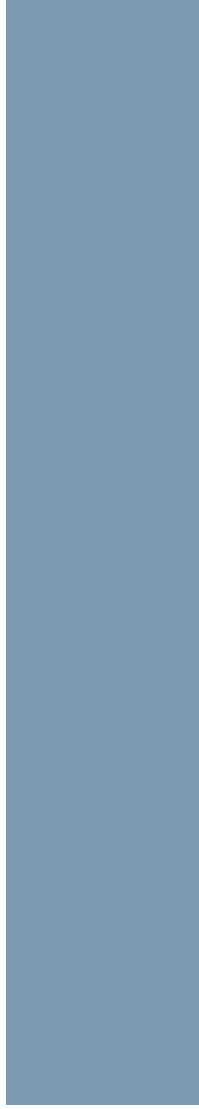
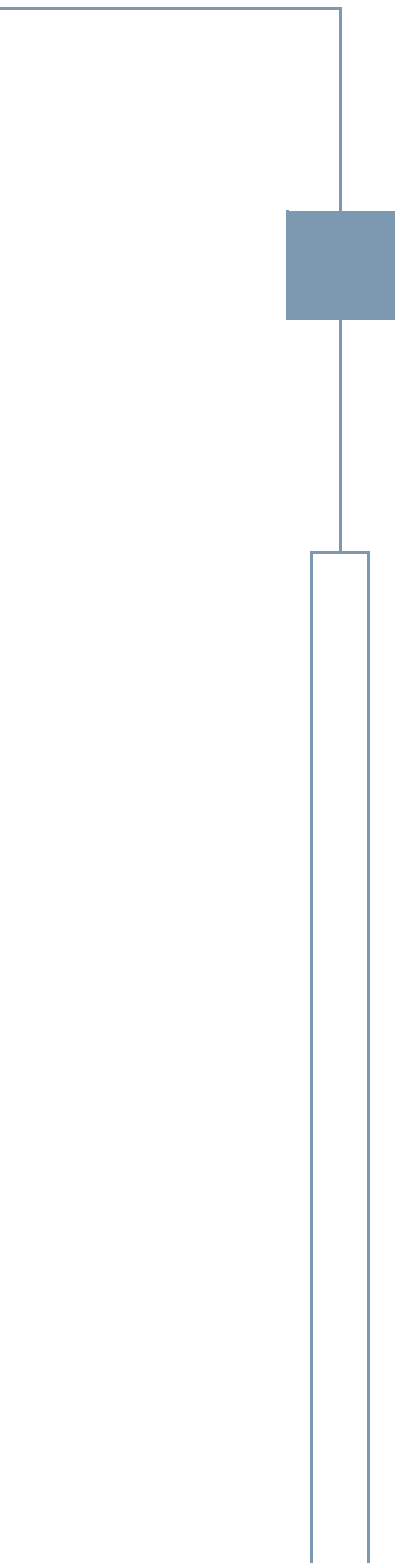
AKYD: This command is used to assign the function key codes (For OAI: 34 ~ 47) to the Feature/Flex Keys on a Desktop terminal.

Note: Function key codes 34 ~ 47 respectively correspond to OAI key codes (1 ~ 14).

AOKC: This command is used to assign the meaning of OAI key code assigned by AKYD command.

AOAC: This command is used to assign the access code/operation code for the designated facility.
This command is used only when the Facility Kind (F-KIND) has been set to "3" (Open Application Interface) by AOKC command.

Note: Parameters KEY-CODE (OAI Key Code), F-KIND (Facility Kind), and OP-CODE (Operation Code) are determined by the application software to be used at each office.



CHAPTER 5

OFFICE DATA DESIGN

1. GENERAL

This chapter explains the procedure for setting office data required in the OAI System. For the office data setting procedure of the Telephony Server itself, refer to the Data Programming Manual - Business. The description of this chapter consists of the following contents.

2. PROCEDURE FOR SETTING BASIC OFFICE DATA FOR OAI SYSTEM

This section explains the procedure for setting the basic office data of the OAI system.

3. PROCEDURE FOR SETTING OFFICE DATA FOR OAI SERVICES

This section explains the procedure for setting the office data of the main services of the OAI system.

2. PROCEDURE FOR SETTING BASIC OFFICE DATA FOR OAI SYSTEM

The procedure for setting the office data for OAI system is explained in the following.

2.1 Basic Data for OAI System

Note: For the FCCS data for OAI system, refer to Chapter 5, the section entitled “OAI FCCS” in addition to this section.

1. Basic System Data (ASYD/ASYDL/ASYDN)

- ASYD

ASYD			
SYS1	Index 31	Bits 0-3	CM mounting capacity (normally assign 04.)
	Index 32	Bit 7	SMDR/CS report is in service 0/1 = Out of service/In service
	Index 47	Bit 4	Tone Control via SCF (FN=127) Note 1 0/1=Not used/used
	Index 69	Bit 0	1 (No Recall, or execution of Call Forwarding-Don't Answer when CF-Don't Answer is set at the transfer destination station) Note 2
	Index 79	Bit 6	0 (ACD/OAI in service)
	Index 207	Bit 0	1 (Interface Processor (IP) is mounted))
		Bit 1	fixed to 0
	Index 241	Bit 2	1 (Call Processing Event Notification)
		Bit 3	1 (Details of SCF Error Notification)
	Index 451	Bit 0	OAI Call Origination to MFC Trunk by SCF FN=1 Note 3 0/1 = Out of service/In service
		Bit 2	OAI Call Origination to MFC Trunk by SCF FN=3 Note 3 0/1 = Out of service/In service

Note 1: It is necessary to perform the system initialization after this data is changed. When the system initialization cannot be performed, modify this data via the following procedure:
 Step 1: Stop the UAP
 Step 2: Modify this data
 Step 3: Restart the UAP

Note 2: This data assignment is needed since OAI system does not support CALL TRANSFER - ATTENDANT [C-10].

Note 3: This parameter is valid for the following types of MFC signaling systems:

- Argentina type
- Mexico type
- Brazil type (digital/analog)

- ASYDL

ASYDL		
SYS1	Index 513	01 Hex (LDM usage)
	Index 515~518	IP address (Hex) for the Telephony Server over External LAN Note 4
	Index 519~522	Subnet Mask (Hex) for the Telephony Server over External LAN Note 4
	Index 523~526	Default Gateway Address for External LAN Note 4 (This data is required when the Host is connected via gateway.)
	Index 864	Bit 0 (Built-in Interface Processor (IP) is provided.) Note 5
		Bit 1 Output the system message (4-R) when TCP-IP is normally disconnected 0/1 = Effective/Ineffective
		Bit 4 Assign number of ports of Status Monitoring for terminal (SMFN) 0/1=2 ports/8 ports (Normal Setting) Note 6, Note 7
		Bit 5 Clear SMFN when the FCCS Link is down 0/1=Clear (Normal Setting)/Not Clear Note 6, Note 8
	Index 867	Bit 3 Improvement of SCF6 Request for Monitor Connection. 0/1 = Out of service/In service
		Bit 4 16-digit OAI Station Number Information in Terminal Identifier (For North America) Note 9 0/1 = Not valid (up to 5 digits)/Valid (up to 16 digits)
		Bit 7 16-digit OAI Station Number Information in Terminal Identifier (For countries except North America) Note 9 0/1 = Not valid (up to 5 digits)/Valid (up to 16 digits)
	Index 870	Bit 4 1: Improvement of SCF FN=7 (Call Transfer) is in service (Checking of transfer destination before Call Hold.) Note 10
	Index 876	Bits 0-3 Switchback Pause Timer when Transfer Call by SCF (FN=7) is unavailable. Note 11 128ms x Data value (2-F) 2 = 256ms (recommended) 1 = Not used 0 = Out of service
	Index 1145	Bit 5 MG (SIP) Guard Timer for Consecutive Incoming Calls 0/1 = Invalid/Valid Note 13, Note 14
	Index 1185	Bit 4 SSF Monitoring Information Clear when the application is disconnected 0/1 = Valid/Invalid

ASYDL			
SYS1	Index 1187	Bit 4	Assign port number of Service Status Facility Monitoring (SSFM) and Service Status Facility Notification (SSFN). 0/1 = 2 ports/8 ports (normal setting)
	Index 1188	Bits 0-1	Calling party number selection function with SCF and extended function of SCF (FN=128) Note 12 b1 b0 0 0: Out of service 1 0: Out of service 0 1: Out of service 1 1: In service

- ASYDN

ASYDN			
SYS1	Index 867	Bit 4	16-digit OAI Station Number Information in Terminal Identifier (For North America) 0/1 = Invalid (up to 5 digits)/Valid (up to 16 digits) Note 9
		Bit 7	16-digit OAI Station Number Information in Terminal Identifier (For countries except North America) 0/1 = Invalid (up to 5 digits)/Valid (up to 16 digits) Note 9
	Index 1145	Bit 5	MG (SIP) Guard Timer for Consecutive Incoming Calls 0/1 = Invalid/Valid Note 13, Note 14
	Index 1185	Bit 4	SSF Monitoring Information Clear when the application is disconnected 0/1 = Valid/Invalid
	Index 1188	Bits 0-1	Calling party number selection function with SCF and extended function of SCF (FN=128) Note 12 b1 b0 0 0: Out of service 1 0: Out of service 0 1: Out of service 1 1: In service

Note 4: This data is assigned by ADTM. The assigned ADTM data is automatically written into the System Data.

Note 5: When Built-in Interface Processor (IP) is used (Index 864, Bit 0=1), Index 864, Bit 4 must be assigned as data "1", and Index 864, Bit 5 must be assigned as "0."

Note 6: The identical value must be assigned to all nodes in the FCCS network.

Note 7: When Status Monitor Facility Request (SMFR), FN = 126 is used, always assign 0 (two ports).

Note 8: Although this data is valid only when Index 864 - Bit 4 = 1 (eight ports), this bit must be assigned as Data 0 when Index 864 - Bit 4 = 0 (two ports)

Note 9: Set "1" for this bit when you use 6-digit station number in an ACD system.

Note 10: When setting this data, consider the following:

- This data is available only when transfer destination is a station.
- When this data is not set, if switchback of speech path fails due to busy status of transfer destination, Busy Tone (BT) or RTP warning tone is generated.
- When this data is set, if transfer destination is busy, Station Hunting and Call Forwarding - Busy Line result in an error.

Note 11: When setting this data, consider the following:

- This data is available only when call forwarding destinations are stations or trunks.
- When the Pause Timer value is not set, Busy Tone (BT) or RTP warning tone is generated if switchback of speech path fails.
- When the intermediate party failed to transfer a call, the held station continues to hear music on hold until the switchback of speech path is complete.
* The time required for switchback of speech path is in proportion to the assigned Pause Timer value. Required Pause Timer value for switchback of speech path depends on the network condition.

Note 12: If "0 (disable)" is specified in either Bit 0 or Bit 1, this feature doesn't work.

Note 13: When using MG (SIP), be sure to set it to "1"(Valid).

Note 14: Value of Guard Timer for Incoming Call is always same as value of Guard Timer for Outgoing Call, so set the value of Guard Timer for Outgoing Call (ASYD SYS1 Index 474, Bits 4-6) when setting the value of the value of Guard Timer for Incoming Call.

2. Optional System Data (ASYD/ASYDL/ASYDN)

- ASYD

ASYD			
SYS1	Index 19	Bit 5	ETF (Call Event Transfer Facility) Call Base Table Save and ETF Service is provided. 0/1 = Not required/Required (3 hours)
	Index 78	Bit 5	Name Display Service/Free Location Facility (FLF) in OAI features. 0/1 = Out of service/In service
	Index 241	Bit 7	SSFN Support 0/1 = Out of service/In service

- ASYDL

ASYDL			
SYS1	Index 864	Bit 6	FLF error detail indication 0/1 = Out of service/In service
	Index 867	Bit 0	SMFN Release Notification (Abandoned) via Call Forwarding - Don't Answer 0/1 = Out of service/In service Note 1
	Index 868	Bit 4	Call ID Notification (SMFR) 0/1 = Invalid/Valid
		Bit 5	Fix Direct Inward Dialing number to 12 digits (SMFR) 0/1=Invalid/Valid
	Index 871	Bit 5	IP Centrex for OAI 0/1 = Out of service/In service
	Index 873	Bit 7	Execution of SCF FN=7 from Call Hold by SCF FN=12 0/1 = Out of service/In service Note 2
	Index 874	Bit 3	ACDP Automatic Logoff 0/1 = Out of service/In service
	Index 875	Bit 0	SMFN FN=9 STS=01: Dial Number Notification (Call Forwarding) 0/1 = Out of service/In service Note 3, Note 4
		Bit 1	SMFN FN=9 STS=02: Dial Number Notification (Busy) and 03: Dial Number Notification (ROT) 0/1 = Out of service/In service Note 3, Note 4
	Index 877	Bit 4	Notification of Registration of the IP Stations 0/1 = Out of service/In service Note 3, Note 10
		Bit 5	Alternate Termination to Voice Mail 0/1 = Out of service/In service Note 3, Note 7
		Bit 6	Voice Mail for SCF (FN = 3) 2nd Party 0/1 = Out of service/In service Note 3, Note 7
		Bit 7	Control Restriction for Voice Mail by SCF 0/1 = Not restricted/Restricted Note 3, Note 7
	Index 878	Bit 6	Notification of the current participant disconnection from the original call with the other two on hold 0/1 = SMFN FN=3 STS=0 (Normal release)/SMFN FN=3 STS=4 (Disconnect from a Three-Way Call)
	Index 1185	Bit 5	SMFN of Call Hold/Retrieve During Three-Way Call 0/1 = Out of service/In service
	Index 1186	Bit 7	SMFR/SSFM Restriction During Subscribe Transfer 0/1 = Out of service/In service Note 10

ASYDL			
SYS1	Index 1187	Bits 0-3	Number of Monitor Numbers to Use (Up to 48000)
		Bit 7	SCF FN=20 monitor support 0/1 = In service/Out of service Note 8
	Index 1188	Bit 5	Number of Concurrent Connections for Predictive Dialing (Maximum of 460) 0/1 = 252/460
		Bit 6	OAI call kind 0/1 = 1 - 255/1 - 65535
		Bit 7	Detail Information on SCF error for SIP Handler Controlled SIP terminal 0/1 = In service/Out of service
	Index 1191	Bit 1	Logical Port Assignment 0/1 = Out of service/In service
	Index 1195	Bit 3	Sending SMFN Answer Notification (FN = 2) when the consulted party releases the consultation call 0/1 = Enabled/Disabled
	Index 1199	Bit 5	Restriction on SCF (FN=17) during Consultation Hold 0/1 = Disabled/Enabled Note 9
	Index 1200	Bit 5	Output of SMFN Messages for Call Park Group -D [C-176D] 0/1 = Disabled/Enabled Note 10
		Bit 6	Notification of IP Station Type (SMFR/SMFN) 0/1 = Enabled/Disabled Note 12
	Index 1201	Bit 4	Insertion of ISDN Disconnect Cause Information in SMFN Release Notification (FN = 3) 0/1 = Disabled/Enabled Note 12
	Index 1240	Bit 1	Consultation Hold Release - ACD 0/1 = Out of service/In service Note 11

- ASYDN

ASYDN			
SYS1	Index 868	Bit 5	Fix Direct Inward Dialing number to 12 digits (SMFR) 0/1=Invalid/Valid
	Index 871	Bit 5	IP Centrex for OAI 0/1 = Out of service/In service
	Index 874	Bit 3	ACDP Automatic Logoff 0/1 = Out of service/In service
	Index 875	Bit 0	SMFN FN=9 STS=01: Dial Number Notification (Call Forwarding) 0/1 = Out of service/In service Note 4
		Bit 1	SMFN FN=9 STS=02: Dial Number Notification (Busy) and 03: Dial Number Notification (ROT) 0/1 = Out of service/In service Note 4
		Bit 2	Notification of Terminal Status Change by Call Back 0/1 = Out of service/In service Note 5, Note 6
	Index 877	Bit 4	Notification of Registration of the IP Stations 0/1 = Out of service/In service Note 10
		Bit 5	Alternate Termination to Voice Mail 0/1 = Out of service/In service Note 7
		Bit 6	Voice Mail for SCF (FN = 3) 2nd Party 0/1 = Out of service/In service Note 7
		Bit 7	Control Restriction for Voice Mail by SCF 0/1 = Not restricted/Restricted Note 7
	Index 1187	Bits 0-3	Number of Monitor Numbers to Use (Up to 48000) Note 13
		Bit 7	SCF FN=20 monitor support 0/1 = In service/Out of service Note 8
SYS1	Index 1188	Bit 5	Number of Concurrent Connections for Predictive Dialing (Maximum of 460) 0/1 = 252/460
		Bit 6	OAI call kind 0/1 = 1 - 255/1 - 65535
	Index 1191	Bit 1	Logical Port Assignment 0/1 = Out of service/In service
	Index 1195	Bit 3	Sending SMFN Answer Notification (FN = 2) when the consulted party releases the consultation call 0/1 = Enabled/Disabled
	Index 1199	Bit 5	Restriction on SCF (FN=17) during Consultation Hold 0/1 = Disabled/Enabled Note 9
	Index 1200	Bit 5	Output of SMFN Messages for Call Park Group -D [C-176D] 0/1 = Disabled/Enabled Note 10
		Bit 6	Notification of IP Station Type (SMFR/SMFN) 0/1 = Enabled/Disabled Note 12
	Index 1201	Bit 4	Insertion of ISDN Disconnect Cause Information in SMFN Release Notification (FN = 3) 0/1 = Disabled/Enabled Note 12
	Index 1240	Bit 1	Consultation Hold Release - ACD 0/1 = Out of service/In service Note 11

- Note 1:** In the FCCS network, the identical office data needs to be set to all the nodes.
- Note 2:** To use this feature on DtermSP30 or Soft Client SP350 softphone, start the softphone on the target computer and configure it to be used as an ACD terminal. For further information on the configuration of these softphones, see “DtermSP30 Operations and Maintenance Manual” and “Soft Client SP350 Operations and Maintenance Manual,” respectively.
- Note 3:** When using this service in the FCCS network, assign the data by ASYDN.
- Note 4:** When using the existing notification service (STS=00 and 01), assign “0” to both bits 0 and 1.
- Note 5:** This data is available only for EMEA.
- Note 6:** To support Notification of Terminal Status Change by Call Back, the following system data setting is required: ASYDL, SYS1, Index 874, Bit 2 = 1 (CCIS SMFN Indication is in service)
- Note 7:** When using Alternate Termination to Voice Mail by OAI, assign Index 877 Bits 5–7 as 1. This feature is available when Voice Mail equipment side is compatible with Alternate Termination to Voice Mail by OAI.
- Note 8:** In an FCCS network, the data must be assigned by ASYDN.
- Note 9:** Be sure to assign “1” to use SCF (FN=17).
- Note 10:** Available since FP95-113 V3.
- Note 11:** To support Consultation Hold Release, the following system data setting is required: ASYDL, SYS1, Index 803, Bit 1 = 1 (Consultation Hold Release - ACD is in service)
- Note 12:** Available since FP95-114 V4.
- Note 13:** Note the following:
- When ASYDL/ASYDN, Index 864, Bit 4=0 is assigned (the maximum two ports are used for Status Monitoring for terminal (SMFN)), monitor numbers can be used up to 4095.
 - To prevent the situation of ACD system from becoming uncontrollable, after you change the number of monitor numbers:
 - a.) Do not reduce the number of monitor numbers to be used.
 - b.) Do not set the maximum number of ports of SMFN as two ports.
 - Plan well and assign the appropriate number of monitor numbers to use.

Data Assignment				Available Setting Value of Monitor Number
bit3	bit2	bit1	bit0	
0	0	0	0	1-4095 (default value)
0	0	0	1	1-8191
0	0	1	0	1-12287

Data Assignment				Available Setting Value of Monitor Number
bit3	bit2	bit1	bit0	
0	0	1	1	1-16383
0	1	0	0	1-20479
0	1	0	1	1-24575
0	1	1	0	1-28671
0	1	1	1	1-32767
1	0	0	0	1-36863
1	0	0	1	1-40959
1	0	1	0	1-45055
1	0	1	1	1-48000
1	1	0	0	1-48000
1	1	0	1	1-48000
1	1	1	0	1-48000
1	1	1	1	1-48000

- To use more than 4096 monitor numbers in a stand-alone environment, set a single FPC number other than 0 to ASYDL, SYS1, Index 512/533/865/866. System restart is required after setting this system data.

3. ARNP(Reverse Numbering Plan Data)

If necessary, assign the self office code when assigning office information in a message of the facility.

4. Improvement of Processing Performance (OAI)

When using this feature, assign the following system data.

- ASYDN

ASYDN			
SYS1	Index 1144	Bit 4	0 (DM cache feature is in service)
	Index 1190	Bit 6	0 (Improvement of processing performance (OAI) is in service)

5. Data for Act Side Reset Failures Support (ASYDL/ASYDN)

- ASYDL

ASYDL			
SYS1	Index 1193	Bits 1-3	Copying Cycle of VNDM to STBY side
	Index 1233	Bits 0-7	System Reset Delay Timer for Non-Load Initialize 00 (Hex) = Out of Service, 01~FF (Hex) = 1 ~ 255 seconds
	Index 1234	Bits 0-7	System Reset Delay Timer for Office Data Load & System Initialize (due to memory retained reset failure) 00 (Hex) = Out of Service, 01~FF (Hex) = 1 ~ 255 seconds
	Index 1236	Bits 0-7	System Reset Delay Timer for Program & Office Data Load & System Initialize 00 (Hex) = Out of Service, 01~FF (Hex) = 1 ~ 255 seconds
	Index 1347	Bit 0	PBUS over IP Module 0/1 = Out of service/In service
		Bit 1	Memory Copy from ACT to STBY 0/1 = Stop/Start
	Index 1348	Bits 0-3	Cycle of Executing a Health Check between ACT side and STBY side
		Bits 4-7	Cycle of Abnormal Detection for Health Check between ACT side and STBY side

- ASYDN

ASYDN			
SYS1	Index 1193	Bits 1-3	Copying Cycle of VNDM to STBY side

6. SR-MGC for OAI (available for SR-MGC (E)) **Note 1**
When using this feature, assign the following system data.

- ASYDL/ASYDN

ASYDL/ASYDN			
SYS1	Index 1194	Bit 2	1 (SR-MGC for OAI is in service)

Note 1: When this data setting is changed, be sure to make the office data copy on SR-MGC (E) by either of the following procedures after performing the office data backup through the MEM_HDD command.:

- Real-time sending
Manual office data copy by the CMNT command
- Periodic sending
Automatic office data copy after the periodic Health Check

Whichever procedure is chosen, the system initialization of SR-MGC is performed after the completion of the office data backup.

Note: If the above system data is enabled and then the operation by SR-MGC starts before the backup of the office data on the Telephony Server, this feature is not available because the latest office data is not reflected. In this case, SR-MGC operates according to the existing office data.

7. Unit mounting data

To use a monitor number with OAI, assign MG0 with the AUNT command.

2.2 Data for OAI Terminal

OAI Terminal that can use OAI facilities indicates the following terminals:

- Desktop terminal
- Analog Telephone (including Analog Telephone connected to Analog MC or MC&MG-COT) using Terminal Multiple Information Transfer Facility only

Note: For the detail, refer to Availability of Telephony Devices for ACD/OAI System in CHAPTER 2 SYSTEM OUTLINE.

2.2.1 In the case of a Desktop terminal

1. ASDT(for Digital station, such as DT400/DT300 Series/Dterm Series i)
AISTL(for IP/SIP station, such as DT800/DT700 Series, IP Enabled Dterm, DtermIP, and Softphone)
Assign station data
TEC: 12 (Voice Port) TEC: 13 (Data Port)
(Normal setting for others)
2. AKYD(Desktop Terminal Key Data)
Assign the function key data of Desktop terminal
Assign FKY 34~47 to any positions of FKY 1~16.
(Normal setting for others)
3. AOKC(OAI Key Code Data)
Assign the OAI key code data
OAI key code 1 ~ 14 respectively corresponds to FKY 34 ~ 47 of AKYD
4. AOAC(OAI Access Code Data)
If necessary, assign OAI access code data when using “OAI key + Access code” system to activate the application by MSF/TMF

2.2.2 In the case of Analog Telephone

1. ASYD(System Data)
ASYD -SYS 1
Index 251 - Assign OAI Host Computer Respond Wait Timer
Value for OAI Host Computer Answer Wait Timer (TC) × (MTC) is set.
When the data is 00 (HEX), the timer value becomes eight minutes.
Bits 0-3: Miscellaneous Timer Counter (MTC)
1-F
Bits 4-6: Timer Class (TC)
1: 64 milliseconds
3: 2 seconds
4: 30 seconds

2. ASDT (Station Data)
Assign necessary Station data for each Station.

Note: Station data for Analog Telephone connected to Analog MC or MC&MG-COT is assigned by AISTL. For details, refer to Peripheral Equipment Description (IP Devices).

3. ANPD(Numbering Plan Data)
Assign the minimum necessary number of digits for OAI Dial Number Continuous Transfer Code
4. ASPA(Special Access Code Data)
Assign the OAI Dial Number Continuous Transfer Access Code
SRV = "SSCA: Service Code Appendix"
SID = 69 (OAI Dial Number Continuous Transfer)
NND : Necessary Number of Digits of OAI access code (Maximum of three digits)
5. AOAC(OAI Access Code Data)
Assign OAI access code data.
OAI-ACC: 000-### (OAI Access Codes) Maximum three digits.
F-KIND: 2 (Terminal Multiple Information Transfer Facility [TMF])
OP-CODE: 128-255 (Operation Codes)

3. PROCEDURE FOR SETTING OFFICE DATA FOR OAI SERVICES

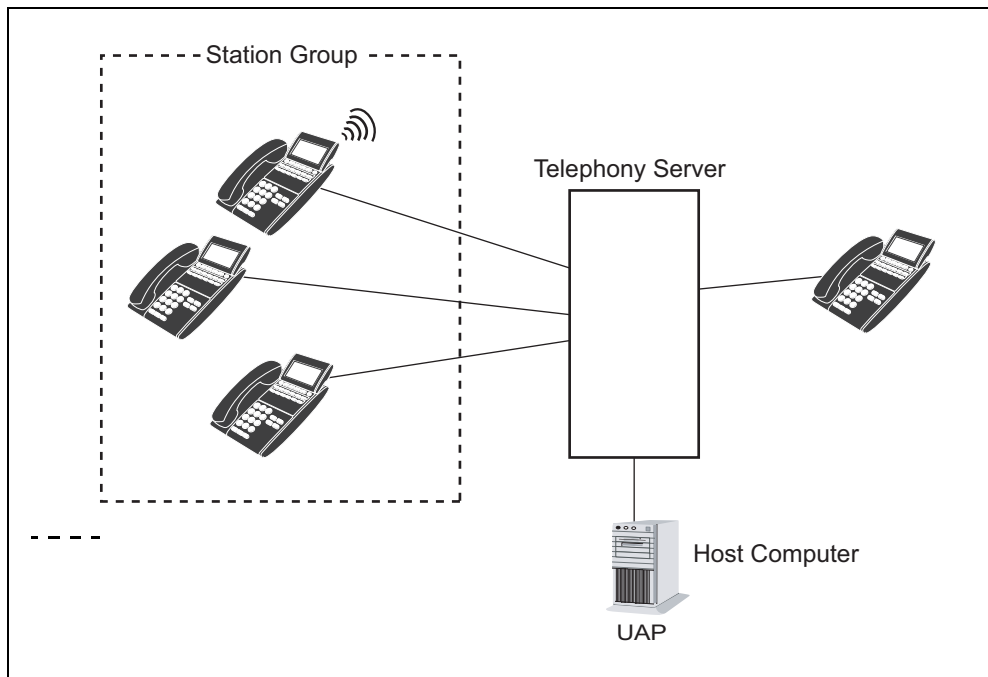
This section explains the function, using conditions, and office data setting procedure for the main OAI service functions.

3.1 Switch Control Facility (SCF)

3.1.1 Functional Outline

The SCF facility executes from the User Application Processor (UAP), control operations such as connections/disconnections between the Telephony Server-accommodated terminal (Desktop terminal) and another, between a Desktop terminal and a C.O. line outgoing/incoming trunk, etc. The SCF has several functions (FN), and explanations will be given in the following about “Basic Connecting Function (FN=1) – Make Call” that is one of several functions.

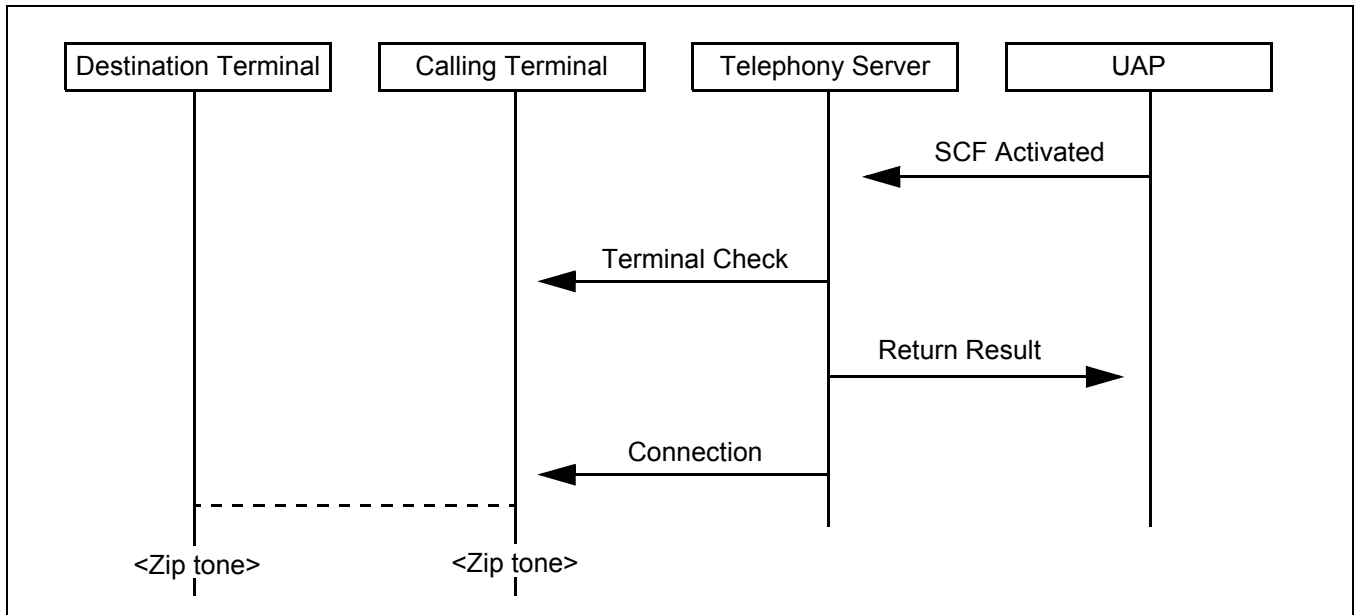
Note: The basic connection function automatically sets a terminal into an outgoing connection status. Responding to a connection request from the UAP, both the calling terminal number and the call destination number can be designated.



3.1.2 Using Conditions

1. Normal and abnormal operating sequences pertaining to the basic connection of the SCF are as described below.

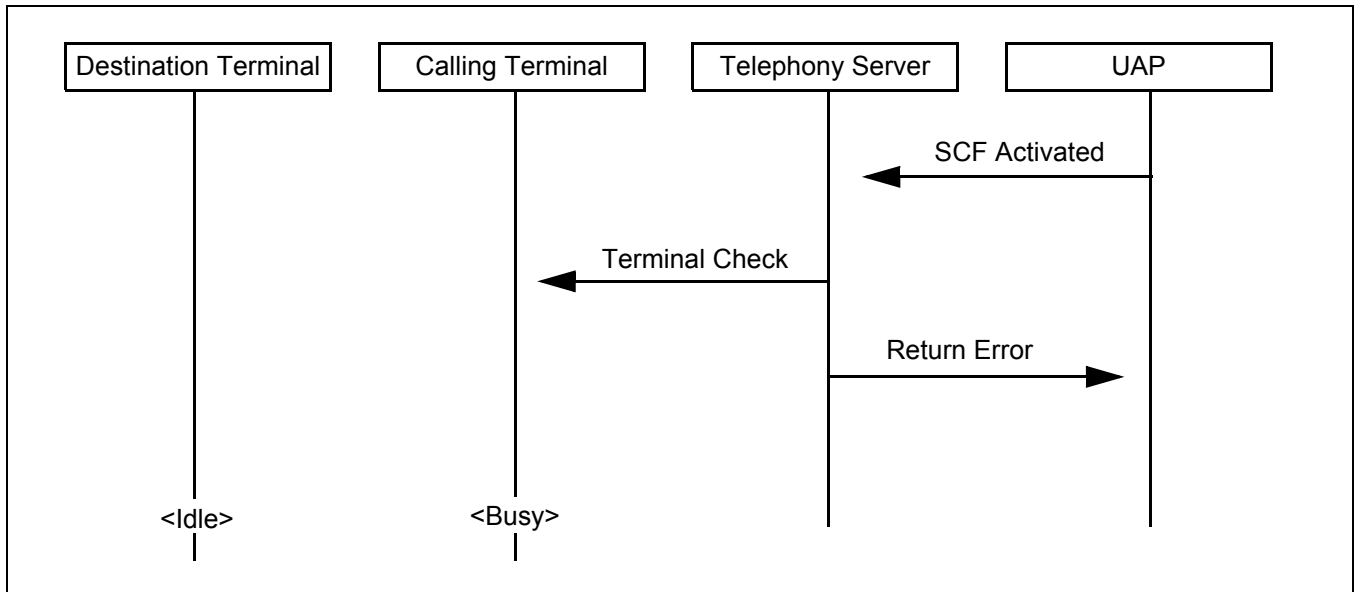
[Normal Sequence]



- (a) Upon receiving SCF start request from the UAP, the Telephony Server judges the status (idle, busy, make-busy, etc.) of the designated calling terminal and destination terminal.
- (b) If the calling terminal and the destination terminal are idle, the Telephony Server sends out Return Result to the UAP, and places the calling terminal into an outgoing connection status and the destination terminal into ringing status. This is the basic function.
- (c) When the destination terminal designated from the UAP is a terminal in the Telephony Server and automatic answer is designated as the answer type, both the calling and destination terminals can be placed into speech status immediately from the status cited in (b) (After zip tone has been sent to both terminals, the terminals are placed into speech status.).

Note that this service function is valid only when the destination terminal is in line selection wait status and also automatic answer is designated as the answer type. If the destination terminal is in a status other than line selection wait status, the call is answered manually. This service function is valid only when the destination terminal is a station (Desktop terminal: Voice) among the SCF Make Call designations. If the call destination is a trunk, this service function does not work.

[Abnormal Sequence]



- (a) Upon receiving SCF start request from the UAP, the Telephony Server judges the status (idle, busy, make-busy, etc.) of the designated calling terminal and destination terminal.
 - (b) If the calling terminal and the destination terminal are in a status other than idle, the Telephony Server sends out Return Error to the UAP.
2. Only Desktop terminals can be designated as a calling terminal.
3. The following SCF are supported in Caller ID Notification.
 - SCF FN = 1 (Make Call)
 - SCF FN = 3 (Make Call with Ringing)
 - SCF FN = 4 (Terminal Call)
 - SCF FN = 7 (Transfer Call)
- Note:** SCF FN = 128 (Trunk Call) is not supported.
4. If applications except the ACDP perform the following operations by using OAI facility (SCF) in the ACD system, ACD features cannot be used.
 - Routing an ACD incoming calls in queue (SCF FN=4)
 - Use an Infolink Data Message “IF: Route Call Request” instead of SCF
 - Monitoring (SCF FN=6)
 - Use an Infolink Data Message “IH: State Change Request” instead of SCF

- Connecting a line to an ACD Pilot Number (SCF FN=10)

Note: For Inbound Messages from Influent Client to ACD, refer to INFOLINK DATA MESSAGES - ACD [I-99A] in Data Programming Manual - ACD.

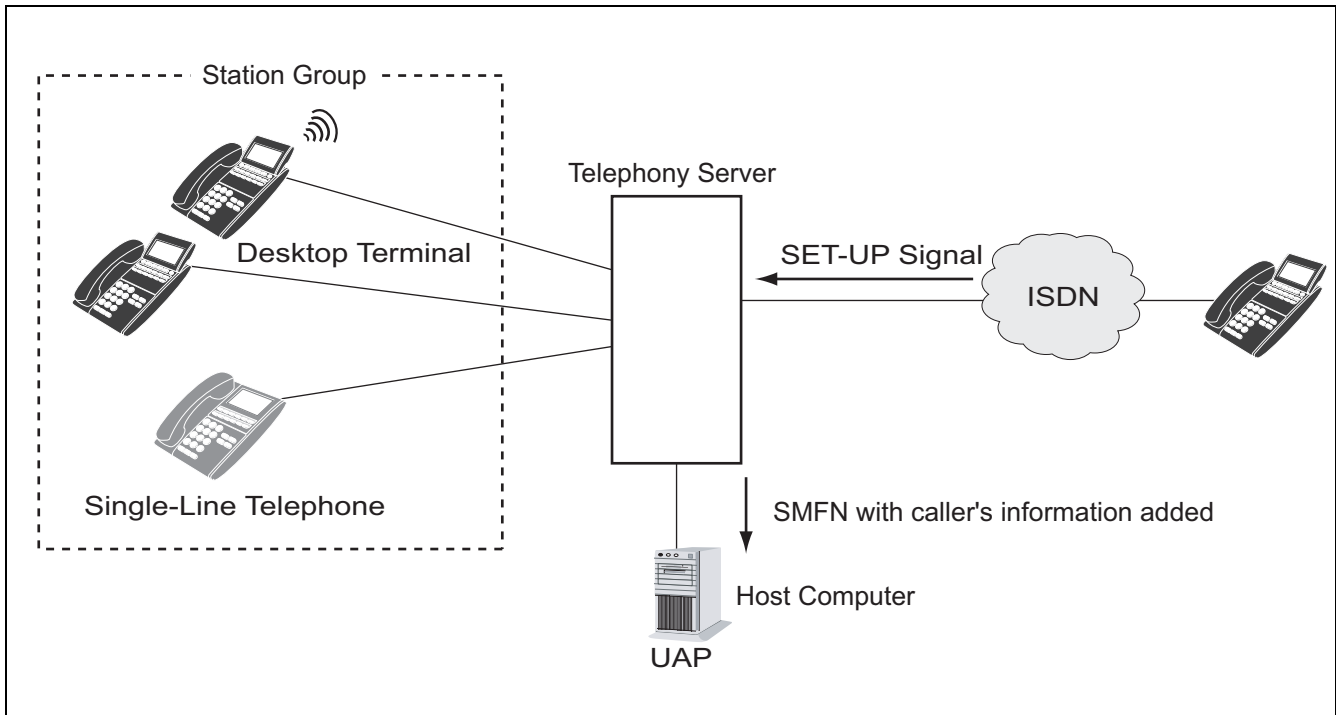
3.1.3 Data Programming

1. Assignment
2. ASYD (System Data)
SYS 1
Index 79
Bit 6: 0 (OAI service is available)
3. AKYD (Desktop Terminal Key Data)
Restrict a call origination from the Prime line of the terminal that answer type is designated as automatic answer
S: Outgoing call from a Prime line (0/1)
0/1: Allowed/Restricted
4. Deletion
5. AKYD (Desktop Terminal Key Data)
Cancel restriction on a call origination from the Prime line of the terminal that answer type is designated as automatic answer
S: Outgoing call from a Prime line (0/1)
0/1: Allowed/Restricted
6. ASYD (System Data)
SYS 1
Index 79
Bit 6: 1 (OAI service is not available)

3.2 Call ID Notification (SMFN for ISDN)

3.2.1 Functional Outline

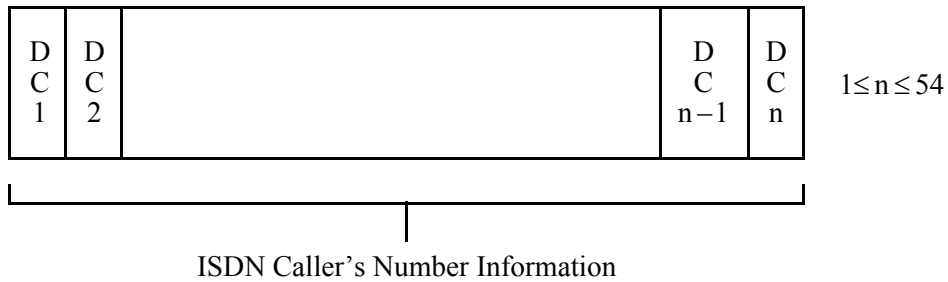
This Call ID Notification function is an enhancement of both the Call Termination Notification and the Answer Notification among Call Status Monitor Facility Notification functions of the OAI system, and provides the User Application Processor for the UAP with the caller's information when call termination is to be notified about an incoming call from the Integrated Services Digital Network (ISDN) concerned. Likewise, when the called terminal has answered an incoming call, this function also provides the UAP with the ISDN caller's information.



3.2.2 Using Conditions

1. Only when a call has terminated from the ISDN and when the call has been answered, SMFN message is sent out with the caller's information added. Note, however, that caller's information may not be added to the message depending on the restrictive conditions pertaining to the caller notification of the ISDN.
2. The number of digits for ISDN caller's information is a maximum of 33 for the caller's number and a maximum of 20 for call sub-address.
3. The SMFR cannot monitor ISDN terminal, and when a call from ISDN network has terminated and the call has been answered, SMFN message is not sent out.

4. When an incoming call terminates from ISDN network, the ISDN caller's number information (subscriber's number and sub-address) is provided from the central office in the following format.



The subscriber number is a maximum of 33 digits, and the sub-address is a maximum of 20 digits, and they are separated by the separator * (OBH).

3.2.3 Data Programming

1. Assignment

ASYD(System Data)
 SYS 1
 Index 79
 Bit 6: 0 (OAI service is not available)
 Index 241
 Bit 2: 1 (OAI Call Status Monitor Facility Notification is not in service)

2. Deletion

ASYD (System Data)
 SYS 1
 Index 79
 Bit 6: 1 (OAI service is not available)
 Index 241
 Bit 2: 0 (OAI Call Status Monitor Facility Notification is not in service)

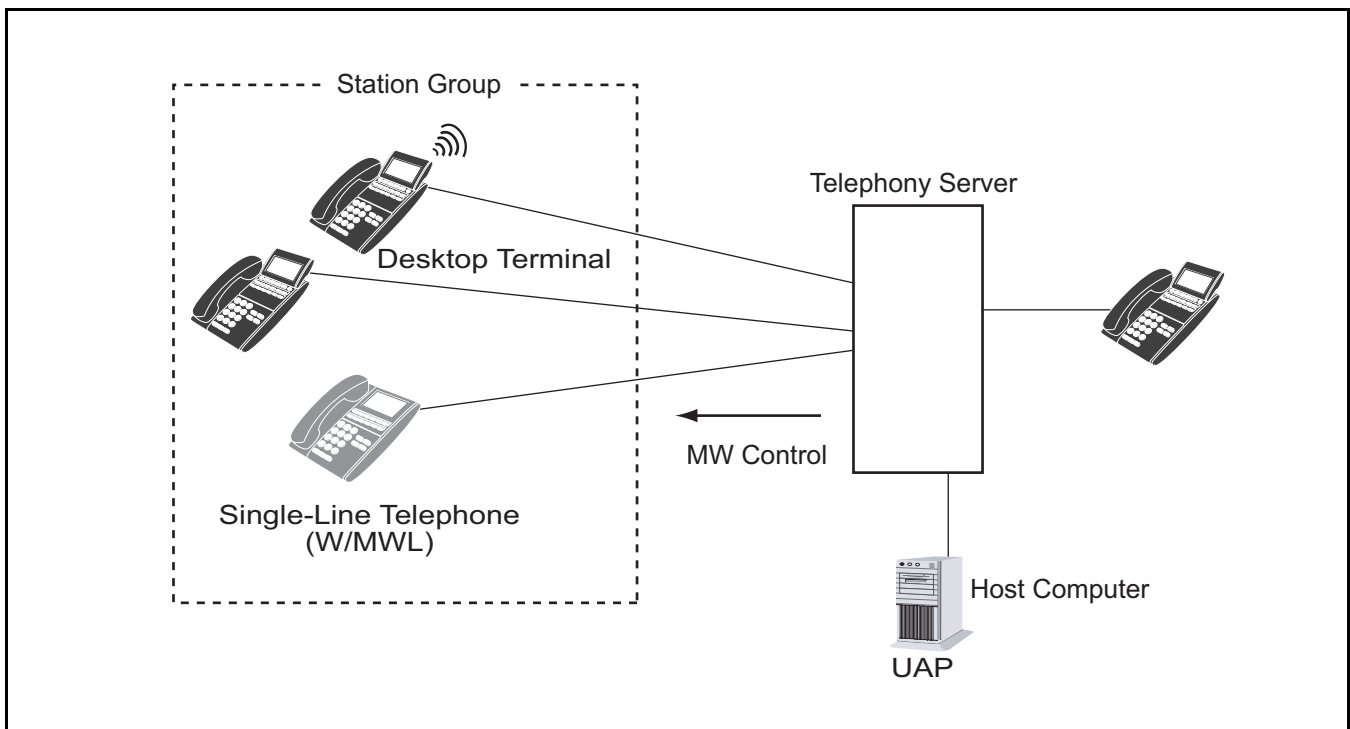
3.3 MWL Control (SSF) STEP-1

3.3.1 Functional Outline

This function allows the User Application Processor (UAP) to provide a single-line telephone equipped with Message Waiting Lamp (MWL) or a Desktop terminal with the following Message Waiting (MW) services by the OAI Service Set Facility (SSF).

1. MW Setting (Turning MW Lamp On)
2. MW Resetting (Flashing MW Lamp)
3. MW CANCEL (Turning MW Lamp Off)
4. LCD Display on each MW type

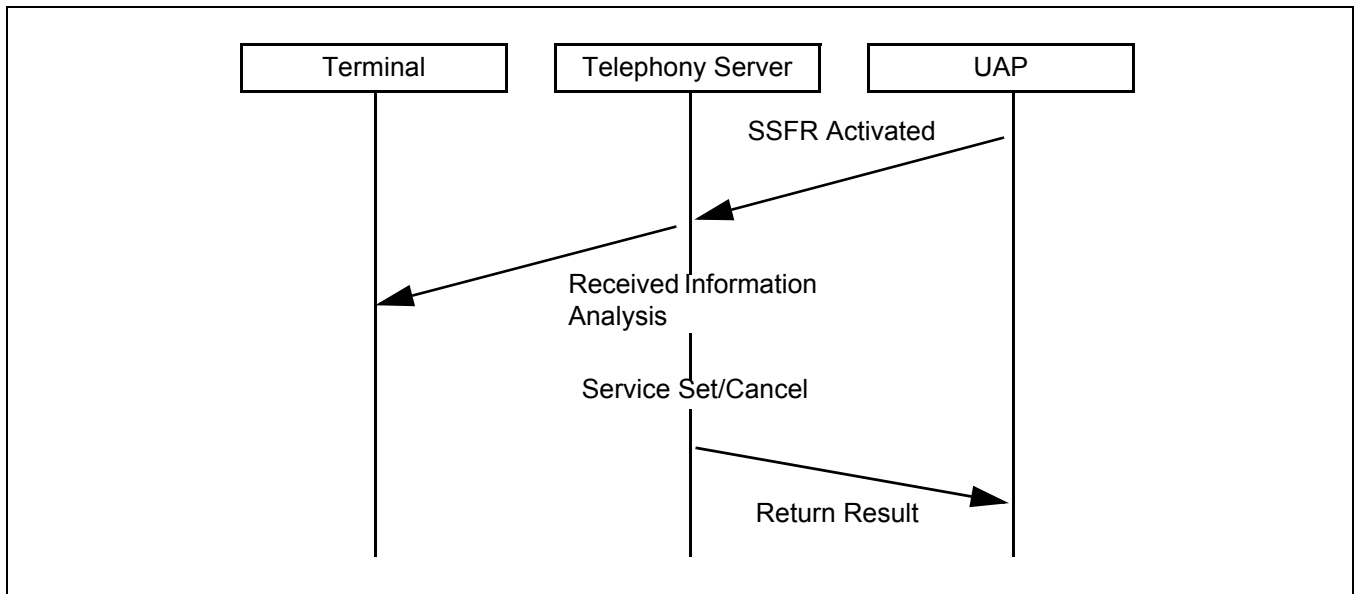
Display contents: Message Waiting (MW)
Voice Mail Module (VMM)
Text Mail Module (TMM)
Facsimile Mail Module (FMM)



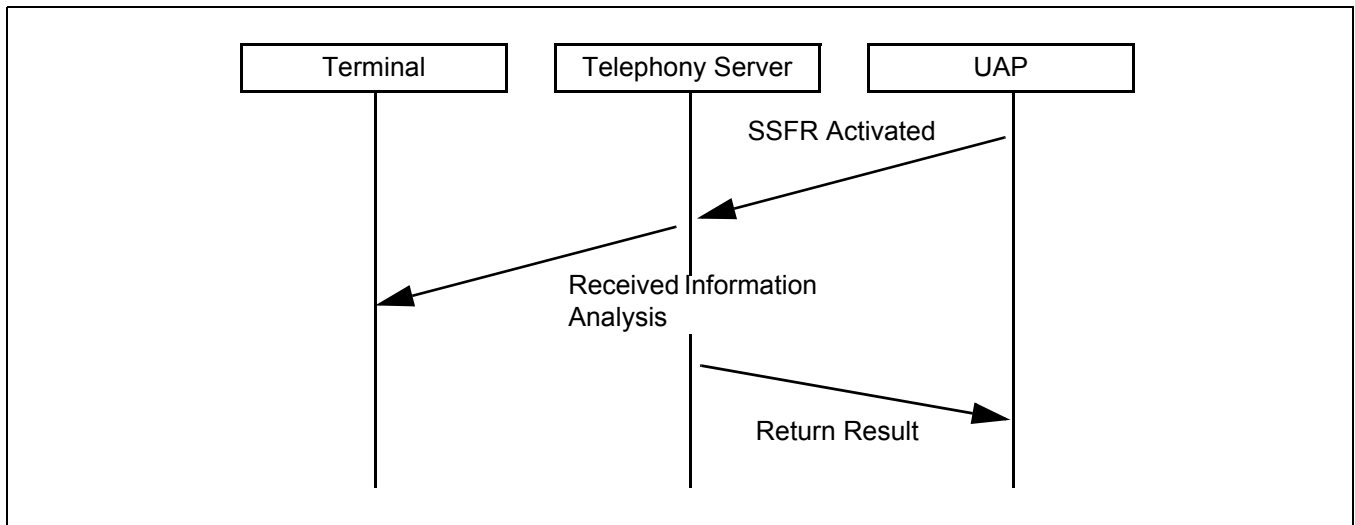
3.3.2 Using Conditions

1. Normal and abnormal operating sequences pertaining to the basic connection of the SSFR are as described below.

[Normal Sequence]

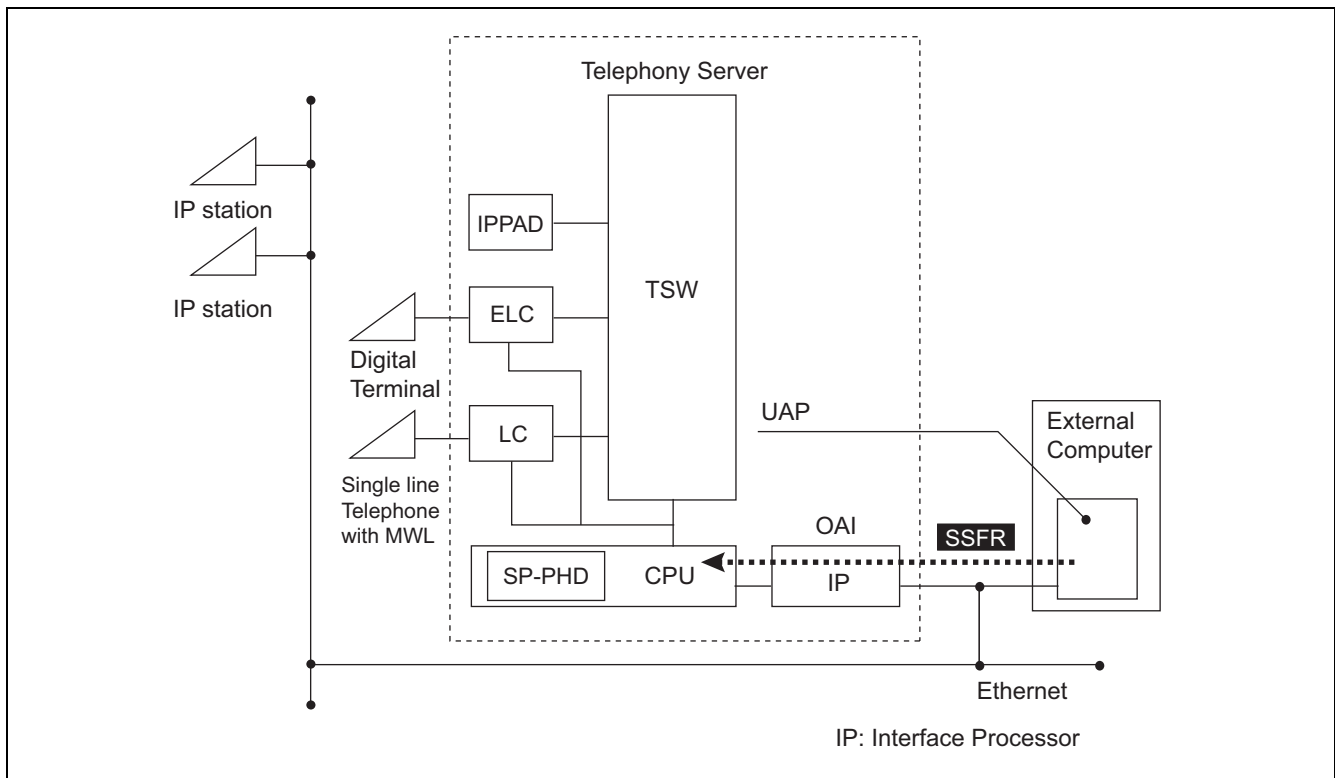


[Abnormal Sequence]



2. This service cannot be used simultaneously with other MW control services (VMM/MCI: Message Center Interface/Message Waiting from Station, ATTCON and PCPro).
3. The conditions for a telephone that controls MW are as follows.
 - MW can be serviced only on a telephone equipped with the MW lamp function.
 - On a single-line telephone and/or Desktop terminal, the MW lamp display position is fixed.
 - On a single-line telephone, MW lamp flashing cannot be controlled (ON/OFF only).

