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NEAX[®] 2400IMX

OAI System Manual

SEPTEMBER, 2000

NEC America, Inc.

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OAI System Manual

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This page is for your notes.

CHAPTER 1 INTRODUCTION

1. General

This manual describes the outline, installation procedure/installation tests, and various phases of maintenance work of an OAI (Open Application Interface) system which realizes the NEAX2400 IMX and a computer system.

2. How to Follow the Manual

2.1 Configuration of This Manual

Configuration of this manual is shown in [Table 1-1](#).

Table 1-1 Configuration of This Manual

CHAPTER	TITLE	CONTENTS
2	SYSTEM OUTLINE	This chapter describes the concept, function and configuration of the NEAX2400 IMX OAI System
3	INSTALLATION PROCEDURE	This chapter describes the installation procedure for NEAX2400 IMX OAI System
4	COMMANDS	This chapter describes the commands that are used in NEAX2400 IMX OAI System
5	OFFICE DATA DESIGN	This chapter describes the procedure for setting the office data required in NEAX2400 IMX OAI System
6	MAINTENANCE	This chapter describes the maintenance, fault diagnosis and fault repair procedure of NEAX2400 IMX OAI System

INTRODUCTION

How to Follow the Manual

2.2 Related Reference Manual

The installation tasks for the NEAX2400 IMX OAI System consist of those related to the NEAX2400 IMX system and those related to the OAI functions. Since this manual describes the tasks pertaining to the OAI functions, it must be used together with the following manuals that describe tasks pertaining to the NEAX2400 IMX itself when performing tasks pertaining to the NEAX2400 IMX OAI System.

Table 1-2 Related Reference Manual

MANUALS FOR NEAX2400 IMX	RELATIONSHIP WITH THIS MANUAL
Installation Manual	When performing installation and installation tests of the NEAX2400 IMX OAI System, these manuals are to be used together with Chapter 3, "INSTALLATION PROCEDURE" and also with "Circuit Card Manual".
Feature Programming Manual	
System Operations and Maintenance Manual	When performing maintenance jobs on the NEAX2400 IMX OAI System, this manual is to be used together with Chapter 6, "MAINTENANCE" of this manual.
Office Data Specification	When performing installation tests and maintenance jobs on the NEAX2400 IMX 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 NEAX2400 IMX OAI System. Before performing installation and/or maintenance of the NEAX2400 IMX OAI System, read this chapter carefully.

The contents of Chapter 2 are outlined below.

- [System Outline](#)
Explains the outline of the OAI system
- [System Configuration](#)
Explains the configuration of the OAI system
- [Interface with External Computer](#) (General-Purpose Information Processing Equipment)
Explains the conditions for interface with external computer, and use of the related circuit cards

SYSTEM OUTLINE

System Outline

2. System Outline

2.1 OAI (Open Application Interface) System

1. The OAI system is the interface that joins a variety of facilities of the NEAX2400 IMX to the application programs of the external computer (general-purpose information processing equipment) of the user.
2. The NEAX2400 IMX can be controlled by the external computer through the OAI system.
3. The OAI system diversifies the information processing functions of the NEAX2400 IMX, thus offering users' unique added values.
4. For implementing the OAI system, an Interface Processor (IP) is provided to the NEAX2400 IMX.
5. The IP controls the communication protocol between the NEAX2400 IMX and the UAP (User's Application Processor of the external computer) in accordance with the basic reference model of the Open Systems Interconnection (OSI) standardized by the ISO (**Note**).

Note: *International Organization for Standardization (ISO)*

2.2 Software Structure in the OAI System

The software structure in the OAI system is shown in [Figure 2-1](#). So far, the software structure of the NEAX2400 IMX 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 of lamps/keys, etc. To meet these processing requirements, a conventional arrangement is made every time a request for the application software arises. The modules of the Input Processing Block and the Output Processing Block are replaced with those corresponding to such a request. However, in the case of the OAI system, each unit function to be made available for the computer in the Input Processing Block and the Output Processing Block is defined as a facility (each slant lined portion in [Figure 2-1](#)) in advance, so that each of these facilities 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 NEAX2400 IMX, but is analyzed by the external computer. As a result of this processing by the external computer, all the related messages are shown on a digital display and a lamp display at corresponding terminals. In other words, the OAI interface has released the function of the conventional internal processing to the external computers.

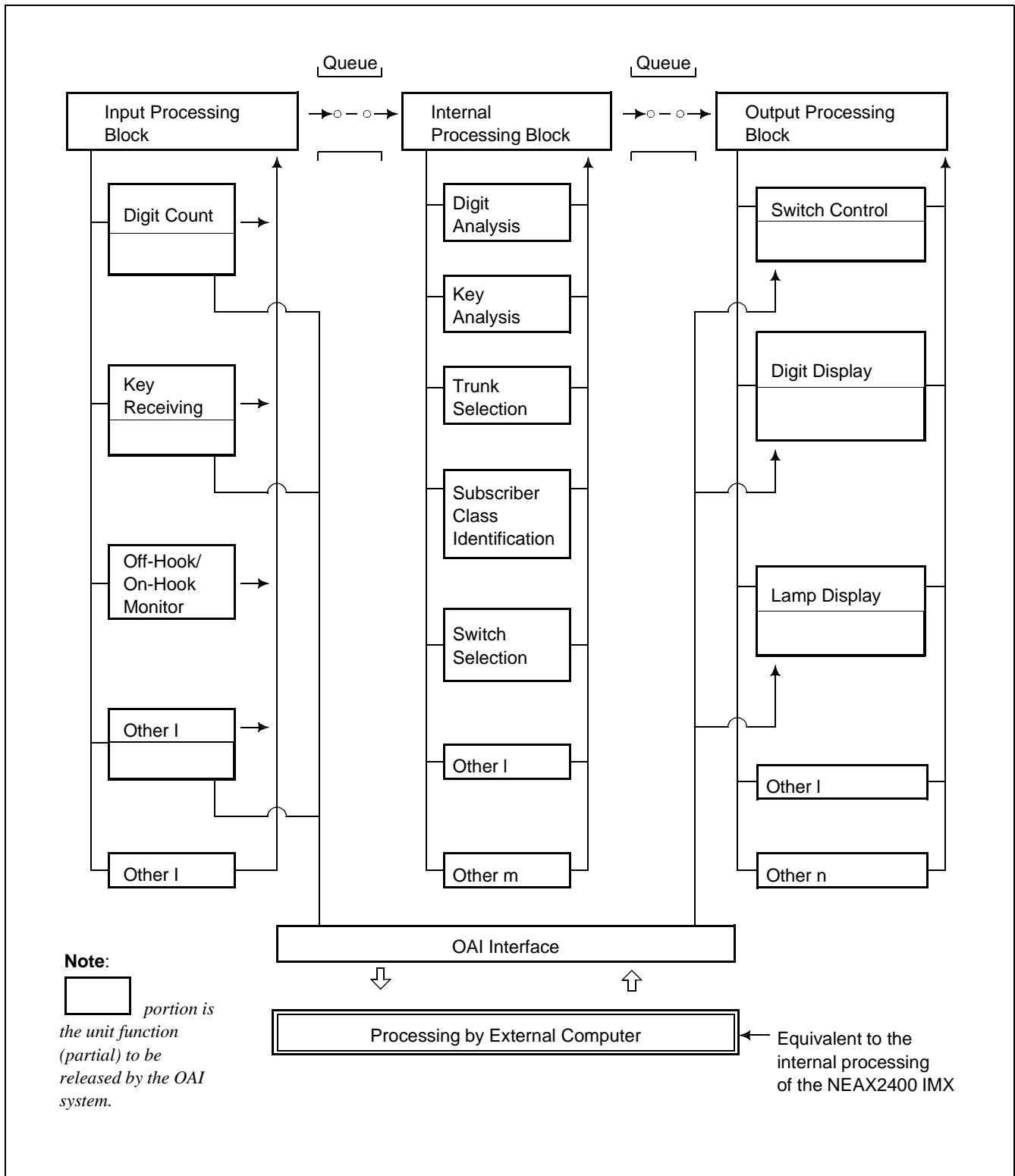


Figure 2-1 Software Structure in the OAI System

SYSTEM OUTLINE

System Outline

2.2.1 Facilities

Each of the unit functions of the NEAX2400 IMX, such as switch control function, terminal control function, etc., that can be controlled by the application of the computer is referred to as “facility”. The facilities can be categorized in two kinds as per the operating pattern; one is “Provider Facility” and the other is “Performer Facility”.

- **Provider Facility**
A facility of this kind 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**
A facility of this kind is capable of communicating with plural 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 given 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 depressed 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. (Figure 2-2)

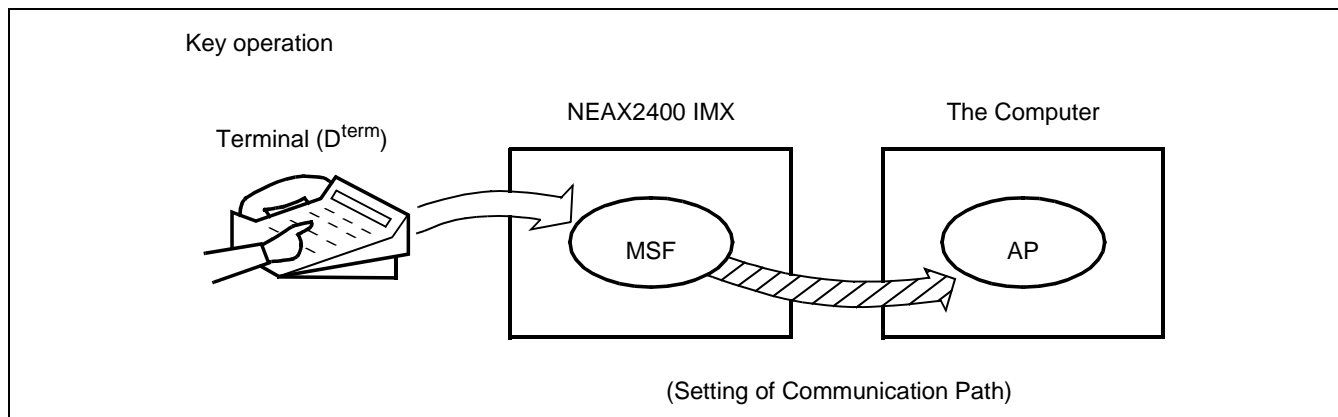


Figure 2-2 Concept of MSF

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. (Figure 2-3)

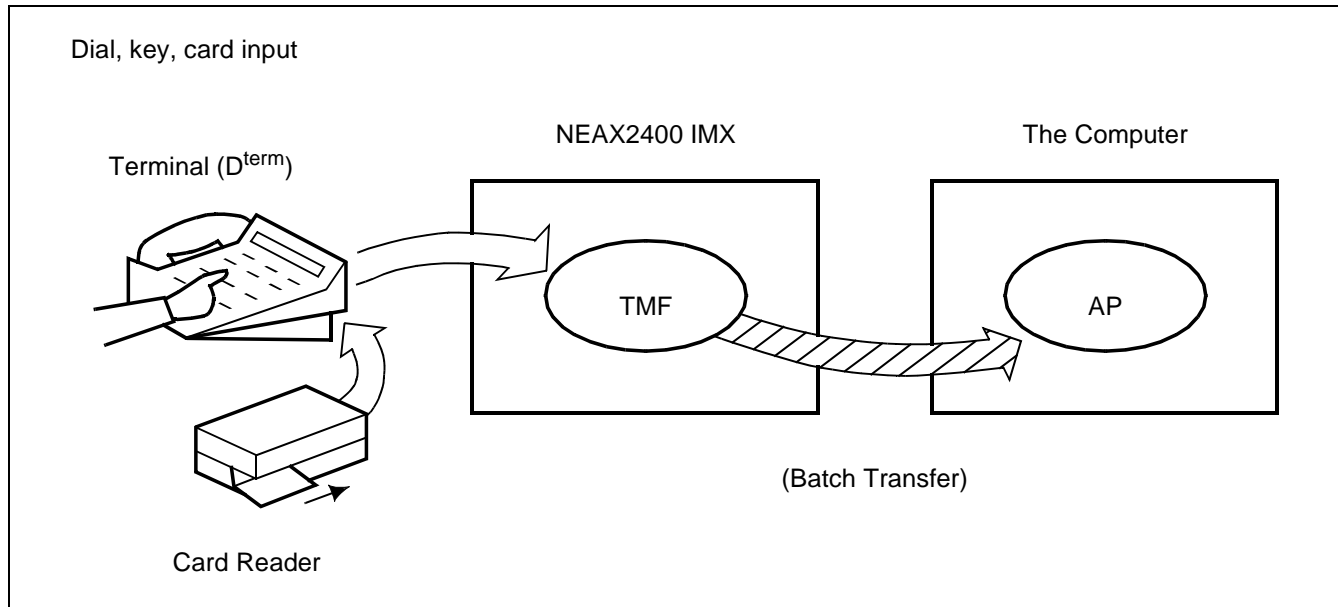


Figure 2-3 Concept of TMF

- (c) Call Event Transfer Facility (ETF)
This facility edits the detailed data (call duration, etc.) pertaining to calls at terminals accommodated in the NEAX2400 IMX, and provides the edited information to the computer. (Figure 2-4)