- MW lamp on/off/flashing, and LCD display can be controlled on a Desktop terminal. (MW indication is available only on a Desktop terminal equipped with the indicator.)
 - Desktop terminal can control only lamp flashing (LCD display cannot be controlled).
4. In the case of MW service by SSFR (Confirm-type < Computer → Telephony Server > Performer facility), the same kinds of display (MW, VMS) as those of Message Center Interface (MCI) are possible.
 5. In the case of deletion of all station data and all type data, only the same data as of MCI are deleted. MW service information for stations from the OAI Terminal Control Facility (TCF) is not deleted.
 6. In the case of MW service by SSFR, lamp on/flashing/off is immediately indicated at the time of one station control. In the case of deletion of all station data and all type data, a delay time of maximum 196 seconds generates until the status of the terminal actually changes.
 7. The system configuration for implementing this service is as illustrated below.



3.3.3 Data Programming

1. Assignment
 ASYD (System Data)
 SYS 1
 Index 77
 Bit 2: 0 (MW Lamp Refresh Control is in service)
 Index 79
 Bit 6: 0 (OAI services are provided)

ARPC (Remote Point Code for Centralized Service)
For providing centralized services at the Message Center within a CCIS Network,
assign the point codes for the remote offices belonging to the main office
CSN: Centralized Service Item No. (1 ~ 7)
1: Message Center
CNT: Number of Remote Office Point Codes (1 ~ 32)
RPC: Remote Office Point Code (1 ~ 16367)

2. Deletion

ARPC (Remote Point Code for Centralized Service)
Delete the point codes of the remote offices belonging to the main office

ASYD (System Data)
SYS 1
Index 77
Bit 2: 1 (MW Lamp Refresh Control is not in service)
Index 79
Bit 6: 1 (OAI services are not provided)

3.4 TCP/IP Address (Assignment from PCPro)

3.4.1 Functional Outline

In an OAI system to be connected with the host computer via the Ethernet, this function allows use of TCP/IP port with the self internet address (TCP/IP address) of the Telephony Server assigned from the PCPro.

Also, whether System Message 4-R (IO Ready Failure or IOC card for UAP when the host computer is faulty) is to be output or not when the connection with the host computer has been normally disconnected can be selected by system data settings or switch settings on the Interface Processor (IP).

3.4.2 Using Conditions

1. Due to the hardware limitation, only one physical TCP/IP port can be accommodated per system.
2. Basic Value of TCP/IP Address is “172.16.253.0”.
3. The TCP/IP addresses (A, B, C, D) that cannot be used by this function are as follows.
Classes A, B, and C can be used. Note that Host Number = 0 cannot be used. (Conditions [1] ~ [3]. Classes D and E cannot be used. (Condition [4])
Class A: [1] $0 \leq A \leq 127 \rightarrow A, 0, 0, 0$
Class B: [2] $128 \leq A \leq 191 \rightarrow A, B, 0, 0 (0 \leq B \leq 255)$
Class C: [3] $192 \leq A \leq 223 \rightarrow A, B, C, 0 (0 \leq B \leq 255, 0 \leq C \leq 255)$
Class D, E: [4] $244 \leq A \rightarrow A, B, C, D (0 \leq B \leq 255, 0 \leq C \leq 255, 0 \leq D \leq 255)$
4. System Message 4-R output can be stopped by switch setting on the System Data only when TCP connection has been disconnected (Normal) (ERRK=01).

3.4.3 Data Programming

TCP/IP Address Assignment

1. Assignment

ADTM (Assignment of Data for TCP/IP Module)

Assign IP address of TCP/IP module.

IP Address (ACT): IP address of active side TCP/IP module

Subnet Mask: Subnet Mask of IP address

IP Address (STBY): IP address of standby side TCP/IP module (used in dual configuration only).

ASYDL [System Data (LDM)]

Assign TCP/IP address

SYS 1

Index 515 ~ 518

2. Deletion

ADTM (Assignment of Data for TCP/IP Module)

Delete IP address of TCP/IP module.

IP Address (ACT): IP address of active side TCP/IP module

Subnet Mask: Subnet Mask of IP address

IP Address (STBY): IP address of standby side TCP/IP module (used in dual configuration only).

ASYDL [System Data (LDM)]

Assign TCP/IP address

SYS 1

Index 515 ~ 518

Stopping System Message 4-R

3. Assignment

ASYDL (System Data (LDM))

SYS 1

Index 864

Bit 1 = 1 (System Message 4-R is not output when TCP/IP connection is normally disconnected.)

4. Deletion

ASYDL (System Data (LDM))

SYS 1

Index 864

Bit 1 = 0

3.5 Name Display

3.5.1 Functional Outline

This service is for displaying information (user's name, station number, etc.) on the LCD of Desktop terminal.

1. Receive internal call
2. Receive Forwarding Call from Call Forwarding Busy Line, Call Forwarding Absent, Call Forwarding Don't Answer, Station Hunting, or etc.

3.5.2 Using Conditions

1. A maximum of 16 digits of user's information can be displayed on LCD according to internal numbers.
2. Display characters available for this service: alphabet, digit, sign, or etc.
3. Assign the name information corresponding to the station number through OAI FLF function.
4. For administrating user's information clearly, using both Name Display Service assigned by the ANDD command and OAI Service at same time is not possible. Therefore, do not assign Name Display Service by the ANDD command.
5. Using both eight-digit Display Service and 16-digit Display Service at same time is not possible. For changing from eight-digit Display Service to 16-digit Display Service, can be changed by using System Data.
6. Limitations for 16-digit Display Service are:
 - User's information cannot be displayed on the top line of LCD.
 - User's information is displayed from the left side of bottom line and if the information is less than 16-digit, the rest of frames will be blank.
 - Setting multi-line on this Desktop terminal is not enabled.
7. The limitation for eight-digit Display Service is:
 - User's information is displayed from the middle of top line and if the information is less than eight digits, the rest of frames will be blank. And the bottom line will display the clock.
8. If the user's information is not assigned, station number will be displayed normally.
9. There is no guarantee for the user's information if you change from 16-digit Display Service to eight-digit Display Service.
10. The service will be effective, if either of calling party or called party has a Desktop terminal with LCD.
11. When using this service, do not execute the memory data backup by using MEM_HDD command. If the backup is executed, name display data assigned by UAP is overwritten by the data just after the backup during the system initialization of Telephony Sever. As a result of that, name display data assigned by UAP is deleted.

12. When Name Display Enhance Service is not activated (ASYD Index 79 Bit 5: 0) but Dial Number Display is activated, destination number is displayed in intermediate station area of the LCD.
In the case that the Telephone Number has been assigned, Telephone Number is displayed at that time. Even if Phantom Number is used, station number or Telephone Number is displayed.
13. When Name Display Enhance Service is activated (ASYD Index 79 Bit 5: 1), user's information of OAI is not displayed if station number is dialed.
Also user's information of OAI is not displayed on the called station side LCD if Telephone Number is dialed.
When Name Display Enhance Service is activated (ASYD Index 79 Bit 5: 1) and Dial Number Display is activated, dialing/dialed number by calling/called station is displayed in intermediate station area of the LCD.

3.5.3 Data Programming (Set Up from User Application)

1. Assignment

ASYD

SYS 1

Index 31: 04: mount capacity of Common Memory (CM) 4 Mbyte

Index 78

Bit 0 = 1 (Intermediate Station Number Display is in service)

Bit 1 = 1 (Service Assortment Display is in service)

Bit 3: Dial Number Display 0/1: Out/In service

Bit 5 = 1 (Name Display Service is in service)

Index 79

Bit 5: Expanded Name Display (displaying 16-digit) 0/1: Out/In service

Bit 6 = 0 (OAI Service is in service)

Index 241

Bit 1: Name Display 0/1: 8-digit/16-digit

2. Deletion

ASYD

SYS 1

Index 78

Bit 0 = 0 (Intermediate Station Number Display is out of service)

Bit 1 = 0 (Service Assortment Display is out of service)

Bit 3: Dial Number Display 0/1: Out/In service

Bit 5 = 0 (Name Display service is Out)

Index 79

Bit 5: Expanded Name Display (displaying 16-digit) 0/1: Out/In service

Bit 6 = 1 (OAI Service is Out)

Index 241

Bit 1 = 0 (Name Display is displaying 8-digit)

3.6 Inter Node Name Display

3.6.1 Functional Outline

Name Display Service is available in CCIS network.

Name Display Service facilities of displaying letters (alphabet and etc.) on LCD of the Desktop terminal when receiving call from other internal line.

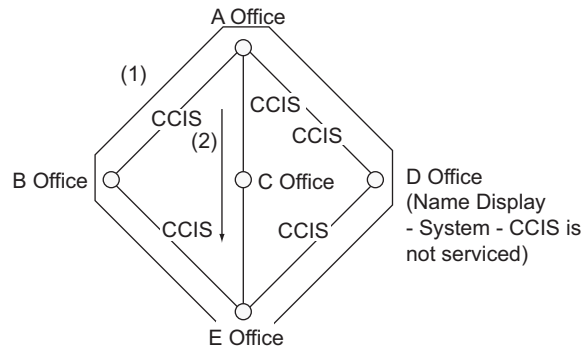
3.6.2 Using Conditions

1. While Calling party is calling Called party, the LCD of Calling party display Called party's name information by the internal number.
2. If there is no information of Calling party or Called party, only the number of the Calling party or the Called party's will be displayed.
3. When there are both eight-digit and 16-digit Inter Node Name Display Service in same node, Calling party/ Called party's name can be shown as below.

Inter Node Name Display Service Calling Party → Called party	Display of Calling party's name	Display of Called party's name
16-digit → 8-digit	16-digit on Center Line (right side of 8-digit will be blank)	8-digit on Top Line (First 8-digit will be displayed)
8-digit → 16-digit	8-digit on Top Line (First 8-digit will be displayed)	16-digit on Center Line (right side of 8-digit will be blank)
8-digit → 16-digit → 8-digit	8-digit on Top Line	8-digit on Top Line
16-digit → 8-digit → 16-digit	16-digit on Center Line	8-digit on Center Line

4. When Name Display Service is set up for 16-digit, it cannot set up multi-line on the Desktop terminal.
5. When Calling party reaches CCIS call to Called party by using the Desktop terminal's Sub-Line, the display of Called party will display the Sub-Line name of Calling party. (only for eight-digit)
6. The Name Display of Called party indicates Prime line only for both eight-digit and 16-digit display.
7. Characters available for display are alphabet, figure, sign, and etc.
8. Assign the Name Information Data, based on each Desktop terminal LENS, by using the Free Location Facility available on the User Application Processor (UAP).
9. The route set up Inter-Node Display Service and the route not set up Inter-Node Display Service should be separated from each other.
10. When Dial Number Display Service is activated, the dial number will not be displayed between the Inter Node.
11. The Name Display Service is only available on Desktop terminals with LCD.

12. The Office Code plus station number is normally displayed. However, when use of a logical number is specified, only the logical number without an office code is displayed. (One CCIS network is assigned only one logical number.)
13. When a call has been transferred by Call Forwarding All Outside Line Call or Call Forwarding-Busy Outside Line Call, the LCD of Calling Party's Desktop terminal will display Name Information of Called party, instead of the dialed number.
14. When you call party by a party that does not have Inter-Node Name Display Service in a CCIS network or the other node of a CCIS network, the Name Display Service will not serve.



In the case of (1): Name Display is serviced.
 In the case of (2): Name Display is not serviced.
 In the case of (3): Name Display is not serviced.

15. This service cannot be used in conjunction with ISDN Information Transfer-CCIS Service.
16. Those below are the Inter Node Services that are able to serve Inter Node Name Display.
 - Voice Call
 - Inter-Node Call Forwarding All Call
 - Inter-Node Call Forwarding Busy Line
 - Inter-Node Call Forwarding No Answer
 - Inter-Node Camp On (Only for calling)
 - Message Reminder (Only for outgoing)
17. Those below are the Self Node Services including CCIS Trunk that are able to serve Inter Node Name Display.
 - Call Pick Up
 - Ringing for Call Hold
 - Answering for call park
 - Call waiting

- Catching call from UCD Queuing

18. To make sure the terminal is working properly, please see “Name Display” in this chapter.

3.6.3 Data Programming (Set Up from User Application)

1. Assignment

Below are explanations of the assignment according to Name Information set up from the User’s Application.

ASYD

SYS 1

Index 78

Bit 5 = 1 (Name Display Service is in service)

Bit 3: Dial Number Display 0/1: Out/In service

Index 79

Bit 6 = 0 (OAI Service is in service)

Index 241

Bit 1: Name Display 0/1: 8-digit/16-digit displaying

ARTD (Route Class Data)

Change the Route Class Data of CCIS Trunk

BT (Busy Line Service): 1 (Active)

DPLY (Number Display Designation): 1 (Called Party Number Display)

CI (ISDN Output Information): 0 (Existing)

IND (Inter Node Display Service): 1 (In service)

2. Deletion

ARTD (Route Class Data)

Delete the Route Class Data of CCIS Trunk

BT (Busy Line Service): 0/1 (Out/In Service)

DPLY (Number Display Designation): 0/1(-/Called Party Number Display)

CI (ISDN Output Information): 0 ~ 15

IND (Inter Node Display Service): 0 (Out)

ASYD

SYS 1

Index 78

Bit 5 = 0 (Name Display Service is out of service)

Bit 3: Dial Number Display 0/1: Out/In service

Index 79

Bit 6 = 1 (OAI Service is not in service)

Index 241

Bit 1 = 0 (Name Display eight-digit)

3.7 OAI FCCS

OAI FCCS systems can be divided into the following two types:

Single IP configuration (OAI Terminal Anywhere)

The node that accommodates IP is one node only in an FCCS network. The OAI terminals can be installed in an FCCS node whether the node has the IP or not. (Those OAI terminals in multiple nodes are controlled by one IP.)

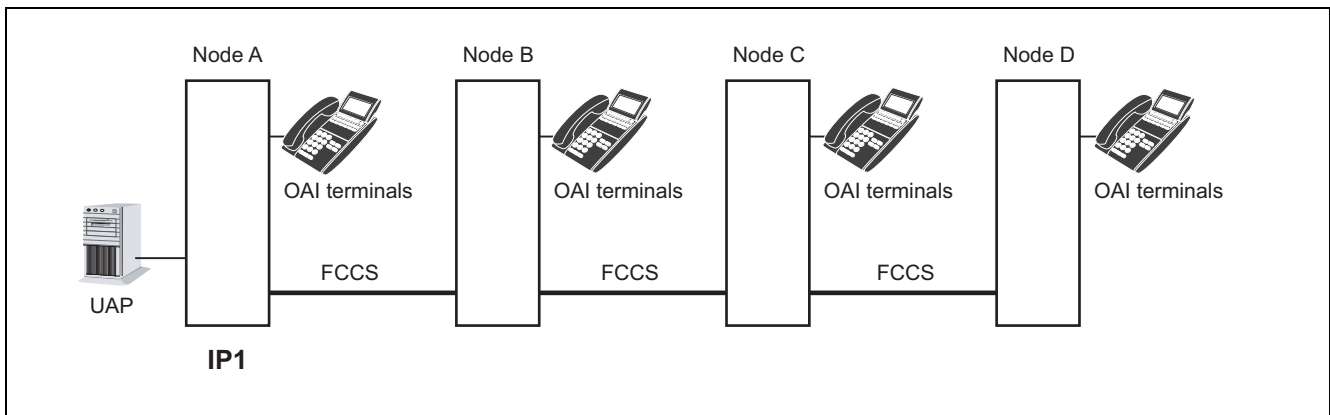
Multiple IPs configuration (Multiple IPs System)

Multiple IP nodes are available in an FCCS network. Multiple IPs to be used for OAI Terminal Anywhere can be contained in an FCCS network (Multiple IPs System).

3.7.1 OAI FCCS Basic Conditions

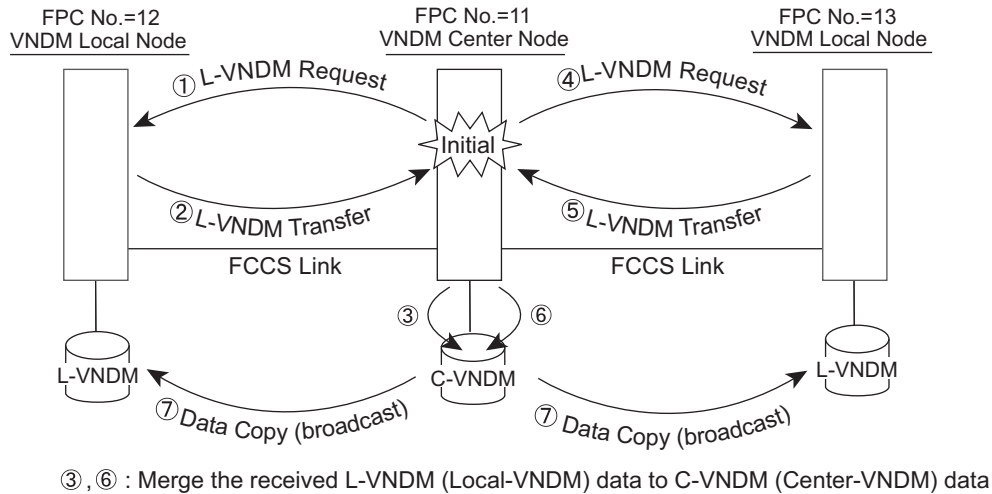
- (a) Location Diversity [L-55] is not available in FCCS Network.
- (b) A maximum of four nodes can be connected as tandem nodes providing the OAI FCCS services.

Example: Tandem Connection over FCCS Link (OAI Terminal Anywhere Network)



- (c) The UAP must be connected to the node that accommodates the IP.
- (d) Telephone Number (a maximum of 16 digits) is used for the station number type to activate OAI system through an FCCS network.
Logical Route is used for the route type to activate OAI system through FCCS network.
- (e) Immediately after the first startup of the UAP or the initialization of IP nodes, broadcast the VNDM data by using the CBCV command. Using the CBCV command, the VNDM data can be broadcast to all the VNDM Local Nodes in an FCCS network from the VNDM Center Node.
- (f) When System Initialization is executed at VNDM Center Node (the node accommodating the master VNDM data) or the other VNDM Local Node in an FCCS network, re-establishing VNDM data in the FCCS network is automatically carried out to restart OAI FCCS service.

Example: When System initialization is executed at VNDM Center node, re-establishing VNDM data is automatically carried out as follows (VNDM Center node requests the all VNDM Local nodes in the FCCS network to send their L-VNDM data to VNDM Center node, in order of lower FPC number):



Variable Network Data Memory (VNDM)

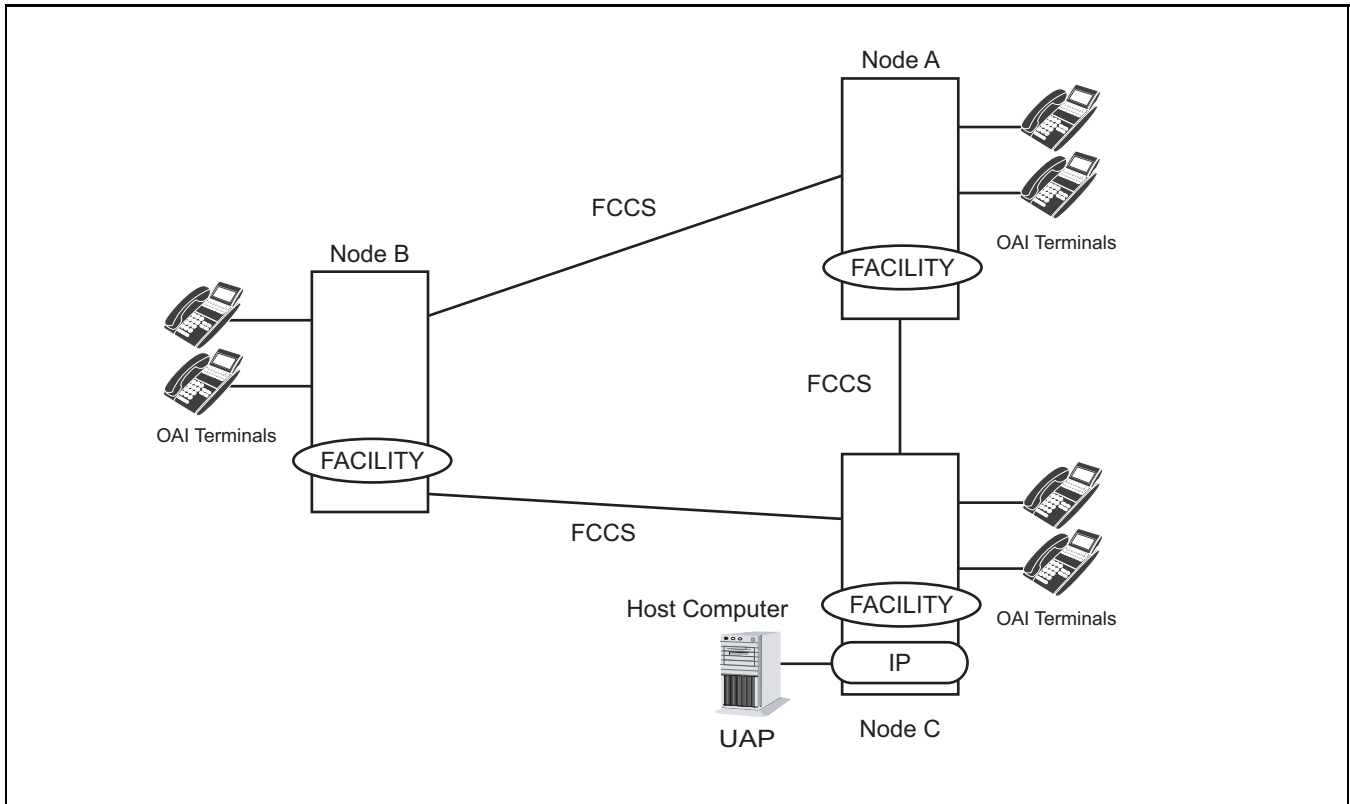
- VNDM is the data memory concerning Monitored number and OAI Facilities (Subscriber) Information.
- VNDM is controlled by one node (VNDM Center Node) in an FCCS network and transferred to the other nodes.

Note: If the Program Load or Non Load initialization is executed, this processing will not be carried out. When VNDM Local Node is re-started even though VNDM Center Node remains in a system-down state, VNDM Local Node waits a maximum of ten minutes for the VNDM Center Node's start up. After 10 minutes of the waiting, VNDM Local Node comes on-line as a Standalone IP (System Message 26-Y is issued.). If VNDM Center Node is re-started after VNDM Local Node has been re-started as a Standalone IP, the FCCS link can be automatically reestablished (System Message 26-Z is issued.).

3.7.2 Single IP Configuration (OAI Terminal Anywhere)

3.7.2.1 Functional Outline

In this configuration (OAI Terminal Anywhere), the OAI terminal can be installed in any FCCS node regardless of whether the node has the IP or not (those OAI terminals in multiple nodes are controlled by one IP). Facilities in multiple nodes (any FCCS node whether the node has the IP or not) are controlled by one IP. (Facilities that can be used through the FCCS Network vary according to the OAI application.)



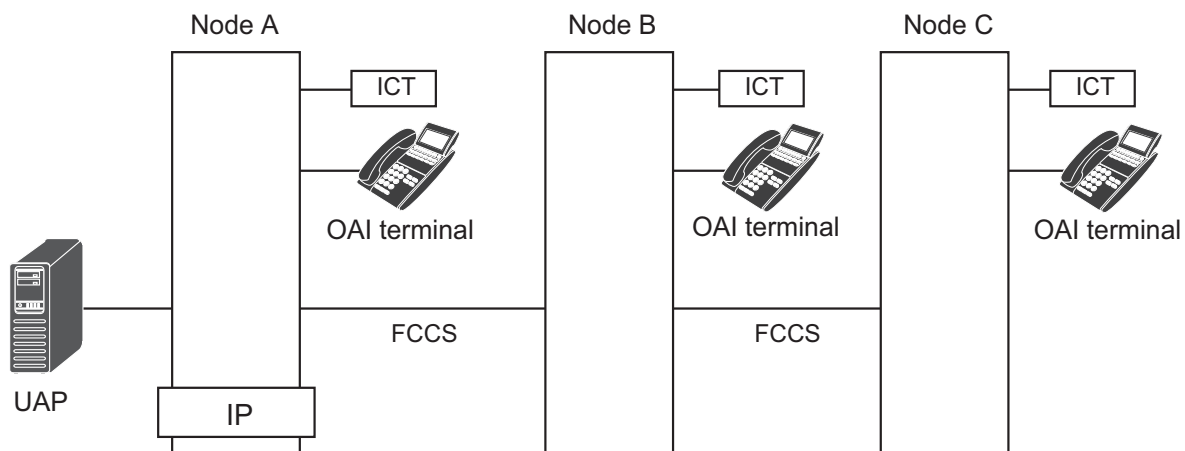
3.7.2.2 Using Conditions

- Refer to the conditions described in the section entitled “OAI FCCS Basic Conditions” in this chapter.
- The node that accommodates the IP is one node only in an FCCS network.
- The node that accommodates the IP must be initialized when all the other nodes are in on-line mode.
- The User's Application (UAP) must be booted up after the confirmation of the establishment of the FCCS link.
- When new node (nodes) is added to the network, the node that accommodates IP must be initialized.

- (f) The following operation codes (OP-CODE) are not available for OAI system when OAI and ACD system are used in the same FCCS Network. For details, see the AOKC command in “OUTLINE OF COMMANDS FOR OAI SYSTEM” of Chapter 4.
 MSF (F-KIND=1): OP-CODE=185-191
 TMF (F-KIND=2): OP-CODE=248-255
- (g) When both OAI and ACD services are used in an FCCS network, Status Monitoring Request from UAP is available by using the ports other than ports used for Status Monitoring Request from ACDP.
- (h) There are conditions of initialization of each node in the OAI Terminal Anywhere network.
- Reconnection of UAP is required when initializing nodes providing IP.
 - Reconfigure Status Monitoring Request (SMFR) set by UAP for the terminal and trunk when initializing nodes not providing IP.

Note: UAP will not operate properly if reconnection of UAP and reconfiguration of Status Monitoring Request (SMFR) are not performed.

1. Below is an example of when UAP requires reconnection and reconfiguration of SMFR at the time of initializing each node.



OAI Terminal Anywhere Network

Initial Node	Requirements of UAP
Node A (node providing IP)	Reconnection of UAP
Node B (node not providing IP)	SMFR for the terminal and trunk of Node B
Node C (node not providing IP)	SMFR for the terminal and trunk of Node C

3.7.2.3 Data Programming

STEP 1: Assignment of System Data

(Data for OAI FCCS)

ASYDL/ASYDN

•The data below must be set to all nodes in the network

- (a) ASYDL-SYS1
Index 512 Bits 0~7:Assign the Self-Fusion Point Code (Self-FPC) at each node. (1~253)
Index 865 Bits 0~7:FPC of the node providing IP

Note: Assign 0 for the node that provides IP in the Self Node only.

- (b) ASYDN-SYS 1
Index 514:NDM usage
Index 533:FPC number of the node that has the standard VNDM (1-253)

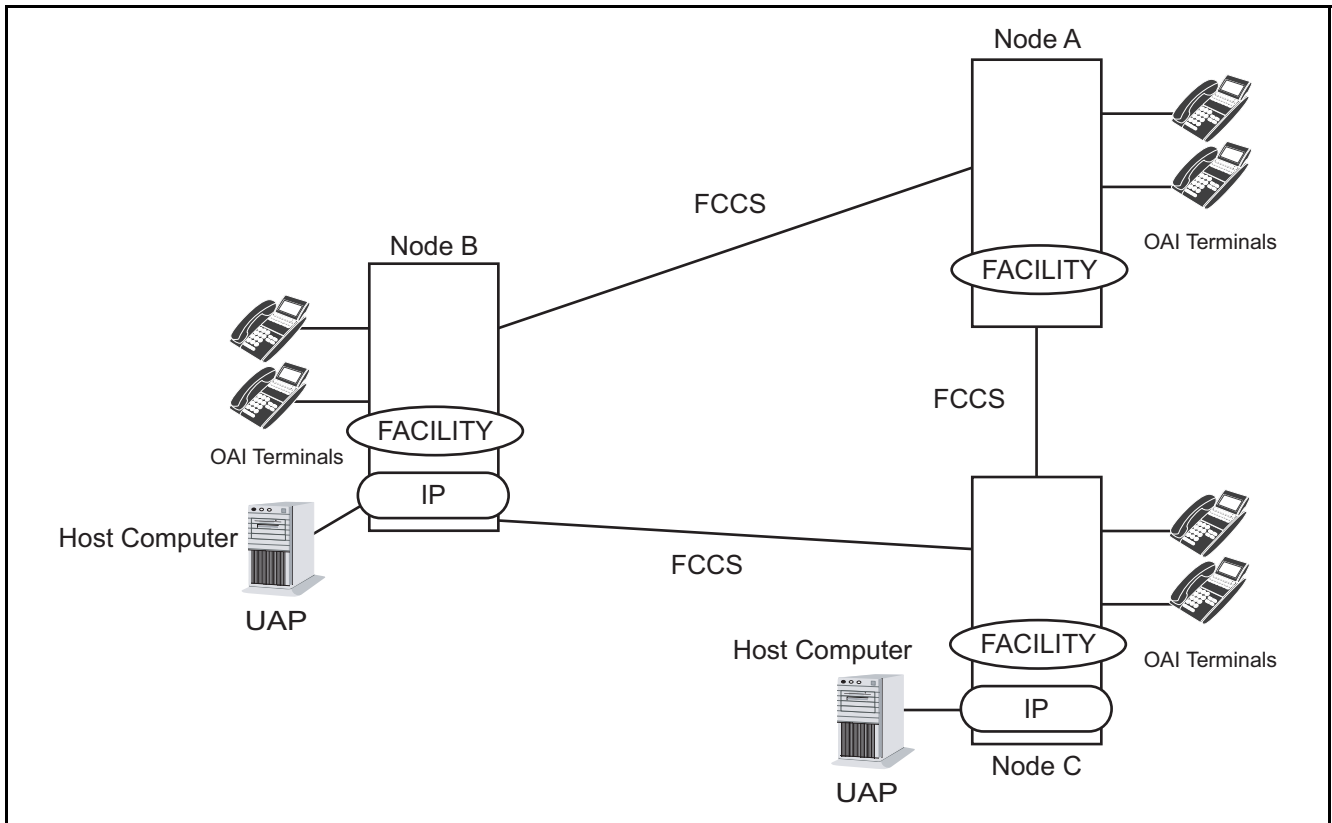
STEP 2: Data programming procedures other than STEP 1 are the same as that of the non-FCCS system. Therefore, only notification or condition of the data programming is shown below in this section. The data (a) below is set to the node that accommodates IP. The others are set to all nodes in the FCCS network.

- (a) ASYD/ASYDL
ASYD -SYS 1, Index 207, Bit 0:1=IP is mounted
SYS 1, Index 207, Bit 1:fixed to 0
ASYDL -SYS 1, Index 864, Bit 0:1=Built-in IP is mounted
- (b) Followings are the notification FCCS data programming with commands below.
For the following commands, assign data by the corresponding commands written in NDM.
 - AMNON (AMNON is used in place of AMNO)
 - ACNON (ACNON is used in place of ACNO)
 - AADTN (AADTN is used in place of AADT)
- (c) The AKYD, AOKC command data are set to all nodes in an FCCS network to be provided OAI system. (For these commands, assign data by the corresponding commands written in DM)

3.7.3 Multiple IPs Configuration (Multiple IPs)

3.7.3.1 Functional Outline

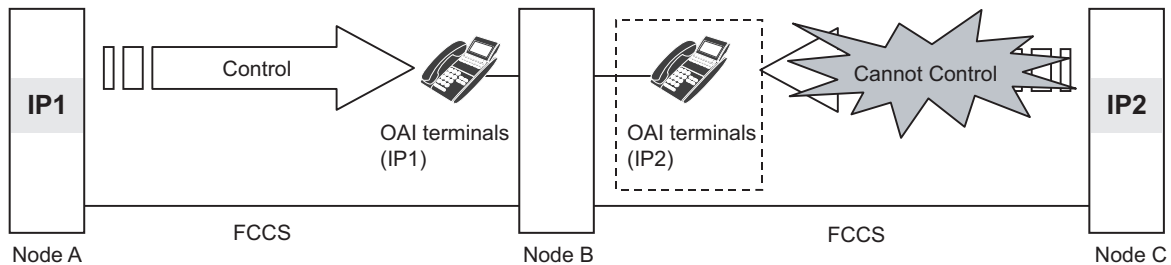
In this configuration (Multiple IPs), IP can be accommodated to multiple nodes in an FCCS Network. Establishing the CCIS line is not necessary to use OAI system through the network any more. (Facilities that can be used through the FCCS Network vary according to the OAI application.)



3.7.3.2 Using Conditions

- (a) Refer to the conditions described in the section entitled “OAI FCCS Basic Conditions” in this chapter.
- (b) More than one IP used for OAI Terminal Anywhere/OAI Trunk for FCCS/Standalone can be placed on an FCCS network.
- (c) IP can be accommodated to multiple nodes in an FCCS Network. However, maximum number of Status Monitoring Requests to a terminal is decided by the system data (a maximum of eight ports available including UAP). Note that the normal operation is not guaranteed if Status Monitoring is requested to a terminal from more than the number of ports.

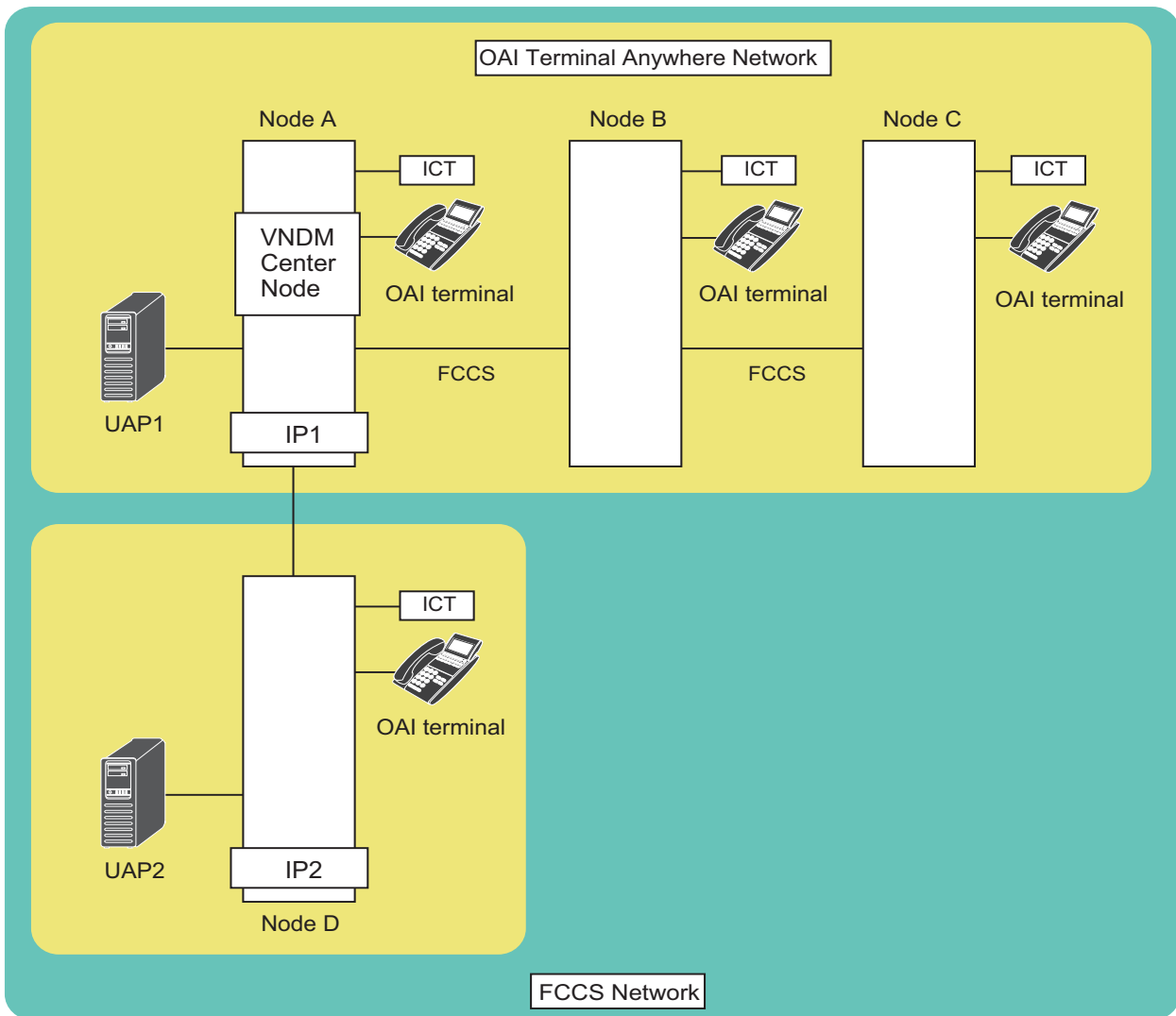
- (d) The following operation codes (OP-CODE) are not available for OAI system when OAI and ACD systems are used in the same FCCS Network. For details, see the AOKC command in “OUTLINE OF COMMANDS FOR OAI SYSTEM” of Chapter 4.
 MSF (F-KIND=1): OP-CODE=185-191
 TMF (F-KIND=2): OP-CODE=248-255
- (e) When both OAI and ACD services are used in an FCCS Network, Status Monitoring Request from UAP is available by using the ports other than ones used for Status Monitoring Request from ACDP.
- (f) OAI terminals to be controlled from different IPs cannot be accommodated in a node.



- (g) When new node (nodes) is added to the network, the node that accommodates the IP must be initialized.
- (h) There are conditions of initialization of each node in Multiple IPs Configuration (Multiple IPs).
- Reconnection of all UAP is required when initializing VNDM Center Node providing IP.
 - Reconnection of UAP connected to the Self Node is required when initializing VNDM Local Nodes providing IP.
 - Reconfigure Status Monitoring Request (SMFR) set by UAP for the terminal and trunk when initializing nodes not providing IP.

Note: UAP will not operate properly if reconnection of UAP and reconfiguration of Status Monitoring Request (SMFR) are not performed.

Below is an example of when UAP requires reconnection and reconfiguration of SMFR at the time of initializing each node.



Initial Node	Requirements of UAP
Node A (VNDM Center providing IP)	Reconnection of both UAP1 and UAP2
Node B (VNDM Center not providing IP)	SMFR for the terminal and trunk of Node B
Node C (VNDM Center not providing IP)	SMFR for the terminal and trunk of Node C
Node D (VNDM Local providing IP)	Reconnection of UAP2

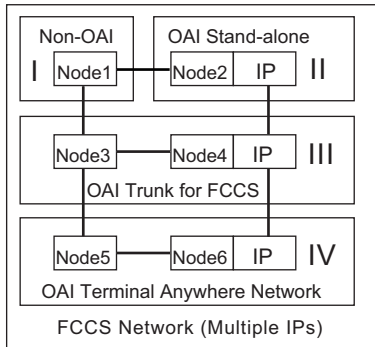
3.7.3.3 Data Programming

[Notice for Data Programming]

This section shows data programming divided into the types of OAI system in the figure below.

Network Configuration of OAI Systems

The following is the network configuration of OAI system in an FCCS Network.



LEGEND

Type I : Node1-Non-OAI system **Note 1**

Type II : Node2-OAI Stand-alone system **Note 2**
(OAI system provides OAI function in the Self Node only)

Type III : Systems using "OAI Trunk for FCCS" **Note 2**
Node3-System providing OAI trunks only
(the connection trunk can be used for OAI services)
Node4-System providing OAI trunks and OAI terminals
(the node with IP)

Type IV : Systems using "OAI Terminal Anywhere" **Note 2**
Node5-System providing OAI trunks and OAI terminals
(the node without IP, OAI Terminal Anywhere node)
Node6-System providing OAI trunks and OAI terminals
(the node with IP, OAI Terminal Anywhere controlling node)
(Also, the node providing C-VNDM)

Note 1: Closed communications need to be established inside of Node1.

Note 2: Communications need to be avoided between Node1 and Node2, 3, 4, 5 or 6.

1. The following is a quick reference table of optional software and system data programming for each OAI system configuration. (See the figure entitled “Network Configuration of OAI Systems” for network configuration of OAI systems.)

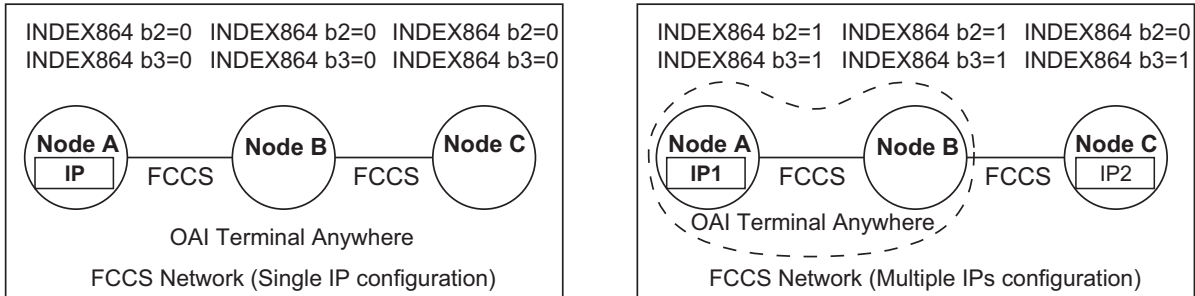
OAI Software and Data Programming

Type of Networks and Nodes OAI Software and Data Programming		I	II	III		IV	
		Node 1	Node 2	Node 3	Node 4	Node 5	Node 6
Optional Software							
1	OAI Option Service Software (for OAI Terminal Anywhere Service) (SV95 NW-ACD/OAI LICS)	○	○	○	○	○	○
System Data							
2	CM Usage (ASYD: SYS1, Index 31, Bits 0~3) Note 1	0	4	4	4	4	4
3	OAI in service/out of service (ASYD: SYS1, Index 79, Bit 6)	1	0	0	0	0	0
4	Interface Processor (IP) Mounting Status (ASYD: SYS1, Index 207, Bit 0)	0	1	0	1	0	1
5	Interface Processor (IP) Mounting Status (ASYD: SYS1, Index 207, Bit 1)	0	0	0	0	0	0
6	OAI Call Processing Event Notification (ASYD: SYS1, Index 241, Bit 2)	0	1	1	1	1	1
7	SCF Return Error Detail Notification (ASYD: SYS1, Index 241, Bit 3)	0	1	1	1	1	1
8	VNDM Center Node FPC (ASYDL: SYS1, Index 533)	Note 4	Note 4	Note 4	Note 4	Note 4	Note 4
9	Built-in IP: Not used/Used (ASYDL: SYS1, Index 864, Bit 0)	0	1	0	1	0	1
10	OAI TERMINAL ANYWHERE: Out of service/In service (ASYDL: SYS1, Index 864, Bit 2) Note 2	0	0	1	1	1	1
11	MULTIPLE IPs: Out of service/In service (ASYDL: SYS1, Index 864, Bit 3) Note 3	0	1	1	1	1	1
12	Number of ports for SMFN (terminal) (ASYDL: SYS1, Index 864, Bit 4)	0	Note 5	Note 5	Note 5	Note 5	Note 5
13	SMFN Status Monitor Clearing (ASYDL: SYS1, Index 864, Bit 5)	0	Note 6	Note 6	Note 6	Note 6	Note 6
14	FPC Number of the node providing IP (ASYDL: SYS1, Index 865)	0	Note 7	Note 8	Note 8	Node6	Node6

○: The software is installed to link with standard service software using Telephony Server Maintenance Menu.

Note 1: When CM is used for another function, this setting may be changed.
(For example, assign 6 Hex when FLF FCCS service is used.)

Note 2: This data setting is required (i.e., assign 1) only when the OAI Terminal Anywhere service is used in the Multiple IPs Network configuration. In other words, this data setting takes effect only when SYS1, Index 864, Bit 3 = 1. Therefore, this data setting is not necessary (i.e., assign 0) when the OAI Terminal Anywhere service in the Single IP Network configuration is used.



Note 3: When all FCCS nodes in the network are used for Multiple IPs feature, this data can be assigned with the ASYDN command (ASYDN, SYS 1, Index 864, Bit 3), instead of the ASYDL command.

Note 4: When the node using OAI Terminal Anywhere is included in the Multiple IP system, assign the FPC number of the OAI Terminal Anywhere controlling the IP node.

Note 5: Assign the number of ports for Status Monitor Facility Notification (SMFN). The identical data value must be assigned at all nodes on the FCCS Network. [When Status Monitor Facility Request (SMFR), FN=126 is used, always assign 0 (two ports)].

ASYDL SYS 1 Index 864, Bit 4: 0/1

0=2 ports

1=8 ports (Normal Setting)

Note 6: Although this data is valid only when Index 864 Bit 4=1 (eight ports), this bit must be assigned as Data 0 when Index 864 Bit 4=0 (two ports). The identical data value must be assigned at all nodes on FCCS Network.

ASYDL SYS 1 Index 864, Bit 5: 0/1

0=Status Monitor Facility Notification (SMFN) is cleared when the FCCS Link is down. (Normal Setting)

1=Status Monitor Facility Notification (SMFN) is not cleared when the FCCS Link is down.

Note 7: Assign the FPC number of the Self Node.

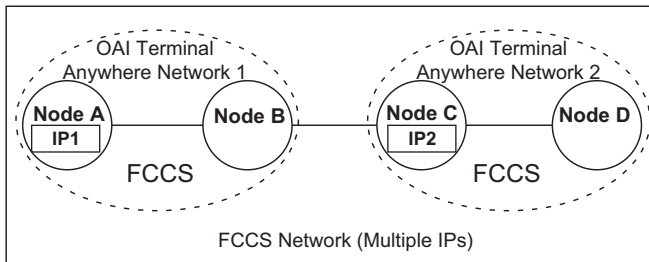
Note 8: When UAP is connected, assign the FPC number of the node which accommodates the IP. As for the node which does not accommodate the IP, assign the FPC number of the node which accommodates the IP.

2. Some notices for Node commands data programming are described below. (See the figure entitled “Network Configuration of OAI Systems” for network configuration of OAI systems.)

Type of Networks and Nodes Node Command Data	I	II	III	
	Node 1	Node 2	Node 3	Node 4
AMNO (Monitored Number Data)		N/L		N
ACNO (Conversion Number Data)		N/L		N
AADT (Announcement/Dictation Data)		N		N
AOKC (OAI Key Code Data)		○	○	○
AKYD (Key Data for Desktop Terminal)		○	○	○

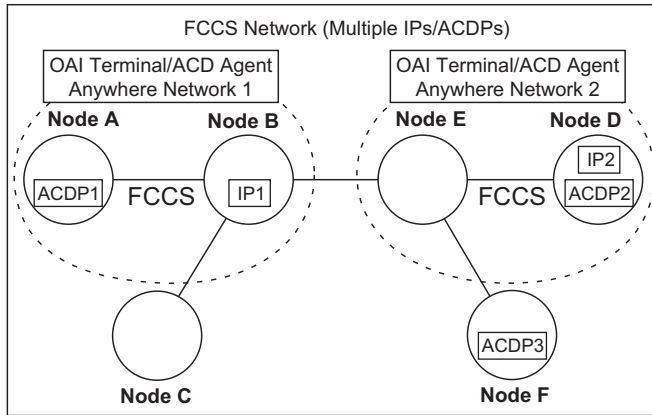
- : Assign data by the corresponding commands written in DM.
 N: Assign data by the corresponding commands written in NDM.
 L: Assign data by the corresponding commands written in LDM when the call is not terminated from other nodes.

3. When more than one IP is used for OAI Terminal Anywhere feature on the FCCS network, ASYDL SYS 1 Index 865 (FPC number of the node providing IP) data programming is as follows:



Node A: SYS1 Index 865=FPC of the Self Node
 Node B: SYS1 Index 865=FPC of the Node A
 Node C: SYS1 Index 865=FPC of the Self Node
 Node D: SYS1 Index 865=FPC of the Node C

4. When OAI and ACD services are used at the same time in an extended FCCS network, some notices for ASYDL SYS 1 Index 865 (FPC of the IP node) and Index 866 (FPC of the ACDP node) data programming are shown below.



Node A: SYS1 Index 865=FPC of the Node B
 Node A: SYS1 Index 866=FPC of the Self Node
 Node B: SYS1 Index 865=FPC of the Self Node
 Node B: SYS1 Index 866=FPC of the Node A
 Node C: SYS1 Index 865=FPC of the Self Node
 Node C: SYS1 Index 866=FPC of the Self Node
 Node D: SYS1 Index 865=FPC of the Self Node
 Node D: SYS1 Index 866=FPC of the Self Node
 Node E: SYS1 Index 865=FPC of the Node D
 Node E: SYS1 Index 866=FPC of the Node D
 Node F: No data setting

The following is the quick reference table of the software needed for each node shown above.

Software and Data Programming		Node A	Node B	Node C	Node D	Node E	Node F
ACD Software							
1	ACD Option Service software (for basic ACD Service) (SV95 ACD CLOP(1) LICS)	○			○		○
2	ACD Option Service Software for “AGENT ANY-WHERE-ACD” (SV95 NW-ACD/OAI LICS)	○	○	○	○	○	○

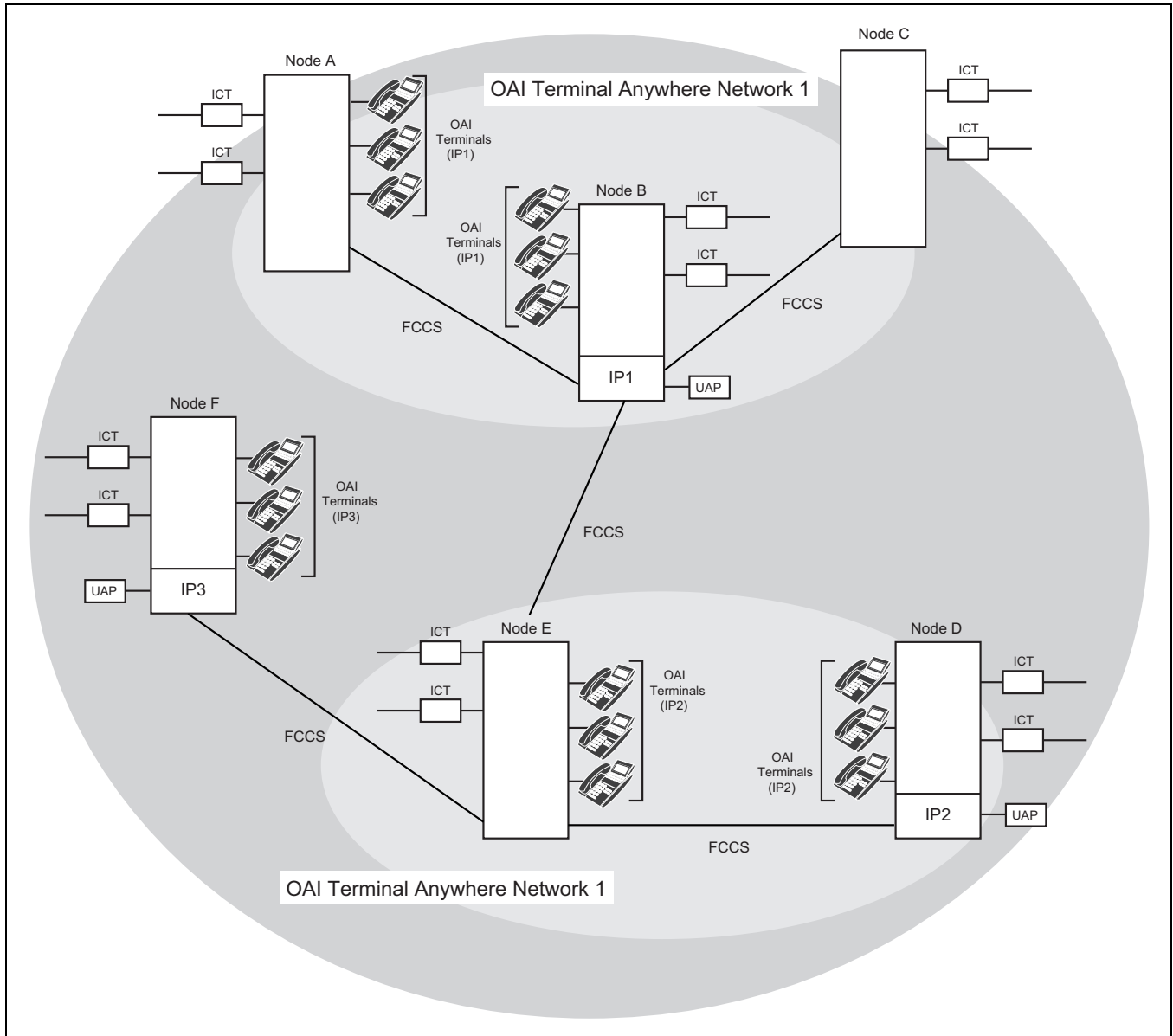
◎: the software is installed to be linked with the standard service software using Telephony Server Maintenance Menu.

○: the node requires ACD data programming.

3.7.4 Multiple OAI Terminal Anywhere

3.7.4.1 Functional Outline

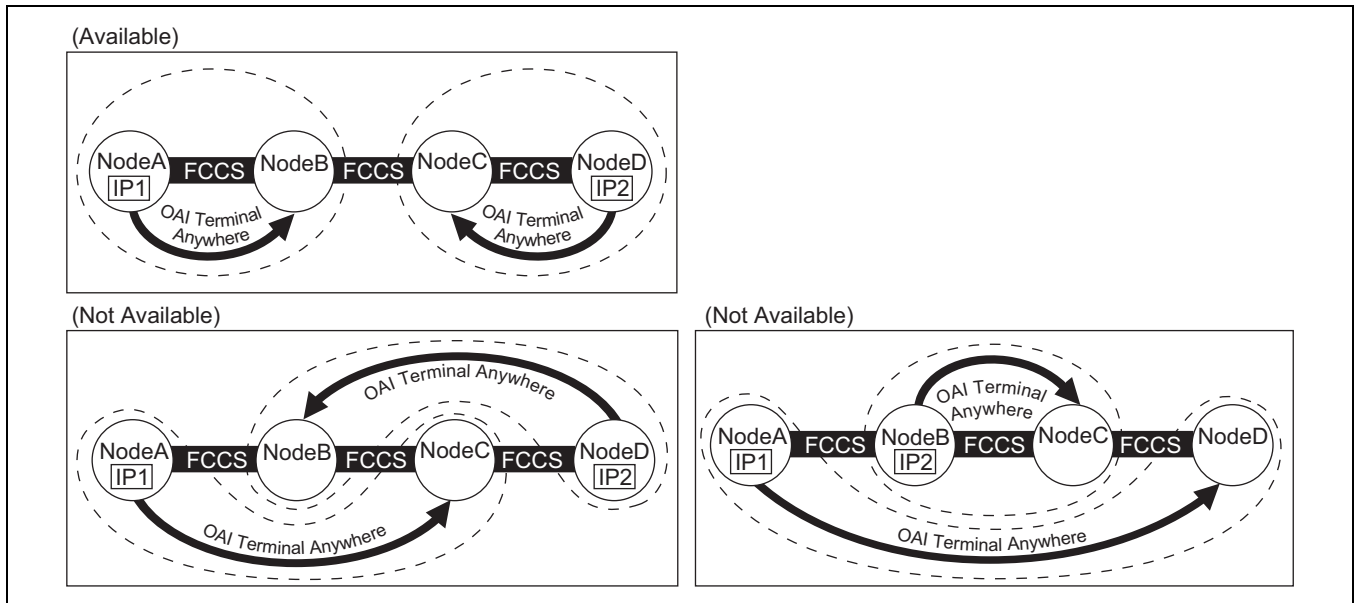
This feature allows an FCCS Network to accommodate two or more OAI Terminal Anywhere networks, thus enabling a multiple OAI Anywhere network system consisting of multiple IP networks.



3.7.4.2 Using Conditions

1. When more than one IP for the OAI Terminal Anywhere feature is used via a tandem connection of the FCCS link, the following conditions should be considered.

Multiple Tandem Nodes Accommodating IP for OAI Terminal Anywhere



- The following operation codes (OP-CODE) are not available for OAI system when OAI and ACD systems are used in the same FCCS Network. For details, see the AOKC command in “OUTLINE OF COMMANDS FOR OAI SYSTEM” of Chapter 4.

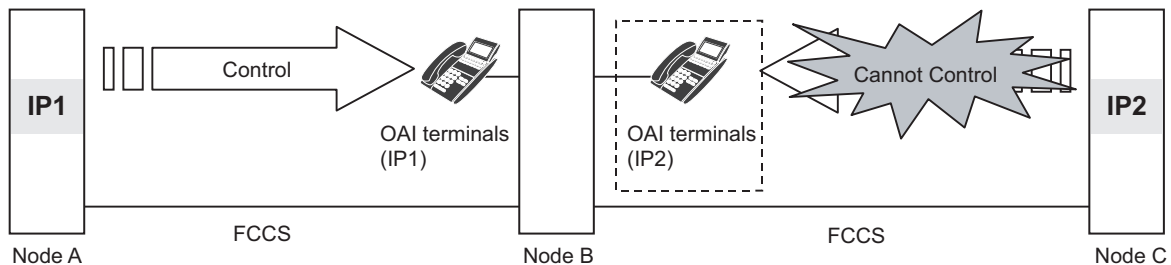
MSF (F-KIND=1): OP-CODE=185-191

TMF (F-KIND=2): OP-CODE=248-255

- When both OAI and ACD services are used in an FCCS Network, Status Monitoring Request from UAP is available by using the ports other than ones used for Status Monitoring Request from ACDP.
- Telephone Number (a maximum of 16 digits) is used for the station number type to activate OAI system through an FCCS network.

Logical Route is used for the route type to activate OAI system through FCCS network.

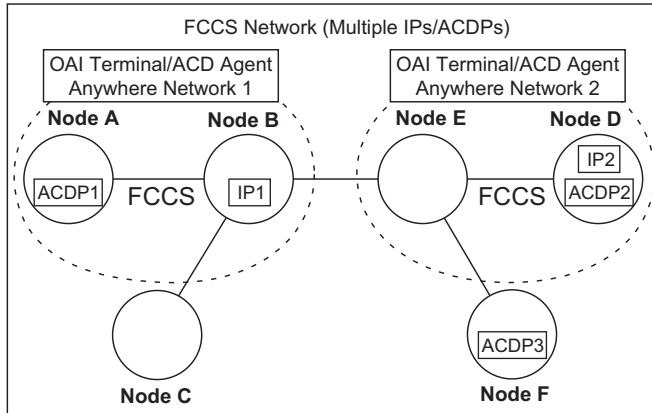
OAI terminals to be controlled from different IPs cannot be accommodated in a node.



IP can be accommodated to multiple nodes in an FCCS Network. However, maximum number of Status Monitoring Requests to a terminal is decided by the system data (a maximum of eight ports available including UAP). Note that the normal operation is not guaranteed if Status Monitoring is requested to a terminal from more than the number of ports.

- The UAP must be connected to the node that accommodates the IP.

6. When OAI and ACD services are used at the same time in a extended FCCS network, some notices for ASYDL SYS 1 Index 865 (FPC of the IP node) and Index 866 (FPC of the ACDP node) data programming are shown below.



Node A: SYS1 Index 865=FPC of the Node B
 Node A: SYS1 Index 866=FPC of the Self Node
 Node B: SYS1 Index 865=FPC of the Self Node
 Node B: SYS1 Index 866=FPC of the Node A
 Node C: SYS1 Index 865=FPC of the Self Node
 Node C: SYS1 Index 866=FPC of the Self Node
 Node D: SYS1 Index 865=FPC of the Self Node
 Node D: SYS1 Index 866=FPC of the Self Node
 Node E: SYS1 Index 865=FPC of the Node D
 Node E: SYS1 Index 866=FPC of the Node D
 Node F: No data setting

•The following is the quick reference table of the software needed for each node shown above.

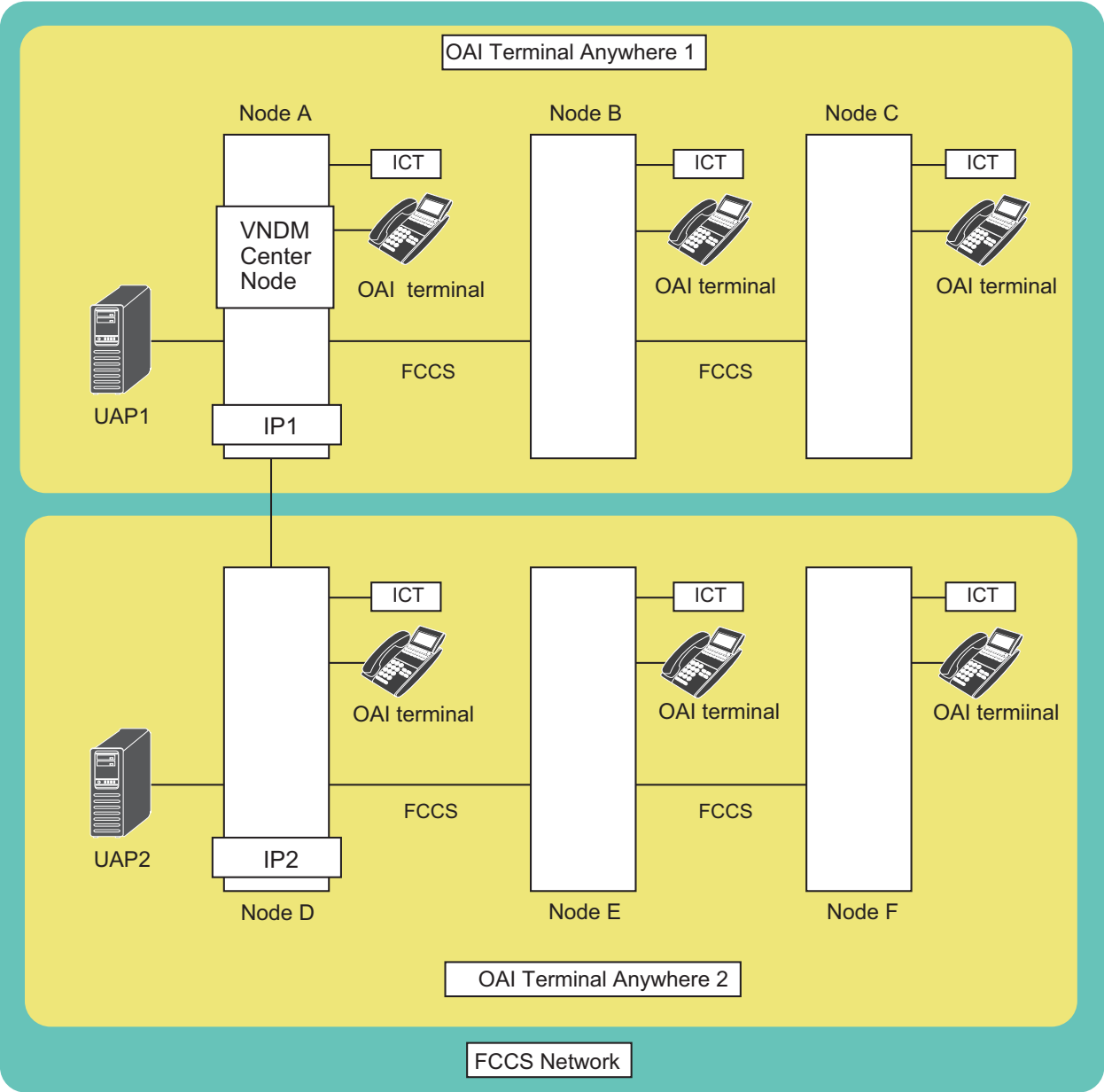
Software and Data Programming		Node A	Node B	Node C	Node D	Node E	Node F
ACD Software							
1	ACD Option Service software (for basic ACD Service) (SV95 ACD CLOP(1) LICS)	○			○		○
2	ACD Option Service Software for “AGENT ANY-WHERE-ACD” (SV95 NW-ACD/OAI LICS)	○	○	○	○	○	○

◎ : the software is installed to be linked with the standard service software using Telephony Server Maintenance Menu.

7. ○ : the node requires ACD data programming.
8. There are conditions of initialization of each node in Multiple OAI Terminal Anywhere.
- Reconnection of all UAP is required when initializing VNDM Center node providing IP.
 - Reconnection of UAP connected to the Self Node is required when initializing VNDM Local Nodes providing IP.
 - Reconfigure Status Monitoring Request (SMFR) set by UAP for the terminal and trunk when initializing nodes not providing IP.

Note: UAP will not operate properly if reconnection of UAP and reconfiguration of Status Monitoring Request (SMFR) are not performed.

Below is an example of when UAP requires reconnection and reconfiguration of SMFR at the time of initializing each node.



Initial Node	Requirements of UAP
Node A (VNDM Center providing IP)	Reconnection of UAP1 and UAP2
Node B (VNDM Center not providing IP)	SMFR for the terminal and trunk of Node B
Node C (VNDM Center not providing IP)	SMFR for the terminal and trunk of Node C

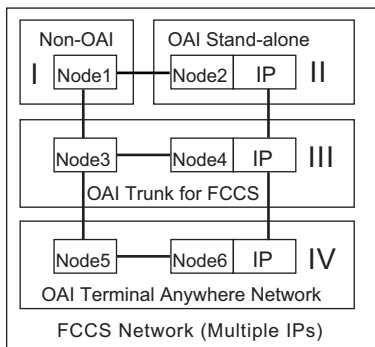
Initial Node	Requirements of UAP
Node D (VNDM Local providing IP)	Reconnection of UAP2
Node E (VNDM Local not providing IP)	SMFR for the terminal and trunk of Node E
Node F (VNDM Local not providing IP)	SMFR for the terminal and trunk of Node F

3.7.4.3 Data Programming

The data programming for this feature is basically the same as that of Multiple IPs. This section shows data programming divided into the types of OAI system in the figure below.

Network Configuration of OAI Systems

The following is the network configuration of OAI system in an FCCS Network.



LEGEND

Type I : Node1-Non-OAI system **Note 1**

Type II : Node2-OAI Stand-alone system **Note 2**
(OAI system provides OAI function in the Self Node only)

Type III : Systems using "OAI Trunk for FCCS" **Note 2**
Node3-System providing OAI trunks only
(the connection trunk can be used for OAI services)
Node4-System providing OAI trunks and OAI terminals
(the node with IP)

Type IV : Systems using "OAI Terminal Anywhere" **Note 2**
Node5-System providing OAI trunks and OAI terminals
(the node without IP, OAI Terminal Anywhere node)
Node6-System providing OAI trunks and OAI terminals
(the node with IP, OAI Terminal Anywhere controlling node)
(Also, the node providing C-VNDM)

Note 1: Closed communications need to be established inside of Node1.

Note 2: Communications need to be avoided between Node1 and Node2, 3, 4, 5 or 6.

- The following is a quick reference table of optional software and system data programming for each OAI system configuration. (See the figure entitled “Network Configuration of OAI Systems” for network configuration of OAI systems.)

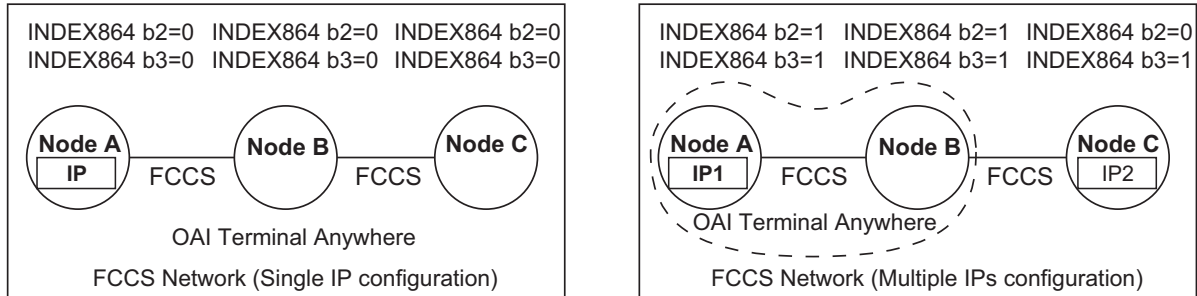
OAI Software and Data Programming

Type of Networks and Nodes OAI Software and Data Programming		I	II	III		IV	
		Node 1	Node 2	Node 3	Node 4	Node 5	Node 6
Optional Software							
1	OAI Option Service Software (for OAI Terminal Anywhere Service) (SV95 NW-ACD/OAI LICS)	○	○	○	○	○	○
System Data							
2	CM Usage (ASYD: SYS1, Index 31, Bits 0~3) Note 1	0	4	4	4	4	4
3	OAI in service/out of service (ASYD: SYS1, Index 79, Bit 6)	1	0	0	0	0	0
4	Interface Processor (IP) Mounting Status (ASYD: SYS1, Index 207, Bit 0)	0	1	0	1	0	1
5	Interface Processor (IP) Mounting Status (ASYD: SYS1, Index 207, Bit 1)	0	0	0	0	0	0
6	OAI Call Processing Event Notification (ASYD: SYS1, Index 241, Bit 2)	0	1	1	1	1	1
7	SCF Return Error Detail Notification (ASYD: SYS1, Index 241, Bit 3)	0	1	1	1	1	1
8	VNDM Center Node FPC (ASYDL, ASYDN: SYS1, Index 533)	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6
9	Built-in IP: Not used/Used (ASYDL: SYS1, Index 864, Bit 0)	0	1	0	1	0	1
10	OAI TERMINAL ANYWHERE: Out of service/In service (ASYDL: SYS1, Index 864, Bit 2) Note 2	0	0	1	1	1	1
11	MULTIPLE IPs: Out of service/In service (ASYDL: SYS1, Index 864, Bit 3) Note 3	0	1	1	1	1	1
12	Number of ports for SMFN (terminal) (ASYDL: SYS1, Index 864, Bit 4)	0	Note 4	Note 4	Note 4	Note 4	Note 4
13	SMFN Status Monitor Clearing (ASYDL: SYS1, Index 864, Bit 5)	0	Note 5	Note 5	Note 5	Note 5	Note 5
14	FPC Number of the node providing IP (ASYDL: SYS1, Index 865)	0	Node2	Note 7	Note 7	Node6	Node6

○ :The software is installed to link with standard service software using Telephony Server Maintenance Menu.

Note 1: When CM is used for another function, this setting may be changed.
(For example, assign 6 Hex when FLF FCCS service is used.)

Note 2: This data setting is required (i.e., assign 1) only when the OAI Terminal Anywhere service is used in the Multiple IPs Network configuration. In other words, this data setting takes effect only when SYS1, Index 864, Bit 3 = 1. Therefore, this data setting is not necessary (i.e., assign 0) when the OAI Terminal Anywhere service in the Single IP Network configuration is used.



Note 3: When all FCCS nodes in the network are used for Multiple IPs feature, this data can be assigned with the ASYDN command (ASYDN, SYS 1, Index 864, Bit 3), instead of the ASYDL command.

Note 4: Assign the number of ports for Status Monitor Facility Notification (SMFN). The identical data value must be assigned at all nodes on the FCCS Network. [When Status Monitor Facility Request (SMFR), FN=126 is used, always assign 0 (two ports)].

ASYDL SYS 1 Index 864, Bit 4: 0/1

0=2 ports

1=8 ports (Normal Setting)

Note 5: Although this data is valid only when Index 864 Bit 4=1 (eight ports), this bit must be assigned as Data 0 when Index 864 Bit 4=0 (two ports). The identical data value must be assigned at all nodes on FCCS Network.

ASYDL SYS 1 Index 864, Bit 5: 0/1

0=Status Monitor Facility Notification (SMFN) is cleared when the FCCS Link is down. (Normal Setting)

1=Status Monitor Facility Notification (SMFN) is not cleared when the FCCS Link is down.

Note 6: When the node using OAI Terminal Anywhere is included in the Multiple IP system, assign the FPC number of the OAI Terminal Anywhere controlling the IP node.

Note 7: When UAP is connected, assign the FPC number of the node which accommodates the IP. As for the node which does not accommodate the IP, assign the FPC number of the node which accommodates the IP.

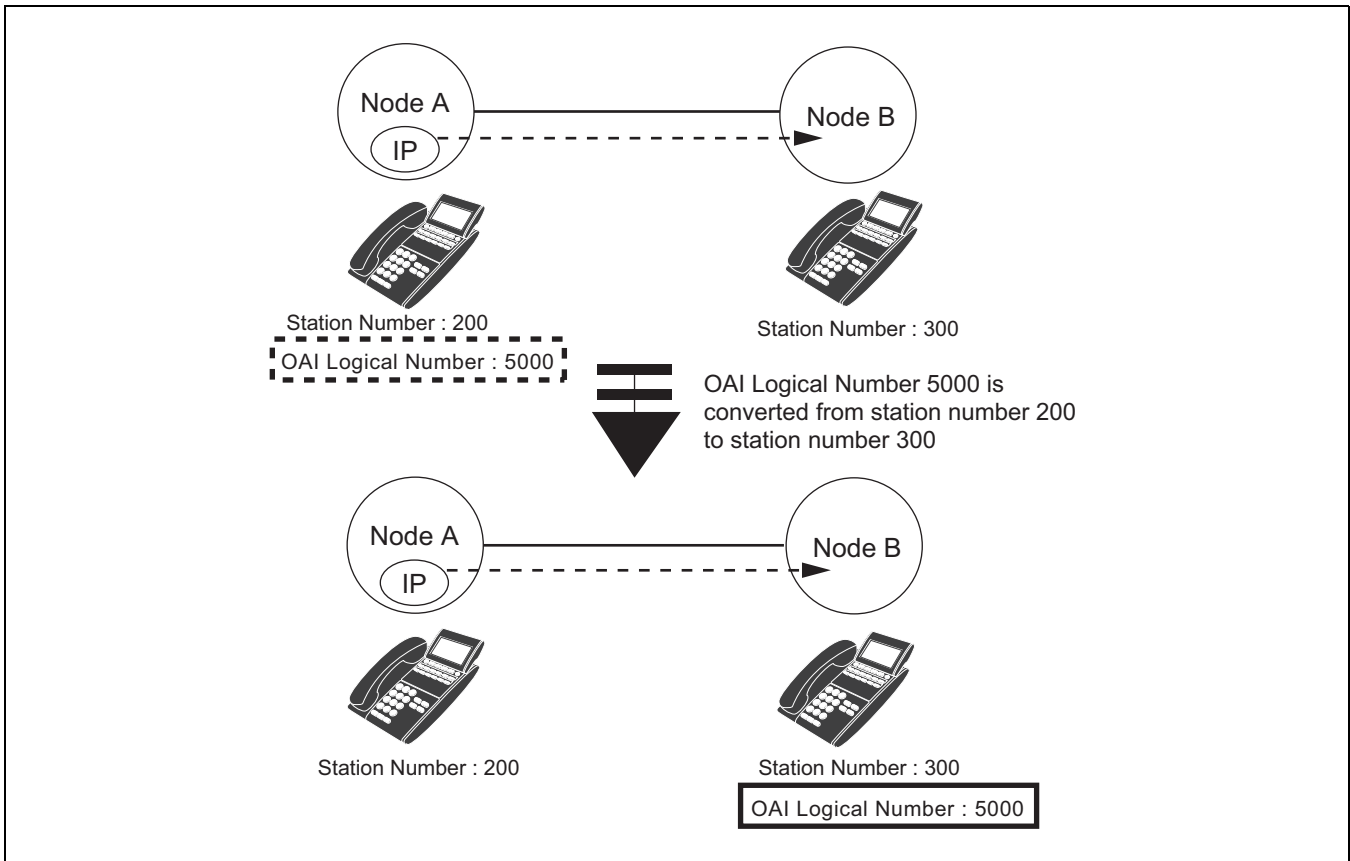
2. Some notices for Node commands data programming are described below. (See the figure entitled “Network Configuration of OAI Systems” for network configuration of OAI systems.)

Type of Networks and Nodes Node Command Data	I	II	III	
	Node 1	Node 2	Node 3	Node 4
AMNO (Monitored Number Data)		N/L		N
ACNO (Conversion Number Data)		N/L		N
AADT (Announcement/Dictation Data)		N		N
AOKC (OAI Key Code Data)		○	○	○
AKYD (Key Data for Desktop Terminal)		○	○	○

3.7.5 FLF Support for FCCS Network

As an example of using facilities through the FCCS Network, the explanations are given in the following about Free Location Facility (FLF).

By using Free Location Facility (FLF) through the FCCS Network, OAI Logical Number services can be used on any nodes in the FCCS network.



This service enables the Free Location Facility (FLF) beyond the nodes via the FCCS link. For example, if OAI Logical Number 5000 is converted from station number 200 at Node A to station number 300 at Node B. (Station Number 200 = OAI Logical Number 5000 → Station Number 300 = OAI Logical Number 5000) Information on OAI Logical Number Development is broadcast to all (FCCS network) nodes.

For this service, assign the system data as follows:

ASYD-SYS 1 Index 31:06 [Mounting Capacity of Common Memory (CM) is six megabytes]

ASYDN-SYS 1 Index 870, Bit 0=1(FLF FCCS service is available)

ASYDL-SYS 1 Index 864, Bit 6=1 (FLF Error detailed Information is provided)

3.8 OAI 16-digit Station Number Information

3.8.1 Functional Outline

This feature allows the system to extend the following information in Terminal Identifier of X.409 message to a maximum of 16 digits:

- Station number information
- Attendant individual number

Note: X.409 message is ITU recommended MHS-standard presentation transfer syntax.

Note: This feature is not available in North America.

3.8.2 Using Conditions

1. The number of digits allowed in monitor number depends on software version as shown in the table below.

Monitor Number	Max. 16 digits
----------------	----------------

Note: For allowable number of digits in monitor number used for a Hotel system, refer to the AMNO/AMNOL/AMNON commands in Command Manual.

2. To display 9 or more digits on a Desktop terminal, it is necessary to assign ASYDL, System Data 1, Index 672, Bit 0 = 1. When assigning ASYDL, System Data 1, Index 672, Bit 0 = 0, only the last 8 digits can be displayed.
3. A maximum of 16 digits is available for station number information in the Terminal Identifier of the following Facilities.
 - MSF (Mode Set Facility)
 - MRF (Mode Reset Facility)
 - MRFR (Mode Reset Facility Request)
 - NTF (Number Transfer Facility)
 - KTF (Key Transfer Facility)
 - TCF (Terminal Control Facility)
 - TMF (Terminal Multi-Information Transfer Facility)
 - ACF (Authorization Code Facility)
 - FLF (Free Location Facility)
 - RCF (Restriction Control Facility)
 - SSF (Service Set Facility **Note 1**)
 - SMF (Status Monitor Facility)
 - SCF (Switch Control Facility)

Note 1: A maximum of 16 digits are available for a transfer destination number information used by SSFR.

4. A maximum of 5 digits is available for station number information in the Terminal Identifier of the following Facilities.
 - CRF (Card Reader Facility)
 - ETF (Event Transfer Facility)
 - ATF (APL Information Transfer Facility)
5. A maximum of 6 digits is available for station number information in the Terminal Identifier of the following Facilities.
 - PMFR
 - PMFN
 - AMFR
 - AMFN
6. When this feature is used in an ACD system, up to 6 digits can be used for each station number and monitor number for ACD system.

3.8.3 Data Programming

1. Assignment

ASYD

SYS 1

Index 79

Bit 6 = 0 (OAI Service is in service).

ASYDL/ASYDN

SYS 1

Index 867

For countries except North America:

Bit 7 = 1 (16-digit OAI Station Number Information is valid).

For North America:

Bit 4 = 1 (16-digit OAI Station Number Information is valid).

Note: When using this feature via FCCS, this data can be assigned in all nodes in FCCS Network via ASYDN.

Note: When this feature is used, all OAI/ACD applications must support expanded station numbers.

2. Deletion

ASYDL/ASYDN

SYS 1

Index 867

For countries except North America:

Bit 7 = 0 (16-digit OAI Station Number Information is invalid).

For North America:

Bit 4 = 0 (16-digit OAI Station Number Information is invalid).

ASYD

SYS 1

Index 79

Bit 6 = 1 (OAI Service is out of service).

3.9 IP Centrex for OAI

3.9.1 Functional Outline

This feature enables to use the OAI system with DIAL PLAN TO SUPPORT IP CENTREX FUNCTIONALITY [D-166]. Private Numbers can be assigned by this feature. Private Number must be assigned not only for the inter-node calls (calls over nodes) but also for intra-node calls (Station-to-Station calls within a node). The dialed Private Number is displayed on the number information area of the LCD screen.

The Facilities supporting this feature are listed below:

SCF Note 1 Note 4	SMFR Note 4	SMFN Note 4	SSFM Note 2 Note 4	SSFR Note 2 Note 4	SSFN Note 4	RCF Note 3 Note 4
FN=1						FN=3
FN=2						
FN=3						
FN=4	FN=1	FN=1				
FN=5	FN=2	FN=2	FN=1	FN=1	FN=1	
FN=7	FN=127	FN=3	FN=3	FN=5	FN=3	
FN=8	FN=128	FN=4	FN=5	FN=6	FN=5	
FN=9	FN=129	FN=5	FN=6	FN=7	FN=6	
FN=10	FN=130	FN=6	FN=7	FN=8	FN=7	
FN=11	FN=132	FN=9	FN=8	FN=9	FN=8	
FN=12	FN=133	FN=12	FN=9	FN=10	FN=9	
FN=13	FN=137	FN=14	FN=10	FN=11	FN=10	
FN=14	FN=138	FN=128		FN=12		
FN=17	FN=139					
FN=20						
FN=128						
FN=129						

Note 1: When using SCF with this feature, note the following conditions:

- For FN=1, Analog Telephone (including Analog Telephone connected to Analog MC or MC&MG-COT), SP Controlled SIP terminal and PCS/PHS cannot be specified as SCF 1st Party (Originating terminal).
- For FN=8, SP Controlled SIP terminal and PCS/PHS cannot be specified as SCF 1st Party (Adding terminal).
- For FN=10, SP Controlled SIP terminal and PCS/PHS cannot be specified as SCF 1st Party (Reconnecting terminal).
- For FN=11, Analog Telephone (including Analog Telephone connected to Analog MC or MC&MG-COT), SP Controlled SIP terminal and PCS/PHS cannot be specified as SCF 2nd Party (Answered terminal).
- For FN=12 or 13, Analog Telephone (including Analog Telephone connected to Analog MC or MC&MG-COT), SP Controlled SIP terminal and PCS/PHS cannot be specified as SCF 2nd Party (Holding terminal/Retrieving terminal).
- Be sure to assign "1" to ASYDL/ASYDN, SYS1, Index 1199, Bit 5 (Restriction on SCF (FN=17) during Consultation Hold is enabled) when using FN=17.

- For FN=17, SP Controlled SIP terminal and PCS/PHS cannot be specified as SCF 1st Party (Intermediate terminal). Note also that this feature allows users only to switch between the two parties in the Consultation Hold state (call in progress).
- For FN=20, Analog Telephone (including Analog Telephone connected to Analog MC or MC&MG-COT) and SP Controlled SIP terminal cannot be specified as SCF 1st Party (DTMF sending terminal).

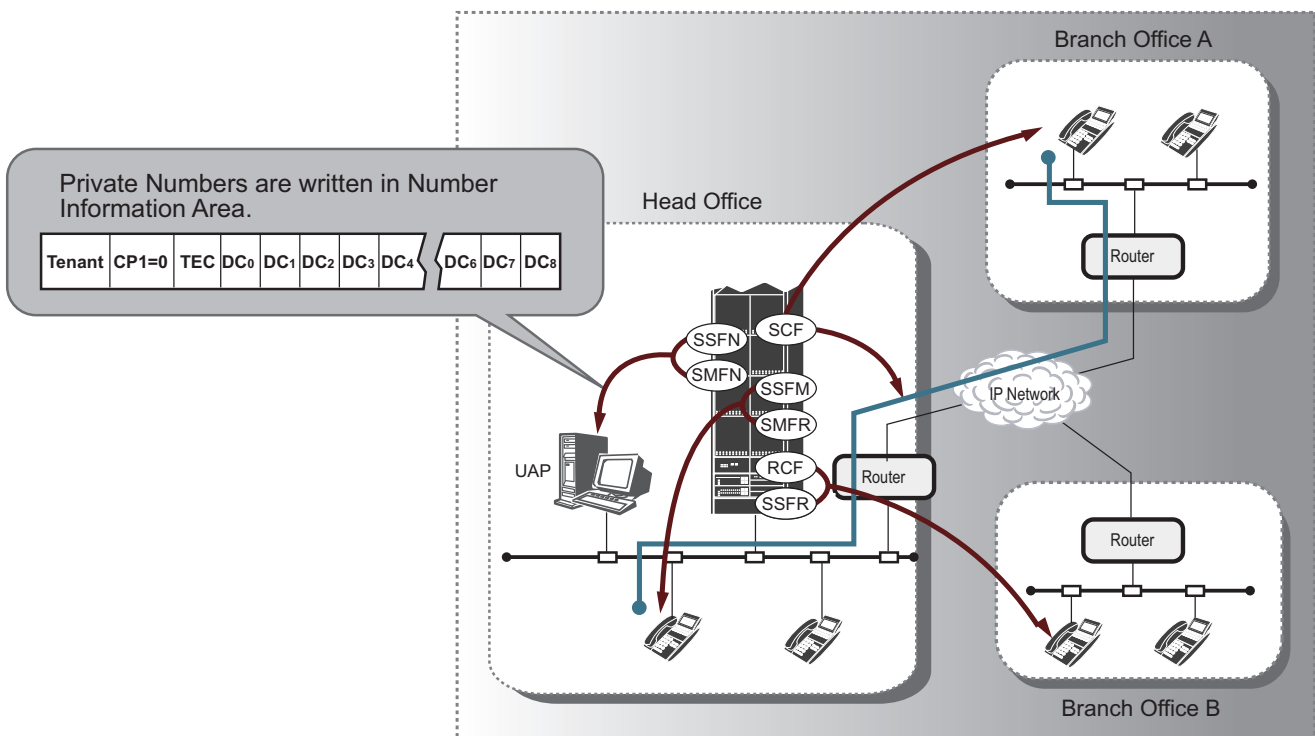
Note 2: When using SSFM/SSFR with this feature, note the following condition:

- For FN=5, Analog Telephone (including Analog Telephone connected to Analog MC or MC&MG-COT), SP Controlled SIP terminal and PCS/PHS cannot be specified as SSFM/SSFR 1st Party (Target terminal).

Note 3: When using RCF with this feature, note the following condition:

- For FN=3, Analog Telephone (including Analog Telephone connected to Analog MC or MC&MG-COT), SP Controlled SIP terminal and PCS/PHS cannot be specified as RCF 1st Party (Target terminal).

Note 4: SIP Handler Controlled SIP terminal can be used with this feature. For more details, refer to “Availability of Telephony Devices for ACD/OAI System” in Chapter 2 and “SIP Handler Controlled SIP Terminal in OAI System” in Chapter 5. When this feature is enabled, the Facilities available for SIP Handler Controlled SIP terminal are limited to the ones listed in the above table.



3.9.2 Using Conditions

1. This feature is not available while ACD system is being used.
2. Private Number (Access Code + Office Code + station number) must be used for station number information in the Terminal Identifier. Applicable UAP needs to use this Private Number.
3. In order to use this feature, the following system data setting is needed:
 - For countries except North America: ASYDL/ASYDN-SYS 1 Index 867, Bit 7 = 1 (16-digit OAI Station Number Information in Terminal Identifier is enabled.)
For North America: ASYDL/ASYDN-SYS 1 Index 867, Bit 4 = 1 (16-digit OAI Station Number Information in Terminal Identifier is enabled.)
 - ASYDL/ASYDN-SYS 1 Index 871, Bit 5 = 1 (IP Centrex for OAI is enabled.)

Note: Both “16-digit OAI Station Number Information in Terminal Identifier” and “IP Centrex for OAI” must be enabled as shown below:

		IP Centrex for OAI (ASYDL/ASYDN SYS 1 Index 871, Bit 5)	
		1: Enabled	0: Disabled
16-digit OAI Station Number Information in Terminal Identifier (For countries except North America: ASYDL/ASYDN SYS 1 Index 867, Bit 7)	1: Enabled	Dial Plan to Support IP Centrex for OAI can be used.	Dial Plan to Support IP Centrex for OAI cannot be used. Telephone numbers, instead of Private Numbers, are used for calling/called party number information included in messages from the Telephony Server to UAP (such as Return Result, SMFN, and so on).
(For North America: ASYDL/ASYDN SYS 1 Index 867, Bit 4)	0: Disabled	Dial Plan to Support IP Centrex for OAI cannot be used. Private Numbers are forbidden to start up a facility and result in an error.	

4. A maximum of 16 digits are available for a Private Number.
5. UAP must use Private Numbers for both inter- and intra-node calls.
6. A maximum of 16 digits are available for Call Forwarding Destination Number Information of SSFR.
7. Phantom numbers cannot be used.
8. If an unsupported facility is used, the Private Number is output to number information area.
9. This feature is also available in an FCCS over IP network, but not in other FCCS networks such as DTI FCCS.
10. Attendant Consoles are not supported for this feature.

3.9.3 Data Programming

Note: Before setting up the following system data, you need to enable Dial Plan to Support IP Centrex Functionality [D-166]. Refer to the Data Programming Manual - Business for further details.

1. Assignment

ASYDL/ASYDN

SYS 1

Index 867

For countries except North America:

Bit 7 = 1 (16-digit OAI Station Number Information is valid)

For North America:

Bit 4 = 1 (16-digit OAI Station Number Information is valid)

ASYDL/ASYDN

SYS 1

Index 871

Bit 5 = 1 (IP Centrex for OAI is in service).

Note: When using this feature via FCCS, this data can be assigned in all nodes in FCCS Network via ASYDN.

Note: When this feature is used, all OAI/ACD applications must support expanded station numbers.

2. Deletion

ASYDL/ASYDN

SYS 1

Index 871

Bit 5 = 0 (IP Centrex for OAI is out of service).

ASYDL/ASYDN

SYS 1

Index 867

For countries except North America:

Bit 7 = 0 (16-digit OAI Station Number Information is invalid).

For North America:

Bit 4 = 0 (16-digit OAI Station Number Information is invalid).

3.10 SCF Restriction

3.10.1 Functional Outline

This feature allows system to add the restriction check for the Switch Control Facilities (SCF). Normal SCFs have no restriction check capability as manual dialing does. The affected SCFs are Make Call (SCF FN=1), Make Call with Ringing (SCF FN=3), Terminate Call (SCF FN=4), and Transfer Call (SCF FN=7).

3.10.2 Using Conditions

1. This feature works only for the station to outgoing trunk call.
2. This feature works for Make Call (SCF FN=1), Make Call with Ringing (SCF FN=3), Terminate Call (SCF FN=4) and Transfer Call (SCF FN=7).
3. The restriction feature can be turned on by issuing an SCF with Notify Info field sets to 03. In this case, the SCF(FN=01/03/04/07) will return error if there is restriction from calling party to outgoing trunk. The calling party(1st) status has no change after the SCF. The error codes for restriction are as follows:

if ASYD, SYS1, Index 241, Bit 3=0 ---> error=10H, error-detail=00H.

if ASYD, SYS1, Index 241, Bit 3=1 ---> error=10H, error-detail=0213H.

4. The restriction feature can be turned on by issuing an SCF with Notify Info field sets to 04. In this case, the SCF(FN=01/03/04/07) will return Return Result (R.R.) if there is restriction between calling party and outgoing trunk. The calling party(1st) status will change to Reorder Tone (ROT). The R.R. of SCF will only have SCF 1st Party information.
5. The following explains the differences among these three Notify Information:
 - SCF(FN=01/03/04/07) --- NotifyInf(none) --- No restriction check for SCF.
 - SCF(FN=01/03/04/07) --- NotifyInf(=03) --- With restriction check for SCF.
 - When it is not restricted between station and outgoing trunk: Go through.
 - When it is restricted between station and outgoing trunk: Return Error (R.E.) and status no change.
 - SCF(FN=01/03/04/07) --- NotifyInf(=04) --- With restriction check for SCF.
 - When it is not restricted between station and outgoing trunk: Go through.
 - When it is restricted between station and outgoing trunk: R.R. Status change to ROT.
6. This feature only performs the restriction check for SCF FN=1, 3, 4, and 7, no other check such as Authorization call, OG Queuing, OffHook OG Queuing is performed.

3.10.3 Data Programming

1. Assignment

ARSC: Assign the route restriction information according to the Route Restriction Class (RSC) of the station and the Route Number (RT).

ATDP: Assign the Area Code of Toll Restriction for an outgoing connection.

TDI: Restriction Data=0 (Connection is restricted)

2. Deletion

ATDP: Assign the Area Code of Toll Restriction for an outgoing connection.

TDI: Restriction Data=1 (Connection is allowed)

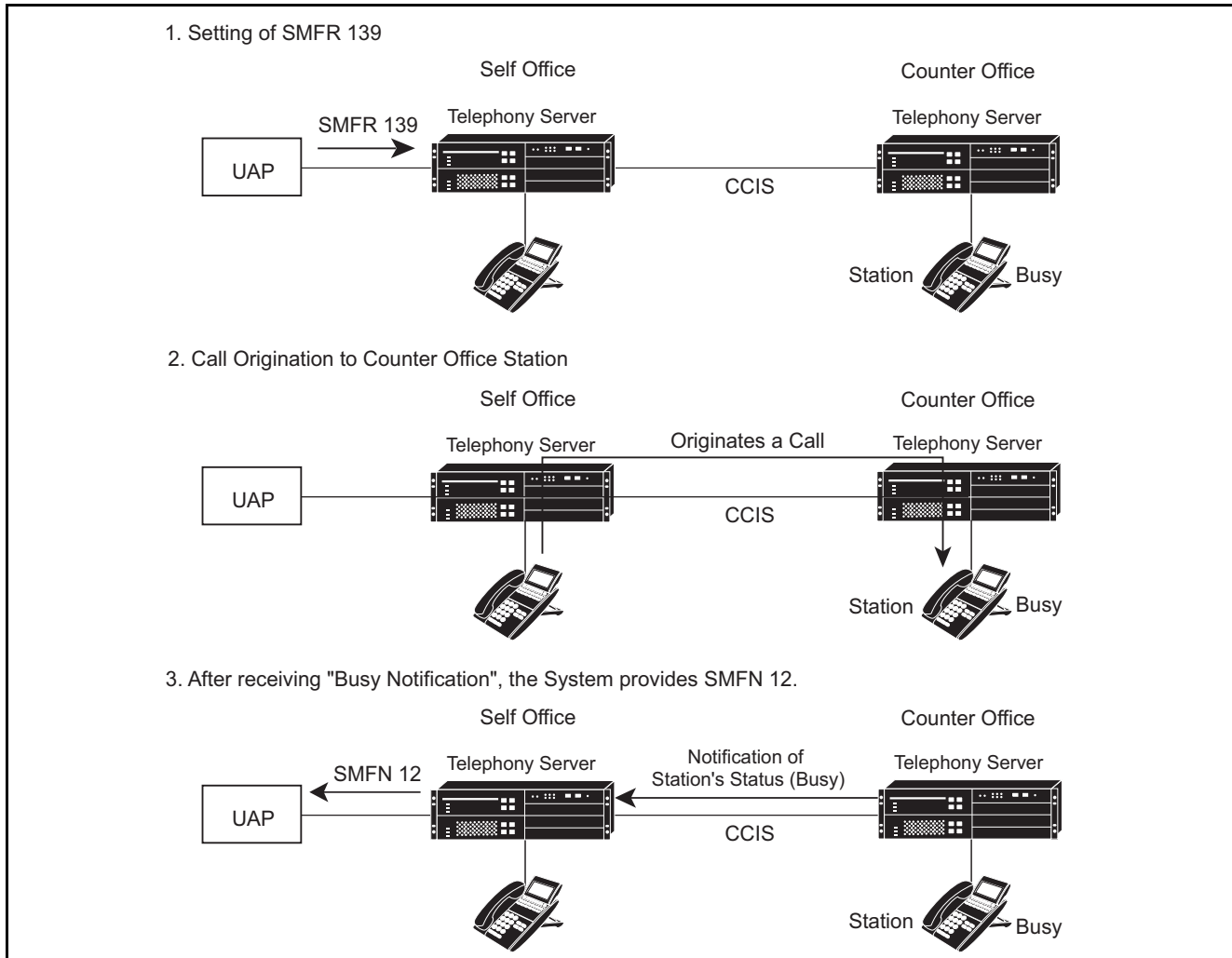
ARSC: Assign the route restriction information according to the Route Restriction Class (RSC) of the station and the Route Number (RT).

3.11 CCIS SMFN Indication

3.11.1 Functional Outline

This feature allows the User Application Processor (UAP) to receive the status information of the terminal (SMFN 12) in the CCIS counter office by setting SMFR 139.

UAP can receive SMFN 12 from the Analog trunk (COT, MG-COT) and ISDN trunk (MG (PRI/BRI)).



3.11.2 Using Conditions

- This feature works by assigning ASYDL, SYS 1, Index 874, Bit 2 = 1.
 ASYDL, SYS 1, Index 874, Bit 2 = 0: Setting of SMFR 139 and delivering of SMFN 12 are invalid.
 ASYDL, SYS 1, Index 874, Bit 2 = 1: Setting of SMFR 139 and delivering of SMFN 12 are valid.
- The terminal to be targeted for the monitoring of SMFR 139 is station only.
 Analog trunk (COT, MG-COT) and ISDN trunk (MG (PRI/BRI)) can also be monitored via SMFR 139.

3. SMFN 12 is delivered only while the monitoring of the target station/trunk's status is executed by SMFR 139
4. SMFN 12 is delivered only when the target station uses CCIS trunk. When the station uses trunks other than CCIS trunk, SMFN 12 is not delivered.
5. If SMFR 139 is not set (even when SMFR 127 is set), SMFN 12 is not provided.
6. User Application Processor (UAP) must be able to set SMFR 139 and receive SMFN 12.
7. This feature is available via Peer-to-Peer CCIS (PHC) only. Legacy CCIS (using DTI) is not available.

3.11.3 Data Programming

1. Assignment
ASYDL
SYS 1
Index 874
Bit 2 = 1 (CCIS SMFN Indication is in service)
2. Deletion
ASYDL
SYS 1
Index 874
Bit 2 = 0 (CCIS SMFN Indication is not in service)

3.12 OAI Trace with EVLOG Command

This feature is only for North America.

3.12.1 Functional Outline

This feature will allow enhancing the evlog capabilities of the Telephony Server for OAI. It will allow the output of X409 type messages to UDP viewer application of the EVLOG PCPro command. The EVLOG PCPro command may be used to set up the output of these messages, and a New ASYDL bit must be set to output these messages. This feature will also enhance the current logging system for OAI errors by trapping the current CPU Program trace stack to allow some help in finding OAI problems. This will require the setting of a new bit in the oaeFr1 memory area and the stack will be saved to the current dbglogbuf[] memory area.

3.12.2 Using Conditions

1. This is a feature for Lab environment or for difficult to duplicate problems. It should be used with care because it can cause a lot of network traffic and the Telephony Server CPU occupancy issues.
2. Engineering use only.

3.12.3 Data Programming

1. Assignment

For UDPViewer Output of X409.

ASYDLSet SYS 1 Index 873 Bit 2

EVLOG

Start the EVLOG command

Under the Trigger Tab pick TCP/IP Module Information and choose set.

Under the TCP/IP tab pick Remote Host under the Output Device

Choose None under TCP/IP Debug Output Information and then Apply

Under the Remote host tab set Send to remote host and set the Host items.

Click Open window to start the UDPViewer.

For Stack save to dbglogbuf[]

ASYDLSet SYS 1 Index 873 Bit 3

Check the dbglogbuf for output of errors.

DERMCheck the DERM command to find out if OAI errors occurred.

3.13 Transfer to UCD by SCF FN=4 MCI

This feature is only for North America.

3.13.1 Functional Outline

This feature allows an OAI Application to use SCF FN=4 to place a call to a UCD group and provide 4th party information to be output as the called party in an MCI record.

The following is the messaging meaning for SCF FN=4 forth party added as option.

Function ID	1st Party Information		2nd Party Information		Trans ID (TI)	Notify Inf. (NI)	Answer Type (AT)	3rd Party Information		4th Party Information	
Function No.	Term Inf.	Call Kind	Call No.	Term Inf.				Term Inf.		Term Inf.	
FN = 4 (Terminate Call)	O (Calling Line/TRK/ATT)	(Note 2) O / #	(Note 1) O (Calling Line/TRK/ATT)	#	#	X	#	# (Hold Line/TRK)		# (Note 3) MCI called Party	

o: Mandatory
x: Not required
#: Option

Note: FN = 1 Term Inf. and Answer Type of SCF 2nd Party are not supported in case of Small Telephony Server.

Note 1: SCF with Account Code / Authorization code & Sub Address is supported.(In case of Small Telephony Server, Supported only Account Code)

Note 2: This field is method in case of Small Telephony Server.

Note 3: This field is for Large Telephony Server only, are used only for Terminate to UCD with MCI correction, 4th Party is Called Party of MCI packet.

3.13.2 Using Conditions

1. SCF FN=4 with 4th party information is only valid to UCD numbers.
2. This feature is not available when 1st, 2nd or 4th party is across a CCIS link.
3. All normal SCF FN=4 limitations and service conditions apply.
4. There is no change to the Return result for SCF FN=4 for this feature.
5. This feature only Changes MCI packet, it will not function for VMM using Digital integration. (i.e. AD-40).
6. This feature does not change the SMFN messages for OAI type VMM integrations.

3.13.3 Data Programming

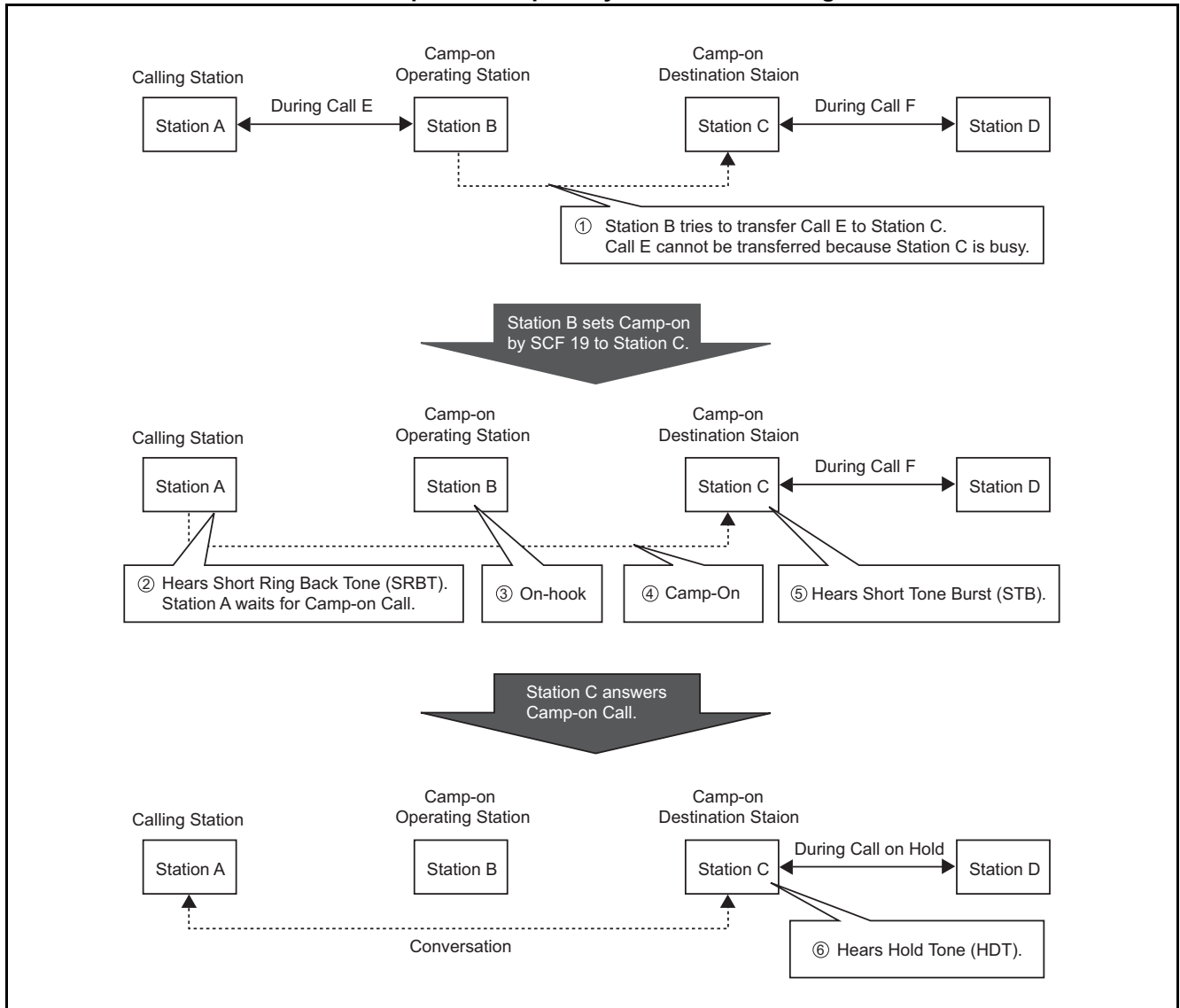
1. Assignment
ASYDL Set Index 871 Bit 6 SCF FN=4 to UCD MCI change 0/1 Out of service / In service
2. Deletion
Take the opposite procedure of Assign procedure.