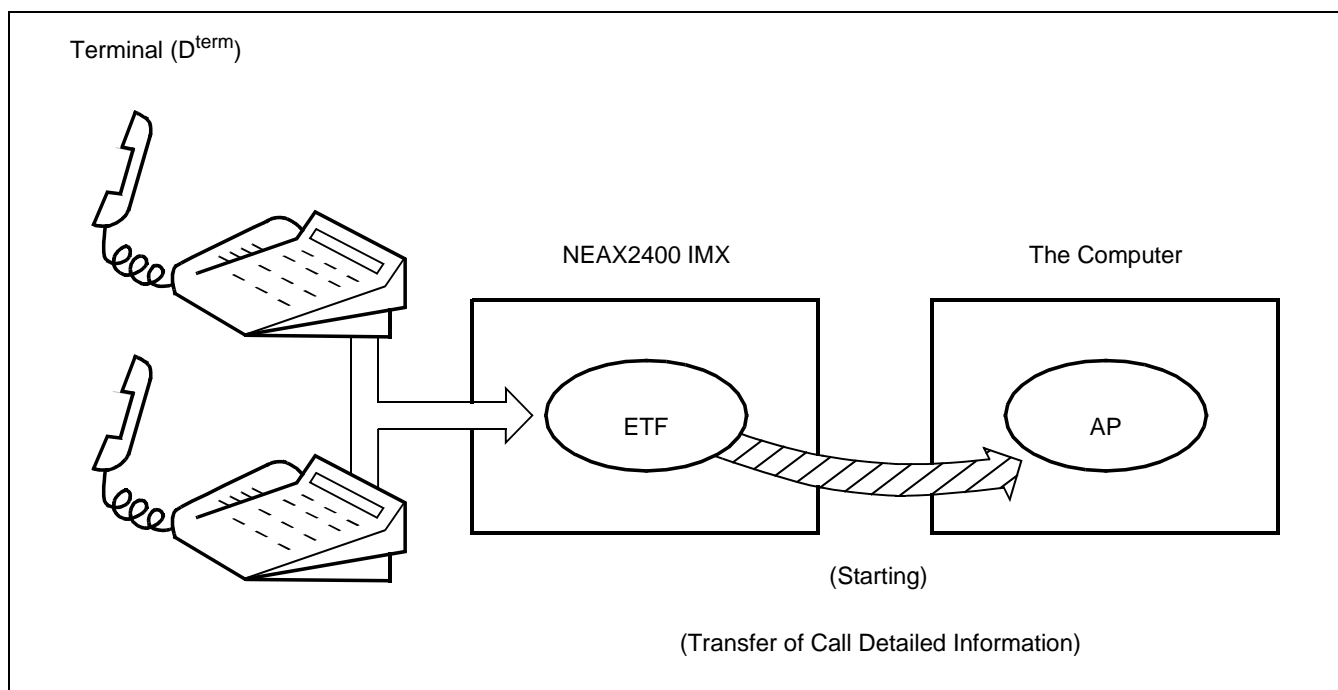


Figure 2-4 Concept of ETF

SYSTEM OUTLINE

System Outline

(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 also executes either connection processing or connection restricting processing in accordance with the restriction class information returned from the computer. (Figure 2-5)

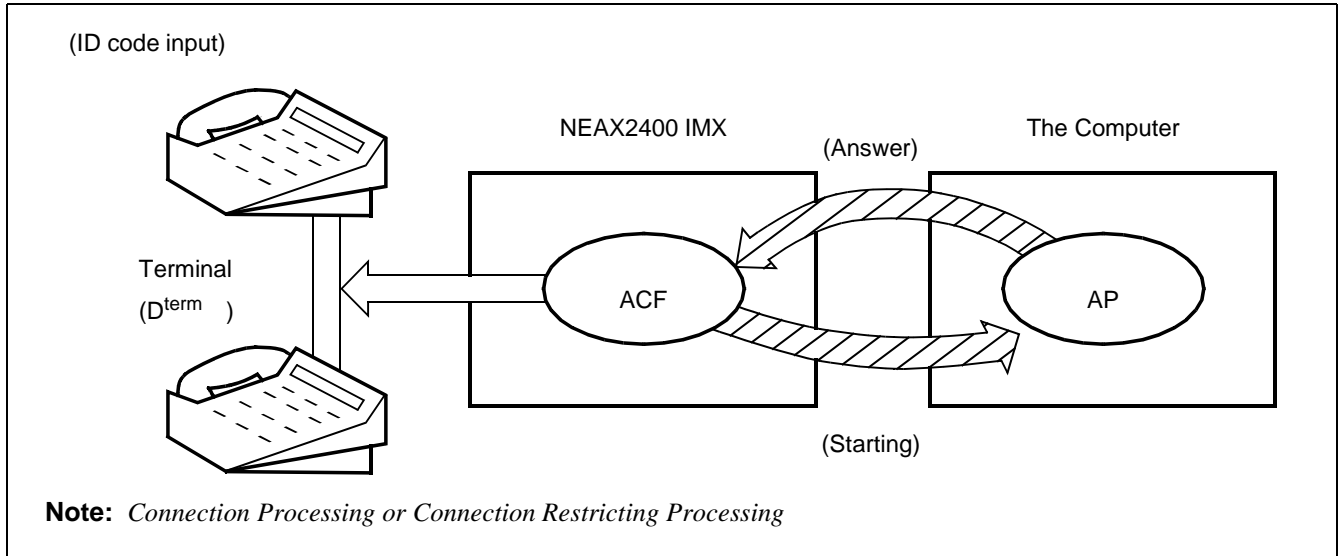


Figure 2-5 Concept of ACF

(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. (Figure 2-6)

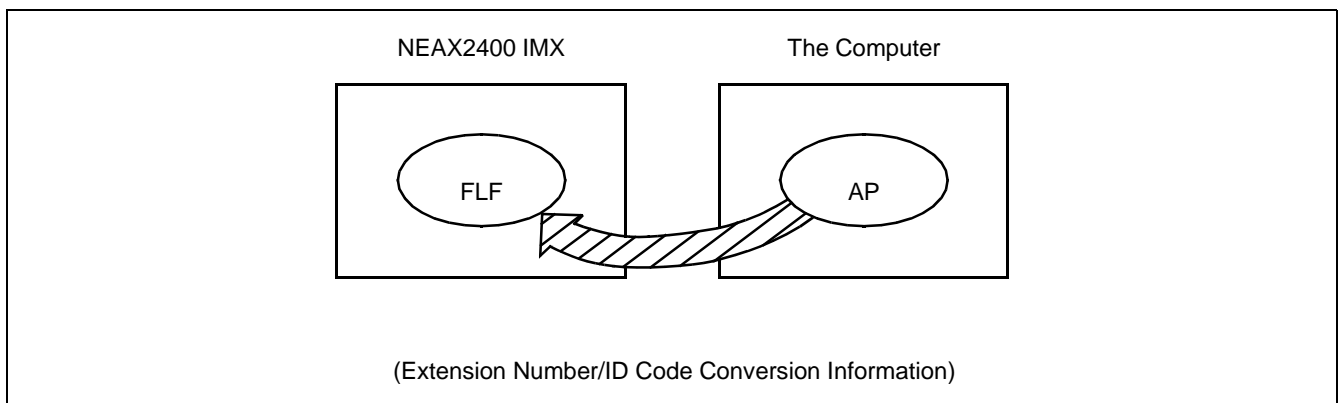


Figure 2-6 Concept of FLF

2. Performer Facilities

(a) Terminal Control Facility (TCF)

This facility controls the LCD, LED, etc. on a terminal concerned as 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. (Figure 2-7)

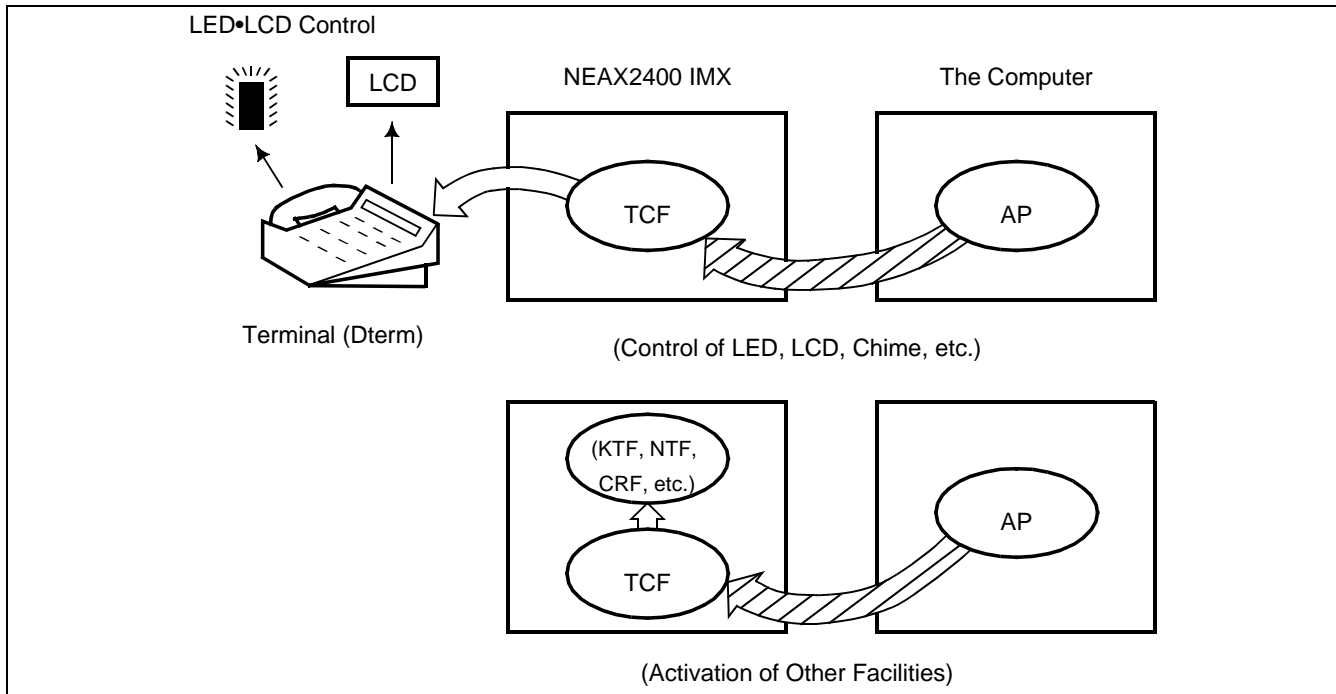


Figure 2-7 Concept of TCF

(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. (Figure 2-8)

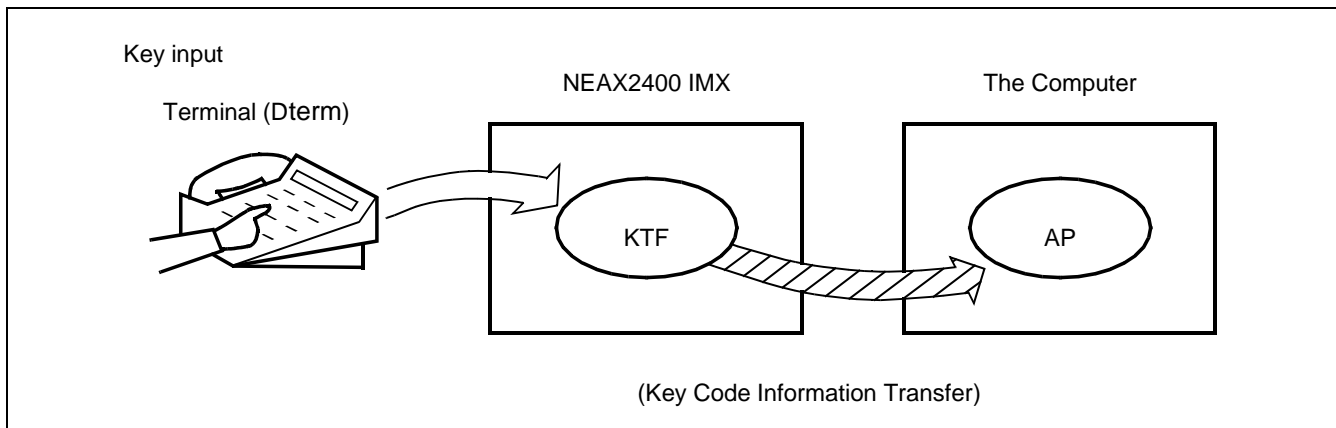


Figure 2-8 Concept of KTF

SYSTEM OUTLINE

System Outline

(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. (Figure 2-9)

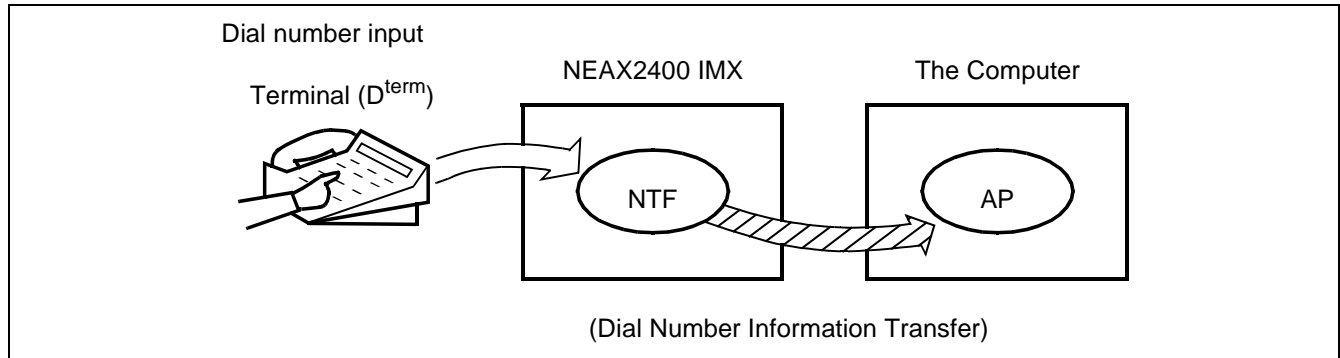


Figure 2-9 Concept of NTF

(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. (Figure 2-10)