3.14 CCIS Camp On by SCF FN=19

3.14.1 Functional Outline

This feature enables Camp-on via CCIS by using SCF FN=19 in OAI system. When a station transfers a trunk call/station call to a busy station in the counter office, the station can set Camp-on service.

Example of Camp-on by SCF FN=19 Setting



3.14.2 Using Conditions

1. This feature works by assigning ASYDL, SYS 1, Index 874, Bit 4 = 1 (SCF FN=19 Camp On Facility is used).
2. This feature is available only when the destination station uses CCIS trunk (CCIS over IP by PHC only).
3. This feature supports the following combinations of the calling party and the destination station.

×: Available N: Not Available

Camp-On Requester	Camp-On Destination	
	Intra-Office Station (Desktop terminal)	Inter-Office Station (Desktop terminal)
Intra-Office Station (Desktop terminal)	×	×
Analog Trunk (COT, MG-COT)	×	×
ISDN Trunk (MG (BRI/PRI))	×	×
Inter-Office Station (CCIS over IP (PHC))	×	×

4. When the Camp-On destination station sets Call Forwarding - All Calls [C-5], this feature works as follows:

		Camp-On Destination	
		Intra-Office Station	Inter-Office Station
CF-All Calls Destination	Intra-Office Station Note 1	Camp-on is set to the station that has set CF-All Calls. Telephony Server sends normal response of SCF FN=19 (Return Result) to UAP.	Camp-on is set to the station that has set CF-All Calls. Telephony Server sends normal response of SCF FN=19 (Return Result) to UAP.
	Inter-Office Station Note 2	Camp-on is not set. Telephony Server sends abnormal response of SCF FN=19 (Return Error) to UAP.	Camp-on is not set. Telephony Server sends normal response of SCF FN=19 (Return Result) to UAP. Then, Telephony Server sends SMFN 12-10 (Destination Party other error) to UAP.

Note 1: Station in the same office with the Camp-On destination station.

Note 2: Station in the different office from the Camp-On destination station.

5. When the Camp-On destination station sets Call Forwarding - Busy Line [C-2], this feature works as follows:

		Camp-On Destination	
		Intra-Office Station	Inter-Office Station
CF-Busy Destination	Intra-Office Station Note 1	Camp-on is set to the station that has set CF-Busy. Telephony Server sends normal response of SCF FN=19 (Return Result) to UAP.	Camp-on is set to the station that has set CF-Busy. Telephony Server sends normal response of SCF FN=19 (Return Result) to UAP.
	Inter-Office Station Note 2	Camp-on is not set. Telephony Server sends abnormal response of SCF FN=19 (Return Error) to UAP.	Camp-on is set to the station that has set CF-Busy. Telephony Server sends normal response of SCF FN=19 (Return Result) to UAP.

Note 1: Station in the same office with the Camp-on destination station.

Note 2: Station in the different office from the Camp-on destination station.

6. This feature supports the following SMFN.

SMFN	Name	Description
SMFN 1, 8	Special Incoming Notification	Telephony Server notifies when Camp-on is set to the station in the self office.
SMFN 2, 8	Special Answer Notification	Telephony Server notifies when the station to which Camp-on is set answers the call.
SMFN 12, 22	Inter-office Information Notification (Camp-on set)	Telephony Server notifies when Camp-on by SCF FN=19 is set to the counter office station via CCIS over IP (PHC).
SMFN 1, 10	Incoming Notification (Camp-on set)	Telephony Server notifies when CCIS trunk in the self office is seized while Camp-on by SCF FN=19 is set to the counter office station.
SMFN 3, 11	Release Notification (Camp-on set)	Telephony Server notifies when the operating station goes on-hook while Camp-on by SCF FN=19 is set to the counter office station.

7. User Application Processor (UAP) must be able to execute SCF FN=19 and receive SMFN.
8. The Camp-on operating station must be accommodated in the Self Office.
9. Camp-on cannot be set to the station engaged in Three-way Calling.
10. Camp-on cannot be set to multiple stations simultaneously.
11. Camp-on cannot be set to the station (destination station) using Call Back service.
12. Camp-on cannot be set when Call Back service is set to the destination station.

13. Camp-on can be set only to the station in Two-way connection.
14. Camp-on via CCIS can be set while the operating station has a call on hold.
15. While the calling party is waiting for the Camp-on Call, music on hold is sent to the calling party from the counter office accommodating the destination station.
16. If the Camped-on station does not answer the call within 30 seconds or Camp-on is denied (because of Three-way Calling, etc.), Automatic Recall is initiated.
17. This feature supports the following trunks and terminals:

- Trunk

×: Available N: Not Available

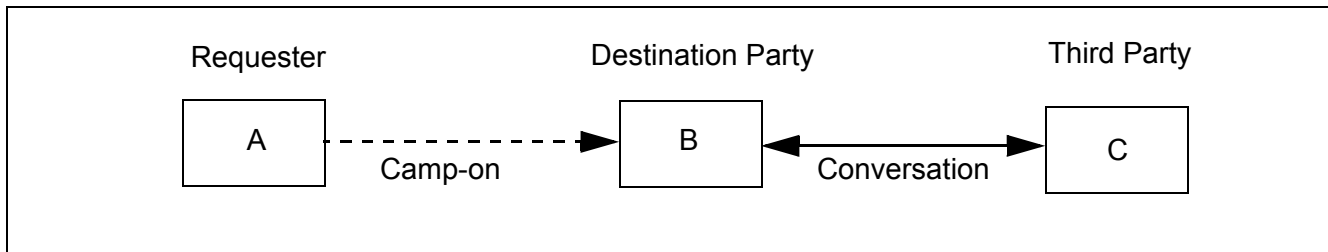
	Camp-on Operating Station	Camp-On Requester	Camp-on Destination Station
Analog Trunk (COT, MG-COT)	N	×	N
ISDN Trunk (MG (BRI/PRI))	N	×	N
CCIS Trunk (CCIS over IP (PHC))	N	×	N
CCIS Trunk (Legacy)	N	N	N

- Terminal

×: Available N: Not Available

	Camp-on Operating Station	Camp-On Requester	Camp-on Destination Station
Dterm	×	×	×
DtermIP (Proprietary Protocol)	×	×	×
Softphone (Proprietary Protocol)	×	×	×
Other Terminals	N	N	N

18. This feature supports the following answering operations:



- The destination party goes on-hook.

Note: Both Camp-on in Self Office and Camp-on via CCIS are available.

1. Party B goes on-hook. Party B is automatically rung.
2. Party B goes off-hook.
3. Two-party call is established between Party B and Party A.

- The destination party presses the ANSWER key.

Note: Both Camp-on in Self office and Camp-on via CCIS are available.

1. Party B presses the ANSWER key.
2. Party C is placed on hold.
3. Two-party call is established between Party B and Party A.

- The destination party presses the TRANSFER key.

Note: Only Camp-on in Self office is available.

1. Party B presses the TRANSFER key.
2. Party C is placed on Call Hold state.
3. Two-party call is established between Party B and Party A.

- The destination party presses the HOLD key.

Note: Only Camp-on via CCIS is available.

1. Party B presses the HOLD key.
2. Party C is placed on Consultation Hold, and Party A is placed on Call Hold state.
3. Party B enters the Call Hold Access Code (or presses the Call Hold Feature key).
4. Two-party call is established between Party B and Party A. Party C is placed on Call Hold state.

3.14.3 Data Programming

1. Assignment

ASYDL

SYS 1

Index 874

Bit 2 = 1 (CCIS SMFN Indication is in service)

ASYDL

SYS 1

Index 874

Bit 4 = 1 (CCIS Camp-on by SCF FN=19 is in service)

2. Deletion

ASYDL

SYS 1

Index 874

Bit 2 = 0 (CCIS SMFN Indication is not in service)

ASYDL

SYS 1

Index 874

Bit 4 = 0 (CCIS Camp-on by SCF FN=19 is not in service)

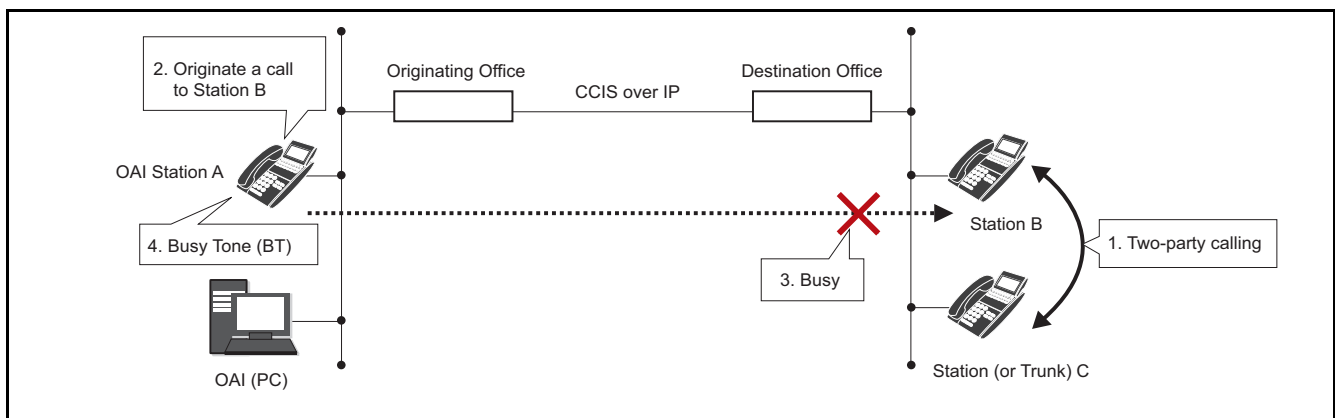
3.15 OAI Break-in by SCF FN=22

3.15.1 Functional Outline

This feature enables Break-in feature (Executive Right-of-Way [E-1]/Executive Right-of-Way -D [E-1D]/Executive Right-of-Way - CCIS [E-8]) by using SCF FN=22 (Override) (hereafter called SCF22) in OAI system.

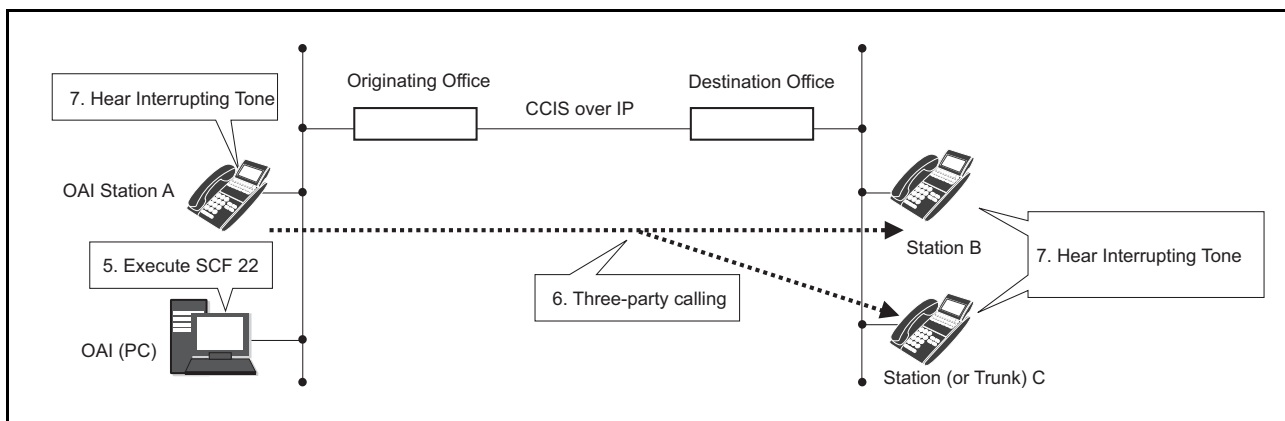
3.15.2 Operating Procedure

- SCF22 while hearing Busy Tone (BT)
1. Station A (Idle) makes a call to Station B via CCIS (Peer to Peer CCIS only).
 - Station A hears Busy Tone (BT) because Station B and Station C are engaged in a two-party calling.



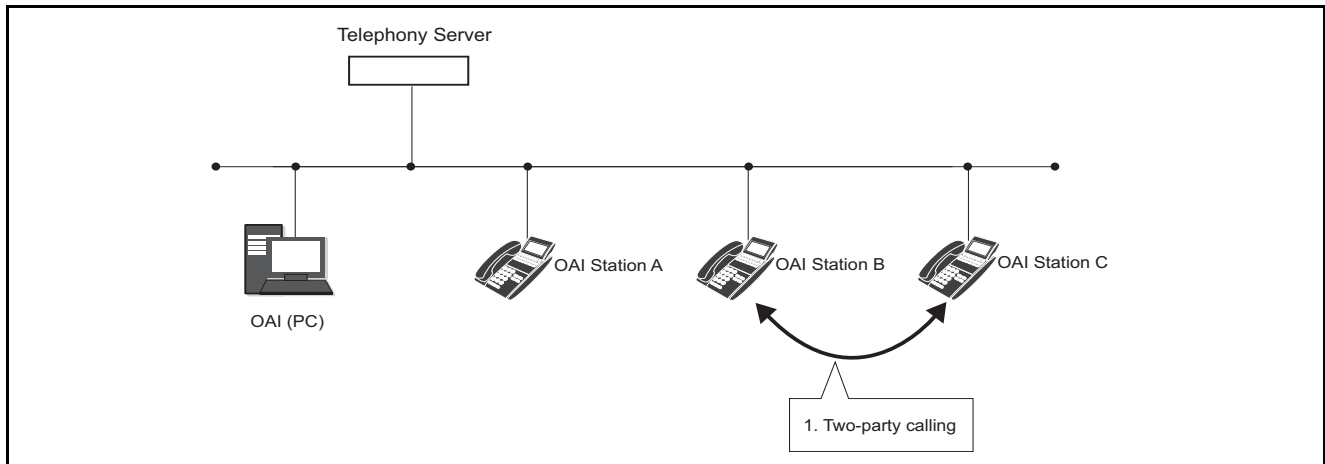
2. Execute SCF22

- Station A breaks into two-party calling between Station B and Station C. A Three-party calling is established. At this time, Stations A, B and C hear the interrupting tone.



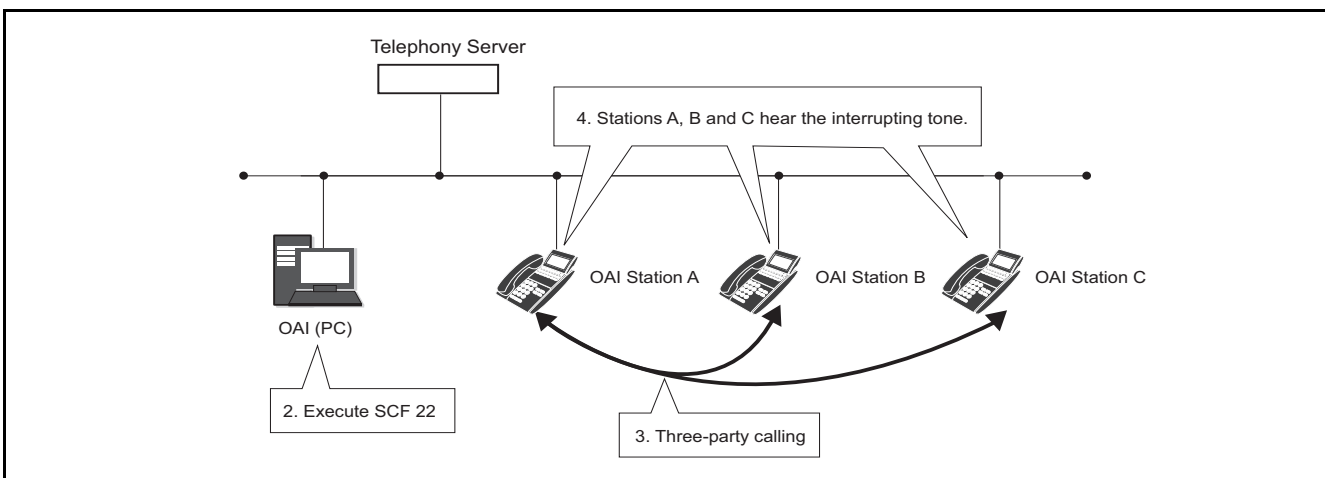
- SCF22 from Idle State
1. While Station B and Station C are engaged in a two-party calling

- This feature (SCF22 from idle state) is available when breaking into a two-party calling between Self-office stations. (Calling party C is a station or trunk.)



2. Execute SCF22

- OAI Station A breaks into two-party calling between OAI Station B and C. A three-party calling is established. At this time, Stations A, B and C hear the interrupting tone.



3.15.3 Using Conditions

1. To enable SCF22, the following system data setting is required.
ASYDL, SYS 1, Index 874, Bit 7: 1 (OAI Break-in feature is available)
2. This feature is equivalent to Executive Right-of-Way [E-1]/Executive Right-of-Way -D [E-1D]/Executive Right-of-Way - CCIS [E-8] in Business system. For details on the operating range, see Service Conditions for those features.
3. This feature is available when called party is engaged in two-party conversation.

4. SCF22 can be activated in the following cases:
 - When Break-in destination is a station in the Self-office:
Calling Station is in idle state or has no held call (while hearing Busy Tone).
 - When Break-in destination is a station in the CCIS Counter-office:
Calling Station has no held call (while hearing Busy Tone).
- Note:** The duration of the time that the user hears Busy Tone can be determined by the setting of ASYD, SYS 1, Index 128.
5. If the terminal information specified by SCF22 is incorrect, Return Error is sent to the application.
6. SMFN 2-3 (There-way Calling Answer) is provided when this feature is executed. After the execution of this feature, the normal SMFN (for status change from Three-way Calling) is provided. The same applies if Executive Right-of-Way (by Access Code) is executed.
7. If break-in destination is a station in the CCIS Counter-office, SMFN12 STS=21 (Override) is provided as SMFN Notification.
8. All the pertinent parties hear the interrupting tone for a certain period of time.
9. If Executive Right-of-Way [E-1], Executive Right-of-Way -D [E-1D] and Executive Right-of-Way - CCIS [E-8] features are restricted by ASFC SFI=3, 4 and 11, this feature is not activated (Return Error).
10. If called party is in the following status, this feature is restricted. If calling party hears Busy Tone (BT), "Restrict" is displayed on the Desktop terminal LCD. Also if calling party is in idle state and Break-in feature is restricted, nothing is displayed on Desktop terminal LCD and the calling party hears nothing.

While dialing any number

While receiving any Tone

While calling to other party

While being called

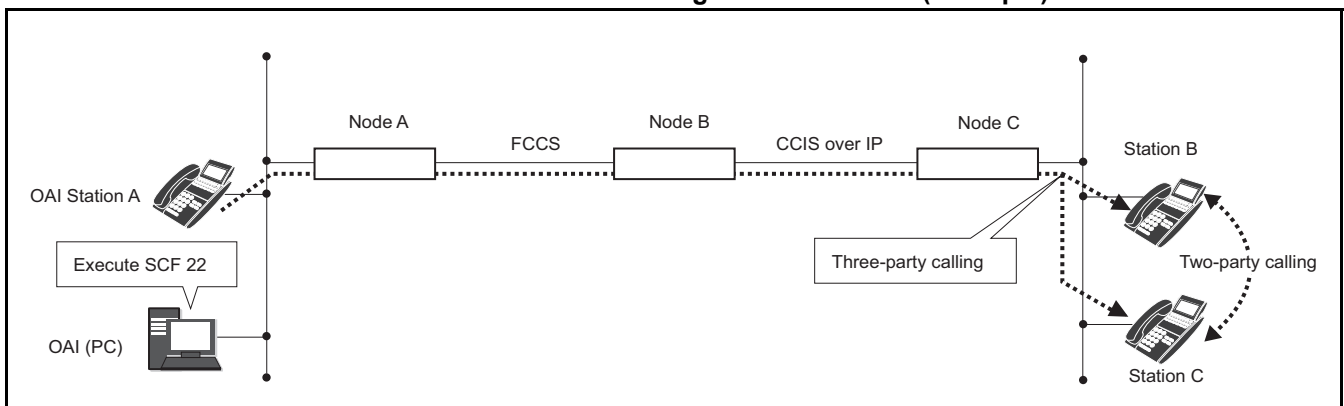
While in line lockout

While in make-busy

While engaged in a three-party calling, Call Transfer-All Calls or other Break-in features

11. If the party on the other end of the called party is in the following status, this feature is restricted. If calling party hears Busy Tone, "Restrict" is displayed on the Desktop terminal LCD.
 - While dialing any number
 - While receiving any Tone
 - While calling to other party
 - While being called
 - While in make-busy
 - While engaged in a three-party calling, Call Transfer-All Calls or other Break-in features
12. If one of the parties engaged in a three-party calling (after this break-in feature) goes on-hook, a two-party calling between the remaining two parties is established.
13. Breaking into a conversation between station and C.O. line trunk/interoffice line trunk is also available.
14. Service Peg Count for this feature is not provided.
15. This feature is also available in the mixed network which containing FCCS and CCIS. For example, in the figure below, Station A accommodated into Node A can break into two-party calling between Station B and C accommodated into Node C.

Mixed network which containing FCCS and CCIS (Example)



16. To break into a CCIS Counter-office station, use the CCIS messages. (There is no change to the existing message.)
17. This feature is available on the stations using OAI 16-digit Station Number Information service.
18. If the User Application Processor (UAP) needs to receive the status information of the terminal (SMFN 12) in the CCIS counter office, the following system data setting is required.

ASYDL, SYS 1, Index 874, Bit 2 = 1 (Setting of SMFR 139 and delivering of SMFN 12 are valid.)

19. To forcefully perform this feature when a called party or a party connected with the called party sets Privacy feature, the following system data assignment is required.

ASYDL, SYS 1, Index 875, Bit 3 = 1 (Forced Break-in feature (toward Stations setting Privacy feature) is in service)
20. This feature is not available for ACD Lines.

3.15.4 Data Programming

- In case of Executive Right-of-Way - CCIS

1. ASYD (System Data)
SYS 1
Index 4
Bit 4 = 1 (Temporary Class Conversion is required)
SYS 2
Index 0
Bit 0 and Bit 1: Restriction Data of Station Busy Services

Bit 0 Bit 1

- | | | |
|---|---|---|
| 0 | 1 | = Executive Right-of-Way, Call Waiting-Originating and Message Reminder are available. |
| 1 | 1 | = Call Back, Executive Right-of-Way, Call Waiting-Originating and Message Reminder are available. |

2. ASYDL (System Data for LDM)
SYS 1
Index 874
Bit 7 = 1 (OAI Break-in feature is available)
3. ASFC (Assignment of Service Feature Restriction Class)
Assign a Service Feature Restriction Class that allows the following SFIs to each Station.

SFI 3: Executive Right-of-Way (Calling Side)
SFI 4: Executive Right-of-Way (Called Side)
SFI 11: Data Line Security (Called Side)

Note: When using this feature against a Station that is engaged in Tandem connection other than CCIS-CCIS, SFI 4 and SFI 11 require to be set to 1 for SFC 0 by using ASFC/AS-FCN.

- In case of Executive Right-of-Way

ASYD (System Data)

SYS 2

Index 0

Bit 0 and Bit 1: Restriction Data of Station Busy Services

Bit 0 Bit 1

0 1 = Executive Right-of-Way, Call Waiting-Originating and Message Reminder are available.

1 1 = Call Back, Executive Right-of-Way, Call Waiting-Originating and Message Reminder are available.

4. ASYDL (System Data for LDM)

SYS 1

Index 874

Bit 7 = 1 (OAI Break-in feature is available)

SYS 1

Index 875

Bit 3 = 1 (Forced break-in feature (toward Stations setting Privacy feature) is in service)

5. ASTD (Assignment of State Translation Data)

Assign a Service Feature Restriction Class that allows the following SFIs to each Station.

STM = 2

STS = 1 (Three-party calling with COT included in Executive Rightof-Way)

ST = 1 (Allowed)

6. ASFC (Assignment of Service Feature Restriction Class)

Assign a Service Feature Restriction Class that allows the following SFIs to each Station.

SFI 3: Executive Right-of-Way (Calling Side)

SFI 4: Executive Right-of-Way (Called Side)

SFI 11: Data Line Security (Called Side)

Note: When using this feature against a Station that is engaged in Tandem connection other than CCIS-CCIS, SFI 4 and SFI 11 require to be set to 1 for SFC 0 by using ASFC/AS-FCN.

3.16 ETSI Addressing for OAI

Note: This service is only for EMEA.

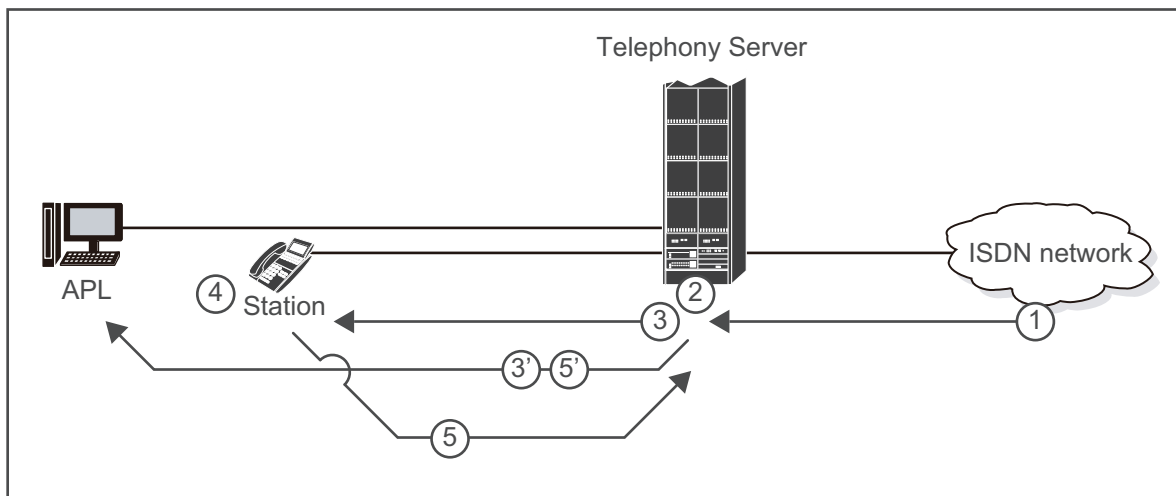
3.16.1 Functional Outline

This service enables OAI to support ETSI addressing:

1. Provides the following information on a SMFN message:
 - Calling party number with national/international prefix
 - Calling party number edited by PNP (Private Numbering Plan)
2. Enables ETSI addressing function to edit a calling party number of an ISDN call (PRI/BRI/Q-sig) incoming to a monitor number.
3. Enables ETSI addressing function to edit a calling party number when you originate or transfer an ISDN call (PRI/BRI/Q-sig) through OAI (SCF FN=1, 3, 4, 7).

Note: ETSI addressing function represents both of ETSI ISDN Addressing and Q-sig Addressing. For details on ETSI ISDN Addressing and Q-sig Addressing, see Data Programming Manual - ISDN, [E-32] ETSI ISDN Addressing and [P-82] Private Telecommunication Network Q-sig Addressing.

- The following is an example where you receive an ISDN call.



1. A SETUP message arrives at the Telephony Server.
2. ETSI addressing function edits the calling party number.
3. The incoming call arrives at a station.
- 3'. The Telephony Server sends SMFN incoming call notification to APL.
4. The station's LCD displays the edited calling party number.
5. The station answers the call.
- 5'. Telephony Server sends SMFN answer notification to APL.

Where:

- Calling party number in the SETUP message: 123456789
- National prefix code: 111
- International prefix code: 222
- Trunk Access code: 000

The calling party number displayed on the station LCD (4 in the figure) depends on the used service.

LCD Display for Incoming Call

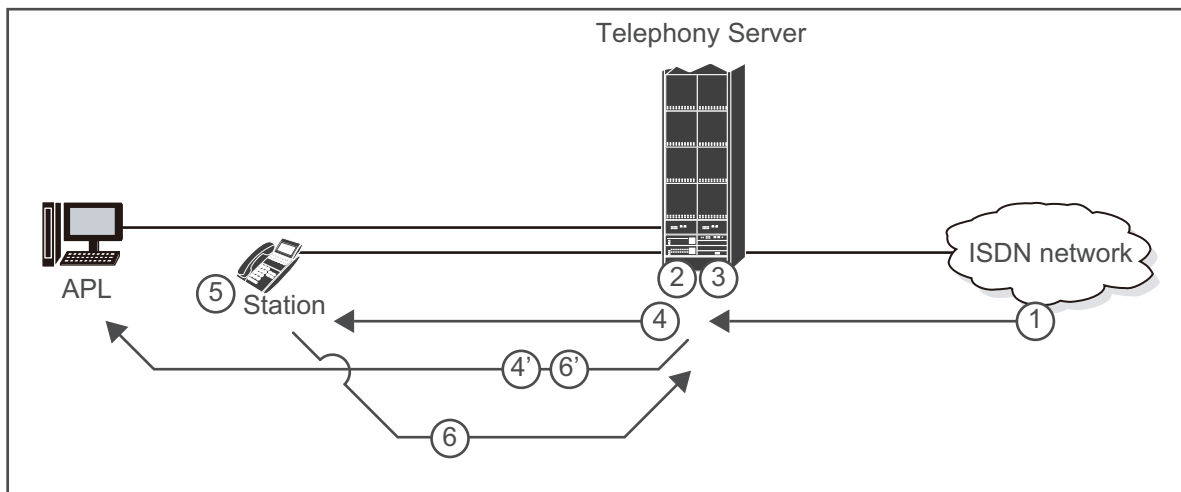
Incoming call type Used service	National PRI/BRI call	International PRI/BRI call	Q-sig call
No service	123456789	123456789	123456789
ETSI ISDN Addressing or Q-sig Addressing	000111123456789	000222123456789	000123456789
ETSI Addressing for OAI	000111123456789	000222123456789	000123456789

The calling party number sent to the APL depends on the used service.

Incoming Call information sent to APL

Incoming call type Used service	National PRI/BRI call	International PRI/BRI call	Q-sig call
No service	123456789	123456789	123456789
ETSI ISDN Addressing or Q-sig Addressing	123456789	123456789	123456789
ETSI Addressing for OAI	000111123456789	000222123456789	000123456789

- The following is an example where a monitor number receives an ISDN incoming call.



1. A SETUP message arrives at the Telephony Server.
2. ETSI addressing function edits the calling party number.
3. The incoming call arrives at a monitor number.
4. SCF FN=4 makes the call arrive at a station.
- 4'. The Telephony Server sends SMFN incoming call notification to APL.
5. The station's LCD displays the edited calling party number.
6. The station answers the call.
- 6'. The Telephony Server sends SMFN answer notification to APL.

Where:

- Calling party number in the SETUP message: 123456789
- National prefix code: 111
- International prefix code: 222
- Trunk Access code: 000

The calling party number displayed on the station LCD (4 in the figure) depends on the used service.

LCD Display for Incoming Call to the Monitor Number

Used service \ Incoming call type	National PRI/BRI call	International PRI/BRI call	Q-sig call
No service	123456789	123456789	123456789
ETSI ISDN Addressing or Q-sig Addressing	000123456789	000123456789	000123456789
ETSI Addressing for OAI	000111123456789	000222123456789	000123456789

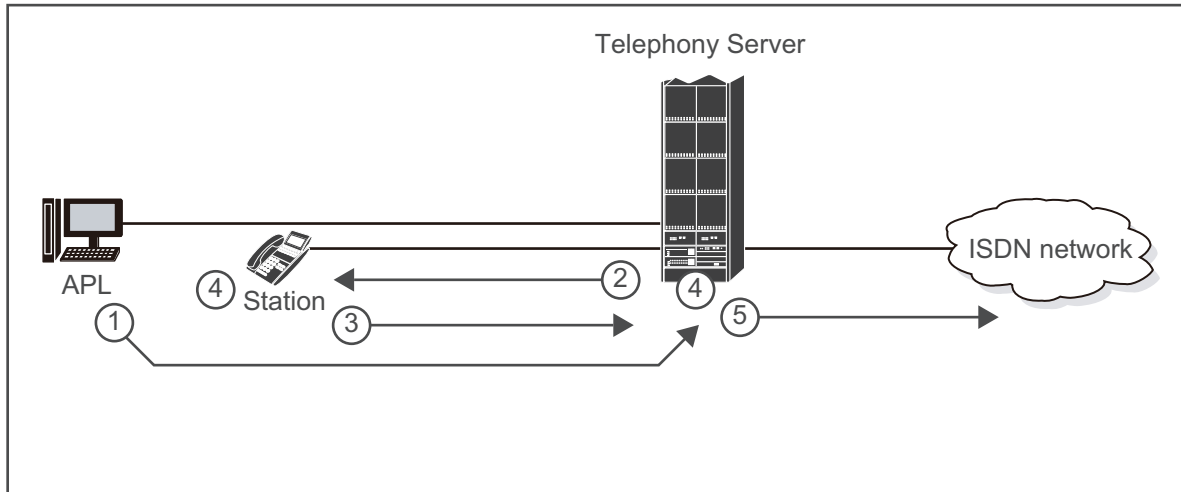
The calling party number sent to the APL depends on the used service.

Incoming Call Information Sent to APL

Used service \ Incoming call type	National PRI/BRI call	International PRI/BRI call	Q-sig call
No service	123456789	123456789	123456789
ETSI ISDN Addressing or Q-sig Addressing	123456789	123456789	123456789
ETSI Addressing for OAI	000111123456789	000222123456789	000123456789

Note: As for an incoming call to a monitor number, ETSI addressing works only when ETSI Addressing for OAI is in service.

- The following is an example where you originate an OAI outgoing call.



- SCF FN=1, 3, 4, or 7 is executed.
- The Telephony Server makes the OAI order to a station.
- By the OAI order, the station makes an outgoing call or transfer.
- ETSI addressing function edits the calling party number.
- Telephony Server sends out a SETUP message with the edited calling party number.

Where:

[for ISDN (PRI/BRI) outgoing call]

- Station number:	10000
- Area code:	111
- Local area code:	222
- Edited calling party number:	11122210000

[for ISDN (Q-sig) outgoing call]

- Station number:	10000
- Country code:	000
- Area code:	111
- Local area code:	222
- Edited calling party number:	00011122210000

3.16.2 Using Conditions

<Important Notices>

- This service works only when ETSI ISDN addressing function and Q-sig addressing function are in service.

<Interactions with Other Features>

1. This service causes no change on dial number indication (SMFN9): Dial number indication writes a dialed number on additional information-II field.

<Hardware/Software>

1. This service supports the following terminals:
 - Digital terminal
 - IP terminal
 - Softphone
 - SIP Multiple Line terminal
 - WLAN Handset (MH Series)
 - PS
 - Analog MC
 - Analog terminal

<Interactions with Networks>

None

<Conditions Specific to This Feature>

1. To enable this service, assign the system data: ASYDL/N, SYS1, Index1187, Bit 6=1.
Note: ASYDL/N, SYS1, Index1187, Bit 6:
0/1 = ETSI Addressing for OAI is out of service/in service.
2. This service writes a calling party number modified by ETSI addressing function into calling party number area (additional information-II field) only when either of the following cases applies:
 - When an ISDN call (PRI/BRI/Q-sig) is incoming to a station: incoming call notification
 - When answering an ISDN call (PRI/BRI/Q-sig) incoming to a station: call answering notification
 - When an ISDN call (PRI/BRI/Q-sig) is incoming to a monitor number: incoming call notification
 - When an ISDN call (PRI/BRI/Q-sig) distributed by SCF FN=4 is incoming to a station: incoming call notification
 - When answering an ISDN call (PRI/BRI/Q-sig) distributed by SCF FN=4: call answering notification
3. When this service is disabled, a calling party number on a SETUP message is written on a SMFN message instead of a calling party number displayed on a station's LCD.

4. When a call is incoming to a monitor number, this service is required to enable ETSI ISDN addressing function to add a national/international prefix to the calling party number; as for a call not incoming to a monitor number, ASFC SFI:231=1 is required to add a national prefix, and ASFC SFI:232=1 is required to add an international prefix.
5. When this service is disabled, ETSI addressing function does not modify a calling party number of an ISDN call incoming to a monitor number; therefore, the LCD of a station receiving the call distributed by SCF FN=4 displays the calling party number included in the SETUP message.

<Other Conditions>

None

3.16.3 Data Programming

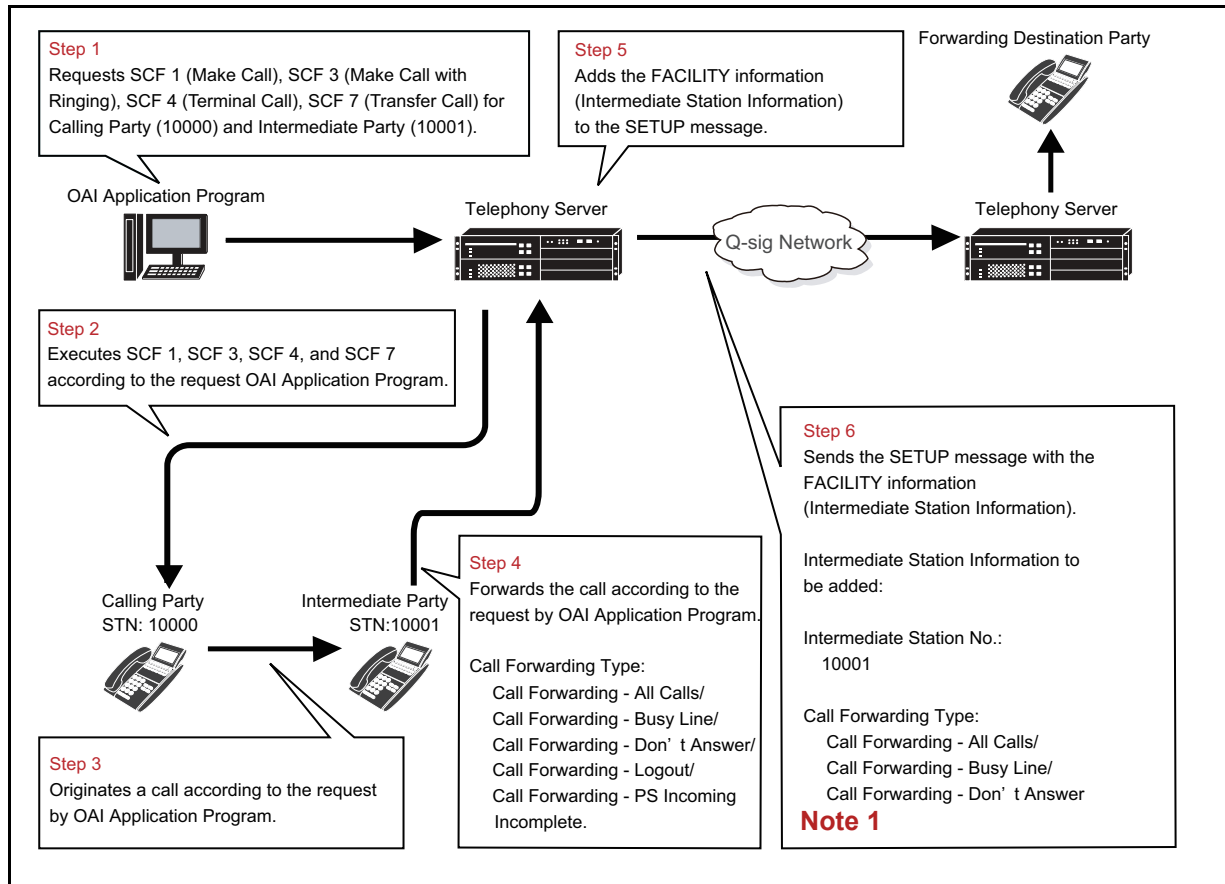
Note: As for an FCCS network, use ASYDN command instead.

1. Assignment
ASYDL (System Data (LDM))
SYS 1
Index 1187
Bit 6 = 1 (ETSI Addressing for OAI is in service.)
2. Deletion
ASYDL (System Data (LDM))
SYS 1
Index 1187
Bit 6 = 0 (ETSI Addressing for OAI is out of service.)

3.17 Q-sig Forwarding Station Information Notification

When a calling party originates a call and an intermediate party forwards the call using SCF FN=1, 3, 4, or 7 during Call Forwarding - All Calls [C-5]/Busy Line [C-2]/Don't Answer [C-3]/Logout/PS Incoming Incomplete [C-155], this feature allows a forwarding destination node to be notified the Intermediate Station Information (Intermediate station number, Call Forwarding Type) as a FACILITY information to be added to a SETUP message.

Note: Refer to Q-SIG FORWARDING STATION INFORMATION [Q-10] in Data Programming Manual - ISDN for more information of Q-sig Forwarding Station Information Notification.



Note 1: When a call is forwarded by Call Forwarding - Logout, the forwarding destination node is notified that the Call Forwarding Type is Call Forwarding - All Calls. When a call is forwarded by Call Forwarding - PS Incoming Incomplete, the forwarding destination node is notified that the Call Forwarding Type is Call Forwarding - Don't Answer.

3.17.1 Using Conditions

<Important Notices>

- This feature is available in the following operation patterns.
 SCF FN=1: Make Call
 SCF FN=3: Make Call with Ringing
 SCF FN=4: Terminal Call
 SCF FN=7: Transfer Call

Call Origination By SCF Calling Party Side Action	SCF1	SCF3	SCF4 Station to Station Call Origination	SCF4 Trunk Call Origination	SCF7 Station Call is on Hold	SCF7 Trunk Call is on Hold
Call Forwarding - All Calls → Q-sig Network	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable
Call Forwarding - Busy Lines → Q-sig Network	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable
Call Forwarding - Don't An- swer → Q-sig Network	Applicable	Applicable	Applicable	Applicable	Note 1	Note 1
Call Forwarding - Logout → Q-sig Network	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable
Call Forwarding - PS Incoming Incomplete → Q-sig Network	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable

- Note 1:** The Intermediate Station Information may not be notified;
- if an intermediate station transfers a call using switch hook flash.
 - if a station to which SCF FN=7 is executed is a forwarding destination station of Call Forwarding - Don't Answer - Outside.

<Interactions with Other Features>

None

<Hardware/Software>

None

<Interactions with Networks>

None

<Conditions Specific to This Feature>

- The tandem connections of the following networks are available.
 - ISDN lines (1.5M/2M)

- Q-sig lines (1.5M/2M)
- CCIS Networking via IP (By PHC) [C-163]

Note: In a tandem connection, the intermediate Station Information is taken over if the information is notified from an incoming trunk.

2. In the Intermediate Station Information (FACILITY information) added to the SETUP message, the following Call Forwarding Types are to be notified.
 - Call Forwarding - All Calls
 - Call Forwarding - Busy Line
 - Call Forwarding - Don't Answer
 - Call Forwarding - Logout **Note 1**
 - Call Forwarding - PS Incoming Incomplete **Note 1**

Note 1: When a call is forwarded by Call Forwarding - Logout, the forwarding destination node is notified that the Call Forwarding Type is Call Forwarding - All Calls.
When a call is forwarded by Call Forwarding - PS Incoming Incomplete, the forwarding destination node is notified that the Call Forwarding Type is Call Forwarding - Don't Answer.

3.17.2 Data Programming

1. Assign the Basic Data for Q-sig (Refer to [Q-4] Q-SIG CIRCUIT SWITCHED BASIC CALL - ETSI VERSION in Data Programming Manual - ISDN).
2. ASYD - Assign the following System Data to transfer the Intermediate Station information (Intermediate station number and Call Forwarding Type) of the first Intermediate Party.

System Data 1, Index 78,

Bit 0=1 (Calling and Intermediate Station Number Indication is in service.)

Bit 1=1 (Kind of Service Class Indication is in service.)

3. ARTI - Assign the following CDN data to the Bch route and Dch route.

CTCF (CDN52)=1 Call Transfer Supplementary Service/Call Forwarding Supplementary Service is in service.

3.18 ETSI Addressing/COLP via Tandem Connection

Note: This service is only for EMEA.

- In the following tandem connections, the system can output Status Monitoring Facility Notification (SM-FN) messages including calling party number/connected party number information translated by Addressing/COLP to APL.

Outgoing Route Incoming Route	ISDN (PRI)	Q-SIG	CCIS	Station
ISDN (PRI)	-	X	X	-
Q-SIG	X	-	X	-
CCIS	X	X	-	-
Station	-	-	-	-

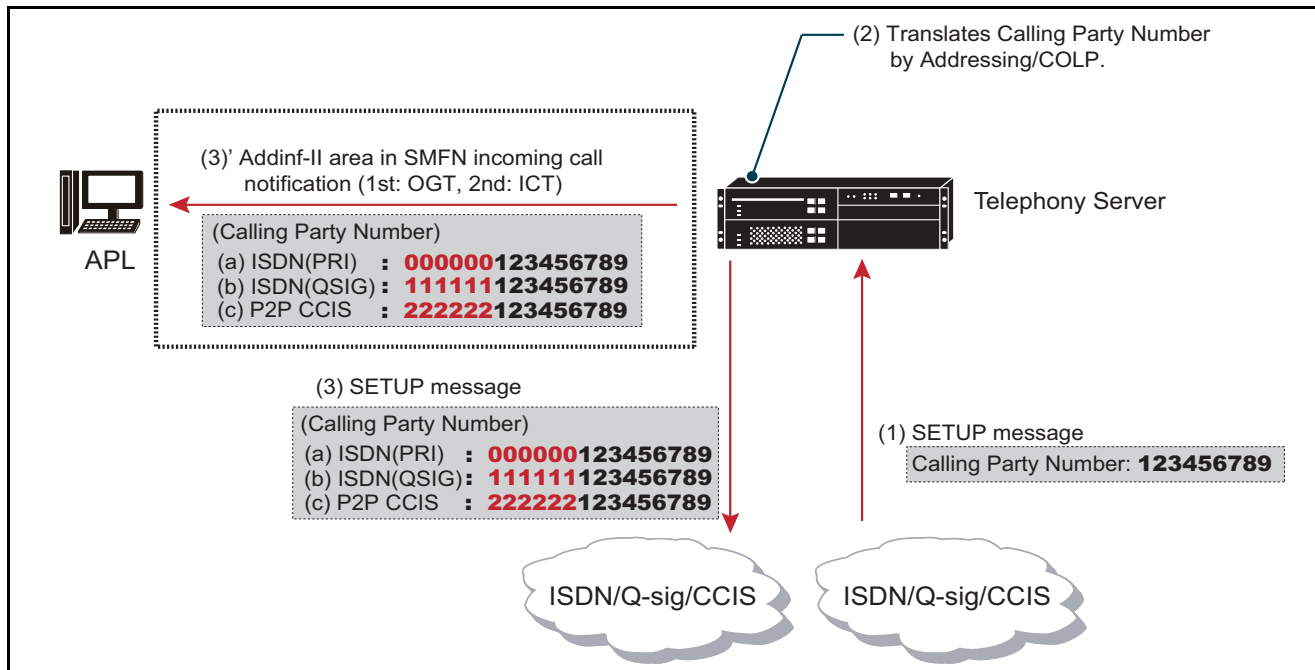
X: Available -: Not available

- When the system performs tandem connections by SCF FN=4 after receiving incoming calls from ISDN(PRI), Q-SIG, or CCIS(PHC) to monitor numbers, it sends SETUP messages including calling party numbers translated by Addressing/COLP.

The following describes more details with examples.

<Operation of SMFN in tandem connections (incoming call)>

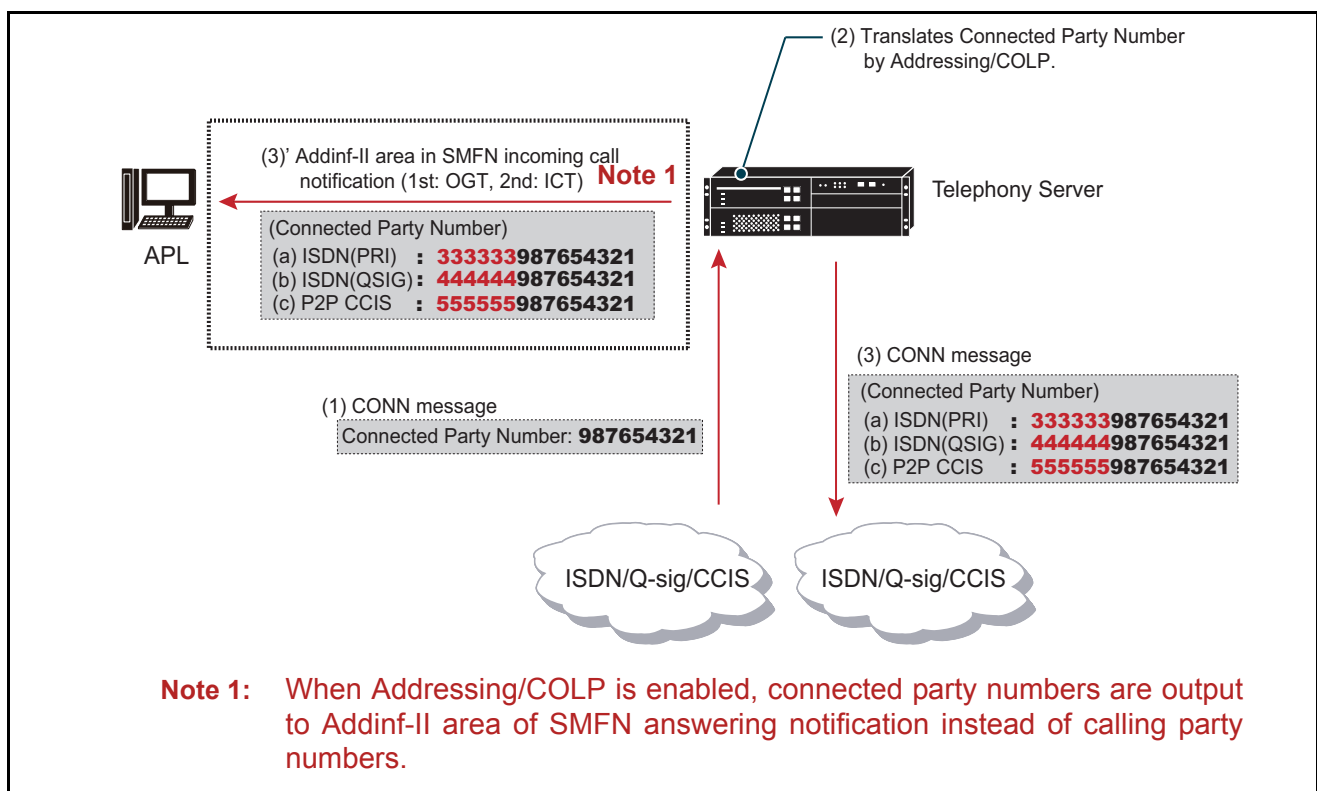
This feature allows the system to output calling party numbers by OAI Monitoring Facility Notification (SMFN) in a tandem connection.



- (a) When destination of the tandem connection is ISDN(PRI):
“000000” is added.
- (b) When destination of the tandem connection is Q-SIG:
“111111” is added.
- (c) When destination of the tandem connection is CCIS(PHC):
“222222” is added.

<Operation of SMFN in tandem connections (call answer)>

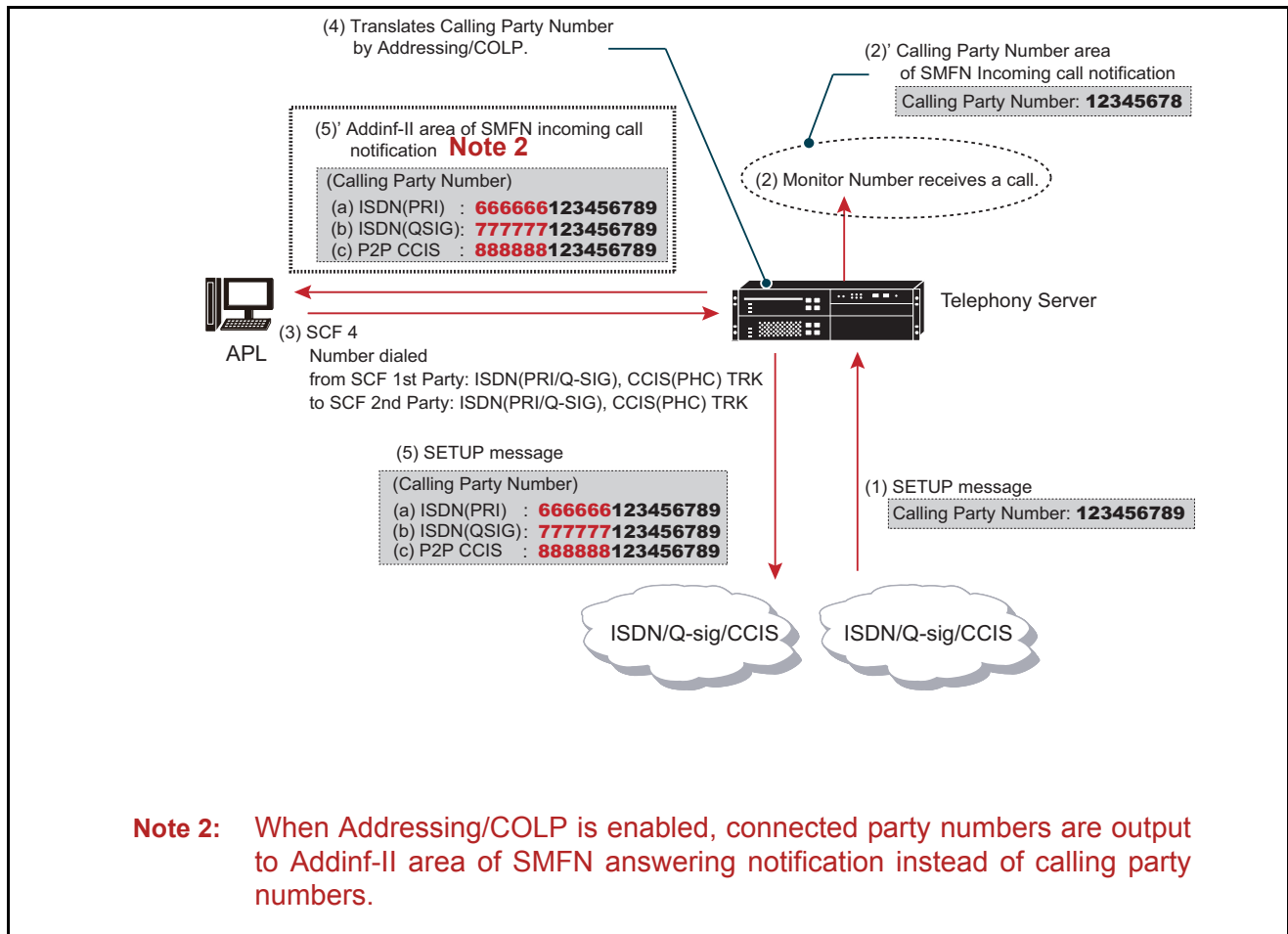
This feature allows the system to output connected party numbers by OAI Monitoring Facility Notification (SM-FN) in a tandem connection.



- (a) When destination of the tandem connection is ISDN(PRI):
“333333” is added.
- (b) When destination of the tandem connection is Q-SIG:
“444444” is added.
- (c) When destination of the tandem connection is CCIS(PHC):
“555555” is added.

<Operation of SMFN in tandem connections (incoming call) after call arrivals at monitor numbers>

When the system performs tandem connections by SCF FN=4 after receiving incoming calls from ISDN(PRI), Q-SIG, or CCIS(PHC) to monitor numbers, the system sends SETUP messages including the translated calling party numbers.



(a) When destination of the tandem connection is ISDN(PRI):

“666666” is added.

(b) When destination of the tandem connection is Q-SIG:

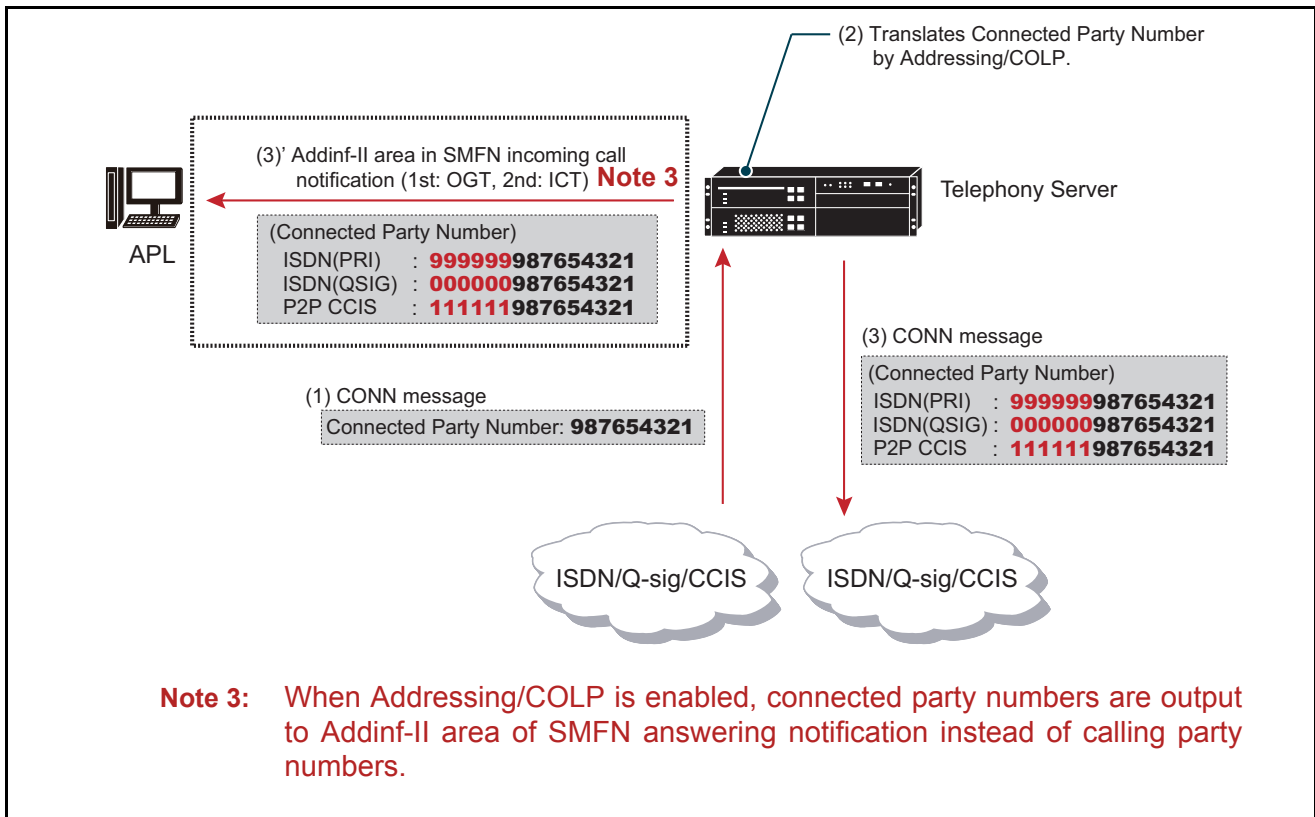
“777777” is added.

(c) When destination of the tandem connection is CCIS(PHC):

“888888” is added.

<Operation of SMFN in tandem connections (call answer) after call arrivals at monitor numbers>

The system performs tandem connections by SCF FN= 4 after receiving incoming calls from ISDN(PRI), Q-SIG, or CCIS(PHC) to monitor numbers. Addressing/COLP allows the system to output OAI status notifications (SMFN) including translated connected party numbers when the tandem calls are answered.



- (a) When destination of the tandem connection ISDN(PRI):
“999999” is added.
- (b) When destination of the tandem connection is Q-SIG:
“000000” is added.
- (c) When destination of the tandem connection is CCIS(PHC):
“111111” is added.

3.18.1 Using Conditions

<Important Notices>

1. This feature does not support MG-SIP.
2. This feature is not available for OAI status notifications (SMFN) concerning call arrivals at stations or monitor numbers and call answering by stations.

3. When this feature is enabled, connected party numbers are output to Addinf-II area of SMFN answering notification instead of calling party numbers. When this feature is disabled, calling party numbers are output to the Addinf-II area of SMFN answering notification as before.
4. No number is output to Addinf-II area of SMFN incoming call notification when the system does not receive calling party numbers through SETUP messages.
5. No number is output to Addinf-II area of SMFN answering notification when the system does not receive connected party numbers through CONN messages.

<Interactions with Other Features>

None

<Hardware/Software>

None

<Interactions with Networks>

None

<Conditions Specific to This Feature>

None

<Other Conditions>

None

3.18.2 Data Programming

For required data setting to enable this feature, see “Addressing/COLP via Tandem Connection” part in ETSI ISDN ADDRESSING [E-32] of the Data Programming Manual -ISDN.

3.19 Call Hold During Three-Way Call - OAI

3.19.1 Functional Outline

This feature provides call hold capability during a three way call for CTI terminals in OAI/ACD system, by allowing User Application Processor (UAP) to activate SCF (FN=12) (Call Hold). When a participant is placed on hold, call hold notification (SMFN) is sent to the UAP.

3.19.2 Using Conditions

<Important Notices>

1. This feature is not available in a three party telephone conversation related to the following intervention features.
 - Executive Right of Way [E-1]
 - Executive Right of Way - CCIS [E-8]
 - Supervisory Override Operation in Monitoring - ACD Supervisor [M-28A]
 - Supervisory Override Operation in Emergency/Recorder - ACD [E-6A]
 - Supervisory Override Operation in Monitor Me - ACD [M-89A]
 - UAP Intrusion by SCF (FN=22 (break in))
2. This feature cannot be used when:
 - Two participants (ACD and non-ACD calls) are simultaneously placed on hold (Dual Hold - D)
 - One participant's station terminal is already placed on hold
 - Exclusive Hold - D [E-4D] is active
 - An Attendant Console is included in the Three-Way Call

<Interactions with Other Features>

None

<Hardware/Software>

None

<Interactions with Networks>

None

<Conditions Specific to This Feature>

1. A three way call on hold can be retrieved by using the HOLD key or UAP-triggered SCF (FN=11) (Answer Call). Note that SCF (FN=13 (Retrieve Call) via UAP cannot be used for this purpose.
2. The following SMFNs are provided to UAP:

SMFN	Description
SMFN FN=6 STS=4 (Call Hold During Three-Way Call)	A participant in the three way call is placed on hold by UAP-triggered SCF (FN=12 (Call Hold) or the HOLD key.
SMFN FN=3 STS=0 (Connection Release) (Normal Release) (Note 1)	Either of the remaining participants (other than the party currently placed on hold) disconnects from the call in progress.
SMFN FN=3 STS=4 (Conference Release) (Disconnect from a Three-Way Call) (Note 1)	
SMFN FN=2 STS=3 (Answering the Held Call to Return to the Original Three-Way Call)	The party on hold returns to the original call via UAP-triggered SCF (FN=11) (Answer Call) or by pressing the Line key corresponding to the held call.

Note 1: The STS value of SMFN (FN=3) sent to UAP can be specified by using system data (ASYDL/N, SYS 1, Index 878, Bit 6).

3. When an inconsistency exists between the value specified for the calling party or the called party and the actual internal connection, the following Return Error messages are sent to UAP:

ASYD SYS 1 Index 241 Bit 3 = 0 (Detail Information on SCF Error is set to "No")	Error Type = 10H (Error information specific to ADF/SCF) Error Detail = 01H (Specified terminal state error)
ASYD SYS 1 Index 241 Bit 3 = 1 (Detail Information on SCF Error is set to "Yes")	Error Type = 10H (Error information specific to ADF/SCF) Error Detail = 0421H (1st → 2nd mismatch)

<Other Conditions>

1. This UAP-triggered feature, just like when using the HOLD key, does not notify the Navigator MIS of the activation of the Call Hold During Three Way Call.

3.19.3 Data Programming

1. Assignment

ASYDL/ASYDN

SYS 1

Index 878

Bit 7 = 1 (Call Hold/Retrieve During Three Way Call by SCF is in service)

ASYDL/ASYDN

SYS 1

Index 1185

Bit 5: SMFN of Call Hold/Retrieve During Three-Way Call

0: Out of service

1: In service

ASYDL/ASYDN

SYS 1

Index 878

Bit 6: Notification of the current participant disconnection from the original call with the other two on hold

0: SMFN (FN=3) STS=0 (Normal release)

1: SMFN (FN=3) STS=4 (Disconnect from a Three-Way Call)

2. Deletion

ASYDL/ASYDN

SYS 1

Index 878

Bit 7 = 0 (Call Hold/Retrieve During Three Way Call by SCF is out of service)

ASYDL/ASYDN

SYS 1

Index 1185

Bit 5 = 0 (SMFN of Call Hold/Retrieve During Three-Way Call is out of service)

ASYDL/ASYDN

SYS 1

Index 878

Bit 6 = 0 (Notification of the current participant disconnection from the original call with the other two on hold with SMFN (FN=3) STS=0 (Normal release))

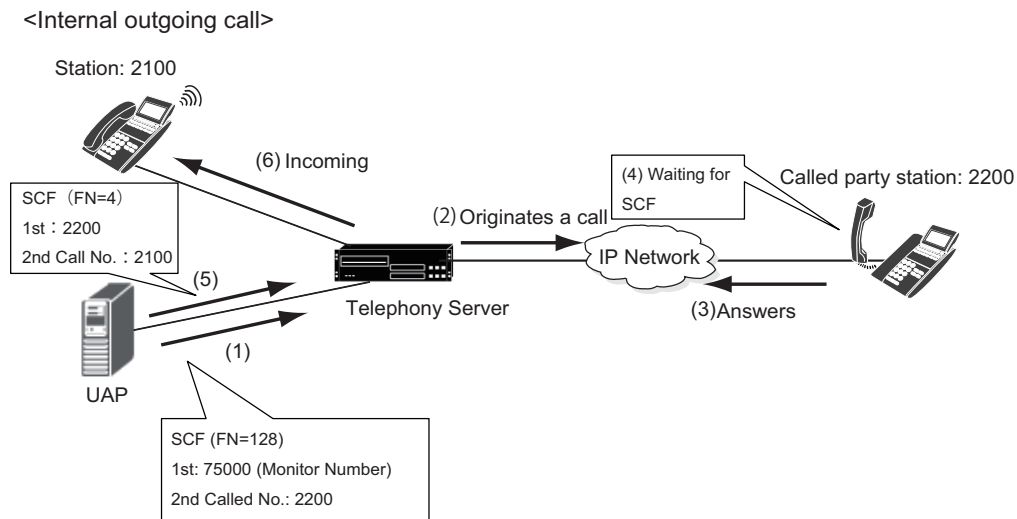
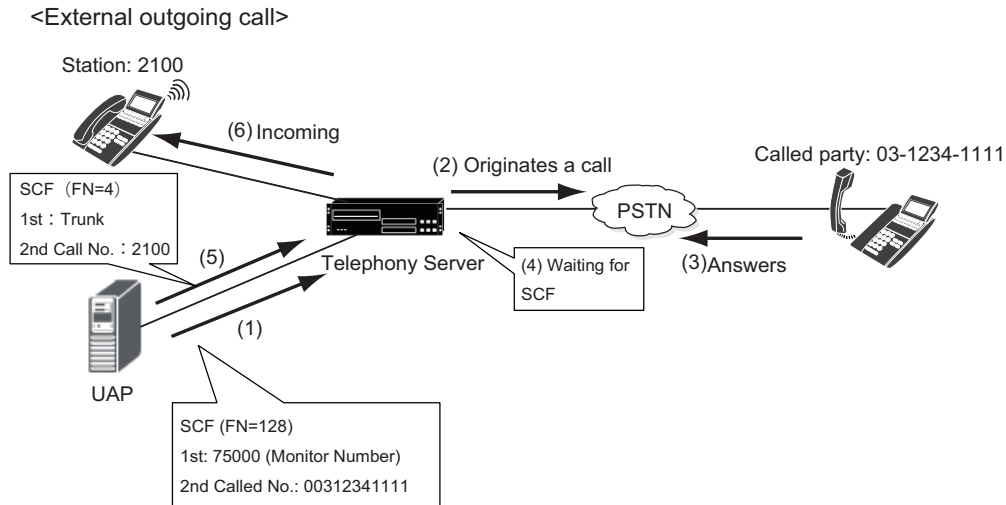
3.20 Predictive Dialing

3.20.1 Functional Outline

Predictive Dialing (hereinafter called PD) feature makes database-driven automatic internal calls or external calls via the outgoing trunk, and transfers the call to next available agent on an OAI terminal only when a live person has answered.

With a technique that monitors the progress of a call, the predictive dialer detects busy signals, no answers and invalid numbers. Operating in conjunction with a database, the system collects statistical data such as agent busy rate, unsuccessful call rate, successful call rate (hit rate) and average length of call, which are used to calculate agent availability and determine the number and timing of call attempts, realizing the prediction of the optimum staffing.

When SCF FN=128 (PD call origination) is sent from UAP to the Telephony Server, both external and internal calls (outgoing and incoming) can be controlled by specifying a monitor number for Pilot Number (SCF 1st Party) and the destination number for called party (SCF 2nd Party).



3.20.2 Using Conditions

<Predictive Dialing to Outside Lines / Stations>

1. The monitor number that is assigned to the 1st Party by SCF FN=128 (UAP→Telephony Server) must be monitored by SMFR (UAP→Telephony Server). Otherwise, Return Error (Error=10H, Error Detail=0310H: SCF 1st Party status error) is sent from the Telephony Server to UAP. In addition, do not deactivate SMFR monitoring of the monitor number after a call is originated by SCF FN=128.
2. SCF FN=129 (UAP→Telephony Server) can release only the trunks/stations that are originating a call by SCF FN=128 and waiting for an answer from the called party. Use SCF FN=2 to release trunks/stations that are already answered by the called party and waiting for SCF.
3. This feature does not support DTI-FCCS.

4. A Monitor Number specified by SCF (FN=128) may be sent as a originating station number on billing information for a call via Predictive Dialing (SCF (FN=128)). The billing information for the Monitor Number cannot be arranged by the office data setting.

<Predictive Dialing to Outside Lines>

1. The followings are supported as outgoing trunks:

- PRT
- MG(PRI)
- MG(BRI)
- MG(SIP)

Note: When a telephone number that uses an unsupported trunk except for COT trunk for originating a call is specified as the SCF 2nd Party by SCF FN=128 (UAP→Telephony Server), Return Error (Error=10H, Error Detail=0225H: Originating not supported) is sent back from the Telephony Server to UAP. When COT trunk is specified, Return Result is sent back from the Telephony Server to UAP.

2. A monitor number already assigned for DIAL PLAN TO SUPPORT IP CENTREX FUNCTIONALITY [D-166] can be assigned for this feature.
3. The maximum number of concurrent connections (from when a trunk call is initiated to when the trunk is released) differs depending on the system data setting. Refer to the following tables:

When call kind (**Note 1**) is not assigned to calls by SCF FN=128 (UAP→Telephony Server)

System Data Setting	Maximum Number of Concurrent Connections		
Number of Concurrent Connections for Predictive Dialing (Maximum of 460) (ASYDL/ASYDN, SYS 1, Index 1188, Bit 5)	per LP Note 2	per Node Note 3	per System Note 4
252 (Bit 5=0)	252	1008	1008 x Nodes
460 (Bit 5=1)	460	1840	1840 x Nodes

When call kind is assigned to calls by SCF FN=128 (UAP→Telephony Server) to make each unique in the whole system and calls are controlled by UAP side

System Data Setting		Maximum Number of Concurrent Connections		
Number of Concurrent Connections for Predictive Dialing (Maximum of 460) (ASYDL/ASYDN, SYS 1, Index 1188, Bit 5)	OAI call kind (ASYDL/ASYDN, SYS 1, Index 1188, Bit 6)	per LP Note 2	per Node Note 3	per System Note 4
252 (Bit 5=0)	call kind: 1 - 255 (Bit 6=0)	252	255 Note 5	255 Note 5
	call kind: 1 - 65535 (Bit 6=1)	252	1008	1008 x Nodes Note 5
460 (Bit 5=1)	call kind: 1 - 255 (Bit 6=0)	255 Note 5	255 Note 5	255 Note 5
	call kind: 1 - 65535 (Bit 6=1)	460	1840	1840 x Nodes Note 5

Note 1: "call kind" is a identification number that UAP gives.

Note 2: A maximum of 460 concurrent connections (including those made manually or by OAI System) per LP can be established to ISDN/SIP network.

Note 3: Since one node can accommodate four LPs, the maximum number of concurrent connections per node is four times of the maximum number of concurrent connections per LP.

Note 4: When multiple nodes constitute one system by FCCS networking, the maximum number of concurrent connections per system is the number of nodes multiplied by the maximum number of concurrent connections per node.

Note 5: When the maximum number of concurrent calls exceeds the limit of the assigned call kind, the limit of the assigned call kind is applied.

- Outgoing trunk call can not be restricted.
- UAP must be enabled to receive each notification by SMFN FN=128 (Telephony Server→UAP). This is because after PD call origination by SCF FN=128 (UAP→Telephony Server), the Telephony Server sends SMFN FN=128 to UAP that sent SCF FN=128 when call status is changing (i.e., a call is answered or released).

Note: Regarding SMFN FN=128, note the followings:

- When UAP preforms Subscribe of SMFN, SMFN FN=128 (Telephony Server→UAP) is sent regardless of SMFR monitoring.
- SMFN FN=128 is exclusive for PD call origination to outside lines. It is not sent from the Telephony Server to UAP when PD station call is performed.

6. When call kind is specified as two bytes by SCF FN=128, 129 (UAP→Telephony Server) or SMFN FN=128 (Telephony Server→UAP), the first byte is the upper byte.

call kind	ID	LN	Upper Byte	Lower Byte
Case of call kind: 255	81 (SCF)	01	FF	-
	83 (SMFN)			
Case of call kind: 32767	81 (SCF)	02	7F	FF
	83 (SMFN)			

7. When system data is assigned as follows, Return Errors listed in the below table are sent back from the Telephony Server to UAP:
- ASYDL/N, SYS1, Index1188, Bit 6=0 (OAI call kind: 1 - 255) is assigned and call kind is specified as two bytes by SCF (FN=128 / 129, UAP→Telephony Server).
 - ASYDL/N, SYS1, Index1188, Bit 6=1 (OAI call kind: 1 - 65535) is assigned and call kind is specified as two bytes not by SCF (FN=128 / 129), but by the other SCF (for example, FN=4, 5).

Return Error (01 - 08h: Error by Argument Part in received data (use of unsupported element length))

OAI call kind (ASYDL/ASYDN, SYS 1, Index 1188, Bit 6)	Number of bytes for call kind	call kind	SCF (FN=128, 129)	SCF (other than FN=128, 129)
0 (call kind: 1 - 255)	1byte	1 - 255	Return Result	Return Result
	2 bytes	1 - 255	Return Error (01-08h)	Return Error (01-08h)
		256 - 65535	Return Error (01-08h)	Return Error (01-08h)
1 (call kind: 1 - 65535)	1byte	1 - 255	Return Result	Return Result
	2 bytes	1 - 255	Return Result	Return Error (01-08h)
		256 - 65535	Return Result	Return Error (01-08h)

8. SMFN FN=128 (Telephony Server→UAP) can include two-byte call kind only when call kind is specified as two bytes and more than or equal to 256 by SCF FN=128 (UAP→Telephony Server) for PD call origination to outside lines. For SMFN other than FN=128 (for example, SMFN FN=1), the range of call kind is 1 - 255 (one byte), which is the same as the existing range.

OAI call kind (ASYDL/ASYDN, SYS 1, Index 1188, Bit 6)	call kind	Number of Bytes for call kind (SCF (FN=128))	Number of Bytes for call kind (other than SCF (FN=128))
0 (call kind: 1 - 255)	1 - 255	1 byte	1 byte
1 (call kind: 1 - 65535)	1 - 255	1 byte	1 byte
	256 - 65535	2 bytes	-

9. When call kind is not assigned by SCF FN=128 (UAP→Telephony Server) for PD call origination to outside lines, SMFN FN=128 (Telephony Server→UAP) does not include call kind.

10. When call kind is assigned by SCF FN=129 (UAP→Telephony Server), it must be the same as the one assigned by SCF FN=128 for PD call origination to outside lines. If other call kind is assigned, the following Return Error is sent back from Telephony Server to UAP.
 - Return Error (10-0431h: call kind NG)
11. MA-ID=0000 (default setting) is used for an outgoing call with Predictive Dialing.

<Predictive Dialing to Stations>

1. The following telephones are supported as originating terminals:
 - Digital terminal
 - IP terminal
 - Softphone
 - SIP Multiple Line terminal
 - WLAN Handset (MH Series)
 - PS
 - Analog MC
 - Single-Line telephone
2. A monitor number or station number already assigned for DIAL PLAN TO SUPPORT IP CENTREX FUNCTIONALITY [D-166] can be assigned for this feature.
3. PD station calls can be answered by:
 - Pressing the corresponding Line key on the called terminal
 - Pressing the SPEAKER key on the called terminal (available only for incoming calls to Prime Line)
 - Pressing the ANSWER key on the called terminal **Note 1**
(Line selection in the case of simultaneous incoming calls to the multiple lines depends on the setting of AKYD ANS.)
 - CALL PICKUP - GROUP [C-7]
 - EXPANDED CALL PICKUP - GROUP
 - SELECTABLE STATION CALL PICKUP [S-137]
 - CALL PICKUP - DIRECT [C-30]
 - SCF FN=11 Answer Call facility
(1st=Monitor number, 2nd-Line=Call termination number, 2nd-term=My Line of called terminal)

Note 1: When 2nd-term is specified for PD station call by SCF FN=128 (UAP→Telephony Server), the lamp of the ANSWER key on the called terminal does not blink.

-
4. There is no limit for the maximum number of concurrent connections. However, when called stations are PS/SP Controlled SIP terminal, it is limited by the maximum number of channels of CS.
 5. When a PS/SP Controlled SIP terminal receives PD station call originated by SCF FN=128 (UAP→Telephony Server), monitor number information is stored in the incoming or missed call history on the called party side. When the destination terminal is a Desktop terminal, monitor number is not recorded in the call history.
 6. When PD station call by SCF FN=128 (UAP→Telephony Server) is executed and the station specified as PD call destination is in other state than an idle state, the following operations are performed:
 - When a station in a busy state or a lockout station is specified, Return Error (error=10H, detail=0320H: SCF 2nd Party status error) is sent back from the Telephony Server to UAP.
 - When a PS out of service is specified, an error does not occur and Return Result is sent back from the Telephony Server to UAP. PD station call fails to connect and SMFN3-7 (1st=PS: call termination failed) is sent back from the Telephony Server to UAP.
 7. If the station number of PD call destination is already assigned for the followings, Return Error (error=10H, detail=0320H: SCF 2nd Party status error) is sent back from the Telephony Server to UAP:
 - Pilot number of Station Hunting
 - Controlling station of UCD (Non-Controlling station can be specified.)
 - Controlling station of MULTI GROUP STATION - UCD [M-115] (Non-Controlling station can be specified.)
 - Main station of DUAL STATION CALL [D-156] (sub-station can be specified.)
 - Main station of NUMBER SHARING [N-45] (sub-station can be specified.)
 - 1st called station of CALL FORWARDING-ALL CALLS [C-5] **Note 1**
 - 1st called station of CALL FORWARDING - BUSY LINE [C-2] (only when station is in busy state)
 - Station using Do Not Disturb -D [D-11D]

Note 1: When PD station call by SCF FN=128 is executed and Transfer ID=1 (transfer is unavailable) is assigned, an error does not occur and Return Result is sent back from the Telephony Server to UAP. In this case, a call is not forwarded and connected to the 1st called station.
 8. If the station number of PD call destination is already assigned for the following features, Return Result is sent back from the Telephony Server to UAP and the following features are not performed as intended while any error does not occur:
 - 1st called station of CALL FORWARDING - DON'T ANSWER [C-3]
PD call keeps trying to connect to the 1st called station even after No Answer Timer expires.
 - CALL FORWARDING - PS INCOMING INCOMPLETE [C-155]
This feature cannot work.
-

9. When call kind is assigned for PD station call by SCF FN=128 (UAP→Telephony Server), Return Result is sent back from Telephony Server to UAP and the assigned call kind becomes invalid.

3.20.3 Data Programming

1. Assignment

ASYDL/ASYDN

SYS 1

Index 1188

Bit 0 =1, Bit 1 =1: Enable calling party number selection function with SCF and extended function of SCF (FN=128) **Note 1, Note 3**

Bit 5 =1: Specify the maximum number of concurrent connections for Predictive Dialing to be 460 **Note 2**

Bit 6 =1: OAI call kind: 1- 65535 **Note 3**

Note 1: If 0 (disable) is specified in either Bit 0 or Bit 1, this feature does not work. To enable this feature, set 1 (enable) to both Bit 0 and Bit 1.

Note 2: Also in an FCCS network, this system data can be set per Node by the ASYDL command.

Note 3: For an FCCS network, assign this system data by the ASYDN command.

2. Deletion

Follow the above programming steps in reverse order.

3.21 SCF Calling Party Number Selection with OAI

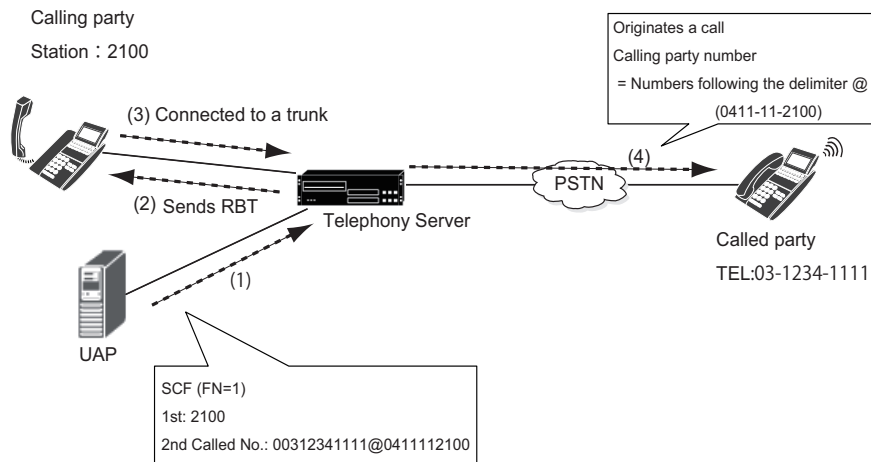
3.21.1 Functional Outline

This feature, available when a call is originated from a trunk by using SCF (FN=1, 4, 7 or 128), allows the Telephony Server users to specify their calling party number according to their needs in the following two ways:

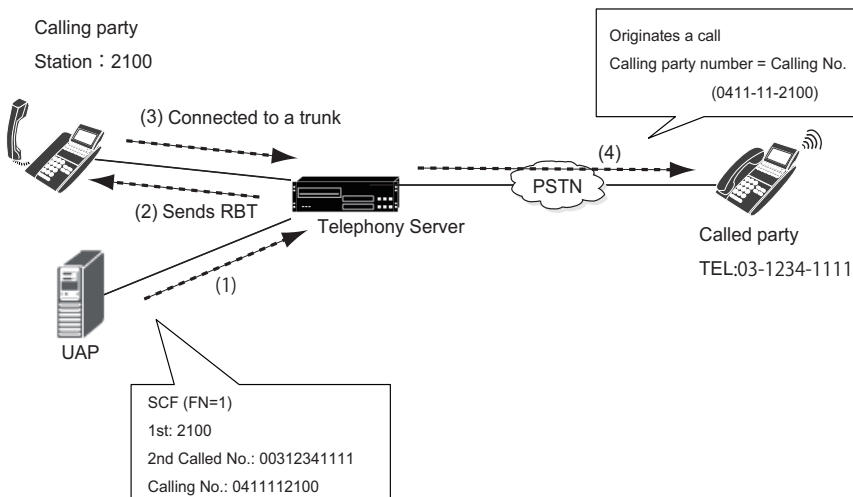
- Adding the desired ID following the delimiter “@ (0x40)” in the 2nd Called Number field of SCF.
- Entering the desired ID in the provided Calling Number field (0x89) of SCF.

The figures below illustrate the cases where SCF (FN=1) is performed by using the above ways.

<Adding the desired calling party number following the delimiter “@ (0 x 40)” in the 2nd Called Number field>



<Entering the desired calling party number in the SCF Calling Number field>



3.21.2 Using Conditions

<Hardware/Software>

1. The following terminals are supported as originating terminals:
(This feature can be used on terminals supported by SCF (FN=1, 4 or 7).)
 - Digital terminal
 - IP terminal
 - Softphone
 - SIP Multiple Line terminal
 - WLAN Handset (MH Series) (**Note 1**)
 - PS (**Note 1**)
 - Analog MC/UG50-2MC/UG50 (LC) [Proprietary Protocol] (**Note 1**)
 - 8LC card/UG50-8LC/UG50 (LC) [SIP] (**Note 1**)

Note 1: SCF (FN=1) does not support this device.

<Conditions Specific to This Feature>

1. This feature is enabled when a call is originated from a trunk by using SCF (FN=1, 4, 7 or 128).
2. Notwithstanding the above, you can also use this feature in an station call, only when the following conditions are all satisfied:
 - The station call must be originated by SCF (FN=128).
 - The calling station must be a PS/SP Controlled SIP terminal. When the calling station is not a PS/SP Controlled SIP terminal, this feature cannot be used through SCF (FN=128).

(Use TCF if you want to display a specific calling party number on Desktop terminal during an station call.)
3. PRT, BRT, MG(PRI), MG(BRI), MG(SIP), UG50-24PRIA, UG50-30PRIA, UG50 (PRT 1.5M) and UG50 (PRT 2M) are supported as outgoing trunks. When a call is originated from an unsupported trunk, calling party number specified in OAI is disabled. In this case, calling party number as the system normally uses is enabled.
4. This feature cannot be used when a call is originated manually from a telephone.
5. This feature might be restricted when an invalid calling party number is used. In this case, contact your system administrator.
6. When a calling party number is newly defined by this feature on a terminal to which office data assignment for calling party number has already been made, the number for this feature is notified to the network side.
(**Note 1**)

Note 1: Calling party numbers specified by this feature override the caller information of office data. For more information on the priority of features, refer to the related manuals.

7. Even when this feature is in use, you can block calling party number from being transmitted to the network by setting ASFC/ASFCN SFI94=1 (notified as <not displayable>). However, since no Service Feature Restriction Classes (SFC) are provided for monitor number, this blocking function is not available when a call is originated by SCF (FN=128).

3.21.3 Data Programming

1. Assignment

ASYDL/ASYDN

SYS 1

Index 1188

Bit 0 =1, Bit 1 =1: Enables calling party number selection function with SCF and extended function of SCF (FN=128)

Note: If 0 (disable) is specified in either Bit 0 or Bit 1, this feature doesn't work. If you want to enable this feature, set 1 (enable) to Bit 0 and Bit 1 both.

2. Deletion

ASYDL/ASYDN

SYS 1

Index 1188

Bit 0 =0, Bit 1 =0: Disables calling party number selection function with SCF and extended function of SCF (FN=128)

3.22 Call-ID Notification on SMFN

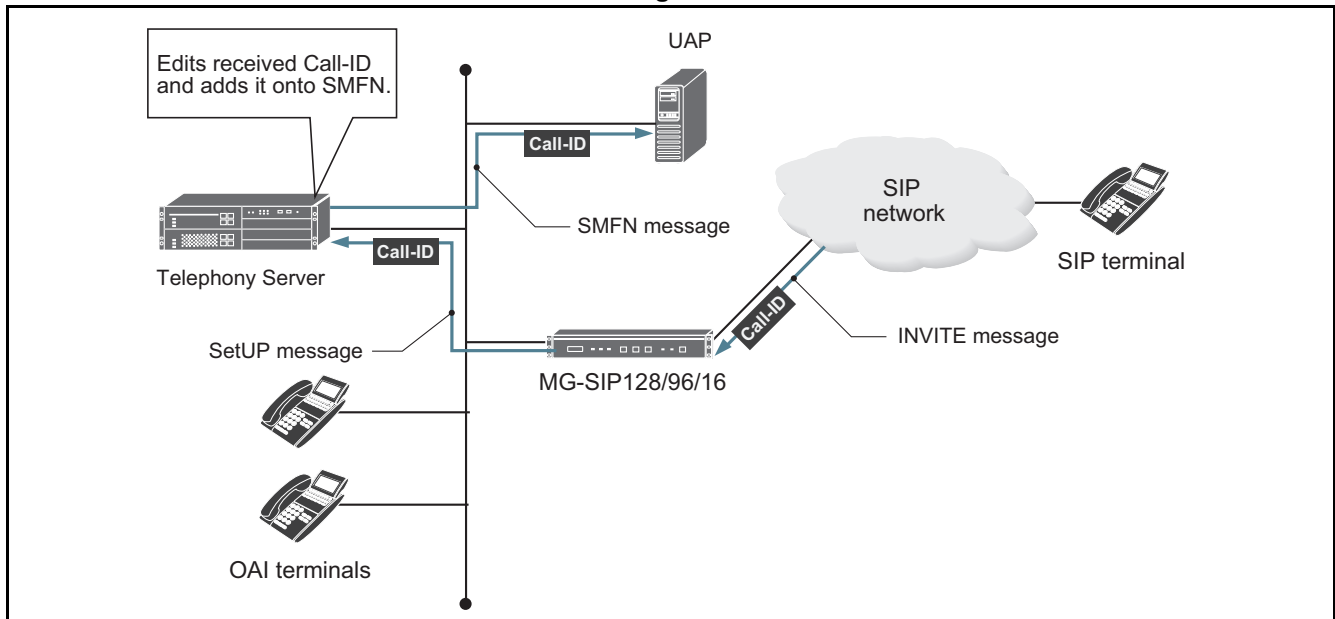
3.22.1 Functional Outline

Call-ID, which is included in an INVITE message received when an incoming call arrives, can be sent to all UAPs through the Telephony Server (OAI SMFN function).

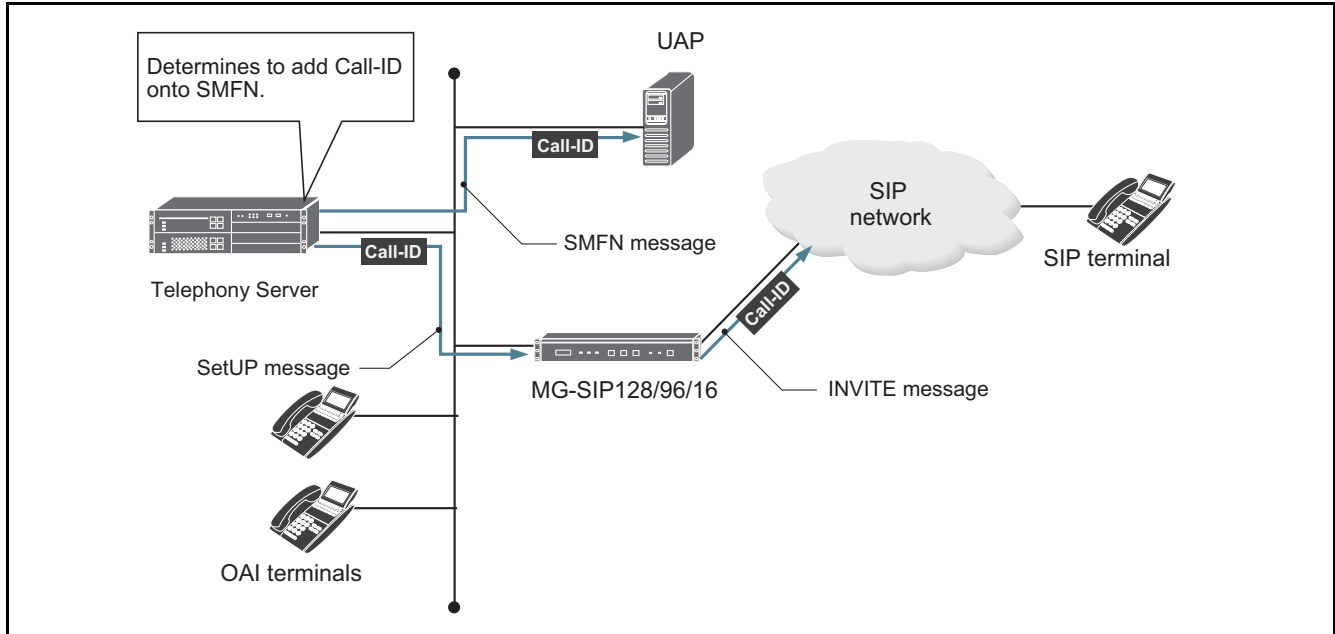
Also, when an outgoing call is made to a SIP network, Call-ID generated by the Telephony Server can be sent to all UAPs.

Note: Available from SMFN facility version 6.

In the Case of Incoming Calls from SIP Network



In the Case of Outgoing Calls to SIP Network



3.22.2 Using Conditions

<Interactions with Other Features>

None

<Hardware/Software>

1. To enable this feature, one of the following MG-SIPs is required.
 - SCA-16SIPMGA/MG-16SIPMGA with SP-3905 MG SIP (16) PROG-A Issue 5 or later.
 - SCA-16SIPMG(US)-B/SCA-16SIPMG(US) with SP-3988 MG SIP (16) PROG-G Issue 3 or later.
 - MG-SIP96 with SP3987 with MGSIP PROG-B Issue 3 or later.
 - MG-SIP128 [MG-SIP128 [MG-128SIPMGL-A] with SP-4089 MGSIP(MM) PROG-A Issue 1 or later.
 - MG-SIP128 [MG-128SIPMGG-B/MG-128SIPMGG] with SP4051 MGSIP PROG-G Issue 1 or later.
 - MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ] with SP4032 MGSIP PROG-E Issue 1 or later.
 - Software-based MG-SIP with SP-4078 MGSIPVM PROG-B Issue 1 or later.
 - Software-based MG-SIP with SP-4080 MGSIPVM PROG-D Issue 1 or later.
2. Be sure to enable the `call_id_relay` command on MG-SIP to use this feature. When the `call_id_relay` command is disabled, a different Call-ID from what was notified on call making process would be sent to a SIP network (MG-SIP generates a Call-ID).

<Interactions with Networks>

1. If any of the following cases applies, SIP Call-ID is not added to SMFN.
 - No Call-ID is included in the SIP message.
 - In events other than call receiving or call answering.
 - Call-ID is not added to MG-SIP for 3rd Party (call on hold).
 - A readout error (internal processing) of Call-ID occurs.
2. Limitations on Call-IDs include in SIP messages are as follows:
 - A maximum length of a Call-ID is 128 bytes. When a MG-SIP receives a Call-ID over 128 bytes in length, the exceeding part is abandoned.
 - Although Call-IDs are changed at the occurrence of the call transfer in a SIP network, the change is not notified.
 - Call-IDs can include the following strings based on RFC3261: alphanumeric characters, -, ., !, %, *, _, +, `, ', ~, (,), <, >, :, \, ", /, [,], ?, {, }.
3. Limitations on Call-IDs include in SMFN messages are as follows:
 - Inclusion or omission of a Host part (for example, domain name) in an SMFN message depends on whether the call is incoming or outgoing:
 - SCF 1st Party

When Call-ID information is provided for an SMFN message, the Host part is removed from the Call-ID information.

[Example]

When a SIP call with a Call-ID of “90abcded@10.10.10.1” is placed, the Telephony Server removes “@10.10.10.1” and adds only “90abcded” onto SMFN.
 - SCF 2nd Party

When Call-ID information is provided for an SMFN message, the Host part is included in the Call-ID information.

[Example]

When a SIP call with a Call-ID of “90abcded@10.10.10.1” is received, the Telephony Server adds “90abcded@10.10.10.1” onto SMFN.
 - Maximum length of Call-ID on SMFN message is 128 bytes.
 - Call-ID is converted to ASCII code on SMFN message.

<Conditions Specific to This Feature>

None

<Other Conditions>

None

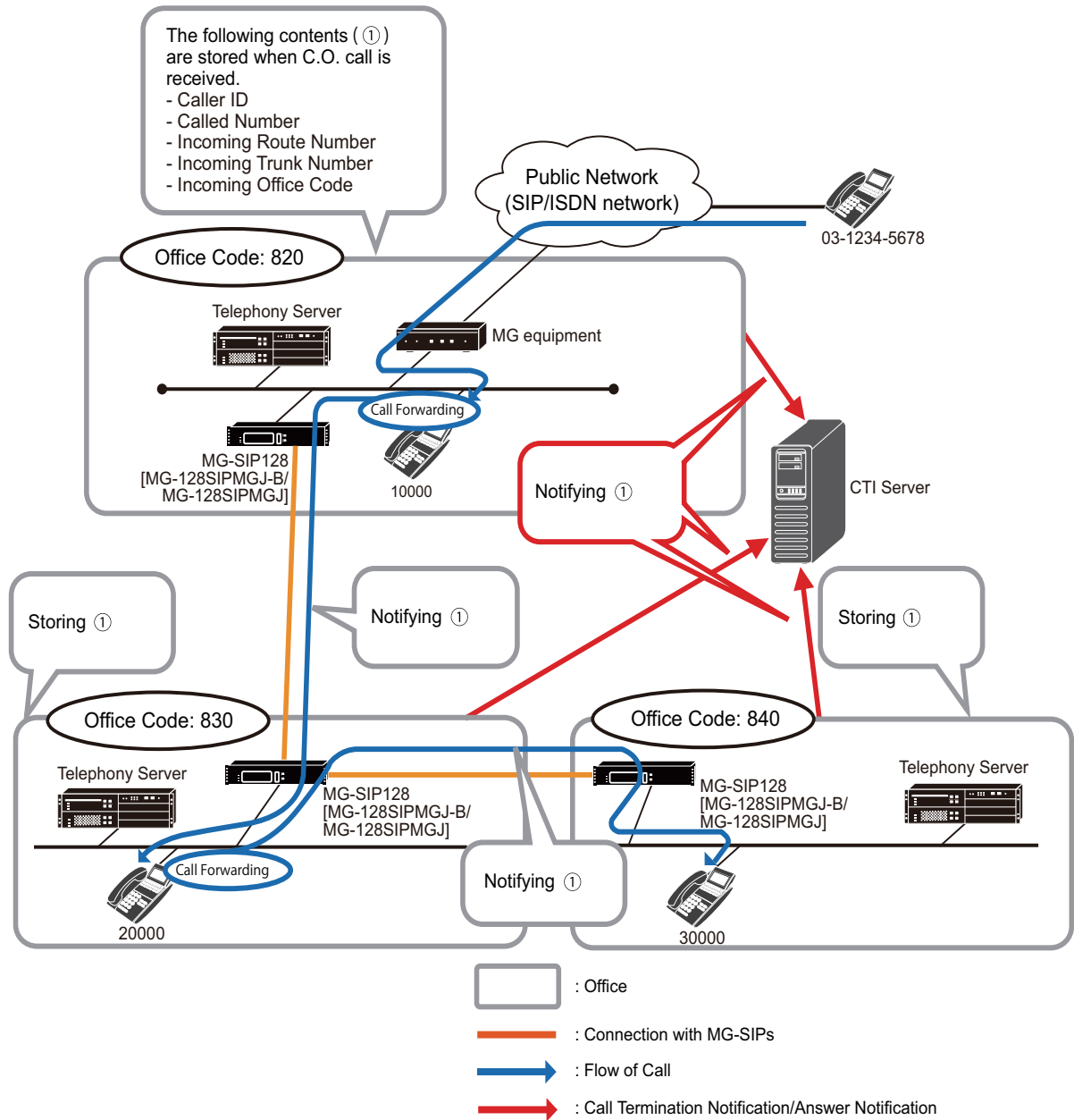
3.22.3 Data Programming

This feature can be enabled by setting the **call_id_relay** command on MG-SIP. For details, see Peripheral Equipment Description (IP Devices).

3.23 MG-SIP TIE Line Status Notification (SMFN)

3.23.1 Functional Outline

For network configuration using MG-SIP TIE Line [M-122], Caller ID notified via TIE Line is notified to CTI Server by using SMFN feature of OAI Interface: Call Termination Notification (FN=1), Answer Notification (FN=2).



Note: For details of MG-SIP TIE Line, refer to MG-SIP TIE Line [M-122] in Data Programming Manual - Business.

3.23.2 Using Conditions

<Important Notices>

1. This feature is available since SMFN Facility Version 7.
2. This feature does not support Attendant Console.

<Interactions with Other Features>

When a C.O. call is received, Call-ID of MG-SIP that received a call from C.O. line is not notified by MG-SIP TIE Line. However, when a Call-ID of a call originated from MG-SIP for TIE Line is notified to a received office, the Call-ID of the MG-SIP is notified in Call Termination/Answer Notification.

<Hardware/Software>

1. For this feature, be sure to use MG-SIP128 [MG-128SIPMGJ-B/MG-128SIPMGJ].
2. The C.O. trunks available for this feature are the same for MG-SIP TIE Line [M-122].

<Interactions with Networks>

None

<Conditions Specific to This Feature>

1. This feature is available for both 15000/2000 Agent (ACDP Retrofit is disabled/enabled) in ACD system.
2. When receiving an incoming C.O. call, the following information is stored to in the Telephony Server. When the call is forwarded via MG-SIP for TIE Line, the information is notified to the destination office. The forwarded information is stored in the destination office. Furthermore, when the call is forwarded to other office, the information is notified to the destination office.

STORED INFORMATION	MAXIMUM DIGITS	GENERAL DESCRIPTION
Caller ID	32 digits	Caller ID received from C.O. line
Called Number	32 digits	Called Number received from C.O. line
Incoming Route Number	-	The number of the route that received the call * Logical Route Number (when Logical Route is set)
Incoming Trunk Number	-	The number of the trunk that received the call
Incoming Office Code	4 digits	Office Code that received the call from C.O. line Note 1

3. When a station call (not a C.O. call) is originated, the following information is only notified to other offices.

STORED INFORMATION	MAXIMUM DIGITS	GENERAL DESCRIPTION
Calling Station Number	32 digits	Station number of the calling station

STORED INFORMATION	MAXIMUM DIGITS	GENERAL DESCRIPTION
Incoming Office Code	8 digits	Office Code that accommodating the calling station Note 1

Note 1: The Office Code that is to be notified to the destination office varies depending on whether it is “Call forwarding of incoming call” or “Originating a station call”.

	GENERAL DESCRIPTION
Call Forwarding of incoming C.O. call	The number where “RT=0” is assigned by ARNP/ARNPN command, regardless of whether DIAL PLAN TO SUPPORT IP CENTREX FUNCTIONALITY [D-166] is available or not.
Originating Station Call to Opposite Office	- When DIAL PLAN TO SUPPORT IP CENTREX FUNCTIONALITY [D-166] is available Private Number Code assigned by AUPVN command (Access Code + Office Code). - When DIAL PLAN TO SUPPORT IP CENTREX FUNCTIONALITY [D-166] is not available The number where “RT=0” is assigned by ARNP/ARNPN command.

4. This feature supports the Call Termination/Answer notifications the receiving MG-SIP sends on receiving/answering a station/office/tandem call originated/forwarded via an MG-SIP for TIE Line. (This feature is supported when the SCF 2nd Party of the call termination/answer notifications is an MG-SIP for TIE Line.)

Note: When a call from MG-SIP for TIE Line is received/answered, if the information of originating office is not stored, the information is not notified to the destination station, but existing SMFN is notified.

5. This feature supports Call Termination/Answer Notification in the following cases.
- Call Termination Notification when a call is terminated from MG-SIP TIE Line to Monitor number.
 - Call Termination Notification when a call is returned to queuing state by SCF (FN=10).
 - Call Termination/Answer Notification when a call for a station is received/replied by SCF (FN=4) after above (a) or (b).
 - Call Termination/Answer Notification from MG-SIP TIE Line when a call is received/replied when being forwarded to MG-SIP TIE Line by SCF (FN=4) (including Call Forwarding by the ACDCCV command)/SCF FN=7/Infolink.
 - Answer Notification generated by Connection of calls (SCF FN=9).
 - Call Termination/Answer Notification from an MG-SIP TIE Line that received/replied a call that is forwarded by CF-A/CF-B/CF-D/CF-L/CF-N.
 - Call Termination/Answer Notification sent from an MG-SIP TIE Line that received/replied a call that is forwarded by the ACFO/N command.

6. The following conditions are the same for MG-SIP TIE Line [M-122].
- Displaying of LCD when a call is forwarded or a tandem call is connected to MG-SIP TIE Line by SCF (FN=4) (including Call Forwarding by ACDCCV command)/SCF FN=7/Infolink.
 - The number in billing information when setting billing for MG-SIP TIE Line.

<Other Conditions>

None

3.23.3 Data Programming

Note: Existing ACD/OAI system data is assumed to already assigned.