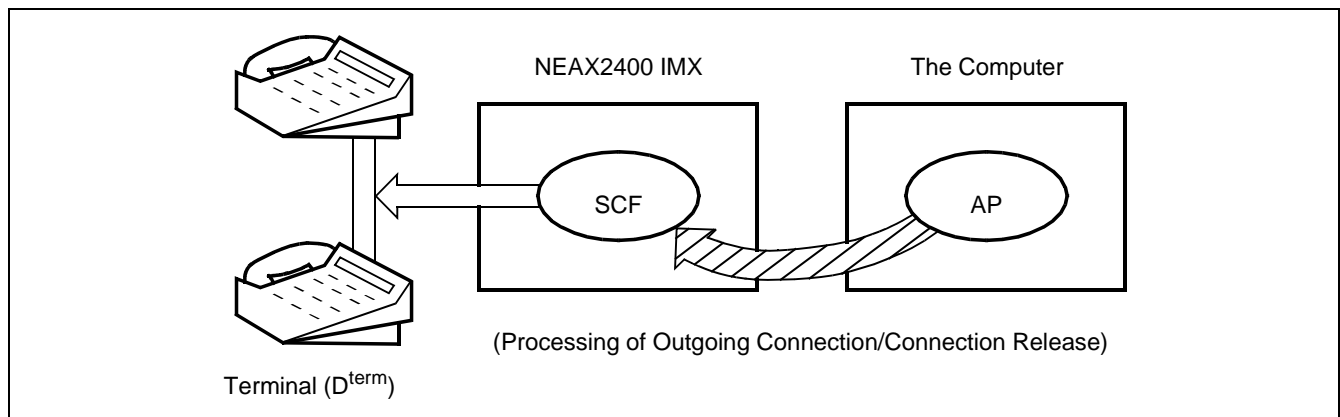


Figure 2-10 Concept of SCF

(e) Restriction Control Facility (RCF)

This facility changes the restriction class of a terminal concerned 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. (Figure 2-11)

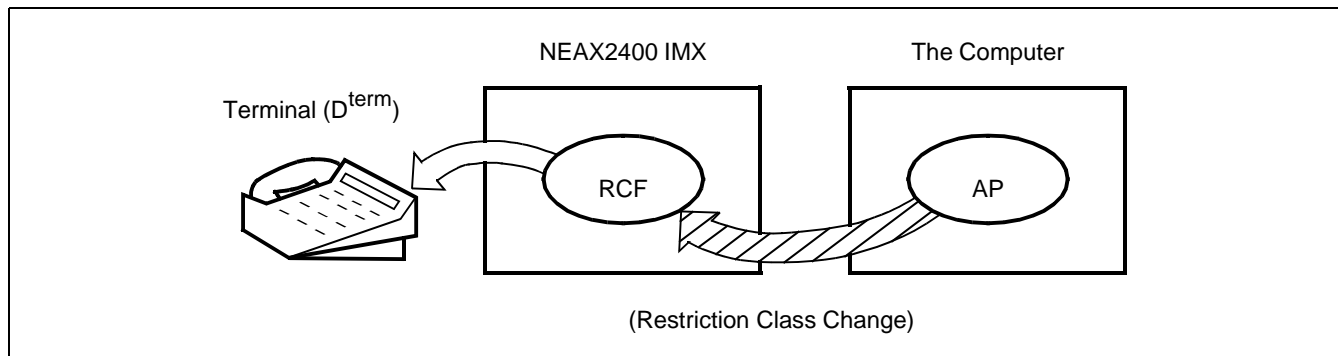


Figure 2-11 Concept of RCF

(f) Terminal Mode Reset Facility (MRF)

With a direction received from the AP or a specific key depressed on a terminal, this facility resets terminal mode. When terminal mode is reset by this facility, the current communication path (terminal mode status) is released. (Figure 2-12)

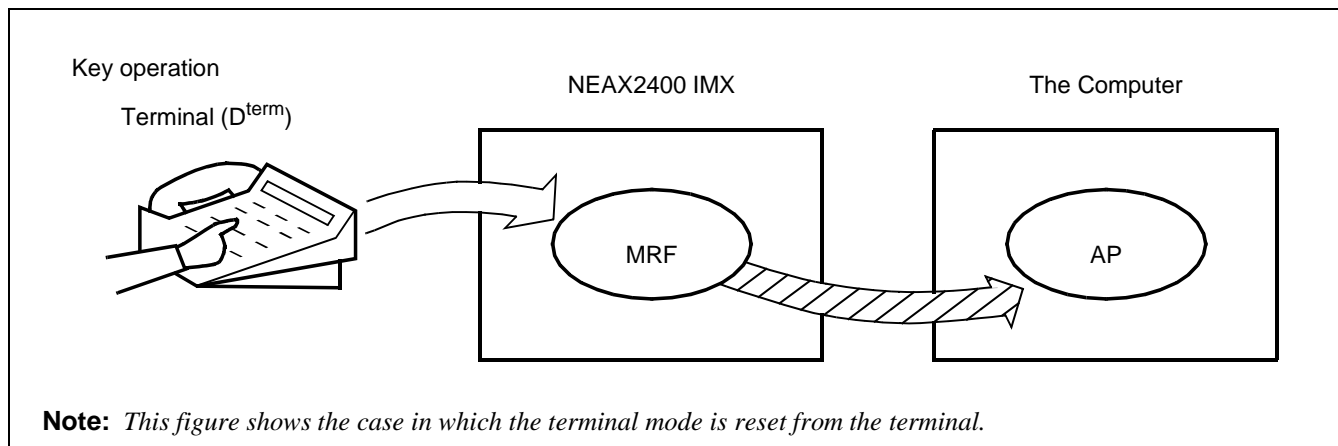


Figure 2-12 Concept of MRF

SYSTEM OUTLINE

System Outline

(g) Application Language Transfer Facility (ATF)

With a direction received from the AP or a specific key depressed on a terminal, this facility sends out the APL information input from an OAI terminal to the AP. (Figure 2-13)

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

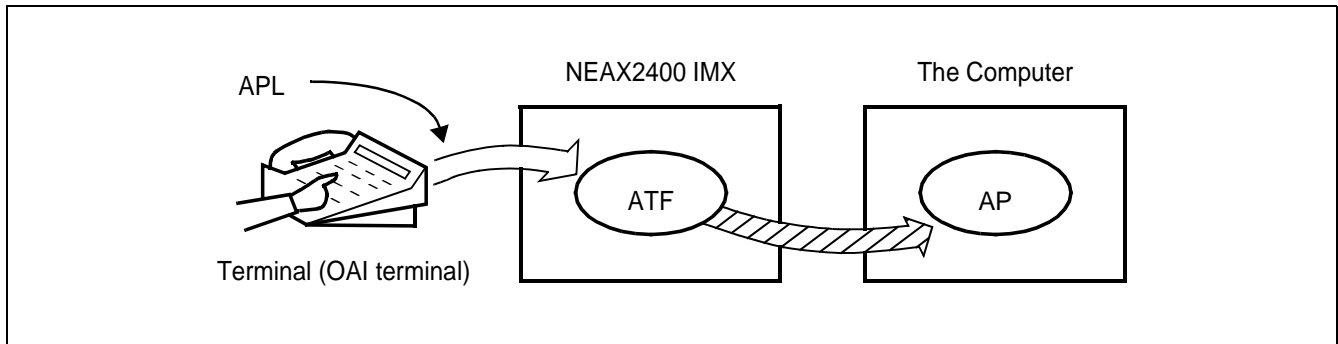


Figure 2-13 Concept of ATF

2.2.2 Join of Facilities and Application

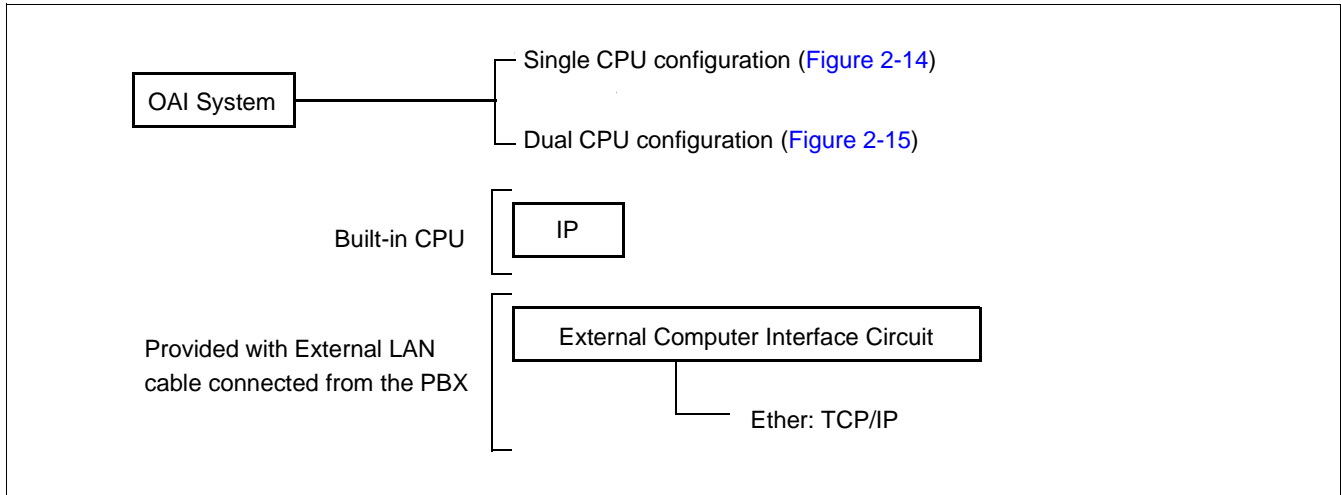
1. When a facility of the NEAX2400 IMX is controlled by the Application Program (AP) on the UAP computer, the AP and that facility must be connected first. The following is the procedure of this connection.
 - (a) **Set-up of Association**
A communication path is to be opened so that the AP can communicate with the facility.
 - (b) **Opening of Facility**
The facility that the AP uses is to be declared to the NEAX2400 IMX, 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, and then the association is released along with the stop of the AP. Without this association, the AP cannot communicate with the facility and cannot control the facility, either.
Then, the facility must be opened so as to allow the AP to communicate with the facility through the communication path opened by setting up of the association. Opening of 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 NEAX2400 IMX, and a variety of applications can be programmed on the computer.

2.2.3 Cope of Application in changeover of CPU System

Associations established between NEAX2400 IMX and External computer are released when changeover of CPU system executes.
Therefore each application program cap must set up Association again after changeover of CPU system.

3. System Configuration

The OAI System can be implemented in the Built-in Type configuration, with which the IP is built in the CPU of the NEAX2400 IMX. The configuration of the NEAX2400 IMX OAI System is as follows.