For using this feature, be sure to assign the setting of MG-SIP TIE Line [M-122]. For details of the data programming, refer to MG-SIP TIE Line [M-122] in Data Programming Manual - Business.

3.24 OAI Capacity Expansion

3.24.1 Functional Outline

The maximum number of monitor numbers is 48000.

3.24.2 Using Conditions

1. To use this feature, 16-digit OAI Station Number Information in Terminal Identifier needs to be activated. A monitor number is available up to six digits.
2. After assigning the number of monitor numbers to use (ASYDL/ASYDN Index 1187 Bit 0-3), the monitor number cannot be reduced (the application may not work properly). Plan well and assign the appropriate number of monitor numbers to use.
3. When “Two ports” is assigned for the maximum number of ports of Status Monitoring for terminal (SMFN) with ASYDL/ASYDN Index 864 Bit 4, the available number of monitor numbers is up to 4095 regardless of the data setting for the number of monitor numbers to use (ASYDL/ASYDN Index 1187 Bits 0-3).
4. Do not change the number of ports of Status Monitoring for terminal (SMFN) to “Two ports” after you set the number of monitor numbers to use (the application may not work properly).

3.24.3 Data Programming

Follow the procedures below for data assignment required for OAI Capacity Expansion.

[To Set]

STEP 1: ASYDL/ASYDN - Assignment of System Data (LDM/NDM) **Note 1**

SYS1

Index 867

Bit 7=1 (16-digit OAI Station Number Information in Terminal Identifier is valid)

Index 1187

Bit 0-3 (Number of Monitor Numbers to Use) **Note 2, Note 3**

[Number of Monitor Numbers to Use]

Data Assignment				Available Setting Value of Monitor Number
bit 3	bit 2	bit 1	bit 0	
0	0	0	0	1-4095 (default value)
0	0	0	1	1-8191
0	0	1	0	1-12287
0	0	1	1	1-16383
0	1	0	0	1-20479
0	1	0	1	1-24575
0	1	1	0	1-28671
0	1	1	1	1-32767

Data Assignment				Available Setting Value of Monitor Number
bit 3	bit 2	bit 1	bit 0	
1	0	0	0	1-36863
1	0	0	1	1-40959
1	0	1	0	1-45055
1	0	1	1	1-48000
1	1	0	0	1-48000
1	1	0	1	1-48000
1	1	1	0	1-48000
1	1	1	1	1-48000

Note 1: When this feature is used in an FCCS configuration, set the same data to all nodes.

Note 2: The larger the setting value of the system data is, the more it takes to transfer the data concerning OAI (Approximately four seconds increases in each 4096).

Note 3: The number of used monitor numbers cannot be reduced. Plan well and assign the appropriate number of monitor numbers to use.

[To Cancel]

Follow the programming steps above in reverse order.

3.25 ACT-Side Quick Restart

3.25.1 Functional Outline

In the OAI system on a redundant Telephony Server system with IP (hereinafter “IP Node”) or the Telephony Server system without IP (hereinafter “Local Node”), by copying the memory concerning OAI from ACT side to STBY side periodically via LAN, a reestablishment of a memory becomes nonessential when a failure in the ACT side causes a forceful changeover.

This makes CTI system restart unnecessary when a failure occurs in a Local Node. When a failure occurs in an IP Node if an application supports Logical Port Assignment, This feature enables the OAI system to initialize more rapidly.

Note: Refer to the Data Programming section for information on data assignment required for this feature.

3.25.2 Using Conditions

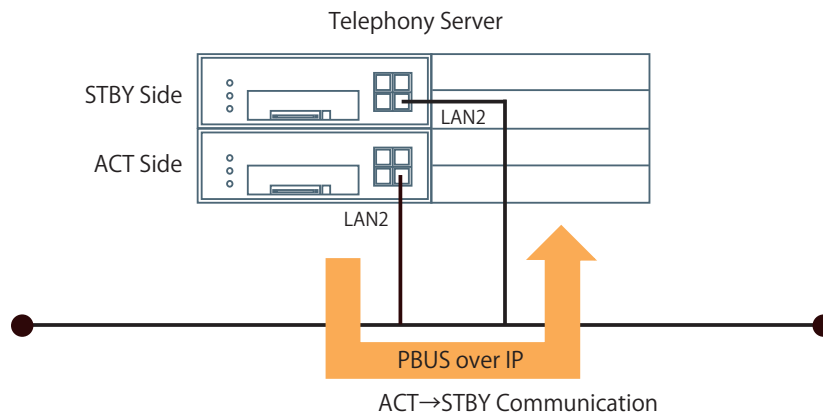
1. This feature is available only when the following failures with a reset occur in ACT side.

- CPU power failure
- Reset caused by WDT overflow **Note 1**
- Reset caused by IAT overflow **Note 1**
- Program & Office Data Load & System Initialize due to C-Level Infinite Loop

Note: This feature is not available if a forceful changeover is caused by CPU power failure due to a system shutdown with a manual operation.

Note 1: WDT and IAT are timers which monitor the status of the program execution.

2. Execute Periodical Backup to backup the data of services in use.
3. Basic specifications concerning the Memory Copy are as follows.



Note: PBUS over IP is an interface used to packetize the transmitted/received data between ACT side and STBY side into IP packets and to perform a Memory Copy.

- (a) Memories to copy from ACT side to STBY side are as follows.
 - Information concerning OAI
 - VNDM (Variable Network Data Memory)
 - Call Forwarding Data (Call Forwarding - All Calls/Call Forwarding - Busy Line/Call Forwarding - Don't Answer)
 - Do Not Disturb Data (Do Not Disturb/Do Not Disturb-D-CCIS)
- (b) LAN2 is used as a LAN interface. Select "Fixed 100Mbps" or "Auto Negotiation (1Gbps Only)" for Speed and "Full Duplex" for Duplex Mode in the NIC Tab of the ADTM command. Moreover, verify that the port setting of the connecting switching HUB is configured with 100Mbps or 1Gbps for data speed and Full Duplex for Duplex Mode as well **Note 1**.

Note 1: According to the type of a switching HUB, Half Duplex mode may be set for the Duplex mode unless Auto Negotiation is set for Data Speed to both of the Telephony side and the Switching HUB side. In such cases, set Auto Negotiation to the Telephony side.

- (c) Set the same network address for IP address of ACT side to the IP address of STBY side.
 - (a) "60220" and "60240" are used for application port of PBUS over IP. Application port may not be modified.
 - (b) Service Type Setting, Module Initialize, Module Reset, and Module stop can be assigned for PBUS over IP with the ADPM command.
 - (c) To stop the Memory Copy, assign SYS1 Index 1347 Bit 1=0 (Stop Memory Copy from ACT to STBY) in the ASYDL command.
4. Memory Copy ends in failure when a link disconnection of LAN2, System Initialization, or a changeover of CPU occurs. Memory Copy restarts after the system recovers.
5. Save the Office Data with the MEM_HDD command whenever the Office Data is modified.

Note: The Office Data will not be copied from ACT side to STBY side unless you save the data with the MEM_HDD command. The system will operate with the old Office Data that were valid before the modification if a forceful changeover is executed without saving the data.

6. This feature is not available for the following cases.
 - (a) If a forceful changeover takes place while Memory Copy cannot be executed (such as when a network failure occurs) for more than 3 to 10 seconds (**Note 1**) from the point when the memory was copied last from ACT side to STBY side.

-> IP Node or Local Node will initialize after "Office Data Load & System Initialize" is performed **Note 2**

- (b) If a forceful changeover occurs while processing the initial setting in STBY side.
- > IP Node or Local Node will initialize when the initial setting process starts again **Note 3**
- (c) If a forceful changeover occurs when CPU changeover is executed manually (such as with the CMOD command)
- > IP Node or Local Node will initialize after “Office Data Load & System Initialize” is performed
- (d) If a forceful changeover occurs while manipulating the files (such as data backup) in STBY side
- > IP Node or Local Node will initialize after “Office Data Load & System Initialize” is performed

Note 1: Time required to retain the memory and to initialize ACDP system differs depending on the type of memory since the copying cycles of the memory (updating interval) vary by memory types. The time indicated in this service condition does not include the time for system shutdown which is from when a failure with a reset occurs until a forceful changeover takes place.

Note 2: When a system is restarted with Office Data Load & System initialize due to a memory copy failure on a forceful changeover, Standard VNDM is reestablished only with the information of VNDM Center Node. If the VNDM Center Node restarts within a short time (in about 10 minutes), all OAI services will stop temporarily. This is because the Standard VNDM reestablished by the VNDM Center Node is broadcasted to each node and clears the VNDM of the nodes in operation since VNDM Local Node does not switch to a Standalone mode when VNDM Center Node restarts within a short time.

Therefore, assign the following system data to switch the VNDM Local Node to a Standalone mode by delaying the restart time of VNDM Center Node when restarting the system with Office Data Load & System Initialize due to a memory copy failure on a forceful changeover:

ASYDL SYS1 Index 1234

System Reset Delay Timer for Office Data Load & System Initialize (due to a memory retained reset failure)

00 (Hex) = Disabled

01 to FF (Hex) = 1 to 255 seconds

When assigning this data, consider:

- Assign this data only to a node which a standard VNDM is accommodated to.
- Save the Office Data with the MEM_HDD command after assigning this data. When using a CPU dual configuration system, you must save the Office Data with the MEM_HDD command to backup the system data of ACT side to STBY side.
- When this data is assigned, time required for the system to initialize will extend by the time period assigned in this data, regardless of how an initialization is performed (even for an initialization with the SINZ command).

Note 3: An initialization may be applied according to the progress status of the initial settings.

7. System Message “0-C” is issued when the system is initialized with this feature. The message will be issued in the node where the initialization is performed regardless of whether the node is IP Node or Local Node. Refer to “Chapter 3 System Messages”- “0-C Reset Interrupt” in Operations and Maintenance Manual for detailed information on this system message.
8. Memory Copy of Call Forwarding Data and Do Not Disturb Data is not available for the following cases.
 - When saving/loading/referring the Office Data with the MEM_HDD command or the MEM_HDD_N command.
 - When performing a periodic backup by the Routine Diagnosis.
9. This feature is capable of retaining Do Not Disturb Data for the following services.
 - DO NOT DISTURB - D [D-11D]
 - DO NOT DISTURB - D - CCIS [D-76D]
10. When the terminal re-registers while DO NOT DISTURB is set, the associated LED of DND key will light and the Soft key will flash. However, this is only available for IP terminals and SIP Multiple Line terminals and will not be available for Digital terminals.
11. Do Not Disturb Data will not be retained when a system switches with a forceful changeover if this feature is not in service.
12. Conditions on an occurrence of a forceful changeover are as follows:
 - When CPU power failure occurs in ACT side, a forceful changeover will be executed immediately.
 - When WDT overflow occurs in ACT side, a forceful changeover will be executed after 1 minute has elapsed since the failure occurred.
 - When IAT overflow occurs in ACT side, a forceful changeover will be executed after 10 minutes has elapsed since the failure occurred.
 - When C Level Infinite Loop occurs in ACT side, a forceful changeover will be executed if C Level Infinite Loop continues for more than 8 seconds.
13. To enable this feature, the number of SMF Monitoring ports must be set to eight.
14. If forceful changeover due to ACT system failure occurs while memory
15. Synchronization between ACT and STBY systems is stopped owing to the events such as network failure, it initializes normally. Thus, the OAI service features are stopped for the same period of time it takes for standard initialization.
16. This feature disconnects TCP/IP connection with upper applications. Reconnection from upper application is required. If applications cannot detect disconnection, services interacting with applications stop until applications are reconnected.

17. Influences when a system initialization processing with this feature is performed within each node are as follows.

<When OAI initialization takes place in IP node >

- (a) Controls with OAI system are not available during a call in progress.
- (b) If a call is originated to a Monitor Number before the initialization is completed (about 2 minutes), the originator will hear a BT since the incoming call message will not be notified to the office. This is only when ASYD SYS1, Index 47 Bit 4=1 (tone control by SCF (FM=127)) is assigned.
- (c) The communication between the upper application will be suspended. Reconnect to the upper application to recover the connection. The event which occurred in a period from the start of processing until the reconnection of communication with the upper application will not be announced to the upper application. In this case, the event concerning OAI which occurred after the application is reconnected will be announced to the upper application if the communication with the upper application is reconnected.

<When ACDP initialization takes place in Local Node (Node where agent positions are accommodated)>

- (a) The status of the call in a conversation will be retained, however the terminal will be re-registered at the point where the call recovers.
 - (b) Initialization for Line information is not required for CTI Cooperation system.
18. For this feature, the following memories must be synchronized with STBY system. Otherwise (at memory rollback), OAI service features may be affected. When OAI service features are affected, recover them in the following ways:

<Memory to synchronize (Cycle: 5 min. (Default))>

- Facility establishing state (Subscribe information)
- Status Monitoring setting information (IP Pilot Number)

Influences by uncompleted synchronization (At memory rollback)	Recovery Method
	Application
After system changeover, facilities are not available until Subscribe is performed.	Application restart is required.
Unable to place a call to Monitor Number *If a call is placed to an Monitor Number, the caller hears ROT.	Recovers by re-assigning the Status Monitor settings of the relevant Monitor Number.

Influences by uncompleted synchronization (At memory rollback)	Recovery Method
	Application
After system changeover, facilities are not available until Subscribe is performed.	Recovers by VNDM data en block broadcasting (CBCV command)
Unable to place a call to Monitor Number *If a call is placed to an Monitor Number, the caller hears ROT.	Recovers by VNDM data en block broadcasting (CBCV command)

3.25.3 Data Programming

Follow the procedures below for data assignment required for ACT-Side Quick Restart.

[To Set]

STEP 1: ASYDL - Assignment of System Data for LDM

SYS1

Index 1193

Bit 0=1 (ACDP Quick Initialization Enabled) **Note 1**

Bit 1 to 3 (Copying Cycle of VNDM to STBY side) **Note 2**

Data			Timer Value
Bit 3	Bit 2	Bit 1	
0	0	0	5 minutes (default)
0	0	1	30 seconds
0	1	0	1 minute
0	1	1	3 minutes
1	0	0	5 minutes
1	0	1	10 minutes
1	1	0	30 minutes
1	1	1	60 minutes

Note 1: If VNDM synchronization is not completed (memory rollback) at forceful changeover, the added Monitor Numbers may not be operational. In this case, reassignment of data and resetting of Status Monitoring for terminals (application) are required.

Note 2: When Monitor Numbers are frequently added/modified, if you shorten the VNDM transfer cycle, the number of unavailable numbers at forceful changeover can be decreased, but the communication load is increased.

00 (Hex) = Disabled
01 to FF (Hex) = 1 to 255 seconds

Note: Before assigning this data, you must measure the duration shown in the diagram below for the node to which a standard VNDM is accommodated. Refer to the example shown below for information on recommended time value.

```

sequenceDiagram
    participant IP1 as IP#1
    participant IP2 as IP#2
    Note over IP1: STBY
    Note over IP2: ACT
    IP1->>IP2: H.C
    IP2-->>IP1: ACK
    Note over IP1,IP2: 64 seconds
    IP1->>IP2: H.C
    IP2-->>IP1: ACK
    Note over IP1,IP2: 64 seconds
    Note over IP1,IP2: 192 seconds
    IP1->>IP2: H.C
    IP2-->>IP1: ACK
    Note over IP1,IP2: 64 secs
    IP1->>IP2: H.C
    IP2-->>IP1: ACK
    Note over IP1,IP2: 64 secs
    Note over IP1,IP2: 128 secs
    IP1->>IP2: H.C
    IP2-->>IP1: ACK
    Note over IP1,IP2: 64 secs
    Note over IP2: Switches to Stand-alone mode
    Note over IP2: Will not switch until receiving timeouts three times in a row
    
```

<Example on Recommended Timer Value Assignment>

192 seconds (time required to switch to Stand-alone mode) + 20 seconds (gap)
 - duration required for Office Data Load & System Initialize on IP#1 (XX seconds)

Example:

192 seconds (time required to switch to Stand-alone mode) + 20 seconds (gap)
 - duration required for Office Data Load & System Initialize on ACDP#1 (5 seconds)

$192+20-5 = 207$ seconds (=CF (Hex)) -> Assign "CF" in Index 1234

Index 1347

Bit 0=1 (PBUS over IP Module Enabled)

Note: When modifying this data from disabled to enabled, you must execute "Module Initialize" for PBUS over IP Module with the ADPM command.

Note: PBUS over IP is an interface used to packetize the transmitted/received data between ACT side and STBY side into IP packets and to perform a Memory Copy

Bit 1=1 (Start Memory Copy from ACT to STBY)

Index 1348

Bit 0 to 3 (Cycle of Executing a Health Check between ACT side and STBY side)

Data				Timer Value
Bit 3	Bit 2	Bit 1	Bit 0	
0	0	0	0	2 seconds (default)
0	0	0	1	2 seconds
0	0	1	0	4 seconds
0	0	1	1	6 seconds
0	1	0	0	8 seconds
0	1	0	1	10 seconds
0	1	1	0	12 seconds
0	1	1	1	14 seconds
1	0	0	0	16 seconds
1	0	0	1	18 seconds
1	0	1	0	20 seconds
1	0	1	1	22 seconds
1	1	0	0	24 seconds
1	1	0	1	26 seconds
1	1	1	0	28 seconds

Data				Timer Value
Bit 3	Bit 2	Bit 1	Bit 0	
1	1	1	1	30 seconds

Bit 4 to 7 (Cycle of Abnormal Detection for Health Check between ACT side and STBY side)

Data				Timer Value
Bit 7	Bit 6	Bit 5	Bit 4	
0	0	0	0	30 seconds (default)
0	0	0	1	30 seconds
0	0	1	0	60 seconds
0	0	1	1	90 seconds
0	1	0	0	120 seconds
0	1	0	1	150 seconds
0	1	1	0	180 seconds
0	1	1	1	210 seconds
1	0	0	0	240 seconds
1	0	0	1	270 seconds
1	0	1	0	300 seconds
1	0	1	1	330 seconds
1	1	0	0	360 seconds
1	1	0	1	390 seconds
1	1	1	0	420 seconds
1	1	1	1	450 seconds

STEP 2: ADTM - Assignment of Data for TCP/IP Module

Assign this data to set the LAN2 of the Telephony Server.

Select LAN Interface: LAN2

[IP Address] tab

IP Address (ACT): IP address of active side Telephony Server

IP Address (System-0): IP address of System-0 side Telephony Server **Note 3, Note 4**

IP Address (System-1): IP address of System-1 side Telephony Server **Note 3, Note 4**

Subnet Mask: Subnet Mask

Note: The same IP address as LAN1 cannot be assigned.

Note 3: Only when Dual System is used, IP Address (System-0) and IP Address (System-1) are required to be assigned.

Note 4: Assign the same Network Address as that of the IP Address (ACT).

[NIC] tab

Speed: Fixed 100Mbps/Auto Negotiation (1Gbps Only)/Auto Negotiation (10Mbps-1Gbps)

Duplex Mode: Full Duplex

ARP Broadcasting Period: Not Send/30 sec/60 sec/120 sec

Note: Set Speed and Duplex Mode using one of the combination settings listed below. Combination other than below is not permitted.

Speed	Duplex Mode	Note
Fixed 100Mbps	Full Duplex	
Auto Negotiation (1Gbps Only)	Full Duplex	Note 5
Auto Negotiation (10Mbps-1Gbps)	-	Note 6

Configure the setting of a switching Hub to conform to the setting of the Telephony Server. Check whether the actual transmission speed is in 100Mbps or 1Gbps and the duplex mode is in Full Duplex mode after the settings are complete.

Note 5: When “Auto Negotiation (1Gbps Only)” is assigned for Speed, you may only assign “Full Duplex” for Duplex Mode. (“Half Duplex” is unavailable.)

Note 6: When “Auto Negotiation (10Mbps-1Gbps)” is assigned for Speed, Duplex Mode selection will be unavailable.

STEP 3: MEM_HDD - Data Control Between Memory and HDD

Assign this data to back up the Data Memory.

Direction Select: Memory to Hard Disk

Data Type Select: Data Memory

STEP 4: ADPM - Assignment of Data for PH Module

Assign this data to initialize PBUS over IP.

MODULE TYPE: PBUS over IP

Menu: Module Initialize

[To Cancel]

STEP 1: ASYDL - Assignment of System Data for LDM

SYS1

Index 1193

Bit 0=0 (ACDP Quick Initialization Disabled)

Index 1347

Bit 0=0 (PBUS over IP Module Disabled)

Bit 1=0 (Stop Memory Copy from ACT to STBY)

3.25.4 Program Upgrade with ACT-Side Quick Restart

ACT-Side Quick Restart can be used when upgrading the program version.

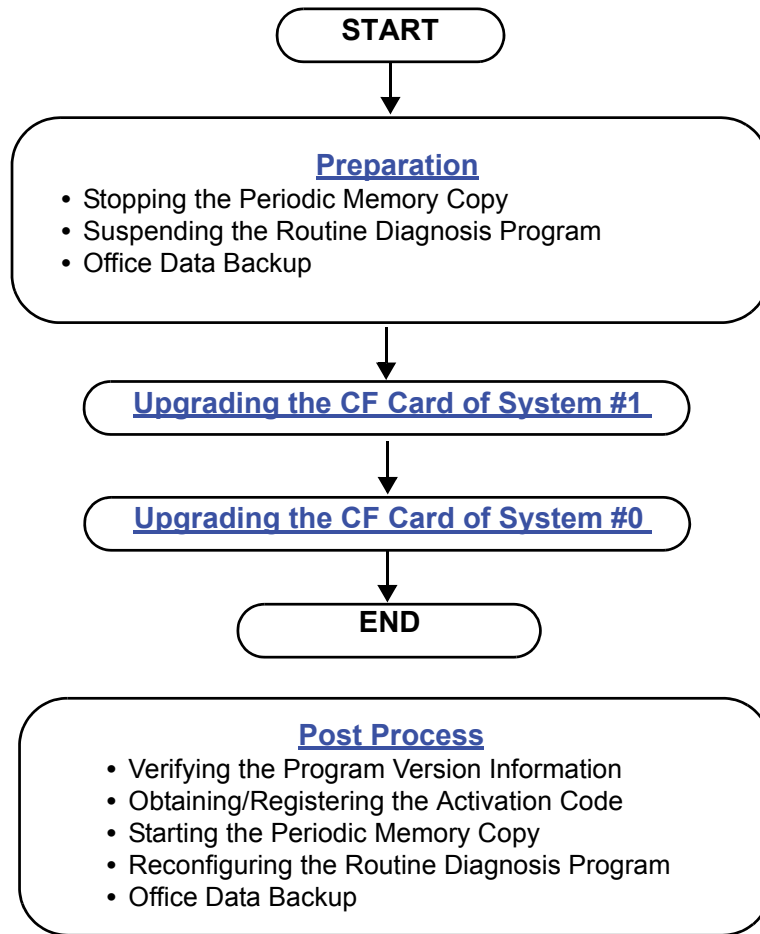
If ACT-Side Quick Restart is disabled in your system, you can enable this feature after program upgrade by assigning the data for ACT-Side Quick Restart after upgrading the program version with a conventional procedure.

Follow the flow chart below to upgrade the program version (hereinafter, ACT side will be indicated as System #0 and STBY side as System #1).

Note: Take notice that the system will stop while upgrading the program version.

- [Upgrading from a System with ACT-Side Quick Restart Enabled \(Before Upgrade \[Enabled\] → After Upgrade \[Enabled\]\)](#)
- [Upgrading from a System with ACT-Side Quick Restart Disabled \(Before Upgrade \[Disabled\] → After Upgrade \[Enabled\]\)](#)

**Upgrading from a System with ACT-Side Quick Restart Enabled
(Before Upgrade [Enabled] → After Upgrade [Enabled])**



1. Preparation

STEP 1: Stopping the Periodic Memory Copy

Assign the system data (ASYDL SYS1, Index 1347 Bit 1=0) to stop the Periodic Memory Copy.

STEP 2: Suspending the Routine Diagnosis Program

Note: Write down the values for these system data before modifying the data to the values below. These data will be used when reconfiguring the Routine Diagnosis Program.

Assign the system data (ASYD SYS1, Index 87=FF (Hex), Index 88=FF (Hex)) to suspend the execution of Routine Diagnosis Program temporarily.

STEP 3: Office Data Backup

Use the MEM_HDD command to save the Office Data to the CF Card.

2. Upgrading the CF Card of System #1 (STBY Side)

Upgrade the program version of System #1 (STBY side).
Refer to Chapter 6, “System Startup,” in Appliance Model Installation Manual for details.

3. Upgrading the CF Card of System #0 (ACT Side)

Upgrade the program version of System #0 (ACT side).
Refer to Chapter 6, “System Startup,” in Appliance Model Installation Manual for details.

4. Post Process

STEP 1: Verifying the Program Version Information

Use the DISS command to verify the program version information after program upgrade.

STEP 2: Obtaining/Registering the Activation Code

Register the Activation Code to the upgraded program.
Refer to Chapter 6, “System Startup,” in Appliance Model Installation Manual.

STEP 3: Starting the Periodic Memory Copy

Assign the system data (ASYDL SYS1, Index 1347, Bit 1=1) to start the Periodic Memory Copy.

STEP 4: Reconfiguring the Routine Diagnosis Program

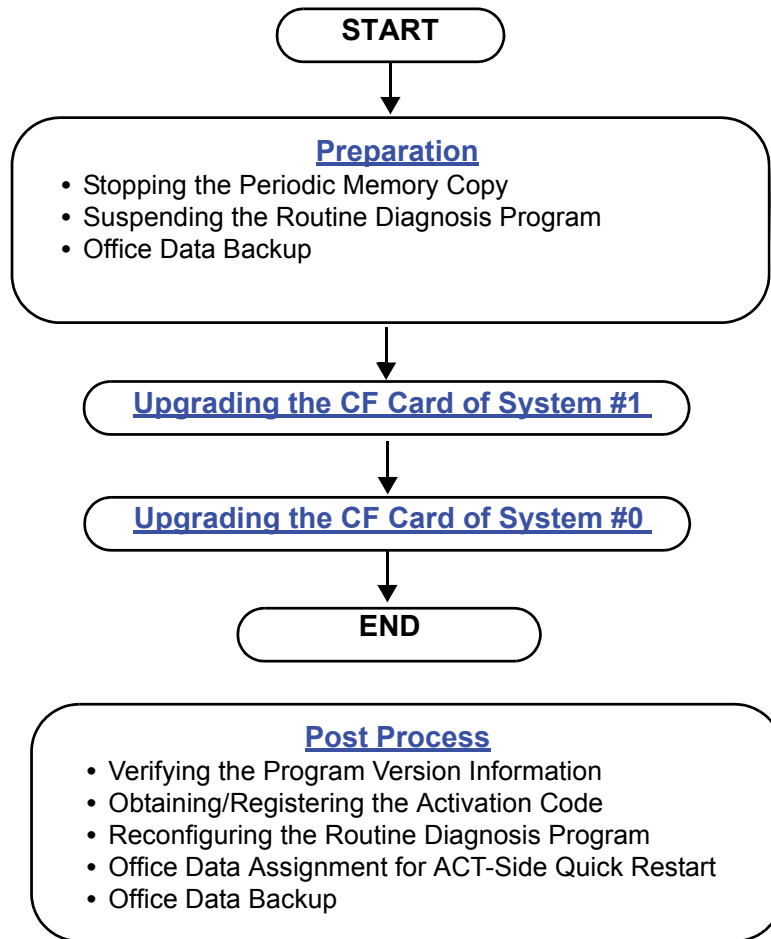
Restore the system data (ASYD SYS1, Index 87 Index 88) to the former values defined before suspending the Routine Diagnosis Program.

STEP 5: Office Data Backup

Use the MEM_HDD command to save the Office Data to the CF Card.

Procedure for upgrading from a system with ACT-Side Quick Restart enabled is completed.

**Upgrading from a System with ACT-Side Quick Restart Disabled
(Before Upgrade [Disabled] → After Upgrade [Enabled])**



5. Preparation

STEP 1: Suspending the Routine Diagnosis Program

Note: Write down the values for these system data before modifying the data to the values below. These data will be used when reconfiguring the Routine Diagnosis Program.

Assign the system data (ASYD SYS1, Index 87=FF (Hex), Index 88=FF (Hex)) to suspend the execution of Routine Diagnosis Program temporarily.

STEP 2: Office Data Backup

Use the MEM_HDD command to save the Office Data to the CF Card.

6. Upgrading the CF Card of System #1 (STBY Side)

Upgrade the program version of System #1 (STBY side).

Refer to Chapter 6, “System Startup,” in Appliance Model Installation Manual.

7. Upgrading the CF Card of System #0 (ACT Side)

Upgrade the program version of System #0 (ACT side).

Refer to Chapter 6, “System Startup,” in Appliance Model Installation Manual for details.

8. Post Process

STEP 1: Verifying the Program Version Information

Use the DISS command to verify the program version information after program upgrade.

STEP 2: Obtaining/Registering the Activation Code

Register the Activation Code to the upgraded program.

Refer to Chapter 6, “System Startup,” in Appliance Model Installation Manual for details.

STEP 3: Reconfiguring the Routine Diagnosis Program

Restore the system data (ASYD SYS1, Index 87 Index 88) to the former values defined before suspending the Routine Diagnosis Program.

STEP 4: Office Data Assignment for ACT-Side Quick Restart

Assign the Office Data to enable ACT-Side Quick Restart.

STEP 5: Office Data Backup

Use the MEM_HDD command to save the Office Data to the CF Card.

Procedure for upgrading from a system with ACT-Side Quick Restart disabled is completed.

3.26 Logical Port Assignment

3.26.1 Functional Outline

When Application Association Request (AARQ) is sent from the upper application, the information for Setting Status Monitoring for terminals is retained by designating a logical port. This makes an application initialize more rapidly when standard system initialization occurs or when an upper application is disconnected unexpectedly due to network failures.

3.26.2 Service Conditions

1. When Application Association Request (AARQ) is sent with a port designation from the upper application, Application Association Response (AARE) to return to upper applications are as follows:

- (a) When there is no facility setup from upper applications:

- First connection of the application
- Reconnection after application opens associations (RLRQ)
- Reconnection after application abort (ABRT)

“Memory not retained (Result=0)” is returned as the association setup result. Normal application restart processing is required.

- (b) When there is facility setup from upper applications:

- Reconnection after system initialization (forceful changeover, ACDP initialization, standard initialization (non-load/loading LM)) Reconnection after application is disconnected due to LAN failures
- Reconnection after application is disconnected due to LAN failures

“Memory retained (Result=10, Result=11)” is returned as the association setup result. **(Note 1)** Logical port number assigned with Application Association Request (AARQ) is returned as well. All that application side has to do is to set up facilities (Subscribe). Setting Status Monitoring for terminals is not required.

When logical port designation functionality is enabled, Application Association Response (AARE) to return to upper applications are as follows:

Cause of APL Disconnection	Result of Reconnection (AARE Result)	
	With Port Designation	Without Port Designation
First connection	0	0
Reconnection after normal disconnection (RLRQ) / abort (ABRT) of application	0	0
Disconnection due to the Health Check timeout from Telephony Server	11	0
Reconnection after application is disconnected due to LAN failure	11	0

Cause of APL Disconnection	Result of Reconnection (AARE Result)	
	With Port Designation	Without Port Designation
Reconnection after forceful changeover due to ACT system failure	10	0
TCP initialization (the ADTM command)	11	0
PH2.0 initialization (Non-load)	11	0
PH2.5 initialization (DM load)	0 (Note 2)	0
PH2.5 initialization (LM and DM load)	0 (Note 2)	0
PH3.0 (Power On initialization)	0 (Note 2)	0

<Upper Application Setup Result>

0: No upper application retained

Facility setup (Subscribe) and Status Monitor setting for terminals are required

10: Upper application retained

Returns a result when disconnected by a forceful changeover due to an equipment fault in ACT side.
Only facility setup (Subscribe) is required

11: Upper application retained

Returns a result when disconnected by a forceful changeover due to an equipment fault in ACT side.
Only facility setup (Subscribe) is required

Note 1: Whether application reconnection has succeeded or not is determined upon the existence of the facility opening (Subscribe). If even one Subscribe has been performed, Result=10 or Result=11 is returned. When logical port designation functionality is enabled, Application Association Response (AARE) to return to upper applications are as listed above.

Note 2: At the load-initialization of the system (DM Load/ LM and DM Load/ Power On initialization), standard initialization processing is required because Subscribe information/Status Monitor Facility information of the application are deleted.

- Even if Result=10 or Result=11 is returned as Application Association Response (AARE), Subscribe processing and Infolink message subscription (IL) is required. **Note 1**
If Subscribe is not executed, the following Infolink facilities become unavailable.

- AMF (APL message transmission)
- PMF (PBX message transmission)

Note 1: If you change the facility version of SMFN at the time of re-connection, the modified facility version becomes valid.

3. When logical port designation functionality is disabled, if connection is attempted with designating a logical port with Application Association Request (AARQ), Application Association Response (AARE) returns an error (Result=1 (Service disabled)).
4. When logical port designation functionality is enabled, if connection is attempted without designating a logical port with Application Association Request (AARQ), the application information is not retained. Thus, Application Association Response (AARE) at the application reconnection, Result=0 is always returned. Standard initialization processing (facility setup and Status Monitor settings for terminals) is required for applications.
5. Logical port numbers that can be designated with Application Association Request (AARQ) from the upper applications are 1 to 16. If a port number that is out of the range is designated, Application Association Response (AARE) returns an error (Result=5 (Service Not Permitted)).
6. Designate different logical port number to each application. Although it is possible to connect from a different application that has the same IP and the same port number as the application that was disconnected, it does not operate normally.
7. If Application Association Request (AARQ) is attempted with designating the logical port that is being used by other application, an error (Result=7 (Logical Port is Being Used)) is returned.
8. When upper applications use multiple monitor designation for Status Monitor Facility Request (SMFR), the following conditions must be met:
 - The valid Request Kinds are: MR ID=0 (Monitor Request) and MR ID=1 (Monitor Cancel) only. MR ID=2 to 6 (Line Status Inquiry) are exempted.
 - FN=12H (18) To terminate, answer, hold, release, or monitor a call with sticky keys (without tones) and FN=7EH (126) To terminate, answer, hold, release, or monitor a call with sticky keys (with tones) are exempted.

3.26.3 Data Programming

Follow the procedures below for data assignment required for Logical Port Assignment.

[To Set]

STEP 1: ASYDL - Assignment of System Data for LDM

SYS1

Index 1191

Bit 1=1 (Logical Port Assignment is in service)

STEP 2: MEM_HDD - Data Control Between Memory and HDD

Assign this data to back up the Data Memory.

Direction Select: Memory to Hard Disk

Data Type Select: Data Memory

[To Cancel]

STEP 1: ASYDL - Assignment of System Data for LDM

SYS1

Index 1191

Bit 1=0 (Logical Port Assignment is out of service)

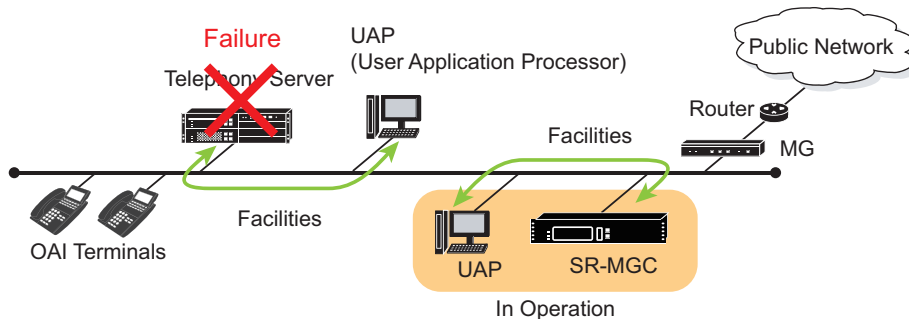
3.27 SR-MGC for OAI

3.27.1 Functional Outline

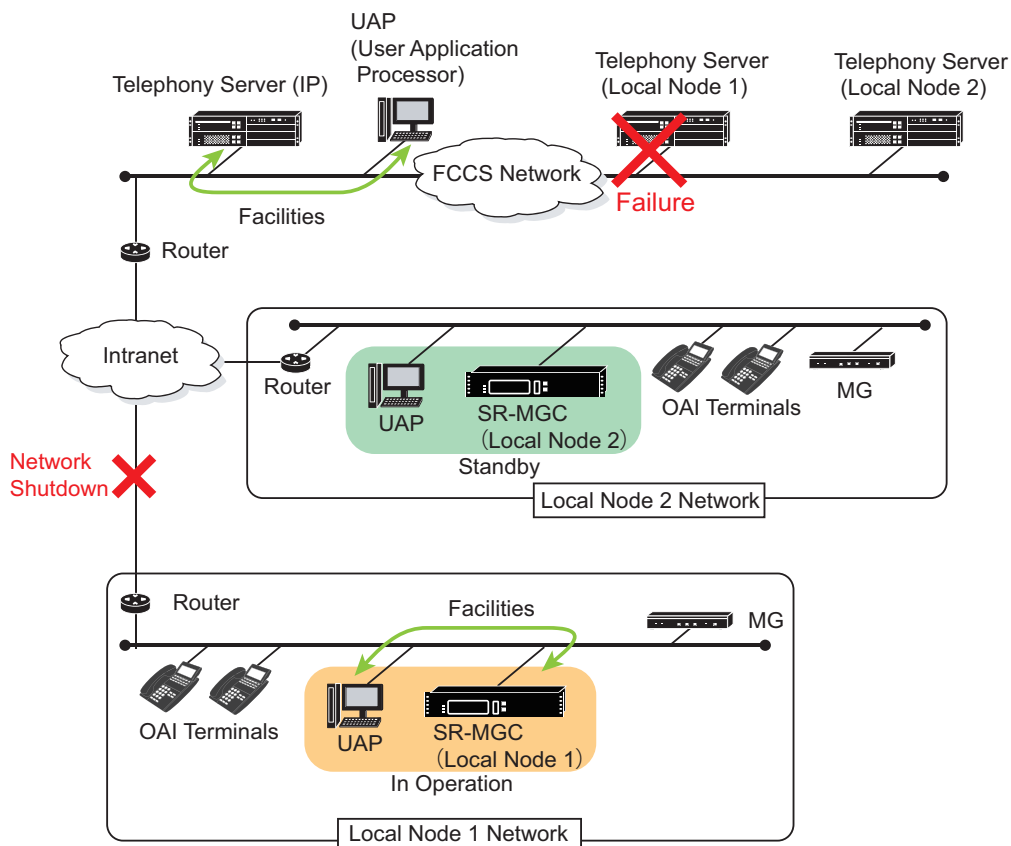
This feature allows to use SR-MGC in the OAI system. The OAI facilities and Infolink messages can continue to be used if a Telephony Server is down or a failure occurs in a network between nodes.

Note: For North America, first verify that the UAP software supports this functionality to use this feature.

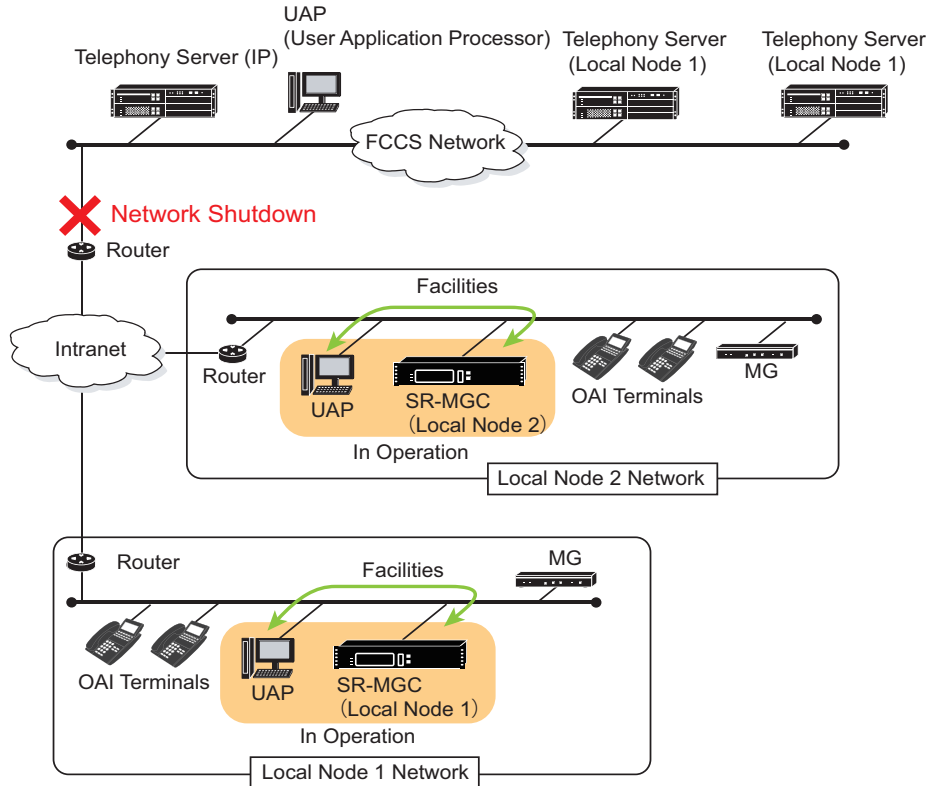
(a) Example of Standalone Configuration



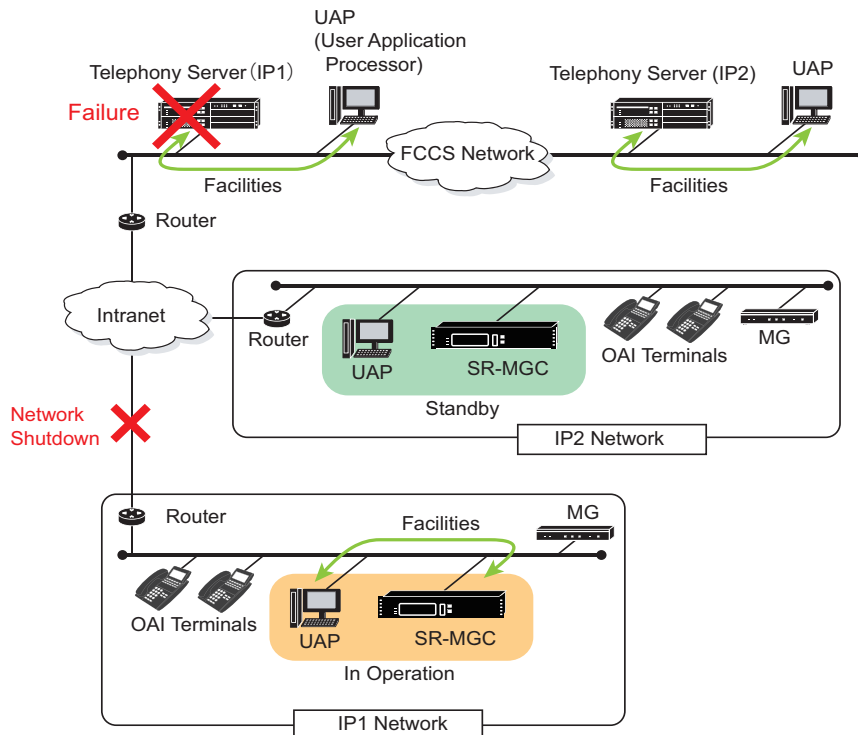
(b) Example of OAI FCCS - Single IP Configuration
(Failure or network shutdown occurs in Local Node 1 network)



(c) Example of OAI FCCS - Single IP Configuration (Failure occurs in Center Node)



(d) Example of OAI FCCS - Multiple IPs Configuration (Failure or network shutdown occurs in IP1 Network)



3.27.2 Using Conditions

<Important Notices>

1. This feature can be used with SR-MGC (E).
2. To enable this feature, ASYDL/N, SYS1, Index 1194, Bit 2 = 1 (SR-MGC for OAI) must be assigned to the Telephony Server that is the subject of the rescue by SR-MGC using the OAI facilities or Infolink messages.
3. When the system data ASYDL/N, SYS1, Index 1194, Bit 2 = 1 (SR-MGC for OAI) is changed, be sure to make the office data copy on SR-MGC by either of the following procedures after performing the office data backup through the MEM_HDD command:
 - Real-time sending
Manual office data copy through the CMNT command
 - Periodic sending
Automatic office data copy after the periodic Health Check

Whichever procedure is chosen, the system initialization of SR-MGC is performed after the completion of the office data backup.

Note: If the above system data is enabled and then the operation by SR-MGC starts before the backup of the office data on the Telephony Server, this feature is not available because the latest office data is not reflected. In this case, SR-MGC operates according to the existing office data.

4. SR-MGC can control only the OAI terminals belonging to the self office. Therefore, the UAPs must be connected for each SR-MGC when the OAI terminals belonging to the self office use the OAI services.
5. The following messages are supported by this feature.

Association Set-up / Opening / Abort

	Function	
AARQ	Association Setup	Request
AARE		Response
RLRQ	Association Opening	Request
RLRE		Response
ABRT	Association Abort	-

OAI Facilities

Facility	FN	Function	
SUBSCRIBE	-	Facility Setup	Setup
RECISSION	-	Facility Rescission	Rescission

Facility	FN	Function	
HEALTHCHECKAP	-	Health Check	UAP to Telephony Server
HEALTHCHECKIP	-		Telephony Server to UAP
MSF	-	Terminal Mode Se	-
TMF	-	Terminal Multiple Information Transfer	-
ETF	1 - 3	Call Event Transfer	-
ACF	-	Authorization Code	-
FLF	-	Free Location	-
TCFD		Terminal Control	Direct
TCFI	1, 2		Indirect
NTF	-	Number Transfer	-
KTF	-	Key Code Transfer	-
SCF	1 - 14, 17, 20, 127 - 129	Switch Control	-
RCF	1 - 3	Restriction Control	-
SSFR	1, 5 - 12	Service Set	Set/Cancel
SSFM	1, 3, 5 - 10, 16		Monitoring
SSFN	1, 3, 5 - 10, 16		Notification
SMFR	1 - 3, 16, 17, 19, 20, 127 - 133, 138	Status Monitor	Request
SMFN	1 - 6, 9, 128		Notification
MRFR	-	Mode Reset	UAP to Telephony Server
MRFI	-		Telephony Server to UAP

6. When the Telephony Server recovers, IP devices can be switched back from the SR-MGC.

(a) For more information on the conditions for switchback, refer to the followings:

- Not used with ACD service

Refer to item No. 6 of Important Notices in the section for Service Conditions of SURVIVABLE REMOTE MGC [S-141] in Data Programming Manual - Business.

- Used with ACD service

Refer to “Operation on Failure Recovery” of SR-MGC with ACD [S-164] in Data Programming Manual - ACD.

(b) The UAP that is associated with the Telephony Server must be reset to execute switchback. For more information on the timing to reset the UAP, refer to the followings:

- Not used with ACD service

There is no specific timing to reset the UAP.

- Used with ACD service

Refer to “Operation on Failure Occurrence” of SR-MGC with ACD [S-164] in Data Programming Manual - ACD.

- (c) To clear the status of the UAP that is associated with SR-MGC, reset the UAP after the completion of switchback.

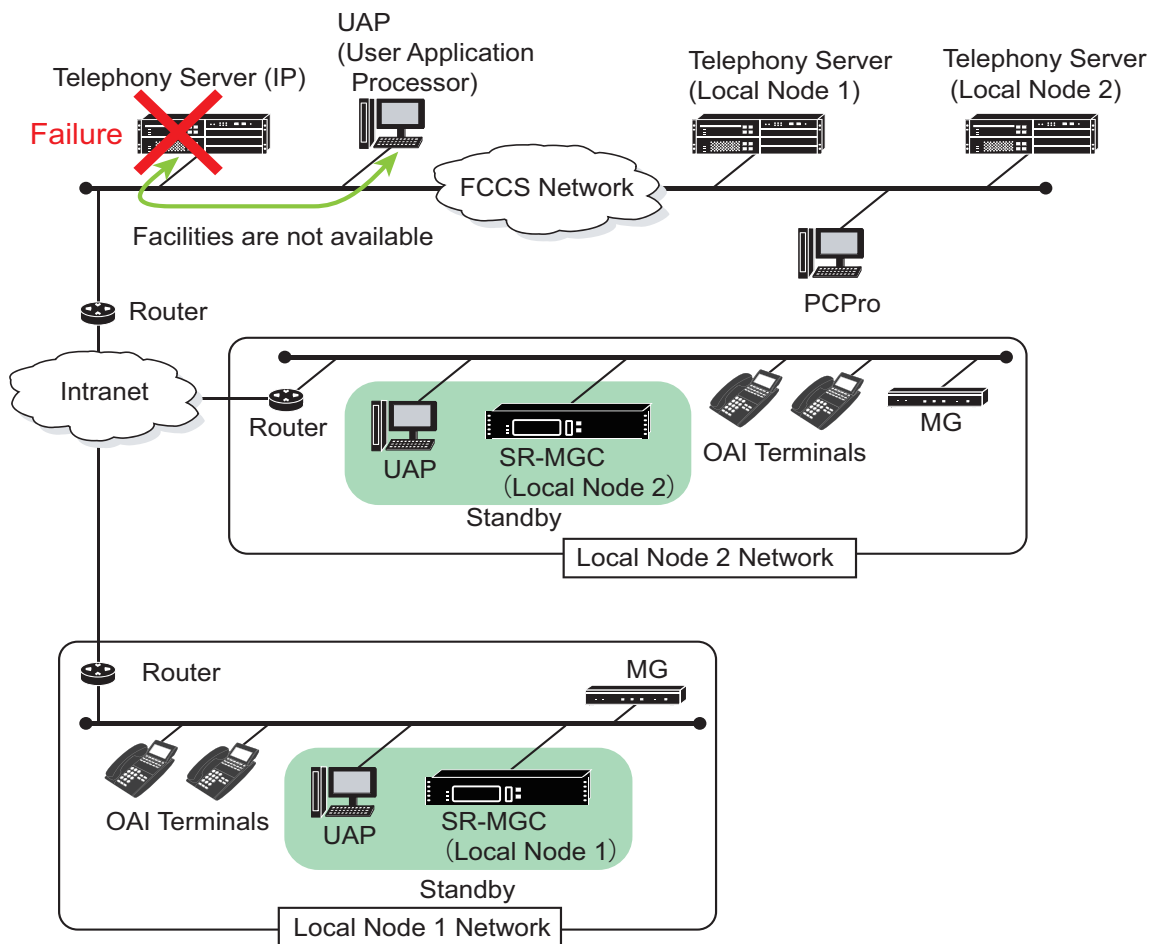
<Interactions with Other Features>

1. This feature does not support LOCATION DIVERSITY [L-55].
2. SR-MGC does not support the inter-office features.
3. SR-MGC supports VoIP Encryption [V-27]. However, the ACD/OAI services does not support VoIP Encryption. When SR-MGC is used with the ACD/OAI services, do not use VoIP Encryption.
4. This feature supports Infolink messages, but limited to the control request or status notification within the self office. For more information on Infolink messages supported by this feature, refer to INFOLINK DATA MESSAGES - ACD [I-99A].
5. For using both the ACD features in default mode and this feature, ACDP retrofit must be disabled (ASYDL, SYS1, Index 1193, Bit 7 = 0).

Note: When the setup of association is requested from the UAP while the ACDP Retrofit is enabled (ASYDL, SYS1, Index 1193, Bit 7 = 1), an error will be sent back.

6. For OAI-FCCS in Single IP Configuration, when a failure occurs in a node that mounts an Interface Processor, the OAI services are not available for a node that does not mount an Interface Processor (hereinafter, Local Node) because it cannot switch to the operation by SR-MGC. In this case, however, the suspension of the OAI services can be avoided by following the below steps:
 - 1) Log in to a Local Node by PC Pro
 - 2) Switch the mode of SR-MGC from standby to operation

- Register the OAI terminals belonging to the Local Node on SR-MGC. The registration on SR-MGC can be executed by disconnecting power from the Local Node.



<Hardware/Software>

- SR-MGC (E) can accommodate up to 4000 agent positions.

<Interactions with Networks>

None

<Conditions Specific to This Feature>

None

<Other Conditions>

None

3.27.3 Data Programming

STEP 1: ASYDL/ASYDN - Assignment of System Data (LDM/NDM)

SYS1

Index 1194

Bit 2=1 (SR-MGC for OAI is in service)

3.28 SIP Handler Controlled SIP Terminal in OAI System

3.28.1 Functional Outline

This feature allows SIP Handler Controlled SIP terminals to use OAI facilities.

3.28.2 Service Conditions

1. This feature requires the data assignment for Software Digital Tone Generator (IP-DTG).

Note: A SIP Handler Controlled SIP terminal receives a Ringback Tone (RBT) generated by IP-DTG during placing a call and forwarding a call through facilities. Assign the value for Maximum Number of Concurrent Connection (MAX_CONN) to be larger than the number of concurrent calls by SIP Handler Controlled SIP terminals.