1. The configuration of the NEAX2400 IMX OAI System is as follows.

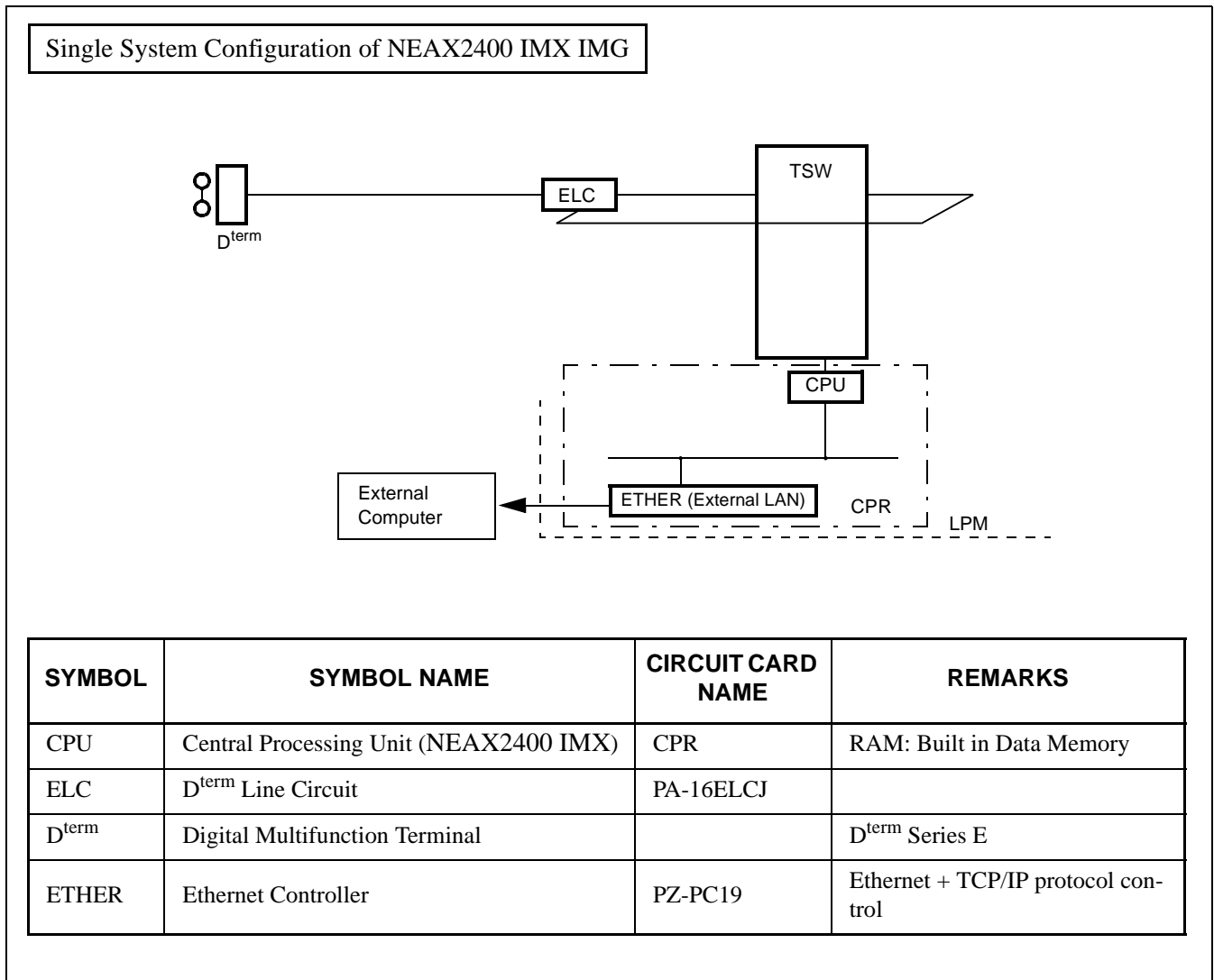


Figure 2-14 IP Single System Configuration

SYSTEM OUTLINE
System Configuration

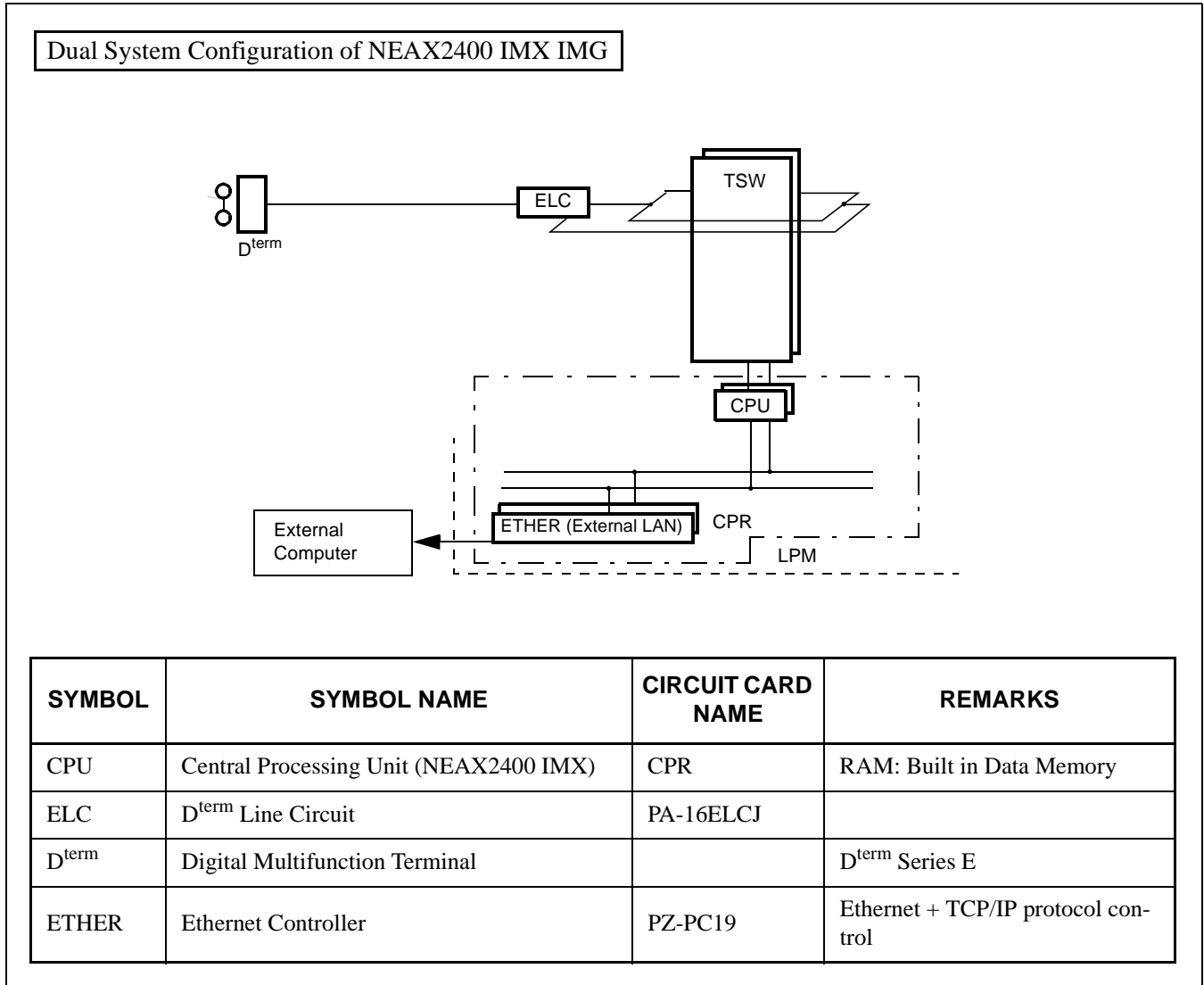


Figure 2-15 IP Dual System Configuration

4. Interface with External Computer

4.1 Conditions for Interface with External Computer

The circuit card for interface with the external computer (general-purpose information processing equipment), and the interface conditions are shown in [Table 2-1](#).

Table 2-1 Interface Conditions of the Circuit Card

CIRCUIT CARD	INTERFACE CONDITIONS	
ETHER (PZ-PC19)	Physical Interface	10BASE-T
	Communication Protocol	TCP/IP
	Internet Address	1 address/system (Class A, B, C is available Note)
	TCP port	1 Port/Internet Address 60030
	Data Transfer Speed	10 Mbps
	Number of Interface Ports	1 port/card (16 logical channels/port)

Note: 172. 16. 253. 0 (Default)

This page is for your notes.

CHAPTER 3 INSTALLATION PROCEDURE

1. General

This chapter explains the installation procedure for OAI System of NEAX2400 IMX.

- [Cable Connections with External Computer](#)
- [OAI Software Installation](#)
- [Upgrading OAI System from NEAX2400 ICS to NEAX2400 IMX](#)

INSTALLATION PROCEDURE

Cable Connections with External Computer

2. Cable Connections with External Computer

This section explains cable connections between the NEAX2400 IMX OAI System and the external computer.



2.1 Cable Connections between OAI System and External Computer

The cable connections between the OAI system and the external computer are shown in [Figure 3-1](#).

[PZ-PC19 card (LANI) is used]

(a) Connection diagram

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

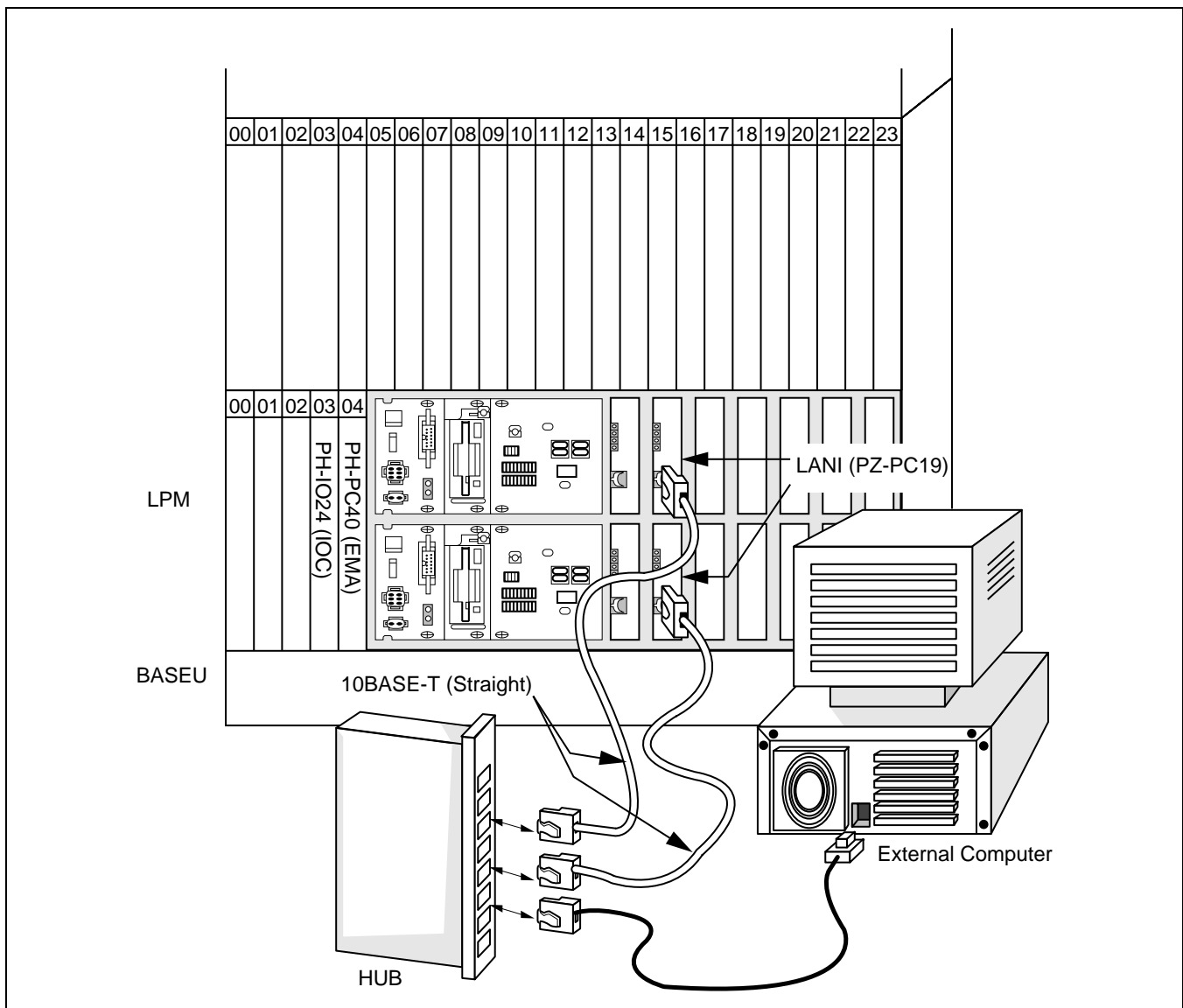


Figure 3-1 Cable Connections Between OAI System and External Computer

3. OAI Software Installation

This section explains the installation procedure for adding the OAI software to the PBX in off-line operation. For more detailed information of program install procedure before the OAI application software install, see “Installation Manual”.

[Operation Procedure]

STEP 1: By using MEM_HDD command, save all data to the both HDDs.

STEP 2: Make the Standard Service Software FD link with the OAI Option Service Software FD, and install it into the HDD.

When OAI system is used in the Fusion Network (OAI Terminal Anywhere), link the ACD Option Service Software for “Agent Anywhere” with the above software FD and install it into all the nodes. (valid since the PBX software R8)

STEP 3: Initialize the system (perform IPL, DM loading).
PROGRAM=“LOAD”
SYSTEM DATA=“OVERRIDE/LOAD”

Note: When OAI system is used through the Fusion Network [valid since Series 7400 (Release 8) software], the UAP must be booted up after the confirmation of the establishment of the Fusion Link.

STEP 4: Change system data written in DM.

ASYD SYS1		
INDEX31 -	b0~b3: CM mounting capacity Normally assign “04”.	Note 1 Note 2 Note 3
INDEX79 -	b6=0 (OAI service is in service)	Note 1
INDEX207 -	b0 (IP in system0), b1 (IP in system1) Assign “1” to the corresponding bit for the IP accommodation.	
INDEX241-	b2=1 (Call Processing Event Notification)	Note 1
INDEX241-	b3=1 (Details of SCF Error Notification)	Note 1

Note 1: When OAI system is used in the Fusion Network, this data setting is necessary at the all nodes.

Note 2: Reset the system after changing this data from 02H (normally assigned data value for the system without OAI service) to 04H.

STEP 5: Assign the system data written in NDM.

This data below are necessary when OAI system is used through the Fusion Network.

ASYDN SYS1	
INDEX514-	NDM usage
INDEX533-	FPC of the node that provides VNDM (Normally, assign the FPC of the node that has the IP)

Note 3: Assign “OG” for Series 7400 (Release 8) and later software.

INSTALLATION PROCEDURE

OAI Software Installation

STEP 6: Assign the system data written in LDM.

ASYDL SYS1

INDEX512: FPC of the self-node

When OAI system is used through the Fusion Network, this data setting is necessary at each node in the network.

INDEX513: 01 Hex (LDM usage)

INDEX515~518 b0~b7: IP address (Hex) for PBX over external LAN **Note 4**

INDEX519~522 b0~b7: Subnet Mask (Hex) for PBX over external LAN **Note 4**

INDEX523~526 b0~b7: Default Gateway Address for External LAN **Note 4**

(This data is required when the Host is connected via gateway)

INDEX864 - b0=1 (Built-in IP is provided)

When OAI system is used in the Fusion Network (OAI Terminal Anywhere) [available since the Series 7400 (Release 8) software], assign "1" at the node that has the IP.

INDEX864 b1 :Output the system message (4-R) when TCP-IP is normally disconnected.

0/1=Effective/Ineffective

Note 4: *If the MAT or SMDR has been connected with external LAN already, this data assignment is not necessary.*

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 Fusion data to make ACD service effective through Fusion network, if necessary.

STEP 9: Save the DM into the HDD by using MEM_HDD.

4. Upgrading OAI System from NEAX2400 ICS to NEAX2400 IMX

The procedure for upgrading OAI System NEAX2400 ICS to NEAX2400 IMX is shown below.

4.1 Up Grading Procedure

STEP 1: Stop the operation of the external computer by the appropriate procedure.

STEP 2: Upgrade the PBX hardware following by the Upgrade Manual for the PBX.

STEP 3: Upgrade the PBX software to install the software below.

- Assortment of software for NEAX2400 IMX **Note 1**
- OAI Optional software

STEP 4: Program the following OAI commands data again.

- ASYDL **Note 2**

STEP 5: Start Up the external computer **Note 3**

- hardware and software of the external computer

STEP 6: Perform the installation test.

Note 1: *This software is commonly used with all types of systems. Data Memory does not have to be changed.*

Note 2: *For detail, see [Section 3. "OAI Software Installation"](#).*

Note 3: *This procedure is not necessary for the ACD system without MIS. For more information, see [Section 2. "Cable Connections with External Computer"](#). The TCP Port number of the external computer has to be changed to "60030" for NEAX2400 IMX.*

This page is for your notes.

CHAPTER 4 COMMANDS

1. General

This chapter explains the commands that are used in the NEAX2400 IMX OAI System. The contents of this Chapter are outlined below.

- [Configuration of Commands for OAI System](#)

This section explains the construction of each command.

- [Commands](#)

This section explains the functions, parameters, and operating procedure of each command.

COMMANDS

Configuration of Commands for OAI System

2. Configuration of Commands for OAI System

2.1 Configuration of Commands

The configuration of the commands in use in the NEAX2400 IMX OAI System is shown in [Figure 4-1](#).

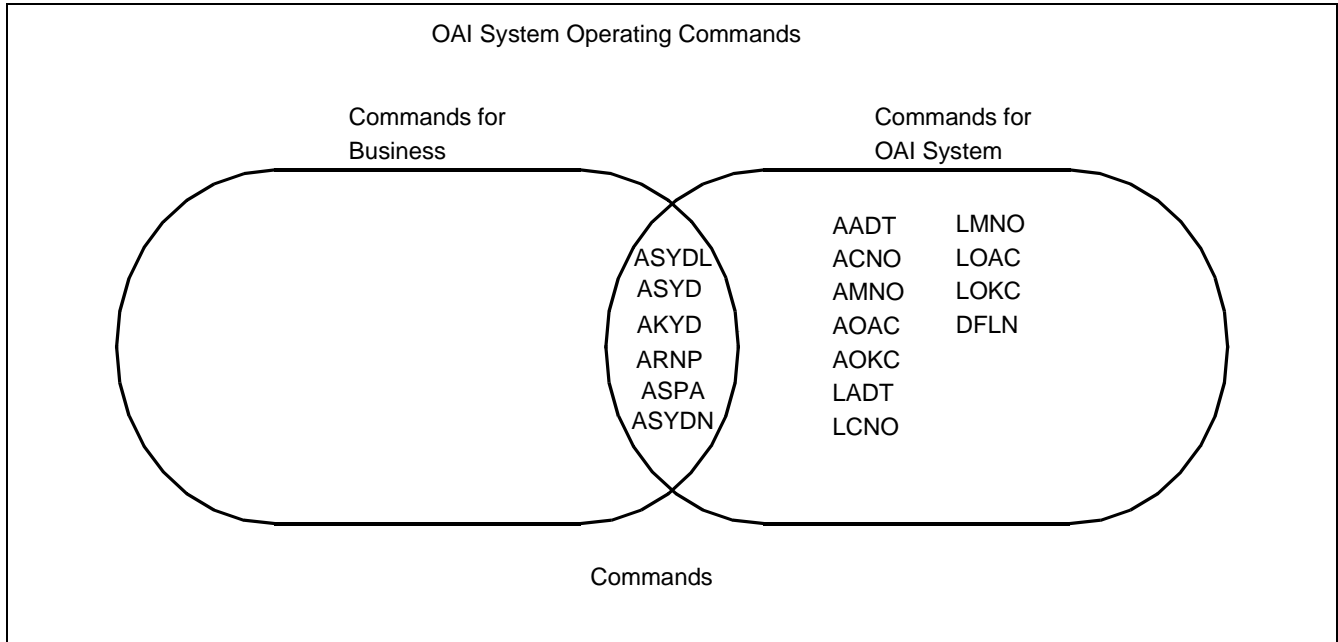


Figure 4-1 Configuration of Commands of the NEAX2400 IMX OAI System

3. Commands

This section explains the commands in used in the OAI System.

3.1 List of Commands

Table 4-1 shows a list of commands in use in the OAI system. As for any command other than those in the list, refer to the Feature Programming Manual and Office Data Specification of the NEAX2400 IMX.

Table 4-1 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 D ^{term}
AMNO	Assignment of Monitored Number
AOAC	Assignment of OAI Access Code
AOKC	Assignment of OAI Key Code
ARNP Note 2	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
LADT Note 1	List Up of Announcement/Dictation Trunks
LCNO Note 1	List Up of Conversion Number Data
LMNO Note 1	List Up of Monitored Number
LOAC Note 1	List Up of OAI Access Code
LOKC Note 1	List Up of OAI Key Code

Note 1: Each command marked with * is used for listing up the assigned data, and thus its explanation will be omitted.

Note 2: For this command, refer to the Feature Programming Manual and Office Data Specification of the NEAX2400 IMX.

COMMANDS

Commands

3.2 Outline of Commands for OAI System

The interrelation among the commands to be used in the OAI System is illustrated in [Figure 4-2](#).

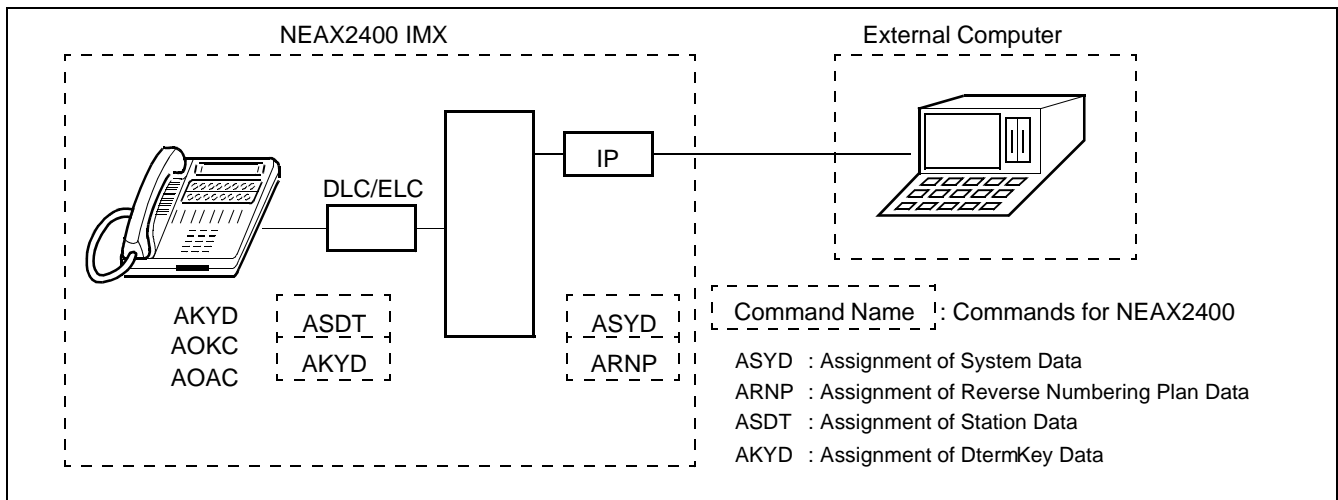


Figure 4-2 Interrelation among OAI System Commands

AKYD: This command is used to assign the function key codes (For OAI: 34 ~ 47) to the function key positions of the D^{term}.

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

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

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

3.3 Items to Be Explained by Each Command

Each command is described by the following items.

- | | |
|----------------------|---|
| Command | : The name implies the command and its functions. |
| (1) Functions | : This item outlines the command functions. |
| (2) Precaution | : This item explains precaution for use of the command. |
| (3) Parameters | : This item explains the meaning of the information (parameters) of the data of the command. |
| (4) Related Commands | : This item specifies other command or commands pertaining to the same data, assignment/deletion/change/display/list up of the details of that specific data. |

AADT: Assignment of Announcement/Dictation Trunks

1. Functions

This command is used to assign/delete Announcement Trunks or Dictation Trunks.

2. Precaution

When changing the LENS of the currently assigned Announcement/Dictation Trunks, delete the assigned data first by this command, and then change the LENS by Assignment of Trunk Data (ATRK) command. It must be remembered that, if the LENS data are deleted first by ATRK command by mistake, the data currently assigned by this AADT command are automatically deleted.

3. Parameters

TYPE : Announcement Trunk (ANT), Dictation Trunk (DCT)
 NO. : Message Number
 D : Disconnect Timer (0/1); Valid when TYPE = ANT
 0: Impossible (Repeat)
 1: Possible (Disconnect by MSGT)
 MSGT : Message Timer (2 ~ 120 sec., 2-sec. interval when shorter than 30 sec., 8-sec. interval when longer than 30 sec.)
 CP : Connection Pattern **Note**
 0: Multiple Connection
 1: Single Connection
 WAIT : Waiting Timer (0~30 sec., 2-sec. interval) **Note**

Note: Available only when the system data is programmed that the DAT control function is available (ASYD, SYS1, INDEX449, b2=1).

CNT : Number of ANT/DCT Trunks assigned or to be assigned (1 ~ 8)
 RT : Route Number
 TK : Trunk Number

4. Related Commands

List Up : LADT

ACNO: Assignment of Conversion Number Data

5. Functions

This command is used to assign/delete the conversion number required for selecting a route on a each route basis.

6. Precaution

- (a) The data should be assigned to ring-down trunks.
- (b) As a conversion number, a monitor number assigned by AMNO command should be set.

7. Parameters

RT : External Route Number
 TN : Tenant Number of Monitored Number
 MNO : Monitored Number (Max. 5 digits) **Note**

Note: *Max. 6 digits when using in a hotel system*

8. Related Commands

Monitored Number Assignment:	AMNO	– Parameter RT –
Monitored Number Deletion	: AMNO	Assignment : ARTD
List Up	: LCNO	Display : ARTD
		List Up : LRTD

AKYD: Assignment of Key Data for D^{term}

9. Functions

This command is used to assign/delete/display the function key data, multi-line data or intercom data corresponding to each key on such multi-function telephone terminal as D^{term} Series E.

10. Precaution

For the details of D^{term} data, refer to the description of AKYD command in the Feature Programming Manual and Office Data Specification for the NEAX2400 IMX. Explanations here will be limited only to the items pertaining to the OAI System.

11. Parameters

FKY: Function Key (valid for KYI=1)

34=	OAI Key 1
35=	OAI Key 2
36=	OAI Key 3
37=	OAI Key 4
38=	OAI Key 5
39=	OAI Key 6
40=	OAI Key 7
41=	OAI Key 8
42=	OAI Key 9
43=	OAI Key 10
44=	OAI Key 11
45=	OAI Key 12
46=	OAI Key 13
47=	OAI Key 14
52=	Speaker
59=	Release

Note: For details of other parameters, refer to the description of AKYD command in the Office Data Specification for the NEAX2400 IMX.

COMMANDS

AMNO

AMNO: Assignment of Monitored Number

12. Functions

This command is used to assign/delete Monitored Numbers.

13. Precaution

Monitored Number (MON) is a number of maximum 5 digits consisting of 0 ~ 9, "*" and "#".

Note that, in the case of a hotel system, UCD Pilot Number (STN) is a number of maximum 6 digits, respectively.

As NMI value, use a different value for each MON to be assigned.

14. Parameters

TN : Tenant Number
MNO : Monitored Number (Max. 5 digits)
NMI : Monitored Number Index (1 ~ 4095)
UCD : Going by UCD when monitor status is not requested from AP
0: Not going by UCD
1: Going by UCD
STN : UCD Pilot Number (Max. 5 digits) **Note**

[In the case of Hotel System]

A/G : Designation of Administration/Guest Room
A: For Administration
G: For Guest Room

Note: *Maximum 6 digits when using in a hotel system*

15. Related Commands

List Up: LMNO

COMMANDS

AOAC

AOAC: Assignment of OAI Access Code

16. Functions

This command is used to assign/delete the Facility Kind and the Operation Code on a basis of each service access code of the OAI System.

17. Precaution

(a) When setting a minus value (less than 0) to the parameter "OP-CODE", add "-" (minus symbol) ahead to the value.