2. OAI system does not support the following controls on SIP Handler Controlled SIP terminals.
 - Controlling indications of LCD and LED
 - Controlling off-hook or on-hook status (placing or answering a call automatically)
 - Controlling Chimes
 - Controlling Short Tones
3. The following are behaviors of Telephony Server when the OAI facilities control tones generated while SIP Handler Controlled SIP terminal is operating such as a connection with a Ringback Tone (RBT) or connection with Music-On-Hold.
 - When the IP-DTG is enabled:
The Telephony Server changes the destination to the IP-DTG by sending a reINVITE request to the SIP Handler Controlled SIP terminal.
 - When the IP-DTG is disabled or when the tone control is unsupported by IP-DTG (**Note 1**):
The Telephony Server sends a reINVITE request (c=0/sendonly) to the SIP Handler Controlled SIP terminal. Depending on the SIP Handler Controlled SIP terminal, it may hear the local hold tone at the time.

Note 1: Tone control unsupported by IP-DTG indicates connection with a Dial Tone (DT) or connection without tones (such as a state of a Desktop terminal generating no tones when it puts a call on hold).
4. During operations of putting a call on hold, forwarding a call, and returning to a held call, do not mix up SIP Handler Controlled SIP terminal key operations with controls through facilities. After operations of putting the call on hold and forwarding the call through facilities, it is unavailable to return to the held call through the terminal key operations. So return to the held call through the facilities.
Also after operations of putting the call on hold and forwarding the call through key operations, it is unavailable to return to the held call through the facilities. So return to the held call through the terminal key operations.

5. When an Attendant Console connects to SIP Handler Controlled SIP terminal due to operations such as placing a call, receiving a call, and talking, OAI facilities cannot control the SIP Handler Controlled SIP terminal.
6. This feature cannot be used in the FCCS-DTI network.
7. In OAI messaging, SIP Handler Controlled SIP terminals have the same values for the following fields in their Terminal Identifier:

Terminal Kind: 00H

Telephone Kind: 0AH

8. The following table shows available OAI facilities.

Availability

- A: Available to use as a station controlled by facilities or destination station
(Available to use for 1st Party Information, 2nd Party Information, 3rd Party Information or 4th Party Information.)
- C: Conditionally available to use as a station controlled by facilities or a destination station
(Conditionally available to use for 1st Party Information, 2nd Party Information, 3rd Party Information or 4th Party Information.)
- D: Conditionally available as a destination station. Unavailable as a station controlled by OAI facility.
(Conditionally available to use for either of 1st Party Information, 2nd Party Information, 3rd Party Information or 4th Party Information.)
- U: Unavailable as a station controlled by OAI facility or as a destination station
(Unavailable to use for 1st Party Information, 2nd Party Information, 3rd Party Information or 4th Party Information.)

a.) Switch Control Facility (SCF)

FN	Description	Availability	Related Conditions
1	Make Call	D	Note 1, Note 2, Note 3
2	Release Call	A	
3	Make Call with Ringing	C	Note 2, Note 3
4	Terminate Call	C	Note 2, Note 3, Note 4
5	Announce Call	A	
6	Call Monitor	U	Note 5
7	Transfer Call	C	Note 2, Note 3, Note 6, Note 7
8	Conference Call	C	Note 2, Note 3
9	Join Call	A	
10	Ring Stop	C	Note 2, Note 3, Note 4, Note 7
11	Answer Call	C	Note 2, Note 3, Note 8, Note 9
12	Hold Call	C	Note 8, Note 10
13	Retrieve Call	C	Note 2, Note 3, Note 9

FN	Description	Availability	Related Conditions
14	Hooking	C	Note 7
17	Switch Call	A	
20	DTMF	C	Note 11, Note 12, Note 13, Note 14
127	Tone Connection	C	Note 15
128	TRK Make Call (Predictive Dialing - Station)	A	
129	Abandon Call (Predictive Dialing - Station)	A	

Note 1: A SIP Handler Controlled SIP terminal cannot be used as a calling party. At this time, the SIP Handler Controlled SIP terminal sends the Return Error to UAP. The following table shows the Return Error:

Condition	Error Kind	Error Details
SIP Handler Controlled SIP terminal is selected as <i>1st Party information</i>	10H	0215H (1st Party Terminal Type Error) (SIP Handler Controlled SIP terminal is unsupported)
SIP Handler Controlled SIP terminal is selected as <i>4th Party information</i>	10H	0244H (4th Party Terminal Type Error) (SIP Handler Controlled SIP terminal is unsupported)

Note 2: SIP Handler Controlled SIP terminal cannot answer automatically according to Answer Type.

Note 3: SIP Handler Controlled SIP terminal cannot receive short tones according to Answer Type.

Note 4: SIP Handler Controlled SIP terminal cannot be a silent state according to Answer Type.

Note 5: SIP Handler Controlled SIP terminal cannot be monitored. It also cannot monitor other terminals. At this time, the SIP Handler Controlled SIP terminal sends the Return Error to UAP. The following table shows the Return Error:

Condition	Error Kind	Error Details
SIP Handler Controlled SIP terminal is selected as <i>1st Party information</i>	10H	0215H (1st Party Terminal Type Error) (SIP Handler Controlled SIP terminal is unsupported)
SIP Handler Controlled SIP terminal is selected as <i>2nd Party Called Number</i> and <i>2nd Party Term Information</i>	10H	0227H (2nd Party Terminal Type Error) (SIP Handler Controlled SIP terminal is unsupported)
SIP Handler Controlled SIP terminal is selected as <i>3rd Party Information</i> Or a destination station of <i>1st Party Information</i> is SIP Handler Controlled SIP terminal	10H	0234H (3rd Party Terminal Type Error) (SIP Handler Controlled SIP terminal is unsupported)

Note 6: When SIP Handler Controlled SIP terminal in Multi Line Mode* transfers a call through SCF (FN=7), it transfers the call from the currently using line before transferring the call.
* Multi Line Mode available for North America only.

Note 7: When SIP Handler Controlled SIP terminal puts a call on hold through SCF (FN=7), the held call cannot be released through the terminal side operation. SIP Handler Controlled SIP terminal needs to release the held call and return to talking through SCF (FN=10) or SCF (FN=14).

Note 8: When SIP Handler Controlled SIP terminal puts a call on hold through SCF (FN=12), the held call cannot be released through the terminal side operation. SIP Handler Controlled SIP terminal needs to release the held call and return to talking through SCF (FN=11).

Note 9: SIP Handler Controlled SIP terminal can be used only when the SIP Handler Controlled SIP terminal puts a call on hold through SCF (FN=12). Even when the SIP Handler Controlled SIP terminal puts the call on hold through SCF (FN=12), if the SIP Handler Controlled SIP terminal is called back after putting the call on hold, the SIP Handler Controlled SIP terminal cannot be used.

At this time, the Telephony Server sends the Return Error to UAP. The following table shows the Return Error:

Condition	Error Kind	Error Details
A SIP Handler Controlled SIP terminal which is not a terminal putting a call on hold through SCF (FN=12) is selected as <i>2nd Party Term Information</i>	10H	0227H (2nd Party Terminal Type Error) (SIP Handler Controlled SIP terminal is unsupported)

Note 10: When a certain period of time elapses after SIP Handler Controlled SIP terminal put a call on hold, the SIP Handler Controlled SIP terminal is not called back.
When SIP Handler Controlled SIP terminal put a call on hold but it is disconnected during subsequent operations, the SIP Handler Controlled SIP terminal is called back.

Note 11: The following DTMF signals are sent to each terminal.

			DTMF Signal Recipient				
			NEC Terminal/ Trunk (Proprietary Protocol)	NEC Terminal/ Trunk (SIP Protocol)	SP Controlled SIP Terminal	SIP Handler Controlled SIP Terminal	
						With SIP-INFO Method Note 12	With RFC2833 Note 12
Terminal Specified for SCF (FN=20) 1st Party Infor- mation	Desktop Terminal/PS (Proprietary Protocol)		NEC Proprietary Signal	NEC Proprietary Signal	- (No Signals)	SIP-INFO Note 13	- (No Signals)
	Desktop Terminal (SIP Protocol)		NEC Proprietary Signal	NEC Proprietary Signal or RFC2833 Note 14	RFC2833 Note 14	SIP-INFO Note 13	RFC2833 Note 14
	SIP Han- dler Con- trolled SIP terminal	With SIP- INFO method	NEC Proprietary Signal	NEC Proprietary Signal	- (No Signals)	SIP-INFO Note 13	- (No Signals)
		With RFC2833	NEC Proprietary Signal	- (No Signals)	- (No Signals)	SIP-INFO Note 13	- (No Signals)

Note 12: Behaviors after receiving DTMF signals depend on the specification of SIP Handler Controlled SIP terminals.

Note 13: To send DTMF signals to the SIP Handler Controlled SIP terminal with SIP-INFO method, enable the SIP-INFO parameter with the AUACL/AUACN command.

Note 14: sending DTMF signals is available only between terminals supporting RFC2833.

Note 15: When the SIP Handler Controlled SIP terminal places a call to a Monitor Number, it cannot be in a silent state. When the SIP Handler Controlled SIP terminal engages in a call, it cannot receive short tones.

b.) Status Monitor Facility Request (SMFR)

FN	Description	MRID	Content	Availability	Related Conditions
1	Incoming, Answer, Release, Status Inquiry	0, 1	Monitor Set, Reset	A	
		2	Line Status Inquiry-1 (Connection Terminal Notification)	A	
		3	Line Status Inquiry-2 (Connection Line Notification)	A	
		4	Line Status Inquiry-3 (Using Terminal Type Notification)	A	
		5	Line Status Inquiry-4 (Using Line Type Notification)	A	
		6	Using Line Notification	A	
		7	IP/SIP Terminal Equipment Kind Inquiry	A	
2	Incoming, Answer, Release, Off-Hook	0, 1	Monitor Set, Reset	A	
3	Incoming, Answer, Release, No Answer	0, 1	Monitor Set, Reset	A	
16	Incoming, Answer, Release, No Tone	0, 1	Monitor Set, Reset	C	Note 16
17	Incoming, Answer, Release, No Answer, No Tone	0, 1	Monitor Set, Reset	C	Note 16
19	All Status Monitor, No Tone	0, 1	Monitor Set, Reset	C	Note 16
20	Incoming, No Tone	0, 1	Monitor Set, Reset	C	Note 16
127	All Status Monitor	0, 1	Monitor Set, Reset	A	
128	Incoming	0, 1	Monitor Set, Reset	A	
129	Answer	0, 1	Monitor Set, Reset	A	
130	Release	0, 1	Monitor Set, Reset	A	
131	No Answer	0, 1	Monitor Set, Reset	A	
132	Off-Hook	0, 1	Monitor Set, Reset	A	
133	Hold	0, 1	Monitor Set, Reset	A	
137	IP/SIP Terminal Registration Monitor	0, 1	Monitor Set, Reset	A	
138	Dial Number	0, 1	Monitor Set, Reset	A	
139	CCIS Counter Office Information	0, 1	Monitor Set, Reset	A	

Note 16: When the SIP Handler Controlled SIP terminal placing a call to a Monitor Number without tone generation, the SIP Handler Controlled SIP terminal receives a Ringback Tone (RBT).

c.) Status Monitor Facility Notification (SMFN)

FN	Description	STS	Content	Availability	Related Conditions
1	Incoming Notification	0	Normal Incoming	A	
		1	Intermediate Incoming (Call Forwarding, UCD)	A	
		4	Call Forwarding - All Calls	A	
		5	Call Forwarding - Busy	A	
		6	Call Forwarding - Don't Answer	A	
		13	Predictive Dialing Incoming (Predictive Dialing - Station)	A	
2	Answer Notification	0	Normal Answer	A	
		1	Sub-Line Answer Call Pick Up Answer	A	
		2	Holding Call Answer	A	
		3	Conference Call	A	
		5	Call Forwarding - All Calls	A	
		6	Call Forwarding - Busy	A	
		7	Call Forwarding - Don't Answer	A	
3	Release Notification	0	Normal Release	A	
		1	Abandon Call	A	
		4	Conference Release	A	
		5	Abandon Call for Call Forwarding - Don't Answer	A	
		6	Call Termination Incomplete	D	Note 17
		7	Call Termination Unsuccessful	D	Note 17
4	No Answer Notification	0	No Answer (Make Call with Ringing)	A	
		1	No Answer (Predictive Dialing - Station)	A	
5	Off-Hook Notification	0	Off-Hook	A	
6	Hold Notification	0	Hold	A	
		1	Consultation Hold	A	
		4	Conference Hold	A	

FN	Description	STS	Content	Availability	Related Conditions
9	Dial Number Notification	0	Dialed Number	A	
		1	Call Forwarding Dialed Number	A	
		2	Dialed Number Busy	A	
		3	Dialed Number ROT	A	
		4	Call Forwarding - All Calls	A	
		5	Call Forwarding - Busy	A	
12	CCIS Counter Office Information	0	CCIS Counter Office Information (Ringing)	A	
		1	CCIS Counter Office Information (Answer)	A	
		10	CCIS Counter Office Information (Incoming NG)	A	
		20	CCIS Counter Office Information (Destination Party Change)	A	
		21	CCIS Counter Office Information (Override)	A	
14	IP/SIP Terminal Registration Notification	0	Log-in (Registration)	A	Note 18
		1	Log-out (Un-Registration)	A	Note 18

Note 17: The SIP Handler Controlled SIP terminal is not notified as a Call Forwarding party.

Note 18: SMFN (FN = 14) requires the Telephony Server to receive SMFR (FN = 137) from UAP.

d.) Service Set Facility Request (SSFR)

FN	Description	SRID	Content	Availability	Related Conditions
1	Call Forwarding - All Calls	0, 1	Service Set, Reset	A	
5	Message Waiting	00H, 10-13H, 20-23H, 30-33H, 40-43H, 50-53H	MW Lamp Display Control	C	Note 19 Note 20 Note 21
6	Call Forwarding - Busy	0, 1	Service Set, Reset	A	
7	Call Forwarding - Don't Answer	0, 1	Service Set, Reset	A	
8	Split Call Forwarding - All Call (from STA)	0, 1	Service Set, Reset	A	
9	Split Call Forwarding - Busy (from STA)	0, 1	Service Set, Reset	A	
10	Split Call Forwarding - Don't Answer (from STA)	0, 1	Service Set, Reset	A	
11	Call Forwarding - Out of Zone	0, 1	Service Set, Reset	D	Note 22

FN	Description	SRID	Content	Availability	Related Conditions
12	Split Call Forwarding - Out of Zone (from STA)	0, 1	Service Set, Reset	D	Note 22

Note 19: When the Message Waiting Lamp, which is controlled by the Telephony Server, on the SIP Handler Controlled SIP terminal is turned ON or OFF, the lamp state information (during the lamp ON/OFF state) is sent to the SIP Handler Controlled SIP terminal through RFC3842.

Note 20: To send the Message Waiting Lamp state information to SIP Handler Controlled SIP terminal through RFC3842, enable the MWI parameter with the AUACL/AUACN command. Behaviors after receiving the lamp state information depend on the specification of SIP Handler Controlled SIP terminals.

Note 21: Service Set/Cancel information (SRID) enables changing ON or OFF state of Message Waiting Lamp, which is controlled the Telephony Server, on the SIP Handler Controlled SIP terminal. ON is set when flashing or lighting up is selected. OFF is set when lighting down is selected. When Display Indicator is also selected in addition to lighting up, flashing or lighting down, only changing ON or OFF state of Message Waiting Lamp is available. Display Indicator on the terminal is not changed.

Note 22: The SIP Handler Controlled SIP terminal cannot be used as a Call Forwarding party. At this time, the Telephony Server sends the Return Error to UAP. The following table shows the Return Error:

Condition	Error Kind	Error Details
<i>SIP Handler Controlled SIP terminal is selected as 1st Party Information</i>	11H	00H (Error specific to SSFR)

e.) Service Status Facility Monitoring (SSFM)

FN	Description	MOID	Content	Availability	Related Conditions
1	Call Forwarding - All Calls	0, 1, 2	Monitor Set, Reset Status Inquiry	A	
3	Don't disturb	0, 1, 2	Monitor Set, Reset Status Inquiry	A	
5	Message Waiting	0, 1, 2	Monitor Set, Reset Status Inquiry	A	
6	Call Forwarding - Busy	0, 1, 2	Monitor Set, Reset Status Inquiry	A	
7	Call Forwarding - Don't Answer	0, 1, 2	Monitor Set, Reset Status Inquiry	A	
8	Split Call Forwarding - All Call (from STA)	0, 1, 2	Monitor Set, Reset Status Inquiry	A	

FN	Description	MOID	Content	Availability	Related Conditions
9	Split Call Forwarding - Busy (from STA)	0, 1, 2	Monitor Set, Reset Status Inquiry	A	
10	Split Call Forwarding - Don't Answer (from STA)	0, 1, 2	Monitor Set, Reset Status Inquiry	A	

f.) Service Status Facility Notification (SSFN)

FN	Description	SSID	Content	Availability	Related Conditions
1	Call Forwarding - All Calls	0, 1	Service Status Notification	A	
3	Don't disturb	0, 1	Service Status Notification	A	
5	Message Waiting	0, 1	Service Status Notification	A	
6	Call Forwarding - Busy	0, 1	Service Status Notification	A	
7	Call Forwarding - Don't Answer	0, 1	Service Status Notification	A	
8	Split Call Forwarding - All Call (from STA)	0, 1	Service Status Notification	A	
9	Split Call Forwarding - Busy (from STA)	0, 1	Service Status Notification	A	
10	Split Call Forwarding - Don't Answer (from STA)	0, 1	Service Status Notification	A	

g.) Restriction Control Facility (RCF)

FN	Description	RP	Content	Availability	Related Conditions
1	Route Restriction Class (RSC) Change	0-15	assigns RSC	A	
2	Service Feature Class (SFC) Change	0-15	assigns SFC	A	
3	Do Not Disturb Set/Cancel	0, 1	Set, Cancel	A	

h.) Other Facilities

Facility	Availability	Related Conditions
MSF (Mode Set Facility)	C	Note 23 Note 24
MRFR (Mode Reset Facility - Request)	A	
MRFI (Mode Reset Facility - Information)	A	

Facility	Availability	Related Conditions
TMF (Terminal Multi-Information Transfer Facility)	C	Note 23 Note 24
TCFD (Terminal Control Facility - Direct)	C	Note 25
TCFI (Terminal Control Facility - Indirect)	U	Note 26
NTF (Number Transfer Facility)	C	Note 23
KTF (Key Transfer Facility)	U	Note 27
CRF (Card Reader Facility)	U	Note 28
ACF (Authorization Code Facility)	C	Note 23 Note 31
ETF (Event Transfer Facility)	A	
FLF (Free Location Facility)	C	Note 29 Note 30

Note 23: The SIP Handler Controlled SIP terminal needs to send DTMF signals to the Telephony Server by using the SIP-INFO method or RFC2833. To enable the Telephony Server to receive DTMF signals from the SIP Handler Controlled SIP terminal, Software Digital Tone Generator (IP-DTG) is required.

Note 24: The SIP Handler Controlled SIP terminal needs to start the facility with dialing an OAI Access Code.

Note 25: The SIP Handler Controlled SIP terminal cannot stop receiving tones by guidance (Tone Control).

Note 26: LCD and LED Indications on the SIP Handler Controlled SIP terminal cannot be changed.

Note 27: This facility cannot be used due to the SIP Handler Controlled SIP terminal does not have Feature keys.

Note 28: This facility cannot be used due to the SIP Handler Controlled SIP terminal does not have a device which reads the card information out.

Note 29: When a call arrives at the SIP Handler Controlled SIP terminal, Name Display information and OAI Telephone Number of Calling Party is given to the SIP Handler Controlled SIP terminal. When the SIP Handler Controlled SIP terminal places a call, Name Display information and OAI Telephone Number of the SIP Handler Controlled SIP terminal is given to Called Party.

Note 30: To send Name Display information of a destination station to the SIP Handler Controlled SIP terminal, enable the Name Display parameter with the AUACL/AUACN command. Behaviors after receiving the name display information depend on the specification of SIP Handler Controlled SIP terminals.

Note 31: When AUTHORIZATION CODE [A-20] is controlled by ACF, the conditions are as follows:

- The following procedure cannot be used for AUTHORIZATION CODE [A-20] because IP-DTG does not support Dial Tone.
 - Step 1: Dial a Feature Access Code and an Authorization Code.
 - Step 2: After receiving Dial Tone, dial a called party number.
 A Preset Dialing also cannot use in the steps above.
- Although a SIP Handler Controlled SIP terminal is required to inform the DTMF signals by RFC2833, the DTMF signals cannot be informed in the SIP-INFO method when the following procedure is used.
 - Step 1: Dial a called party number.
 - Step 2: After receiving Special Dial Tone, dial a Feature Access Code and an Authorization Code.

3.28.3 Data Programming

After SIP Handler and Software Digital Tone Generator (IP-DTG) data programming are completed, follow the procedures below for data assignment to enable SIP Handler Controlled SIP terminal to use OAI facilities. For SIP Handler and Software Digital Tone Generator (IP-DTG) data programming, see Data Programming Manual - Business.

[To Set]

ASYDL/ASYDN - Assignment of System Data for LDM

SYS1

Index 1188

Bit 7=0/1 (Detail Information on SCF error for the SIP Handler Controlled SIP terminal is in service/out of service)

The SIP Handler Controlled SIP terminal sends back the Return Error to UAP. The following table shows the Return Error:

Error Kind	Bit 7 = 0 (In Service)	Bit 7 = 1 (Out of Service)
10H	0215H (1st Party Terminal Type Error) (SIP Handler Controlled SIP terminal is unsupported)	0212H (1st Party Terminal Type Error)
10H	0227H (2nd Party Terminal Type Error) (SIP Handler Controlled SIP terminal is unsupported)	0222H (2nd Party Terminal Type Error)
10H	0234H (3rd Party Terminal Type Error) (SIP Handler Controlled SIP terminal is unsupported)	0232H (3rd Party Terminal Type Error)
10H	0244H (4th Party Terminal Type Error) (SIP Handler Controlled SIP terminal is unsupported)	0242H (4th Party Terminal Type Error)

Note: Select the value according to the specification in the UAP side.

3.29 Geographic Redundancy in Stand Alone OAI System

3.29.1 Functional Outline

This feature provides automatic recovery of OAI service in case of a failure in a node where Geographic Redundancy is in use. When a failure is detected, it performs an automatic IP reset (**Note 1**) and maintains the information accuracy, eliminating the need for a maintenance person to manually restore the data.

Note: Please note the following:

- This feature is available in countries other than North America.
- This feature is supported from FP95-113 V3.
- For a detailed explanation of the terms related to Geographic Redundancy, see the Geographic Redundancy Configuration Manual.

Note 1: Please note the following:

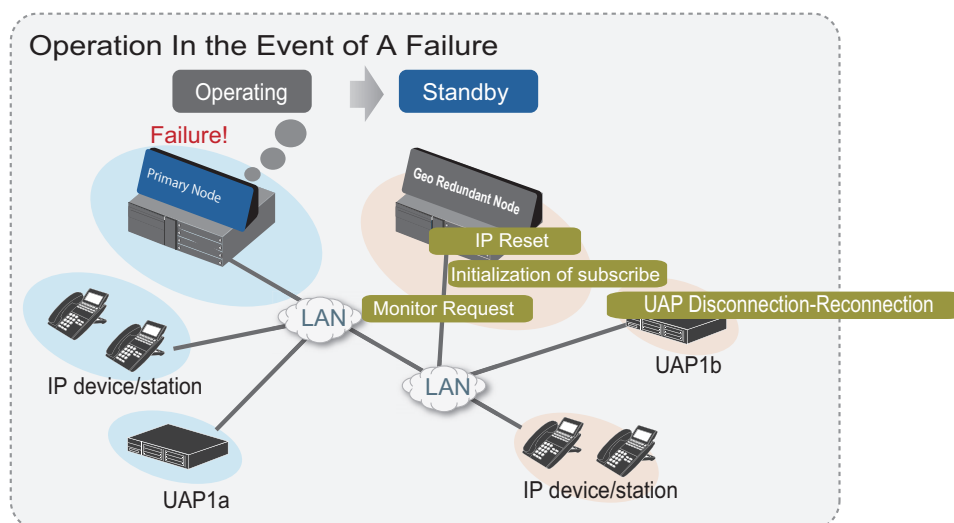
- In an IP reset, after a UAP disconnection, the OAI session of the UAP, subscribe and monitoring information are initialized.
- IP reset is done only in Primary Node or Geo Redundant Node. (It does not happen in a Survivable Remote Node and SR-MGC.)
- When the Survivable Remote Node is in operating mode, OAI can still be used in the system (same as SR-MGC).

3.29.2 Operating Procedures

The IP reset is related to the Geographic Redundancy process and aims to automatically restore the OAI data. When a Geo Redundant Node changes to operating mode due to a failure in the Primary Mode, an IP reset is performed in the Geo Redundant Node.

3.29.2.1 When IP failure occurs

When a failure occurs in the Primary Node, Geo Redundant Node transits to operating. As a result, an IP reset is triggered and the OAI data is restored by the steps from STEP 1 to STEP 3.



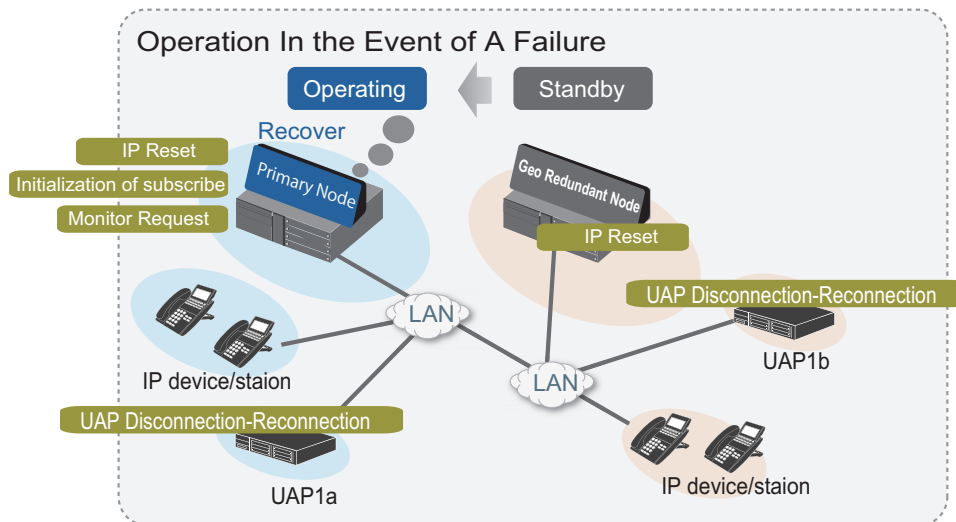
- STEP 1: IP reset is performed in the Geo Redundant Node.
 STEP 2: After UAP reconnects with the Geo Redundant Node, subscribe information is initialized.
 STEP 3: Monitoring information of IP devices/stations under the Geo Redundant Node is initialized.

After the steps from STEP 1 to STEP 3 are completed, OAI service becomes available in the Geo Redundant Node.

Note: Perform STEP 2 and STEP 3 in the UAP side.

3.29.2.2 When IP recovers from a failure

By transition to standby, an IP reset is triggered in the Geo Redundant Node. According to STEP 1, OAI data which the node owns is initialized. Then an IP reset is triggered in the Primary Node by transition to operating and OAI data is restored by the steps from STEP 2 to STEP 4.



- STEP 1: IP reset is performed in the Geo Redundant Node.
 STEP 2: IP reset is performed in the Primary Node.
 STEP 3: After UAP reconnects the Primary Node, subscribe information is initialized.
 STEP 4: Monitoring information of IP devices/stations under the Primary Node is initialized.

After the steps from STEP 2 to STEP 4 are completed, OAI service becomes available in the Primary Node.

Note: Perform STEP 3 and STEP 4 in the UAP side.

The behaviors of UAP are different when there is one UAP for each system and when there is one UAP for all the systems. The following explains the difference of the behaviors.

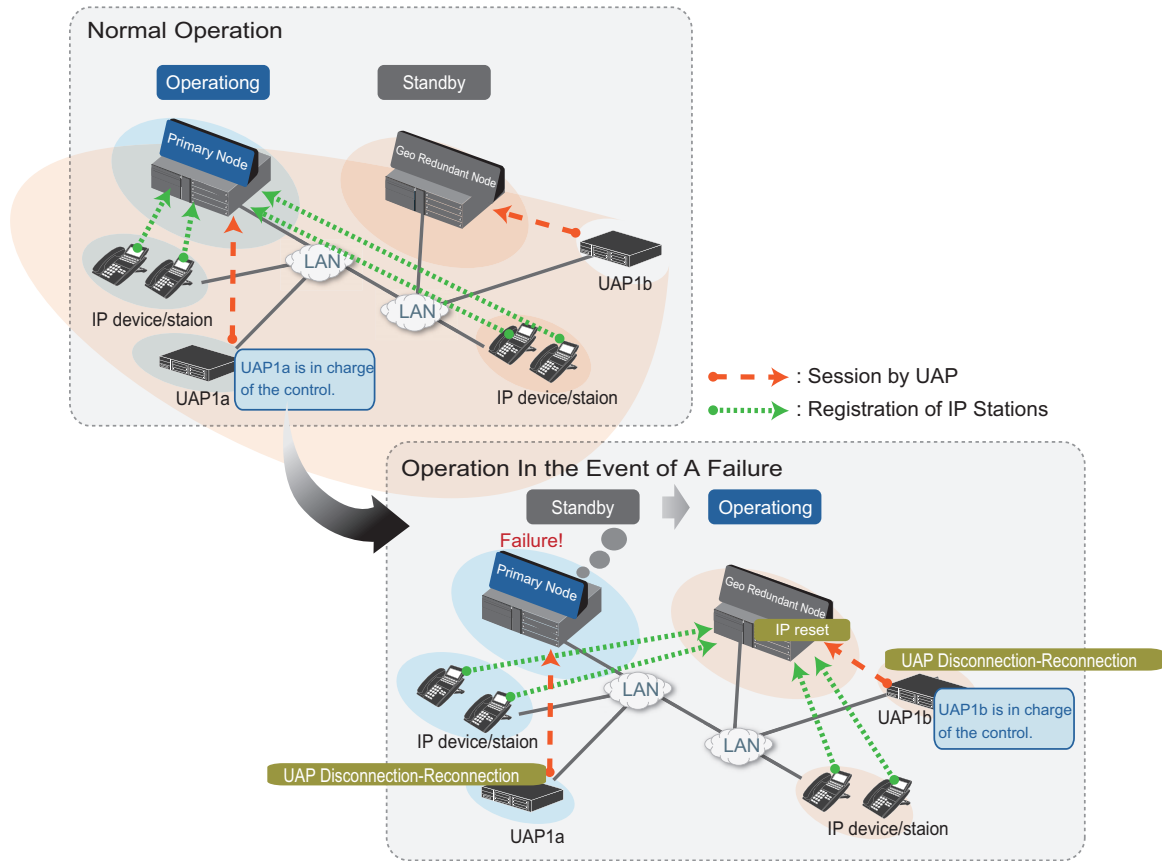
3.29.2.3 System description when there is one UAP for each system

If there is one UAP for each system, the UAP must take action in response to events, such as notifications of state and service settings, generated by the system to which it is connected.

In a state of normal operation, UAP connecting to the Primary Node (UAP1a) is notified of events generated by

the system so UAP1a is in charge of the control.

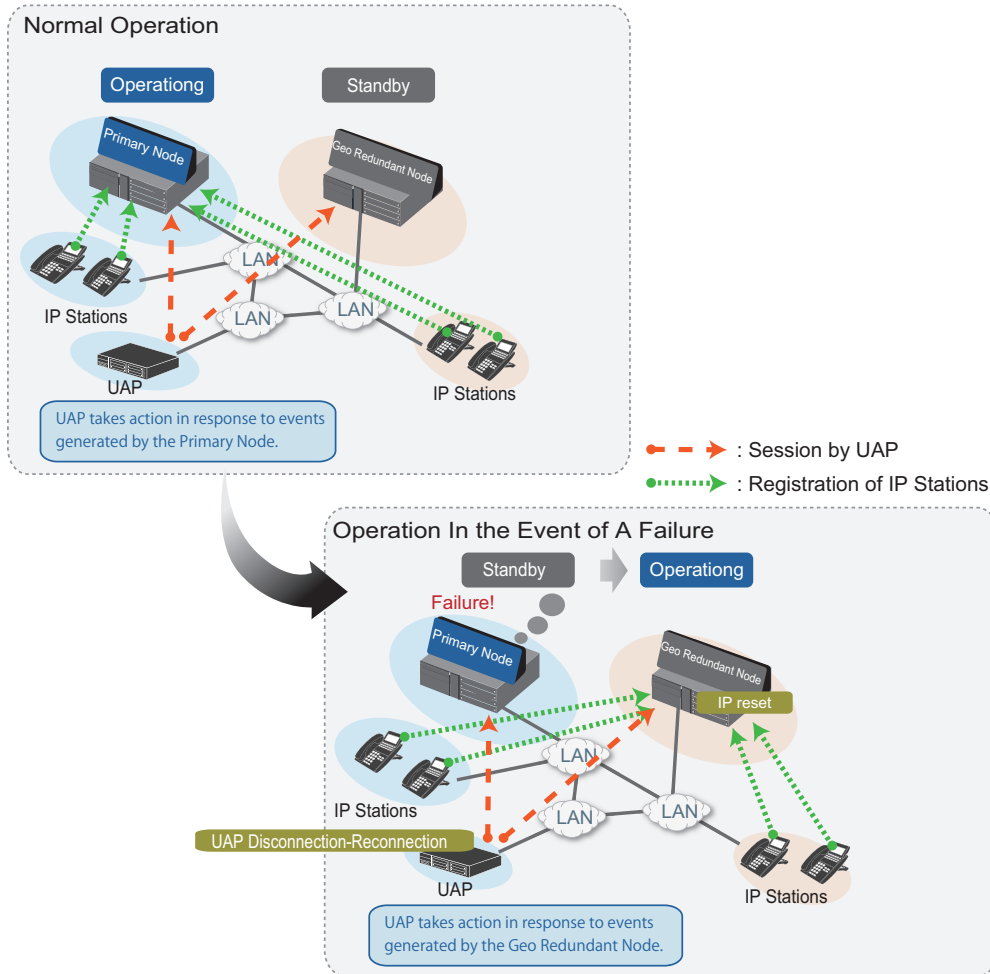
When there is a failure in the Primary Node, an IP reset is performed in the substituting Geo Redundant Node. Then the substituting node transits to operating and the UAP under the substituting node (UAP1b) re-reconnects to the node. After reconnecting, the UAP1b is notified of events so it takes over the functions of the UAP of the failed Primary Node (UAP1a).



3.29.2.4 System description when there is one UAP for all the systems

If there is one UAP connected to all the systems, the UAP must take action in response to events generated by the system to which it is connected regardless of the state of the node: operating or standby.

Note: The UAP must have the capacity to concurrently perform several sessions.



3.29.3 Service Conditions

3.29.3.1 General Conditions

1. Only stand alone system supports this feature. (FCCS Networking via IP does not support it.)
2. OAI calls are not available during the time period between the moment when a failure occurs and the moment when the Redundant System starts operating. To solve this problem, set-up UCD backup for the OAI monitor number.

3. The following conditions apply to UAP:

- UAP checks the system state with HEALTHCHECKAP/HEALTHCHECKIP.
- If there is one UAP for each system, the UAP must take action in response to events generated by the system to which it is connected.
- If there is one UAP connected, the UAP must take action in response to the events generated by each system through the system to which it is connected.

4. The service conditions regarding the type of system are as follows:

Supported: X, Non Supported: N

Supported with Conditions: C, Non Related: -

Type of System	Primary Node		Geo Redundant Node		Survivable Remote Node		SR-MGC	
Mode	Operating	Standby	Operating	Standby	Operating	Standby	Operating	Standby
OAI Note 1								
Stand Alone	X	N Note 2	X	N Note 2	X	C Note 3	X	C Note 3
UAP								
UAP	X	C Note 4 Note 5	X	C Note 4 Note 5	X Note 6	C Note 4 Note 6	X Note 6	C Note 4 Note 6
IP RESET								
Change to operating	X Note 7		X Note 7		-		-	
Change to standby	X Note 7		X Note 7		-		-	

Note 1: See [Interactions to Other Features](#) for a detailed explanation.

Note 2: An IP reset is performed in a Primary Node or Geo Redundant Node when it changes to standby mode because of a recovery. In this case, the OAI feature cannot be guaranteed for the IP devices/stations registered to the Primary Node or Geo Redundant Node in standby mode.

Note 3: An IP reset is not performed in an SR-MGC or Survivable Remote Node when it changes to standby mode because of a recovery. In this case, the OAI feature can be continued for the IP devices/stations registered to the SR-MGC or Survivable Remote Node.

Note 4: Change office data using an UAP connection is not allowed. In the cases stated below the UAP is disconnected and a reconnection is necessary. The disconnection of the UAP is obtained with a HEALTHCHECKAP/HEALTHCHECKIP.

- An IP reset based in a change to operating mode or standby mode.
- A system restart based in a real time sending (data copy using the CMNT command)
- A system restart based in a periodic sending (automatic copy of data performed after

a periodical diagnosis).

Note 5: By assigning ASYDL, SYS1, Index 1199, Bit 7=1 (UAP/MIS connection for system in standby mode restricted), a TCP connection to a Primary Node or Geo Redundant Node in standby mode will not be possible. The system message 26-V will be generated to the Primary Node or Geo Redundant to which is attempted to connect.

Note 6: It is possible for SR-MGC and a Survivable Remote Node to connect to a UAP by assigning:

- ASYDL, SYS1, Index1193, Bit 7=0 (ACDP Retrofit: Out of service (Up to 15000 Agents)).
- ASYDL, SYS1, Index1194, Bit 2=1 (SR-MGC for OAI: In service).
In this case the UAP connection will be done with the LAN1 port for the SR-MGC and the LAN2 port for the Survivable Remote Node.

Note 7: An IP reset is performed when there is a change in the mode of a system. It may not correspond to the restart timing of IP devices/stations accommodated in the system.

3.29.3.2 Conditions for IP Reset

1. The following conditions must be fulfilled:
 - ASYDL, SYS1, Index 1354, Bit 0=1 (Geographic Redundancy Enabled).
 - The system must be Primary Node or Geo Redundant Node.
2. IP reset is not accompanied by the disconnection of calls. A mismatch in the real state of the stations and the state registered in the UAP data may happen. In that case, a procedure to eliminate the mismatch based on the UAP specification must be done.
3. During an IP reset, when the UAP is disconnected, the system message 4-R is generated.
4. When a system transits to operating, an IP reset is performed.
5. During the initial startup and periodical maintenance procedures of a system, an IP reset is triggered. It is triggered depending on the status (operating mode or standby mode) of each system when an initial restart is executed.
When an initial restart is executed, if the system where the IP reset is triggered is in operating mode, it causes the system itself to have an IP reset.

3.29.4 Interactions to Other Features

The following table shows OAI feature which has specific conditions for nodes in the Geographic Redundancy system. OAI feature which is not in this table is available without any conditions.

Supported: X (Note 1), Non Supported: N, Non Related: -

FEATURE	System Conditions (Geographic Redundancy)			
	Primary Node	Geo Redundant Node	Survivable Remote Node	SR-MGC
Inter Node Name Display	X	N	N	N
Single IP Configuration (OAI Terminal Anywhere)	-	-	-	-
Multiple IPs Configuration (Multiple IPs)	-	-	-	-
Multiple OAI Terminal Anywhere	-	-	-	-
FLF Support for FCCS Network	-	-	-	-
ACT-Side Quick Restart	X Note 2	N	X	-
SR-MGC for OAI	-	-	X	X
SIP Handler Controlled SIP Terminal in OAI System	X	X Note 3	X Note 3	-
SMFR/SSFM Restriction During Subscribe Transfer (Available since FP95-114 V4)	-	-	-	-

Note 1: See also service conditions in each feature mentioned in chapter 5 of this manual.

Note 2: ACT-Side Quick Restart is performed only when ASYDL, SYS1, Index 1354, Bit 2=0 (Priority of Automatic Transition to Standby: Giving operation priority to the Primary Node) is set.

Note 3: When a SIP station is incapable of selecting multiple destinations, the terminal should be accommodated in a node (Geo Redundant Node or Survivable Remote Node) that is capable of providing OAI feature independently.

3.29.5 Data Programming

3.29.5.1 Assignment

For Primary Node:

STEP 1: ASYDL

SYS1, Index 1194, Bit 2: 0/1 (SR-MGC for OAI: Out of service/In service)

SYS1, Index 1199, Bit 7: 0/1 (UAP/MIS connection for system in standby mode: Not restricted/
Restricted)

STEP 2: AMNO/AMNOL

Place a check mark in the check box to follow the UCD when monitor status is not requested from AP.

Note: There are not specific data settings for Geo Redundant Node, Survivable Remote Node and SR-MGC.

3.29.5.3 Deletion

Perform the opposite procedure of the Assignment procedure.

3.30 Geographic Redundancy in OAI System with FCCS Networking via IP

3.30.1 Functional Outline

This feature provides automatic recovery of OAI service in case of a failure in a node of an FCCS over IP network where Geographic Redundancy is in use. When a failure is detected, it performs an automatic IP reset (**Note 1**) in all the IP nodes (nodes that provide OAI function) of the network and maintains the information accuracy, eliminating the need for a maintenance person to manually restore the data.

Note: Please note the following:

- This feature is available only in North America.
- This feature is supported from FP95-112 V2.
- For a detailed explanation of the terms related to Geographic Redundancy, see the Geographic Redundancy Configuration Manual.

Note 1: Please note the following:

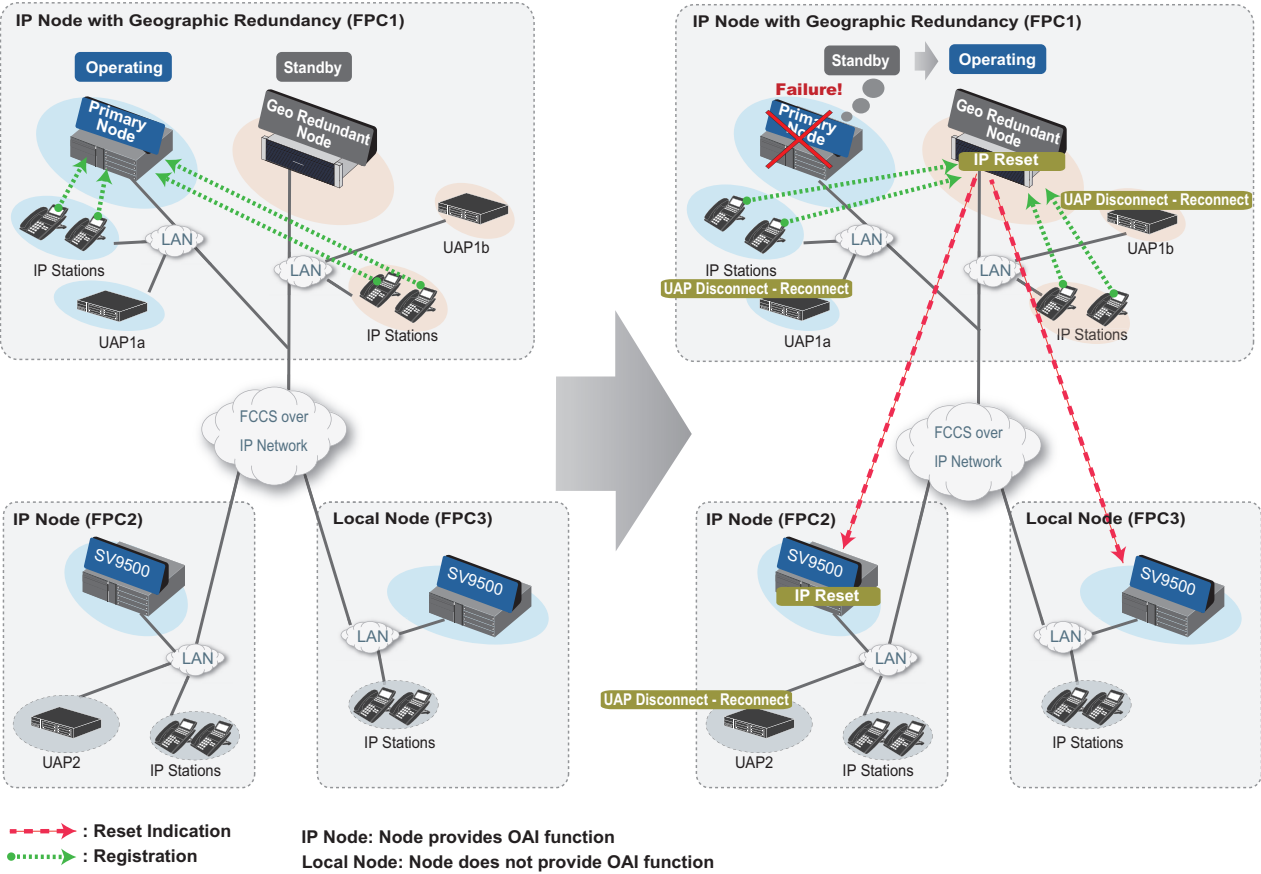
- In an IP reset, after a UAP disconnection, the OAI session of the UAP, subscribe and monitoring information are initialized.
- IP reset is done only in Primary Node or Geo Redundant Node. (It does not happen in a Survivable Remote Node and SR-MGC.)
- When the Survivable Remote Node is in operating mode, OAI can still be used in the system (same as SR-MGC).
- IP reset mode can be assigned with the following system data:
ASYDL, SYS1, Index 1203, Bit 0=0/1 (IP/ACDP reset mode in Geographic Redundancy setting = Automatic/Manual).

3.30.1.1 System description when there is one UAP for each system

If there is one UAP for each system, the UAP must take action in response to events generated by the device to which it is connected. In a state of normal operation, when there is a failure in the Primary Node, an IP reset is performed in the substituting Geo Redundant Node and all the FCCS over IP connected IP nodes. After reconnecting, the UAP of the substituting system takes over the functions of the UAP of the failed Primary Node.

Note: In this context the term IP stations refers to all the IP devices in use.

Note: The UAP must have the capacity to reconnect.

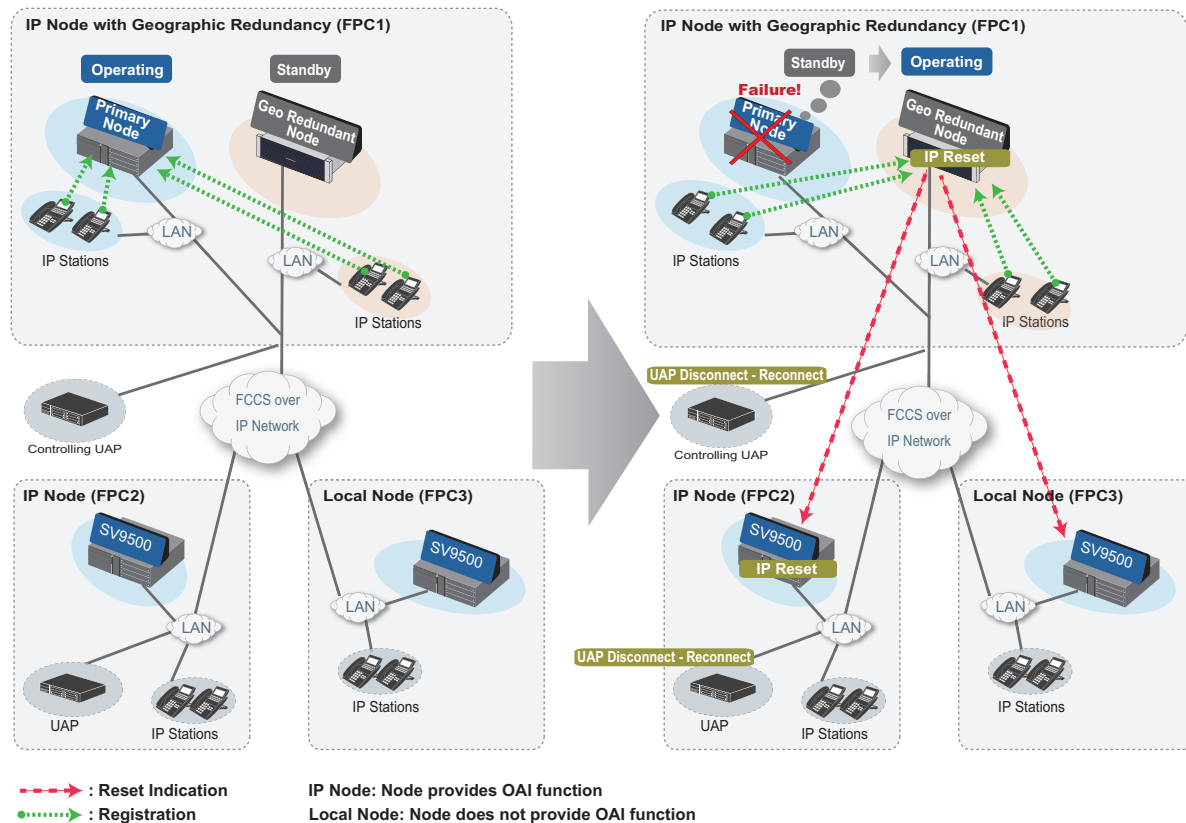


3.30.1.2 System description when there is one UAP for all the systems

If there is one UAP connected to all the systems, the UAP determines the priority order for all the systems and gives priority to the events generated by a system with higher priority (usually the Primary Node). In a state of normal operation, when there is a failure in the Primary Node, an IP reset is performed in the substituting MGC and all the FCCS over IP connected IP nodes. After reconnecting, the UAP continues giving priority to the events received from the system with higher priority (the substituting Geo Redundant Node).

Note: In this context the term IP stations refers to all the IP devices in use.

Note: The UAP must have the capacity to reconnect.



3.30.2 Operating Procedures

The IP reset is related to the Geographic Redundancy process and aims to automatically restore the OAI data in an FCCS over IP network. When a system changes to operating mode, it sends an IP reset instruction to all the nodes. On the other hand, when a system changes to standby mode, the IP reset is performed only in the system. The IP reset procedure follows the steps below.

- (a) The UAP of the system is disconnected.
- (b) The UAP reconnects with the system.
- (c) Subscribe and monitoring information are initialized.

3.30.3 Service Conditions

3.30.3.1 General Conditions

1. The following data assignment must be performed:
 - ASYDL, SYS1, Index 1354, Bit 0=1 (Geographic Redundancy Enabled).
2. Only FCCS over IP supports this feature. (DTI - FCCS does not support it.)
3. OAI calls are not available during the time period between the moment when a failure occurs and the moment when the Redundant System starts operating. To solve this problem, set-up UCD backup for the OAI monitor number.
4. When multiple IP nodes are configured in an FCCS network, the IP nodes may enter in stand alone mode after a failure. To prevent them from taking actions, assign the following data so that the stand alone mode is automatically disabled after the connection is restored:
 - ASYDL/ASYDN, SYS1, Index 1186, Bit 6=0 (Automatic VNDM Reestablishment is enabled).
5. The following conditions apply to UAP:
 - UAP checks the system state with HEALTHCHECKAP/HEALTHCHECKIP.
 - If there is one UAP for each system, the UAP must take action in response to events generated by the device to which it is connected.
 - If there is one UAP connected to all the systems, the UAP determines the priority order for all the systems and gives priority to the events generated by a system with higher priority.
 - Set the upper limit for the number of resendings of monitoring requests from the UAP.

6. The service conditions regarding the type of system are as follows:

Supported: X, Non Supported: N
Supported with Conditions: C, Non Related: -

Type of System	Primary Node		Geo Redundant Node		Survivable Remote Node		SR-MGC	
Mode	Operating	Standby	Operating	Standby	Operating	Standby	Operating	Standby
OAI Note 1								
FCCS Connected	X	N	X Note 2	N	N	N	N	N
Stand Alone	X	N Note 3	X	N Note 3	X	C Note 4	X	C Note 4
UAP								
UAP	X	C Note 5 Note 6	X	C Note 5 Note 6	X Note 7	C Note 5 Note 7	X Note 7	C Note 5 Note 7
IP RESET								
Change to operating	X Note 8		X Note 8		-		-	
Change to standby	X Note 8		X Note 8		-		-	

Note 1: See [Interactions to Other Features](#) for a detailed explanation.

Note 2: If the Primary Node does not provide OAI function (Local node), all the Geo Redundant Nodes also operate as Local nodes.

Note 3: An IP reset is performed in a Primary Node or Geo Redundant Node when it changes to standby mode because of a recovery of other system. In this case, a correct function of the OAI feature cannot be guaranteed for the IP stations registered to the Primary Node or Geo Redundant Node.

Note 4: An IP reset is not performed in an SR-MGC or Survivable Remote Node when it changes to standby mode because a recovery of other system. In this case, the OAI feature can be continued for the IP stations registered to the SR-MGC or Survivable Remote Node.

Note 5: Change office data using an UAP connection is not allowed. In the cases stated below the UAP is disconnected and a reconnection is necessary. The disconnection of the UAP is obtained with a HEALTHCHECKAP/HEALTHCHECKIP.

- An IP reset based in a change to operating mode or standby mode.
- A system restart based in a real time sending (data copy using the CMNT command)
- A system restart based in a periodic sending (automatic copy of data performed after a periodical diagnosis).

Note 6: By assigning ASYDL System 1 Index 1199 Bit 7=1 (UAP/MIS connection for system in standby mode restricted), a TCP connection to a Primary Node or Geo Redundant Node in standby mode will not be possible. The system message 26-V will be generated.

Note 7: It is possible for SR-MGC and a Survivable Remote Node to connect to a UAP even if the Primary Node does not provide OAI function (Local node) by assigning:

- ASYDL, SYS1, Index1193, Bit 7= 0 (ACDP Retrofit: Out of service (Up to 15000 Agents)). (Not available in North America.)
- ASYDL/ASYDN, SYS1, Index1194, Bit 2= 1 (SR-MGC for OAI: In service).
In this case the UAP connection will be done with the LAN1 port for the SR-MGC and the LAN2 port for the Survivable Remote Node.

Note 8: An IP reset is performed when there is a change in the mode of a system.

7. In UMGi system, OAI feature is available after the following operation is performed:

- Conditions for OAI feature under Primary Node (CCN)/Geo Redundant Node (CCN)

When CCN has changed state to normal mode, IP reset is automatically performed in three minutes as default setting (**Note 9**). If UMGi system is in FCCS, IP reset is performed against the overall network.

Note 9: The setting of IP reset timer depends on the system configuration (such as the number of nodes) how long it takes for all the RNs to complete switch-back to normal mode after CCN has changed state to normal mode. Therefore, specify a value in ASYDL, SYS1, Index1201, Bits 0 to 3, which is suitable for your system.

Maintenance personnel have to execute IP reset when system message “10-M: Remote Node State Notification” is output after “4-R: I/O Card Fault of IP”.

Maintenance personnel do not need to execute IP reset when system message “4-R: I/O Card Fault of IP” is output after “10-M: Remote Node State Notification”.

- Conditions for OAI feature under Primary Node (RN)/Geo Redundant Node (RN)

After RN has changed state to normal mode, maintenance personnel need to perform IP reset. If UMGi system is in FCCS, IP reset should be performed against the overall network.

3.30.3.2 Conditions for IP Reset

1. IP reset is only available in an FCCS configuration. The following data assignment must be performed:
 - ASYDL, SYS1, Index1354, Bit 0=1 (Geographic Redundancy Enabled).
 - The system must be Primary Node or Geo Redundant Node.
2. IP reset does not follow the disconnection of calls. A mismatch in the real state of the stations and the state registered in the UAP data may happen. In that case a procedure based in the UAP configuration to eliminate the mismatch must be done.

3. During an IP reset, when the UAP is disconnected, the system message 4-R is generated.
4. When a system changes to operating mode, it waits to the FCCS link to be reestablished to perform an IP reset. If 2400 seconds(40 minutes) pass and the link is not reestablished, the IP reset is not performed.

Note: If the system is a Network Control Node, the link is re-established with the designed node. If it is a Local Node, the link is re-established with the Network Control Node.

5. During the initial startup and periodical maintenance procedures of a system, an IP reset is triggered. If the system where the IP reset is triggered is in operating mode, it causes all the IP nodes to have an IP reset.

3.30.3.3 Conditions specific to UMGi system

1. When CCN cannot connect to other RNs due to a network failure, OAI feature is available in the CCN, while it is unavailable in the RNs.
2. When an RN is in survival mode, OAI feature is not available for terminals accommodated in the RN.
3. OAI feature is available for Survivable Remote Node/SR-MGC belonging to RN/CCN. However, it cannot work with OAI terminals belonging to other RNs.

3.30.4 Interactions to Other Features

The following table shows OAI features which have specific conditions for nodes in the Geographic Redundancy system. OAI features which are not in this table are available without any conditions.

Supported: X (Note 1), Non Supported: N, Non Related: -

FEATURE	System Conditions (Geographic Redundancy)			
	Primary Node	Geo Redundant Node	Survivable Remote Node	SR-MGC
Inter Node Name Display	X	N	N	N
Single IP Configuration (OAI Terminal Anywhere)	X	X	N	N
Multiple IPs Configuration (Multiple IPs)	X	X	N	N
Multiple OAI Terminal Anywhere	X	X	N	N
FLF Support for FCCS Network	X	X	N	N
ACT-Side Quick Restart	X Note 2	N	N	-
SR-MGC for OAI	-	-	X	X
SIP Handler Controlled SIP Terminal in OAI System	X	X Note 3	X Note 3	-

Note 1: See also service conditions in each feature mentioned in chapter 5 of this manual.

Note 2: This feature is not available in UMGi system.

Note 3: When a SIP station is incapable of selecting multiple destinations, the terminal should be accommodated in a node (Geo Redundant Node or Survivable Remote Node) that is capable of providing OAI feature independently.

3.30.5 Data Programming

3.30.5.1 Assignment

For Primary Node:

STEP 1: ASYDL/ASYDN

SYS 1, Index 1186, Bit 6: 0/1 (Automatic VNDM Reestablishment: In service/Out of service)

SYS 1, Index 1194, Bit 2: 0/1 (SR-MGC for OAI: Out of service/In service)

SYS 1, Index 1199, Bit 7: 0/1 (UAP/MIS connection for system in standby mode: Not restricted/Restricted)

STEP 2: AMNO/AMNOL/AMNON

Place a check mark in the check box to follow the UCD when monitor status is not requested from AP.

Note: There are not specific data settings for Geo Redundant Node, Survivable Remote Node and SR-MGC.

For Primary Node in UMGi system:

STEP 1:

(a) ASYDL

SYS 1, Index 852, Bit 5=0 (IP Station Registration Manual Changeover)

SYS 1, Index 1201, Bits 0 to 3 (IP reset timer for UMGi system)

SYS 1, Index 1354, Bit 2=1 (MGC substitution order for Priority of Automatic Transition to Standby)

(b) ASYDL/ASYDN

SYS 1, Index 1186, Bit 6=0 (Automatic VNDM Reestablishment is enabled)

SYS 1, Index 1193, Bit 0=0 (ACDP Quick Initialization is disabled.) (Not available in North America)

SYS 1, Index 1194, Bit 2: 0/1 (SR-MGC for OAI: Out of service/In service)

SYS 1, Index 1199, Bit 7: 0/1 (UAP/MIS connection for system in standby mode: Not restricted/Restricted)

SYS 1, Index 1347, Bit 1=0 (Memory Copy from ACT to STBY is stopped)

STEP 2: AMNO/AMNOL/AMNON

Place a check mark in the check box to follow the UCD when monitor status is not requested from AP.

STEP 3: ARPM

Select Automatic in Changeover Mode.

Note: There are not specific data settings for Geo Redundant Node, Survivable Remote Node and SR-MGC.

3.30.5.4 Deletion

Perform the opposite procedure of the Assignment procedure.

3.31 SMFN Messages for Call Park Group -D

3.31.1 Functional Outline

This feature generates the following Call Status Monitor Facility Notification (SMFN) messages when CALL PARK GROUP -D [C-176D] is used.

Note: This feature is available since FP95-113 V3.

Note: For details of CALL PARK GROUP -D [C-176D], see Data Programming Manual - Business.

- SMFN of Parking a Call with CALL PARK GROUP -D [C-176D] **Note 1**

This SMFN message is generated when a call from a C.O. line or station is placed on hold with CALL PARK GROUP -D [C-176D]. It is delivered as a form of Hold Notification (FN = 6, STS = 0), including the information as shown below:

- FN: 6 (Hold Notification)
- STS: 0 (Hold)
- 1st Party: Calling party (from a C.O. line or a station)
- 2nd Party: Answering party (parking the call with CALL PARK GROUP -D [C-176D])

Note 1: This SMFN message is generated when a call is placed in Call Park Group -D hold state with the HOLD key or the CALL PARK GROUP -D HOLD Feature key.

- SMFN of Retrieving a Parked Call with CALL PARK GROUP -D Feature Key

This SMFN message is generated when a parked call is retrieved with the CALL PARK GROUP -D Feature key. It is delivered as a form of Holding Call Answer Notification (FN = 2, STS = 2), including the information as shown below:

- FN: 2 (Answer Notification)
- STS: 2 (Holding Call Answer)
- 1st Party: Person retrieving the parked call
- 2nd Party: Person placed on hold with CALL PARK GROUP -D [C-176D] **Note 2**

Note 2: This field displays the calling party (from a C.O. line or a station) shown in the 1st Party field of SMFN of Parking a Call with CALL PARK GROUP -D [C-176D] (FN = 6, STS = 0).

3.31.2 Service Conditions

<Important Notices>

1. Service conditions of CALL PARK GROUP -D [C-176D] also apply to this feature. When CALL PARK GROUP -D [C-176D] is not available, SMFN Messages for Call Park Group -D does not work.

<Interactions with Other Features>

1. This feature is not supported for ACD systems.

2. This feature does not work with the Call Park Group -D across MGs/IMGs feature (enabled by the system data ASYDL, SYS1, Index 679, Bit 4 = 1) because EXPANDED MULTIPLE LINE OPERATION -D [E-26D] is not supported for the OAI system.
3. This feature does not work with CALL PARK GROUP (PS) [C-175]. However, the SMFN messages are generated when a call from PS terminal is parked or when a parked PS terminal's call is retrieved.
4. This feature does not work with CALL PARK [C-29], which is different from CALL PARK GROUP -D [C-176D]. The SMFN messages are not generated when a call is parked or when a parked call is retrieved by using CALL PARK [C-29].

<Hardware/Software>

None

<Interactions with Networks>

1. This feature is available in FCCS Networking via IP (Peer-to-Peer) but not in other types of the FCCS systems.

<Conditions Specific to This Feature>

1. The availability of this feature does not depend on the SMFN facility version.
2. In CALL PARK GROUP -D [C-176D], a call from a trunk or station can be parked with the HOLD key or CALL PARK GROUP -D HOLD Feature key. You can choose which one to use with the system data (ASYDL, SYS1, Index 678, Bit 2). In any case, an SMFN message of Hold Notification (FN = 6, STS = 0) is sent upon pressing the key defined by the system data.
3. When No Answer Timer for Call Park Group - D specified by the system data (ASYDL, SYS1, Index 661) expires, the Desktop terminal parking the call will be recalled. In this case, no SMFN message indicating the event is generated.
4. This feature is not supported for Switch Control Facility (SCF).
5. If all the multiple lines configured on your Desktop terminal are in use (for example, being used by other users or busy with incoming calls), you cannot retrieve a parked call and thus an SMFN message of Holding Call Answer Notification (FN = 2, STS = 2) is not generated.

If you go off-hook to retrieve a parked call when your Prime Line (typically My Line) is being used by another member of your group, an SMFN message of Off-Hook Notification (FN = 5, STS = 0) is not generated because the line is busy. To solve this, you can configure one or more Outgoing Trunk lines (with a station number exclusive for the Call Park Group members) on your Desktop terminal, the line on which you can park and retrieve a call. In that case, the SMFN message of Holding Call Answer Notification includes the following information:

- FN: 2 (Answer Notification)
- STS: 2 (Holding Call Answer)
- 1st Party (Line): Outgoing Trunk line (with a station number exclusive for the Call Park Group members)

- 1st Party (Term): Person retrieving the parked call
- 2nd Party: Person placed on hold with CALL PARK GROUP -D [C-176D]

[Scenarios of Generating SMFN Messages for Call Park Group -D]

The following are examples that illustrate the process of generating SMFN messages for CALL PARK GROUP -D [C-176D], in which the Desktop terminals below are used:

- Desktop Terminal B with multiple lines (My Line: b, Sub Line 1: c, Sub Line 2: d)
- Desktop Terminal C with multiple lines (My Line: c, Sub Line 1: d)

Where:

“b” is the My Line (Prime Line) number of Desktop Terminal B

“c” is the My Line (Prime Line) number of Desktop Terminal C

“d” is the station number associated with the Outgoing Trunk line for CALL PARK GROUP -D [C-176D] (exclusive for the Call Park Group members)

Case 1: Line for retrieving a parked call is busy

(1) Parking a call with the HOLD key

Step 1-1: Desktop Terminal B is on a call from Trunk A, using Sub Line 1 (station number: c).

Step 1-2: Desktop Terminal B presses the HOLD key (**Note 1**).

Note 1: HOLD key is a Flex key on the Desktop terminal.

Step 1-3: The call is placed on hold with CALL PARK GROUP -D [C-176D]. On Desktop Terminal B, the lamp of the CALL PARK GROUP -D Feature key flashes green. (It flashes red on the Desktop terminal of the other members in the Call Park Group.)

Step 1-4: Desktop Terminal B receives Service Set Tone (SST).

(2) Retrieving the parked call

Step 2-1: Desktop Terminal C goes off-hook. Since My Line of Desktop Terminal C (station number: c) is being used, an SMFN message of Off-Hook Notification is not generated.

Step 2-2: Desktop Terminal C presses the CALL PARK GROUP -D Feature key to retrieve the parked call.

Step 2-3: Desktop Terminal C starts talking over the idle line, Sub Line 1 (station number: d), instead of busy My Line.

(3) Ending the call

Step 3-1: Desktop Terminal B goes on-hook.

Case 2: Line for retrieving a parked call is idle**(1) Parking a call with the HOLD key**

Step 1-1: Desktop Terminal B is on a call from Trunk A, using Sub Line 2 (station number: d).

Step 1-2: Desktop Terminal B presses the HOLD key (**Note 1**).

Note 1: HOLD key is a Flex key on the Desktop terminal.

Step 1-3: The call is placed on hold with CALL PARK GROUP -D [C-176D]. On Desktop Terminal B, the lamp of the CALL PARK GROUP -D Feature key flashes green. (It flashes red on the Desktop terminal of the other members in the Call Park Group.)

Step 1-4: Desktop Terminal B receives Service Set Tone (SST).

(2) Retrieving the parked call

Step 2-1: Desktop Terminal C goes off-hook. Since My Line of Desktop Terminal C (station number: c) is idle, an SMFN message of Off-Hook Notification is generated.

Step 2-2: Desktop Terminal C presses the CALL PARK GROUP -D Feature key to retrieve the parked call.

Step 2-3: Desktop Terminal C starts talking. Since My Line of Desktop Terminal C is in an off-hook state, an SMFN message of Holding Call Answer Notification (FN = 2, STS = 2) is not generated until the line is released.

(3) Ending the call

Step 3-1: Desktop Terminal B goes on-hook.

The table below compares SMFN messages generated in above-mentioned Cases 1 and 2.

SMFN Messages Generated When Line for Retrieving Parked Call is Busy/Idle

Step	Case 1: Line for Retrieving Parked Call is Busy	Case 2: Line for Retrieving Parked Call is Idle
1-1	-	-
1-2	SMFN message of Hold Notification (FN = 6, STS = 0) 1st Party: A 2nd Party (Line): C 2nd Party (Term): B	SMFN message of Hold Notification (FN = 6, STS = 0) 1st Party: A 2nd Party (Line): D 2nd Party (Term): B
1-3		
1-4		
2-1	-	SMFN message of Off-Hook Notifica- tion (FN = 5, STS = 0) 1st Party: C

SMFN Messages Generated When Line for Retrieving Parked Call is Busy/Idle

Step	Case 1: Line for Retrieving Parked Call is Busy	Case 2: Line for Retrieving Parked Call is Idle
2-2	SMFN message of Holding Call Answer Notification (FN = 2, STS = 2) 1st Party (Line): D 1st Party (Term): C 2nd Party: A	SMFN message of Normal Release Notification (FN = 3, STS = 0) 1st Party: C
2-3		SMFN message of Holding Call Answer Notification (FN = 2, STS = 2) 1st Party: C 2nd Party: A
3-1	SMFN message of Normal Release Notification (FN = 3, STS = 0) 1st Party (Line): C 1st Party (Term): B	SMFN message of Normal Release Notification (FN = 3, STS = 0) 1st Party (Line): D 1st Party (Term): B

<Other Conditions>

None

3.31.3 Data ProgrammingSTEP 1: ASYDL/ASYDN - Assignment of System Data (LDM/NDM) **Note 1**

SYS1

Index 1200

Bit 5=1 (Output of SMFN Messages for CALL PARK GROUP -D [C-176D] is enabled.) **Note 2****Note 1:** Use the ASYDN command for an FCCS system.**Note 2:** Available since FP95-113 V3.**Note:** System initialization is not required for changes to this system data to take effect.

3.32 SMFR/SSFM Restriction During Subscribe Transfer

3.32.1 Functional Outline

This feature provides the SMFR/SSFM monitoring restriction of UAP during Subscribe transfer from VNDM Center Node to Local Node.

When this feature is in service, the system returns the Return Error to the UAP if monitoring is configured during transfer of Subscribe information. In that case, retransmission of the monitoring request from the UAP after a certain time is required to enable the monitoring.

Note: This feature is available since FP95-113 V3.

3.32.2 Using Conditions

<Important Notices>

None

<Interactions with Other Features>

1. This feature is available only for administration stations in Hotel System.
2. Related OAI services are follows:
 - OAI FCCS
 - OAI Capacity Expansion
 - Logical Port Assignment

<Hardware/Software>

1. This feature is not available in SR-MGC(E) because VNDM is not used in it.

<Interactions with Networks>

1. Only FCCS Networking via IP (Peer-to-Peer) is supported in the FCCS Network.

<Conditions Specific to This Feature>

1. The target Subscribe information of this feature is SMFN and SSFN.
2. When SMFR and SSFM are restricted, this feature returns the following error code:
Error = 03H, Error Detail = 02H: Facility regenerated status
3. Depending on the SMFR or SSFM retransmission timing, the Return Error may occur during retransmission. After the Subscribe information transfer is completed (a maximum of 90 seconds of transfer time), the Return Error is not caused by retransmission.

4. When enabled, this feature affects all of the UAPs connected to the system. Consider the risk factors described in item 3. in this section.
5. This feature restricts SMFR/SSFM in the following situations:
 - No configuration of SMFN/SSFN Subscribe
 - Duration between SMFN/SSFN Subscribe connection with UAP and VNDM transfer completion
 - Duration between detection of FCCS system failure recovery after connecting with UAP and VNDM transfer completion
6. This feature cannot restrict SMFR/SSFM between automatic reestablishment of VNDM after connecting with UAP and VNDM transfer completion.
7. As the monitoring is not canceled by events such as key operations of terminals after Subscribe transfer is completed, the SMFR/SSFM are not restricted during VNDM transfer after that.
8. As updating information about terminals of VNDM Center node and terminals connected to UAP nodes is done in real-time and without delay, the SMFR/SSFM are not restricted during Subscribe transfer.
9. This feature does not restrict SMFR/SSFM monitoring configuration on ACDP during Subscribe transfer because ACDP performs SMFR after Subscribe transfer.
10. During VNDM transfer between CCN and RNs in a UMGi system, the SMFR/SSFM are not restricted by this feature.

<Other Conditions>

None

3.32.3 Data Programming

1. Assignment

ASYDL

SYS 1

Index 1186

Bit 7=1 (SMFR/SSFM Restriction During Subscribe Transfer is in service)

Note: This setting is required for IP Nodes. The change takes effect automatically without the need for a system initialization or UAP reconnection.

2. Deletion

ASYDL

SYS 1

Index 1186

Bit 7=0 (SMFR/SSFM Restriction During Subscribe Transfer is out of service)

3.33 Notification of Registration of the IP Stations

3.33.1 Functional Outline

This feature provides information about registration status of IP stations in response to inquiries, using SSFM facility of OAI. It also monitors and sends notification of IP station registration event, using SSFM/SSFN facilities.

When receiving an inquiry about an IP station from the external computer, the service returns the station number and the IP address of the IP station using Return Result if the station is registered. Also, if you send a request for Service Status Facility Monitoring (SSFM) from UAP in advance, this service informs you of the station number and the IP address of the IP station using Service Status Facility Notification (SSFN) when it detects the registration of the station to the Telephony Server.

Note: This feature is available since FP95-113 V3.

3.33.2 Using Conditions

<Important Notices>

1. This feature is available when IP stations are registered to the Telephony Server.
Example:
 - Registration by logging in to the Telephony Server from the IP stations
 - Registration by MAC Authentication
 - Registration on override operation
2. This feature is not available for UMGi/RNIP system.

<Interactions with Other Features>

1. Only administration stations are available on this feature for Hotel System.
2. Related OAI services are as follows:
 - OAI FCCS
 - OAI 16-digit Station Number Information
 - ACT-Side Quick Restart
 - Logical Port Assignment
 - SR-MGC for OAI

<Hardware/Software>

1. Supported IP stations are follows:
 - DtermIP (Proprietary Protocol)

- DT800/DT700
- Dterm SP30 (Proprietary Protocol)
- Soft Client SP350

<Interactions with Networks>

1. Only FCCS Networking via IP (Peer-to-Peer) is supported in the FCCS Network.

Note: All nodes in the FCCS Network must be configured with the same data values.

<Conditions Specific to This Feature>

1. When you make a request for starting or stopping SSFM of an unsupported terminal, this service sends Return Result but not the registration notification (SSFN).
2. When you send an SSFM inquiry about the registration status of an IP station which is not registered to the Telephony Server, this service returns the following error code:

Error = 12H: SSFM error information

Error Detail = 02H: Designated Terminal not Registration Information

3. When you send an SSFM inquiry about the registration status of an unsupported terminal, this service returns the following error code, regardless of whether or not it is registered to the Telephony Server:

Error = 12H: SSFM error information

Error Detail = 01H: Designated Terminal Information Illegal

<Other Conditions>

None

3.33.3 Data Programming

1. Assignment

ASYD

SYS 1

Index 241

Bit 7 = 1 (SSFN Support is in service)

ASYDL/ASYDN

SYS 1

Index 877

Bit 4 = 1 (Notification of Registration of the IP Stations is in service)

ASYDL

SYS 1

Index 1187

Bit 4: Port Number of Service Status Facility Monitoring (SSFM) and Service Status Facility Notification (SSFN)

0: Two ports

1: Eight ports (normal setting)

Note: When the data is changed, SSFM resetting with the UAP is required.

2. Deletion

ASYDL/ASYDN

SYS 1

Index 877

Bit 4 = 0 (Notification of Registration of the IP Stations is out of service)

ASYD

SYS 1

Index 241

Bit 7 = 0 (SSFN Support is out of service)

3.34 Notification of IP Station Type

3.34.1 Functional Outline

This feature enables the Telephony Server to notify a UAP of the terminal category about the IP stations (such as IP terminals and SIP terminals, excluding SP Controlled SIP terminals (**Note 1**)) that are registered with the Telephony Server. The categories of IP stations allow the user of the UAP to distinguish between SIP Handler Controlled SIP terminals and other IP stations.

Note: This feature is available since FP95-114 V4.

Note 1: This feature does not support SP Controlled SIP terminals.

3.34.2 Service Conditions

<Important Notices>

1. The availability of this feature does not depend on the SMFN facility version.

<Interactions with Other Features>

None

<Hardware/Software>

1. This feature supports the following IP stations **Note 1**:

- SIP Multiple Line terminal
- IP terminal
- Softphone
- UG50 (DLC)
- SIP Handler Controlled SIP terminal **Note 2**

Note 1: TEC 12 (Dterm) must be assigned to these stations with the AISTL command. For a station number with other TEC (including those of non-IP terminals and PS) or any number other than stations (including trunks and Attendant Consoles), a Return Error is sent in response to SMFR.

For details of Return Errors, see the table “Return Errors Related to SMFRs Used in This Feature.”

Note 2: For SIP Handler Controlled SIP terminals, this feature supports only those that are verified by NEC through the connectivity test.

<Interactions with Networks>

None

<Conditions Specific to This Feature>

1. This feature uses the following OAI facilities **Note 1**:

SMFN/SMFR	From	To	Description
SMFN (FN = 14, STS = 0/1)	Telephony Server	UAP	IP/SIP Terminal Registration Notification: Provides the following information about IP stations that are logged in or out of the Telephony Server: • Station number • Terminal category
SMFR (FN = 137, MRID = 0/1)	UAP	Telephony Server	IP/SIP Terminal Registration Monitor Request/Cancel: Requests/Cancel the monitoring of IP stations for login and logout events. As a response to this request, SMFN (FN = 14) is returned, the timing of which depends on whether or not the IP stations are logged in. - For a non-login IP station SMFN (FN = 14, STS = 0) is sent to the UAP upon the successful login of the station. - For a login IP station SMFN (FN = 14, STS = 0) is immediately returned to the UAP upon request. SMFN (FN = 14, STS = 1) is sent to the UAP upon the logout event.
SMFR (FN = 1, MRID = 7)	UAP	Telephony Server	IP/SIP Terminal Equipment Kind Inquiry: Requests information about the terminal category of a specific IP station for which this feature is available. As a response to this request, a Return Result message with the station number and terminal category for the station is returned.

Note 1: Available since FP95-114 V4.

- SMFN (FN = 14) is not provided in response to SMFR (FN = 127); the notification requires SMFR (FN = 137) to be sent to the Telephony Server.
- If there are any IP stations that are already logged in when the controller UAP places SMFR (FN = 137), SMFN (FN = 14, STS = 0) will be returned only to the requesting UAP.
- The terminal category information provided by this feature is based on the registration information stored in the Telephony Server. Since the registration information is updated during the Health Check between the Telephony Server and the terminals, there may be a delay between the occurrence of a failure (such as a hardware or network failure) and the time at which the corresponding SMFN (FN = 14) is sent.

5. SMFN (FN = 14) does not guarantee the order of login/logout notifications. This requires the recipient UAP to ensure that the terminal category classification is based on the latest information provided by the Telephony Server.

The following are examples of cases where SMFN (FN = 14, STS = 1: Logout) is not provided. In such cases, multiple SMFN (FN = 14, STS = 0: Login) messages may be sent in a row, depending on the actions of the user or the context of the problem.

- When an IP station is recovered from a failure before the Telephony Server detects the failure
 - When an IP station is reset due to the occurrence of a failure in the SP part of the Telephony Server
 - When an IP station is reset due to changes made to the key data with the AKYD command
 - When Internal PHE or Internal SIP Handler is initialized with the ADPM command
6. The table below shows a list of Return Error codes related to the SMFRs used in this feature.

Return Errors Related to SMFRs Used in This Feature

Error No	Error Detail	Cause of Error
02H	02H (The terminal is not supported for this feature.)	The related System Data may be invalid, or TEC 12 (Dterm) may not be assigned with the AISTL command to the station to be monitored.
02H	04H (The office data is not found.)	Office data is not assigned to the station.
03H	02H (The facility is not found.)	The facility setup (Subscribe) of SMFR has not been completed.

<Other Conditions>

None

3.34.3 Data Programming

STEP 1: ASYDL/ASYDN - Assignment of System Data (LDM/NDM) **Note 1**

SYS1

Index 1200

Bit 6 = 0 (Enables Notification of IP Station Type (SMFR/SMFN).) **Note 2, Note 3**

Note 1: Use the ASYDN command for an FCCS system.

Note 2: Available since FP95-114 V4.

Note 3: System initialization is not required for changes to this system data to take effect.

3.35 ISDN Disconnect Cause Information

3.35.1 Functional Outline

When a remote party over a SIP or ISDN trunk disconnects a call, this feature allows the Telephony Server to provide a UAP with information about the cause of the disconnection.

Upon receipt of an ISDN DISC, REL, or RELCOM message with a cause code from the SIP or ISDN network, the Telephony Server will process the code and then send it to the UAP through an SMFN Release Notification (FN = 3).

Note: This feature is available since FP95-114 V4.

3.35.2 Service Conditions

<Important Notices>

1. In this feature, a cause code is inserted in the call kind area of the 1st Party Information field in an SMFN Release Notification (FN = 3); the recipient UAP must be able to extract and process the information stored in the area.
2. This feature is available only when the trunk specified as the 1st Party in an SMFN Release Notification (FN = 3) has received a cause code from the network.
When a station of the Telephony Server is specified as the 1st Party in an SMFN Release Notification (FN = 3) or the trunk for the feature has not received a cause code from the network, information about the cause of the disconnection will not be provided to the UAP. For example, consider the following situations:
 - A PS call is disconnected by the calling party station during the Out of Zone Announcement.
 - A trunk call is disconnected by the calling party station during Ring Back Tone (RBT).
 - A trunk call is disconnected by the calling party station in the middle of conversation.
3. The availability of this feature does not depend on the SMFN facility version.

<Interactions with Other Features>

1. This feature does not support INFOLINK DATA MESSAGES - ACD [I-99A].

<Hardware/Software>

1. This feature supports trunks connected to the following gateways:
 - MG(PRI)
 - MG(BRI)
 - MG(SIP)

<Interactions with Networks>

None

<Conditions Specific to This Feature>

1. The processing of cause codes depends on the trunk for the feature:

[For a trunk connected to MG(PRI) or MG(BRI)]

- (a) When receiving only one cause code via an ISDN DISC, REL, or RELCOM message, the Telephony Server sends the code to the recipient UAP.
- (b) When receiving more than one cause code via an ISDN DISC, REL, or RELCOM message, the Telephony Server only sends the first one to the recipient UAP.

[For a trunk connected to MG(SIP)]

The cause code to be sent to the recipient UAP is determined by the SIP response code received from the SIP server and the “cause_table” configuration command for the MG(SIP).

<Other Conditions>

None

3.35.3 Data Programming

STEP 1: ASYDL/ASYDN - Assignment of System Data (LDM/NDM) **Note 1**

SYS1

Index 1201

Bit 4 = 1 (Enables the Insertion of ISDN Disconnect Cause Information in SMFN Release Notification (FN = 3).) **Note 2, Note 3**

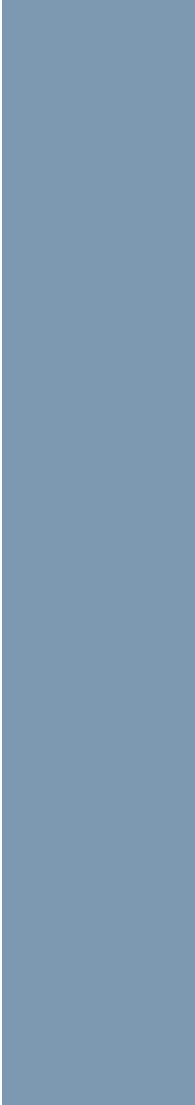
Note 1: Use the ASYDN command for an FCCS system.

Note 2: Available since FP95-114 V4.

Note 3: System initialization is not required for changes to this system data to take effect.



CHAPTER 6 MAINTENANCE

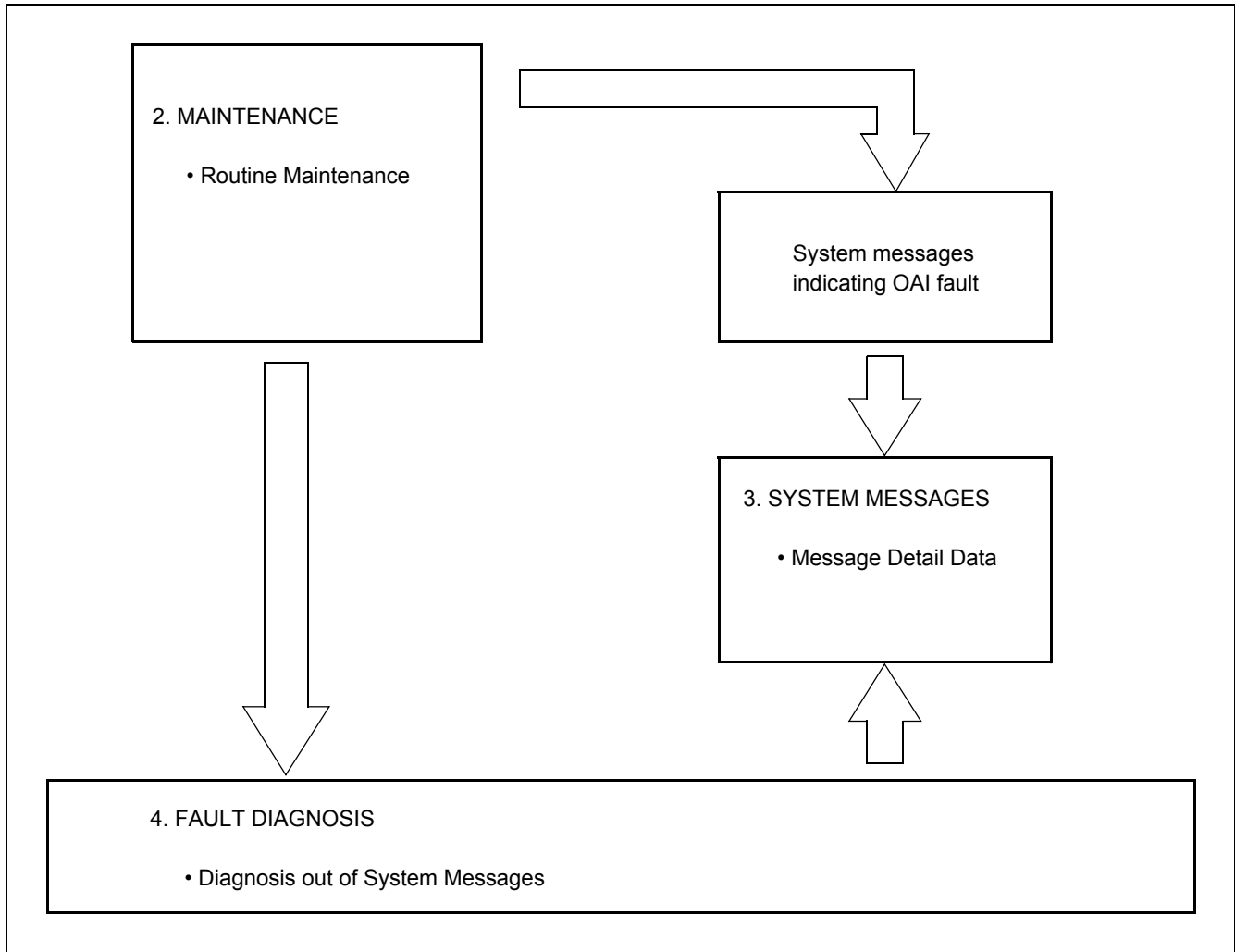


This chapter explains maintenance, fault diagnosis from system messages and the fault repair procedure for the OAI System.

1. GENERAL

When a fault is discovered during maintenance, the fault is diagnosed from system messages and is repaired using the following fault repair procedure (Refer to the figure below).

Flow of Maintenance Works



2. MAINTENANCE

2.1 Routine Maintenance

The following is performed by routine maintenance on the OAI System.

1. System messages pertaining to OAI faults

A check is made to see if any system messages pertaining to OAI faults are printed out. (Refer to “Outline” in this chapter.)

2.1.1 System Messages and Lamp Indications on front panel

In the OAI system, an alarm lamp on the front panel corresponding to the faulty equipment lights up. The alarm lamps on the front panel corresponding to system messages are shown in Relationship between System Messages and Alarm Lamps on front panel.

Relationship between System Messages and Alarm Lamps on front panel

SYSTEM MESSAGE		ERROR LAMP NAME			REMARKS
No.	NAME	MJ	MN	SUP	
4-R	I/O Card Fault of IP			×	
26-V	LAN Interface Error Report			×	
26-Y	Standalone Mode Set Notification				
26-Z	Standalone Mode Release Notification				

3. SYSTEM MESSAGES

3.1 Outline

If any of the OAI functions become faulty, the corresponding system message shown in System Messages of OAI System is displayed. This section explains the meaning of each system message and message detail data.

System Messages of OAI System

SYSTEM MESSAGE No.	FAULT	CONTENTS OF FAULT
4-R	TCP/IP Link Failure	A fault has occurred to the UAP or to the line connected with the external computer.
26-V	LAN Interface Error Report	A fault, related to the TCP/IP connection between the Node and Host, occurred.
26-Y	Standalone Mode Set Notification	This message is issued when the VNDM Local Node comes on-line as a Standalone mode.
26-Z	Standalone Mode Release Notification	This message is issued when the VNDM Local Node is released its standalone mode and FCCS link is re-established.

3.2 Message Detail Data

This section describes the detailed information on the faults indicated by system messages (message detail data).

3.2.1 Message Detail Data of System Message “4-R”

System Message 4-R: TCP/IP Link Failure

1. Print-out Forma

SYSTEM MESSAGE 4 - R				TCP/IP Link Failure			
NEC - ESD				DEC 22 21:32			
1: XX XX	XX XX	XX XX	XX XX	2: XX 00	00 00	00 00	00 00
[1] [2]	[3] [4]	[5]					

2. Print-out information (typical)

- | | |
|---|---|
| [1] Fault port number: | 0–5 |
| [2] Communication Protocol: | 03 = ETHER + TCP/IP |
| [3] Error Code (ERRK): | Refer to the table below (6–3 ERROR CODE) |
| [4] Socket Number Used by Application (Hex) | |
| [5] IP Address of External Computer (Hex) | |

Error Code

[2] PROTOCOL	[3] ERROR CODE	CONTENTS OF FAULT
03 (ETHER + TCP/IP)	01	TCP Connection disconnected (Normal) Note 1
	12 (0C)	Abnormal UAP is detected by Heart Beat function
	13 (0D)	TCP disconnection based in Geographic Redundancy system mode change

Note 1: This error code shows that the Host (UAP) is down manually. You can program not to output this detail message at some offices using SYS 1, Index 864, Bit 1 in ASYDL (Other messages than ERRK = 01 are output when TCP connection disconnected is not output).

3.2.2 Message Detail Data of System Message “26-V”

System Message 26-V: LAN Interface Error Report (OAI/MIS)

1. Print-out Format

SYSTEM MESSAGE 26 - V				LAN INTERFACE ERROR REPORT			
NEC - ESD				JULY 25 19:30			
TCP/IP Part				Application Part			
1:	XX XX	XX XX	XX XX	2:	XX XX	XX 00	00 00 00 00
	[1] [2]	[3] [4]	[5] [6]		[9] [10]	[11]	

2. Print-out information (typical)

- TCP/IP Part -

[1]-[4]	IP address of the error-detected OAI/MIS terminal
[5], [6]	Port number
[7]	Used socket number
[8]	Error Code (TCP/IP part)

- Application Part -

[9]	Application Type
	05 = OAI
	07 = MIS (ACD)
[10]	Faulty Logical Port No.
[11]	Error Kind (ERRK)
	01 = SEND Execution Error
	02 = RECEIVE Execution Error
	03 = TCP/IP Connection Error
	04 = Connection Error (B-Level Infinite Loop, etc.)
	05 = TCP/IP Port Capacity Over
	06 = TCP/IP Connection Error (IP/ACDP service is invalid)

3.2.3 Message Detail Data of System Message “26-Y”

System Message 26-Y: Standalone Mode Set Notification

This message is issued when the VNDM Local Node in FCCS network comes on-line as a Standalone mode.

1. Print-out Format

SYSTEM MESSAGE 26 - Y				Standalone Mode Set Notification			
NEC - ESD				AUG 21 17:15			
1: XX XX	XX XX	XX XX	XX XX	2: XX 00	00 00	00 00	00 00
[1] [2]	[3] [4]	[5] [6]	[7] [8]	[9]			

2. Print-out information (typical)

[1]

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: FACTOR (HEX)

01: Center VNDM Writing NG

02: Initialization Failure

03: VNDM Data Reestablishment

[2]

b7	b6	b5	b4	b3	b2	b1	b0

[When FACTOR=1]

b0=WD=0/1=Writing/Reading

b1=MS=0/1=Monitored Number/Subscribe Information

[3]-[9]

	(When MS=0) Monitored Number	(When MS=1) Subscribe Information
[3]	NMI (HEX)	OPEC (HEX)
[4]	NMI (HEX)	OPEC (HEX)
[5]	MOKIND (HEX)	TN (HEX)
[6]	PSAP (HEX)	TN (HEX)
[7]	PSAP (HEX)	PSAP (HEX)
[8]	b7b6b5b4b3b2b1b0 b0, b1=DL <td>PSAP (HEX)</td>	PSAP (HEX)
[9]		b7b6b5b4b3b2b1b0 b0, b1=DL

3.2.4 Message Detail Data of System Message “26-Z”

System Message 26-Z: Standalone Mode Release Notification

This message is issued when the VNDM Local Node has released its standalone mode and FCCS link with VNDM Center Node is re-established.

1. Print-out Format

SYSTEM MESSAGE 26 - Z				Standalone Mode Release Notification			
NEC - ESD				AUG 21 17:15			
1: 00 00	00 00	00 00	00 00	2: 00 00	00 00	00 00	00 00

2. Print-out information (typical)

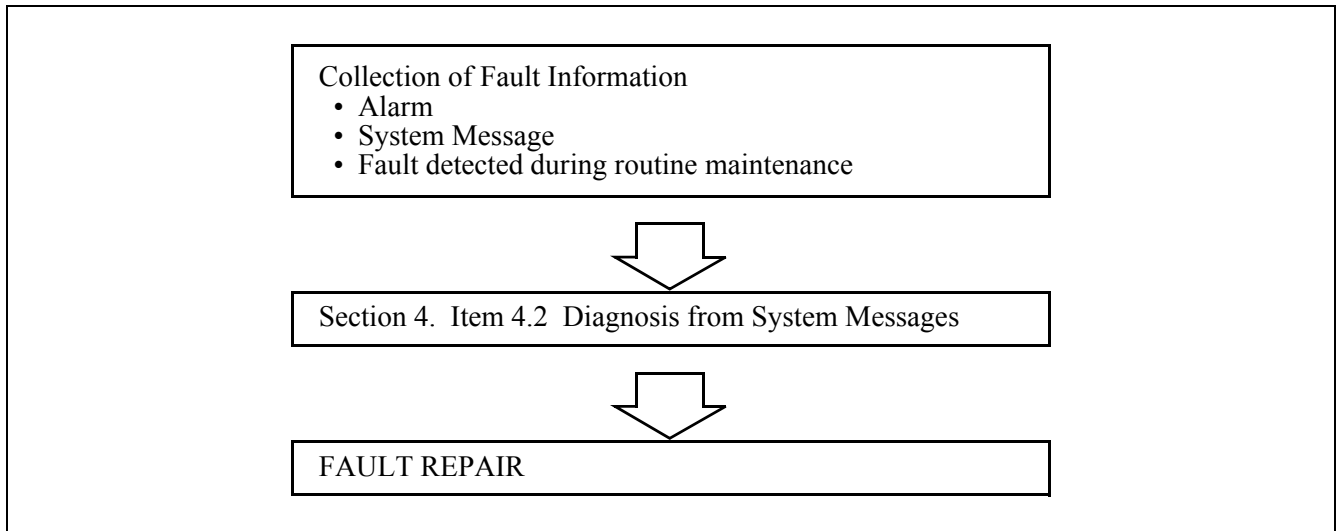
This system message is always indicated as 0.

4. FAULT DIAGNOSIS

4.1 General

If a fault occurs to the OAI System, the corresponding system message is displayed. This section explains the procedures of fault diagnosis by system messages and of fault repairs.

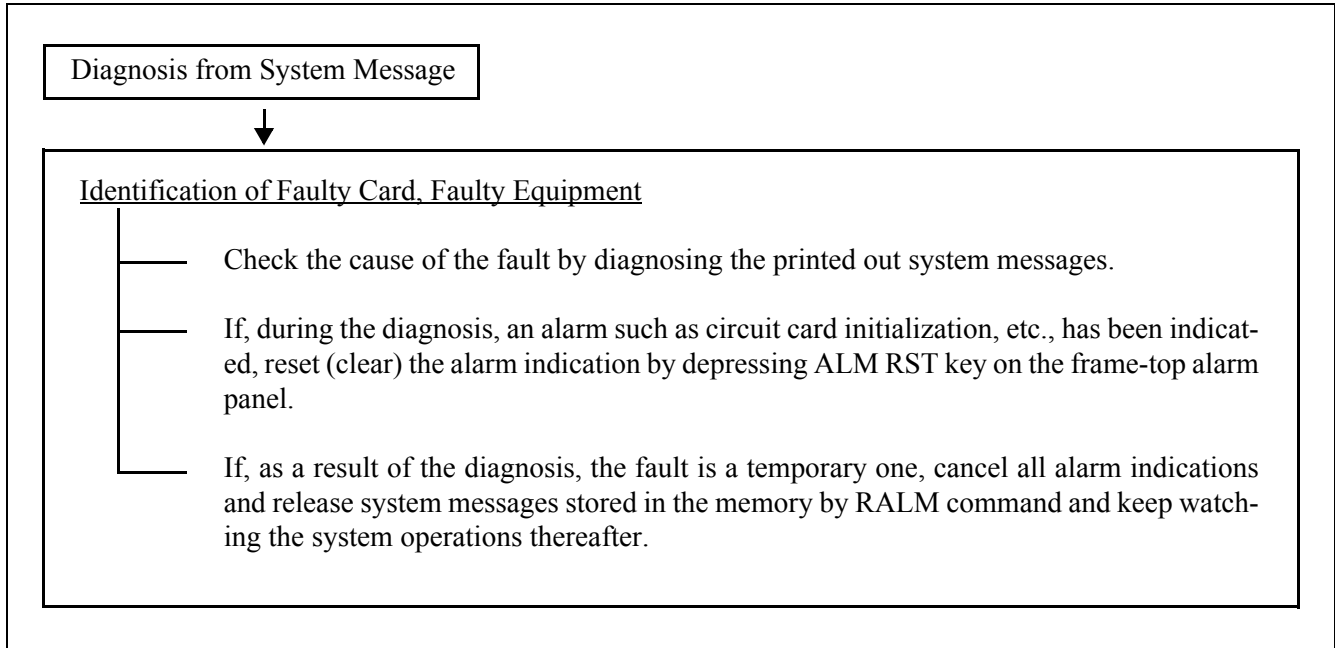
Flow of Fault Repair



4.2 Diagnosis from System Messages

The flow of work from diagnosis of system message to discovery of the cause of the fault is shown in the figure below.

Flow of Diagnosis out of System Messages



4.2.1 TCP/IP Link Failure

For details of System Message 4-R and 26-V, See the sections “Message Detail Data of System Message “4-R”” and “Message Detail Data of System Message “26-V”” in this Chapter.

START

According to each fault situation, perform the repairing procedure referring to the table below.

- When Message 4-R is displayed:

Repairing Procedure for TCP/IP Link Failure (Message 4-R)

ERRK	Detail information of ERRK	Check Item
01	TCP/IP connection is down for the TCP connection disconnection from Host.	Restart the Host
02	Incorrect text format is received.	[1] Check the software operation on the Host side
		[2] Check the LAN cable connection
0A	TCP/IP connection establishment is not completed for the TCP connection disconnection ordered from Host.	Restart the Host
0B	TCP/IP connection establishment is not completed for the TCP connection disconnection ordered from Host.	[1] Check the TCP/IP transmission capacity on the UAP side is proper or not.
		[2] Check the system operation on the UAP side.
0C	According to Heart Beat function of Host, abnormal status of the Host system operation is detected.	Check system operation of the Host
0D	Not used	
0E	TCP port is released due to the detection of abnormal state in the TCP/IP port (such as B-level Infinite Loop, etc.).	Check the operation status of Host
0F~FF	Not used	

A

A

- When Message 26-V is displayed:

Repairing Procedure for TCP/IP Link Failure (Message 26-V)

ERRK	Error Situation	Check Item
01	TCP/IP connection is down because the text is not transmitted continuously.	[1] Check the TCP/IP Transmission capacity on the UAP side is proper.
		[2] Check the operation status on the UAP side is normal.
02	Incorrect text format is received.	[1] Check the software operation on the Host side.
		[2] Check the LAN cable connection status.
03	TCP/IP connection is released due to the TCP port disconnection order from the Host.	Restart the Host computer.
04	TCP port is released due to the detection of abnormal state in the Host operation.	Check the operation status of Host.
05	TCP/IP connection cannot be established due to the connection port capacity over.	The number of allowed ports for application use via TCP/IP must be 16 or less. Adjust the total port number within this range.
06	TCP/IP connection cannot be established because IP/ACDP service is invalid.	[1] Check to see that "ASYDL SYS1 Index 864 Bit 0" = 1 (Built-in IP/ACDP is valid).
07~FF	Not used	

Host is still abnormal status?

If yes, _____ Host is out of order. Repair the Host computer.

If no, _____ Ethernet adapter is out of order. Please contact your local sales agency.

5. PRECAUTION ABOUT CONNECTION BETWEEN OAI SYSTEM AND UAP

When the data link between the Node and UAP is down in on-line mode, the UAP must be restarted according to the procedure shown below.

When the Status Monitor Facility Request (SMFR), FN=126 is not used:

STEP 1: Assign the data as follows:

ASYDL SYS 1 Index 864

Bit 4=1 (8 ports)

Bit 5=0 (Clear the SMFN when the FCCS link is down)

Note: This data setting causes the OAI system to temporarily stop its operating. This data setting must be performed deliberately. When using OAI FCCS service, this data setting must be performed at all nodes in the FCCS network.

STEP 2: Perform the Power-On initialization (Turn the power of Telephony Server to OFF→ ON).

STEP 3: Restart the UAP.

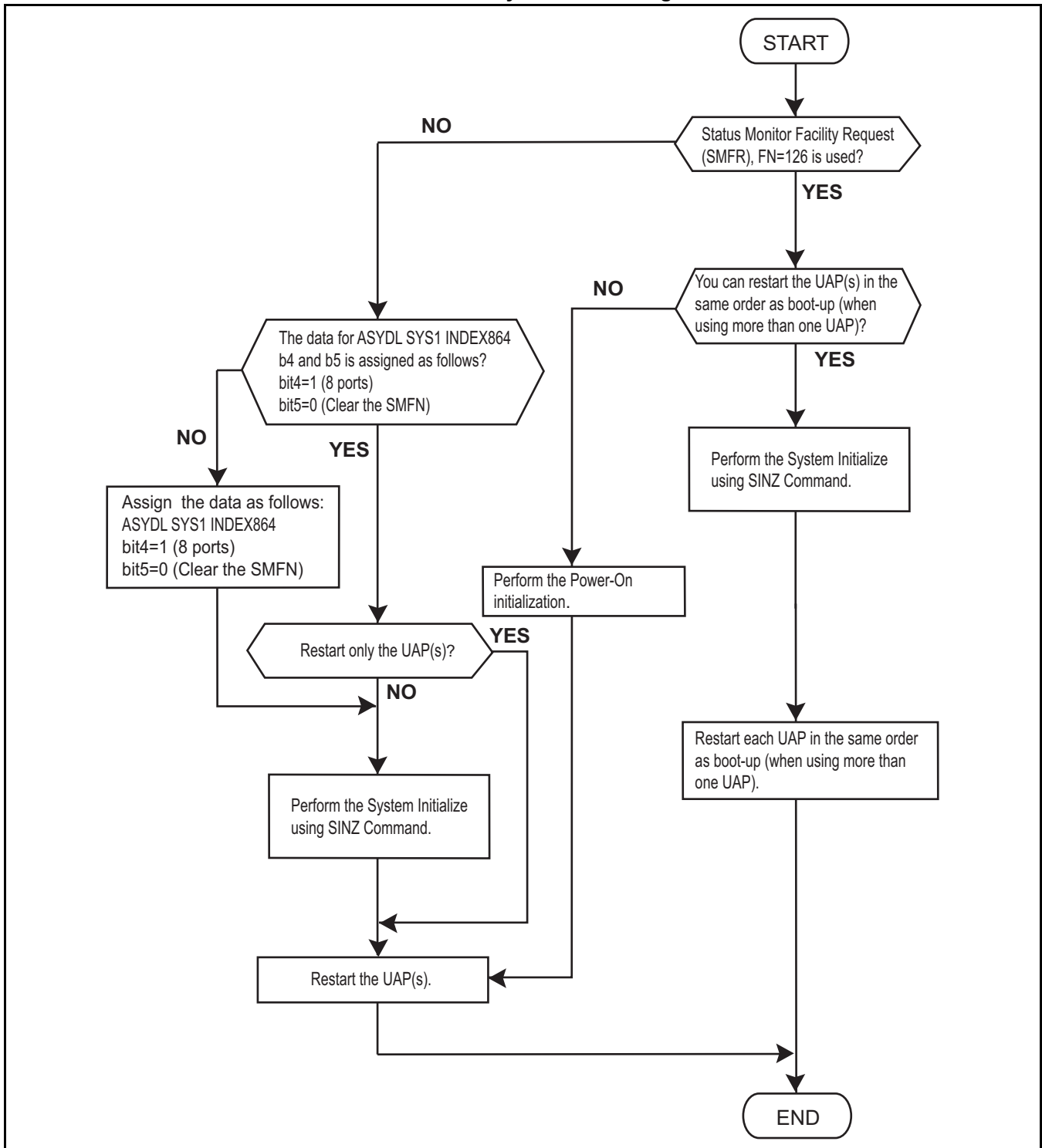
When the Status Monitor Facility Request (SMFR), FN=126 is used:

When two or more UAP(s) are used, restart each UAP in the same order used in the start-up of the UAP(s) before operating. If you are not sure about the order used in the start-up of the UAP(s) before operating, perform the Power-On Initialization at first and then restart the UAP(s).

6. OAI SYSTEM RESTART PROCESSING

The following flowchart shows the procedure for restarting the OAI system.

Flow of OAI System Restarting



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