If the set value is a positive value, it is automatically interpreted to be a positive value even if "+" (plus symbol) is not added ahead of the value.

(b) For assigning OAI access codes, it is necessary to assign the necessary number of digits of OAI access codes by AOKC command in advance to assigning the codes.

18. Parameters

OAI-ACC : OAI Access Codes (000 ~ ###) (Max. 3 digits)

F-KIND : Facility Kind (1 ~ 15)

1: Terminal Mode Set Facility (MSF)

2: Terminal Multiple Information Transfer Facility (TMF)

3: }

{ }

} Not used

15: }

OP-CODE : Operation Codes (128~ 255)

When F-KIND = 1, 128 ~ 191

When F-KIND = 2, 192 ~ 255

19. Related Command

List Up : LOAC

AOKC: Assignment of OAI Key Code

20. Functions

This command is used to assign/delete the Facility Kind and the Operation Code on a basis of each function key on the D^{term}.

21. Precaution

- (a) The OAI code for which F-KIND = 3 (Open Application Interface) can be assigned is only one per system.
- (b) When deleting the Open Application Interface (OAI) key code for which F-KIND = 3 is assigned, it is necessary, in advance to the intended deletion, to delete all the OAI access code data assigned by AOAC.
- (c) When OAI key data has been assigned/deleted on basis of a function key by this command, operation of the OAI key is ignored only once immediately after that assignment/deletion or immediately after a system initialization.

22. Parameters

KEY-CODE: OAI Key Codes (1 ~ 31) **Note 1**

F-KIND : Facility Kind (1 ~ 15)

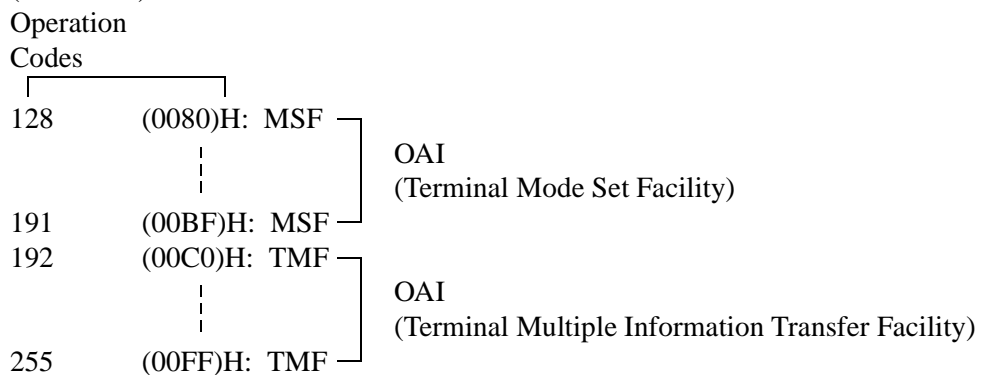
- 1: Terminal Mode Set Facility (MSF)
- 2: Terminal Multiple Information Transfer Facility (TMF)
- 3: Open Application Interface (OAI)
- 4: Key Code Transfer Facility (KTF)
- 5. }
 { } Not used
- 15: }

C-TONE : Chime control on normal end of MSF, TMF, and OAI

- 0: To be controlled
- 1: Not to be controlled (NoTone)

NND : Necessary Number of Digits (1 ~ 3) **Note 2**

OP-CODE : Operation Codes **Note 3**
(128 ~ 255)



Note 1: *The relationship between this parameter and the AKYD command parameter FKY = 34 ~ 47 is shown below.*

PARAMETER KEY CODE	AKYD COMMAND PARAMETER FKY
1	34
2	35
3	36
4	37
5	38
6	39
7	40
8	41
9	42
10	43
11	44
12	45
13	46
14	47
15 ~ 31	Not used

Note 2: *Enter this parameter only when F-KIND = 3.*

Note 3: *This parameter can be entered only when F-KIND = 1, 2. The range of the values that can be entered is as follows:*

F-KIND = 1: OP-CODE = 128 ~ 191

F-KIND = 2: OP-CODE = 192 ~ 255

23. Related Commands

List Up: LOKC

Table of Operation Codes

OPERATION CODE		REMARKS
128 (0080): MSF	OAI	
191 (00BF): MSF	(Terminal Mode Set Facility)	
192 (00C0): TMF	OAI	
255 (00FF): TMF	(Terminal Multiple Information Transfer Facility)	

COMMANDS

ASPA

ASPA: Assignment of Specific Access Code

24. Functions

This command is used to assign/delete/display each data which respectively determines what kind of service should be executed and/or which route should be used, etc. when a special access code, C.O. line access code or Tie-Line access code has been dialed.

25. Precaution

- (a) For the details of special access code data, refer to the description of ASPA command in the Feature Programming Manual and Office Data Specification for the NEAX2400 IMX. Explanations here will be limited only to the items pertaining to the OAI System.
- (b) For assigning OAI Dial Number Batch Transfer (SRV = SSCA, SIDA = 69), be sure to set the number of digits (max. 3 digits) of the OAI access code to Necessary Number of Digits (NND).

26. Parameters

SIDA: Service Feature Index A (69)
69: OAI Dial Number Batch Transfer (TMF)

Note: For the details of other parameters, refer to the description of ASPA command in the Office Data Specification for the NEAX2400 IMX.

Specific Access Code Data Assign Table

The Office Data Sheets of this ASPA command are attached only to the pages pertaining to the data to be assigned in the OAI System. Replace these Office Data Sheets with those for ASPA command of the NEAX2400 IMX.

Table 4-2 Supplementary Service Codes

TENANT NUMBER (TN)	ACCESS CODE (ACC)	CONNECTION STATUS INDEX (CI)		KIND OF SERVICE (SRV)	SERVICE FEATURE INDEX A (SIDA)	REMARKS
1 ~ 31	1 ~ 3 DIGITS	N/H/B		SSCA		
		N	Normal	SSCA	69	OAI Dial Number Batch Transfer (TMF)
		H	Hooking			

ASYD: Assignment of System Data

27. Functions

This command is used to assign System Data 1, 2, and 3.

28. Precaution

For the details of the system data, refer to the description of ASYD command in the Office Data Specification for the NEAX2400 IMX.

COMMANDS

ASYD

System Data Assign Table (1)

The Office Data Sheets of this ASYD command are provided only for the data to be assigned in the OAI System. Use these Office Data Sheets together with those for ASYD command of the NEAX2400 IMX.

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 0 – 255	DATA (DATA) 00– FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS	
			DATA 0/1	BIT		
1	19		0	b ₀	Not used	
			0	b ₁		
			0	b ₂		
			0	b ₃		
			0	b ₄	Call Event Transfer Facility (ETF) Call Base Table Save and ETF Service is provided 0/1: Unrequired/Required (3 hours)	
				b ₅		
			0	b ₆		Fixed to 0
		b ₇	Not used			
	28			b ₀	Miscellaneous Timer Counter (MTC) (00 ~ 1F Hex)	Message sending Guard Timer for Message Center Interface. Guard Time after sending data to Message Center: Time Value Setting is (MTC) × 128 msec. (When this data is 00 Hex, Timer value is 0 msec.)
				b ₁		
				b ₂		
				b ₃		
				b ₄	Be sure to set “1” when using SSFR (FN = 5, SRID = 0) MCI Message Waiting Lamp Function 0/1: Not provided/Provided	
				b ₅		
0			b ₆	Not used		
0	b ₇					

COMMANDS

ASYD

System Data Assign Table (1)

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 0 – 255	DATA (DATA) 00– FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS					
			DATA 0/1	BIT						
1	70			b ₀	Called Number Display when forwarding to Attendant Console 0/1 : Out/In service					
				b ₁	Flashing display of Line Lockout on Attendant Console BLF 0/1 : In service/Out					
				b ₂	Route No. Display on Attendant Console					
				b ₃	$\frac{b_3}{0}$ $\frac{b_2}{0}$: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table> $\frac{b_3}{0}$ $\frac{b_2}{1}$: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>					
			0	b ₄	One digit dialing instead of SHF (DP TEL only) 0/1 : Not required/Required					
				b ₅	Priority order for answering via ANSWER key 0 : Priority according to Type of Call 1 : Priority according to the order call termination					
		b ₆	Connection of SCF Announcement 1 : available							
		b ₇	Send Warning Tone to interrupted parties when Executive Right of Way service is in operation 0/1 : Required/Not required							
	77			b ₀	Day/Night Mode Change via the ATTCON Handset Jack 0/1: Not required/Required					
			0	b ₁	Not used					
				b ₂	MW Refresh 0/1 :Not required/Required					
				b ₃	Service Module Interface 0/1: Not required/Required					
1			b ₄	Module in which PFT card is mounted PIM (Always assign “11”)						
1			b ₅							
0			b ₆	Not used						
0	b ₇									

System Data Assign Table (1)

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 0 – 255	DATA (DATA) 00– FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS
			DATA 0/1	BIT	
1	78		1	b ₀	Calling and Intermediate Station Number indication (D ^{term} and ATTCON) 0/1: Out/In service (Always assign “1”)
			1	b ₁	Kind of Service Class indication (D ^{term}) 0/1: Out/In service (Always assign “1”)
			0	b ₂	Not used
				b ₃	Station Number Display with 8-digit Name Display 0/1: Out/In service
			0	b ₄	Fixed to “0”
				b ₅	Name Display Service 0/1: Not to be serviced/To be serviced (FLF: Free Location Facility)
			0	b ₆	Not used
			0	b ₇	
	79			b ₀	Line Preference Service via AKYD 0/1: Out/In service
			0	b ₁	Not used
				b ₂	Split Call Forwarding Service 0/1: Out/In service
			0	b ₃	Not used
				b ₄	Zip tone control at the time of SC F:Monitor connection 0/1: Not to be controlled/To be controlled
				b ₅	Name Display Service for Calling Party Only 0/1: Out/In service Note 1
				b ₆	OAI Service 0/1: In/Out service Note 2
0			b ₇	Not used	

Note 1: When the bit is set to “0” the bottom line display of the Message Waiting Enhance Display Service becomes invalid.

Note 2: If, at an office in service with this bit set to “1” (No OAI Service is Provided), the bit value is to be changed to “0” (OAI Service is Provided).

COMMANDS

ASYD

System Data Assign Table (1)

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 0 – 255	DATA (DATA) 00– FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS
			DATA 0/1	BIT	
1	80		0	b ₀	Not used
				b ₁	Message Reminder Service-Key used for Message Deletion (D ^{term}) 0/1 = # key/* key
				b ₂	Fixed to “0”
				b ₃	TCF (I) : LCD Display Control 0: Top Line 16-digits display control 1: Second Line 16-digits display control
			0	b ₄	Not used
			0	b ₅	
			0	b ₆	
			0	b ₇	

System Data Assign Table (1)

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 0 – 255	DATA (DATA) 00– FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS
			DATA 0/1	BIT	
1	207			b ₀	No. 0 CPU Mounted Status of IP00/1:Not mounted/Mounted
				b ₁	No. 1 CPU Mounted Status of IP00/1:Not mounted/Mounted
			0	b ₂	Not used
			0	b ₃	
			0	b ₄	
			0	b ₅	
			0	b ₆	
			0	b ₇	

COMMANDS

ASYD

System Data Assign Table (1)

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 0 – 255	DATA (DATA) 00– FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS	
			DATA 0/1	BIT		
1	241			b ₀	Data Port Chime Control by SCF 0/1: To be controlled/Not to be controlled	
				b ₁	Name Display Service 0/1: 8 digits/16 digits	
				b ₂	Call Status Monitor Facility Notification (SMFN) 0/1: Invalid/Valid	
				b ₃	SCF Return Error Detail Notification 0/1: Invalid/Valid	
			0	b ₄	Not used	
			0	b ₅		
			0	b ₆		
			0	b ₇		
	251			b ₀	Miscellaneous Timer Counter (MTC) 1 ~ F	Value for OAI Host Computer Answer Wait Timer (TC) × (MTC) is to be set. When the data is 00 (Hex), the timer value becomes 8 minutes. Note
				b ₁		
				b ₂		
				b ₃		
				b ₄	Timer Class (TC) 0: – 3: 2 sec.6:– 1: 64 msec. 4: 30 sec.7:– 2: – 5: –	
				b ₅		
				b ₆		
0			b ₇	Not used		

Note: This timer data is exclusively for the function for batch transfer (TMF) of OAI dial number from a single-line telephone set. Therefore, this timer data is invalid for TMF from a D^{term}.

System Data Assign Table (1)

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 0 – 255	DATA (DATA) 00– FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS
			DATA 0/1	BIT	
	449			b ₀	SCF Call origination from the first party notification 0/1 = Ineffective/Effective
				b ₁	Not used
				b ₂	Access to Announcement trunk is controlled: 0 = by the timer, 1 = by the DAT
				b ₃	Output pattern of INS information by SMFN 0/1: HEX/ASCII
				b ₄	Not used
				b ₅	
				b ₆	
				b ₇	

COMMANDS

ASYD

System Data Assign Table (3)

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 0 – 255	DATA (DATA) 00– FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS
			DATA 0/1	BIT	
3	15			b ₀	Designation of the initial mode of the card reader 000: PB Sender 100 001: LP Command 1 010: – 111 } : Not used 011: Data channel
				b ₁	
				b ₂	
			0	b ₃	
			0	b ₄	Not used
			0	b ₅	
			0	b ₆	
			0	b ₇	

DFLN: Display of Location Free Numbering

29. Functions

This command is used to check the assigned data of Location Free Numbering Service. When this command is activated, the assigned data are displayed on a basis of each designated station number.

30. Precaution

The data to be displayed by this command are those assigned from the User Application Processor (UAP) and thus they cannot be assigned by a command.

31. Parameters

[Input Parameters]

F : Function Kind (0/1)

LSTN : Logical Station Number (ID-No. Max. 5 digits) **Note 1**

TN : Tenant Number **Note 2**

PSTN : Physical Station Number (Station Number) **Note 2**

[Display Parameters]

RSC : Route Restriction Class

SFC : Service Feature Restriction Class

DC : Digit Code

Note 1: *This parameter is to be entered/displayed only when F = 0.*

Note 2: *These parameters are to be entered/displayed only when F = 1.*

32. Related Commands

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COMMANDS

ASYDN

ASYDN: Assignment of System Data in NDM

33. Function

This command is used to assign system data 1 and 2.

34. Precautions

1. This section only explains about ASYDN command for OAI system.
2. For more details of ASYDN command, see the “Office Data Specification.”

35. Parameters

Refer to the following page.

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 0 – 1535	DATA (DATA) 00 – FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS	(MDATA)										
			DATA 0/1	BIT												
1	514	01		b ₀	Network Data Memory (NDM) usage. Assign data “1 (the memory block is used)” for the corresponding memory block. bit Memory Block <table border="1"> <tr><td>b₀</td><td>Memory Block #0</td></tr> <tr><td>b₁</td><td>Memory Block #1</td></tr> <tr><td>b₂</td><td>Memory Block #2</td></tr> <tr><td>b₃</td><td>Memory Block #3</td></tr> <tr><td>b₄</td><td>Memory Block #4</td></tr> </table>	b ₀	Memory Block #0	b ₁	Memory Block #1	b ₂	Memory Block #2	b ₃	Memory Block #3	b ₄	Memory Block #4	
			b ₀	Memory Block #0												
			b ₁	Memory Block #1												
			b ₂	Memory Block #2												
			b ₃	Memory Block #3												
			b ₄	Memory Block #4												
				b ₁												
				b ₂												
		b ₃														
		b ₄														
		b ₅														
		b ₆														
		b ₇														
	533				b ₀	Set up Fusion Point Code (FPC) of Node which basic VNDM is mounted on. (1~253) Note: <i>OAI/ACD is available in used. VNDM = Variable Network Data Memory</i>										
					b ₁											
					b ₂											
					b ₃											
					b ₄											
					b ₅											
					b ₆											
					b ₇											
	864				b ₃	Multiple IPs 0/1 = Out/In Service Note 1										
	870				b ₀	FLF Fusion Service 0/1 = Invalid/Valid Note 2										
					b ₁											
					b ₂											
					b ₃											
					b ₄											
					b ₅											
				b ₆												
				b ₇												

Note 1: When the all Fusion nodes in the network are used for “MULTIPLE IPs”, this data may be assigned using ASYDN.

Note 2: Available since the Series 7400 (Release 8) software.

COMMANDS

ASYDL

ASYDL: Assignment of System Data into Local DM (LDM)

36. Function

This command is used to assign and change system data for OAI activated via FCCS.

37. Precautions

ASYDL command is comprised with System Data-1, INDEX 512-1535.

This section only explains about ASYDL command for OAI System.

38. Parameters

Refer to the following pages.

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 512-1535	DATA (DATA) 00 – FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS											
			DATA 0/1	BIT												
1	512			b ₀	Fusion Point Code (FPC) of self node in hexadecimal. FPC 1-253 (01 Hex-FD Hex) Note: After assigning/changing the FPC, System Initialization (Non-Load Initialization) is required.											
				b ₁												
				b ₂												
				b ₃												
				b ₄												
				b ₅												
				b ₆												
				b ₇												
	513	01		b ₀	Local Data Memory (LDM) usage. Assign data “1 (the memory block is used)” for the corresponding memory block. <table border="1"> <thead> <tr> <th>bit</th> <th>Memory Block</th> </tr> </thead> <tbody> <tr> <td>b₀</td> <td>Memory Block #0</td> </tr> <tr> <td>b₁</td> <td>Memory Block #1</td> </tr> <tr> <td>b₂</td> <td>Memory Block #2</td> </tr> </tbody> </table>	bit	Memory Block	b ₀	Memory Block #0	b ₁	Memory Block #1	b ₂	Memory Block #2			
			bit	Memory Block												
			b ₀	Memory Block #0												
			b ₁	Memory Block #1												
			b ₂	Memory Block #2												
				b ₁												
				b ₂												
				b ₃												
		b ₄														
		b ₅														
		b ₆														
		b ₇														
	515					IP Address (Hex) for PBX over External LAN Note: This data is valid when the PBX is connected to the external PC LAN.										
	516					When 172.16.253.0 (default IP address) for the PBX is used, this data setting is not necessary. Example: IP Address : 133.206.8.1										
	517					<table border="1"> <thead> <tr> <th>INDEX</th> <th>Set Hex</th> </tr> </thead> <tbody> <tr> <td>515</td> <td>85</td> </tr> <tr> <td>516</td> <td>CE</td> </tr> <tr> <td>517</td> <td>08</td> </tr> <tr> <td>518</td> <td>01</td> </tr> </tbody> </table>	INDEX	Set Hex	515	85	516	CE	517	08	518	01
	INDEX	Set Hex														
	515	85														
	516	CE														
	517	08														
	518	01														
518																
519					Subnet Mask (Hex) for PBX over External LAN Note: This data is valid when the PBX is connected to the external PC LAN.											
520					When 172.16.253.0 (default IP address) for the PBX is used, this data setting is not necessary. Example: Subnet Mask : 255.255.0.0											
521					<table border="1"> <thead> <tr> <th>INDEX</th> <th>Set Hex</th> </tr> </thead> <tbody> <tr> <td>519</td> <td>FF</td> </tr> <tr> <td>520</td> <td>FF</td> </tr> <tr> <td>521</td> <td>00</td> </tr> <tr> <td>522</td> <td>00</td> </tr> </tbody> </table>	INDEX	Set Hex	519	FF	520	FF	521	00	522	00	
INDEX	Set Hex															
519	FF															
520	FF															
521	00															
522	00															
522																

COMMANDS

ASYDL

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 512-1535	DATA (DATA) 00 – FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS										
			DATA 0/1	BIT											
1	523				Default Gateway Address of External LAN Gateway Address (IP address of Router) of Network connecting PBX. Note: <i>This data is valid when the PBX is connected to the external PC LAN. In the case of no Network Gateway, assignment data is 00 Hex. in Index 523 through 526.</i> Example: Default Gateway Address : 133.206.8.254 <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>INDEX</th> <th>Set Hex</th> </tr> </thead> <tbody> <tr> <td>523</td> <td>85</td> </tr> <tr> <td>524</td> <td>CE</td> </tr> <tr> <td>525</td> <td>08</td> </tr> <tr> <td>526</td> <td>FE</td> </tr> </tbody> </table>	INDEX	Set Hex	523	85	524	CE	525	08	526	FE
	INDEX	Set Hex													
	523	85													
	524	CE													
525	08														
526	FE														
524															
525															
526															

CHAPTER 5 OFFICE DATA DESIGN

1. General

This chapter explains the procedure for setting the office data required in the NEAX2400 IMX OAI System. As for the office data setting procedure of the NEAX2400 IMX System itself, refer to the System Data Design Manual.

The description of this Chapter consists of the following contents.

- [Procedure for Setting Basic Office Data for OAI System](#)

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

- [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.

OFFICE DATA DESIGN

Procedure for Setting Basic Office Data for 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 Data for OAI System

1. ASYD/ASYDL

ASYD-SYS1 INDEX31 - b0 ~ 3 : CM mounting capacity (Normally Assign "04".)
INDEX79 - b6 = 0 (OAI service is in service)
INDEX207 - b0 (IP in system 0), b1 (IP in system 1)
Assign "1" to the corresponding bit for the IP accommodation.
INDEX241 - b2 = 1 (Call Processing Event Notification)
INDEX241 - b3 = 1 (Details of SCF Error Notification)

ASYDL-SYS1 INDEX513 : 01 Hex (LDM usage)
INDEX515~518 : IP address (Hex) for PBX over External LAN
INDEX519~522 : Subnet Mask (Hex) for PBX over External LAN
INDEX523~526 : Default Gateway Address for External LAN
(This data is required when the Host is connected via gateway)
INDEX864 - b0 = 1 (Built-in IP is provided)
INDEX864 b1 : Output the system message (4-R) when TCP-IP is normally
disconnected.
0/1 = Effective/Ineffective

2. ARNP (Reverse Numbering Plan Data)

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

2.2 Data for OAI Terminal

In the case of D^{term}

1. ASDT (In the case of Business; Station Data), AASP (In the case of Hotel system; Station Data) **Note 1**
Assign station data
Voice Port: TEC12 Data Port: TEC13
(Normal setting for others)

Note 1: For ASDT/AASP command, refer to the Command Manual of the NEAX2400 IMX.

2. AKYD (D^{term} Key Data)
Assign the function key data of D^{term}
Assign FKY34–47 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 FKY34 ~ 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

In the case of Single-Line Telephone

1. ASYD (System Data)
Assign OAI Host Computer Respond Wait Timer
2. ANPD (Numbering Plan Data)
Assign the minimum necessary number of digits for OAI Dial Number Continuous Transfer Code
Note 2
3. ASPA (Special Access Code Data)
Assign the OAI Dial Number Continuous Transfer Access Code
SSCA: 69 (OAI Dial Number Continuous Transfer)
NND : Necessary Number of Digits of OAI access code (Max. 3 digits)

Note 2: For ANPD command, refer to the Command Manual of the NEAX2400 IMX.

4. AOAC (OAI Access Code Data)
Assign OAI access code data

OFFICE DATA DESIGN

Procedure for Setting Office Data for OAI Services

3. Procedure for Setting Office Data for OAI Services

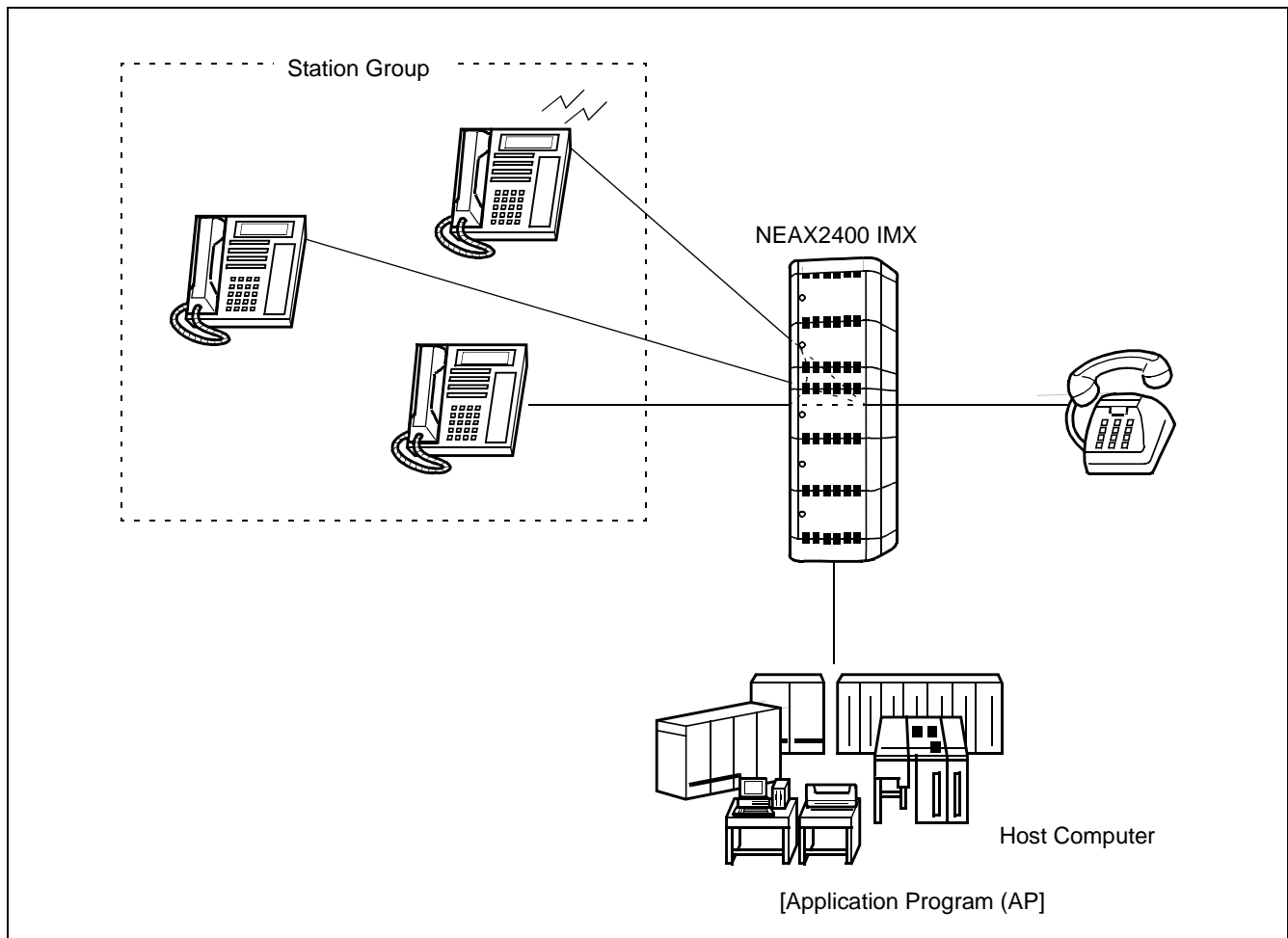
This section explains the outline, using conditions, and office data setting procedure of the main OAI service functions.

3.1 Switch Control Facility (SCF)

3.1.1 Functional Outline

The SCF is the facility that executes, from the Application Program (AP), such control operations as connections/disconnections between NEAX2400 IMX-accommodate terminal (D^{term}) and another, between a D^{term} 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 (Automatic Answer)” which is one of the several functions.

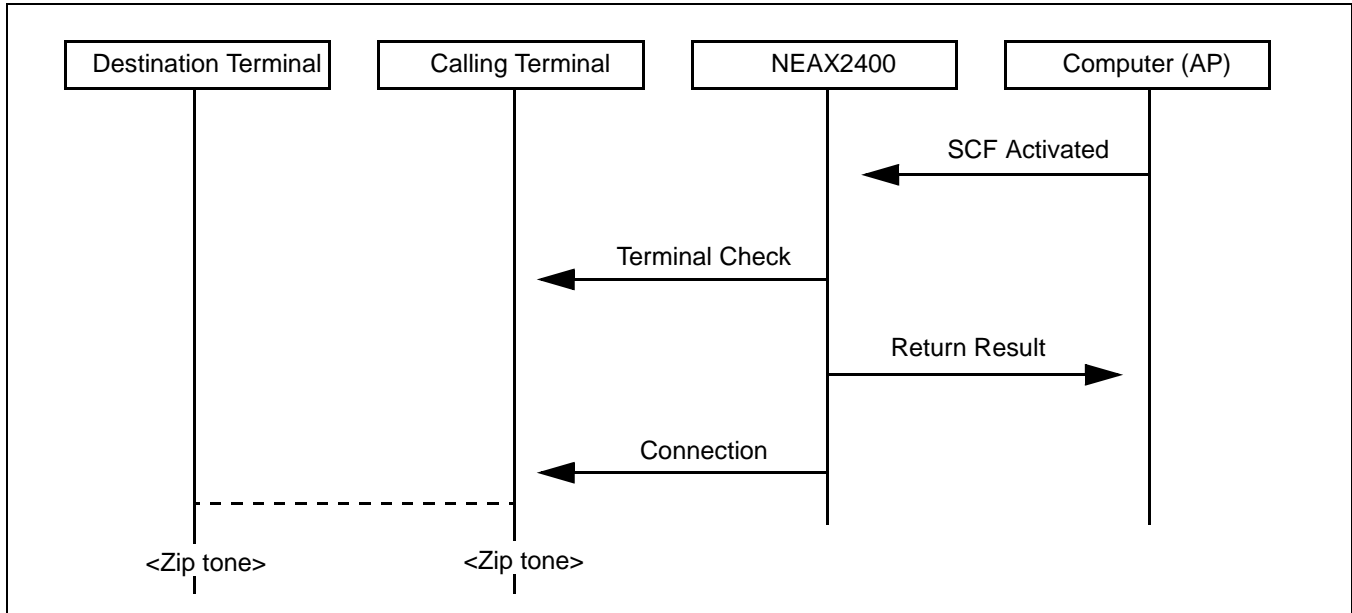
Note: *The basic connection function is a function which automatically set a terminal into an outgoing connection status. Responding to a connection request from the AP, both the calling terminal number and the call destination number can be designated.*



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]

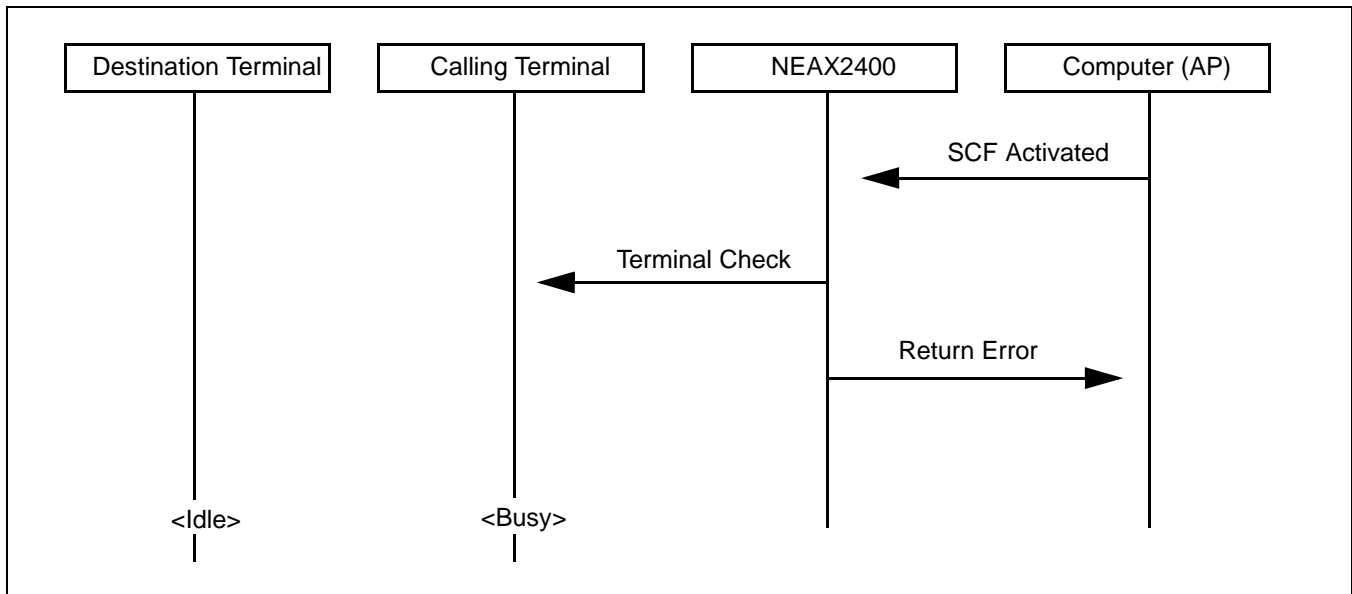


- (a) Upon receiving SCF start request from the AP, the NEAX2400 IMX judges the status (idle, busy, makebusy, etc.) of the designated calling terminal and destination terminal.
- (b) If the calling terminal and the destination terminal are idle, the NEAX2400 IMX sends out Return Result to the AP, and places the calling terminal into an outgoing connection status and the destination terminal into ringing status.
These are the basic functions.
- (c) When the destination terminal designated from the AP is a terminal in the NEAX2400 IMX 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. In other words, if the destination terminal is in a status other than line selection wait status, the call is to be answered manually. Further, this service function is valid only when the destination terminal is a station (D^{term} : Voice) among the SCF Make Call designations. In other words, if the call destination is a trunk, this service function does not work.

OFFICE DATA DESIGN

Procedure for Setting Office Data for OAI Services

[Abnormal Sequence]



- (a) Upon receiving SCF start request from the AP, the NEAX2400 IMX judges the status (idle, busy, makebusy, 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 NEAX2400 IMX sends out Return Error to the AP.
2. Only digital multifunction telephone (D^{term} Series E) can be designated as a calling terminal.

3.1.3 Data Programming

Assignment

1. ASYD (System Data)
SYS1
INDEX 79
b6: 0 (OAI service is available)
2. AKYD (D^{term} Key Data)
Restrict a call origination from the prime line of the terminal of which answer type is designated as automatic answer
S: Outgoing call from a prime line (0/1)
0/1: Allowed/Restricted

Deletion

1. AKYD (D^{term} Key Data)
Cancel restriction on a call origination from the prime line of the terminal of which answer type is designated as automatic answer
S: Outgoing call from a prime line (0/1)
0/1: Allowed/Restricted
2. ASYD (System Data)
SYS1
INDEX 79
b6: 1 (OAI service is not available)

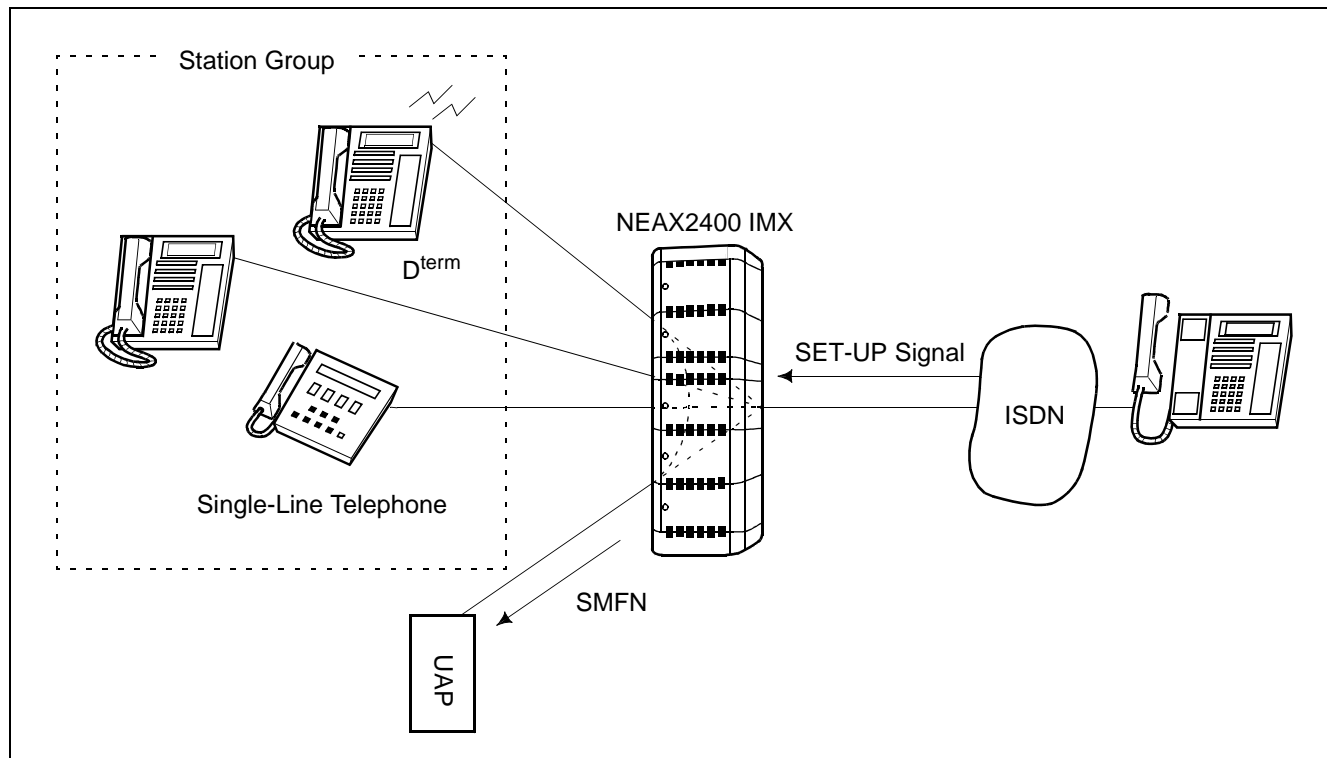
OFFICE DATA DESIGN

Procedure for Setting Office Data for OAI Services

3.2 Call ID Notification (SMFN for ISDN)

3.2.1 Functional Outline

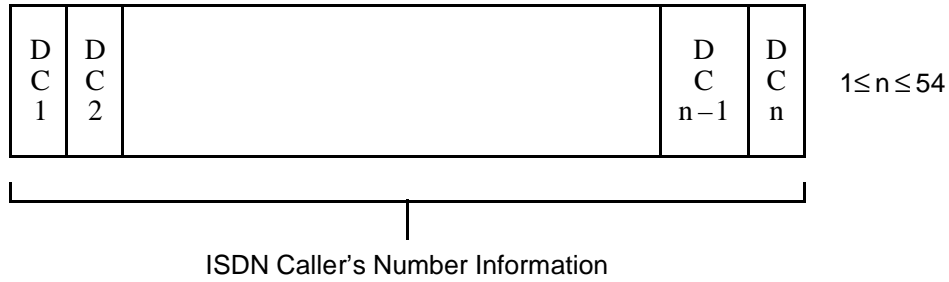
This Call ID Notification function is an enhancement of both the Call Termination Notification and the Answer Notification among Call Status Monitor Facility Notification functions of the OAI system, and provides the User's Application Processor for External Computer (UAP) with the caller's information 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 maximum 33 for the caller's number and maximum 20 for call sub-address.
3. The SMFR cannot monitor ISDN terminal, and thus when a call has terminated to an ISDN terminal and the call has been answered, SMFN message is not sent out.

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



Subscriber number is maximum 33 digits, and the sub-address is maximum 20 digits, and they are separated by the separator “*” (OBH).

3.2.3 Data Programming

1. Assignment

ASYD (System Data)

SYS1

INDEX 79

b6: 0 (OAI service is not available)

INDEX 241

b2: 1 (OAI Call Status Monitor Facility Notification is not in service)

2. Deletion

ASYD (System Data)

SYS1

INDEX 79

b6: 1 (OAI service is not available)

INDEX 241

b2: 0 (OAI Call Status Monitor Facility Notification is not in service)

OFFICE DATA DESIGN

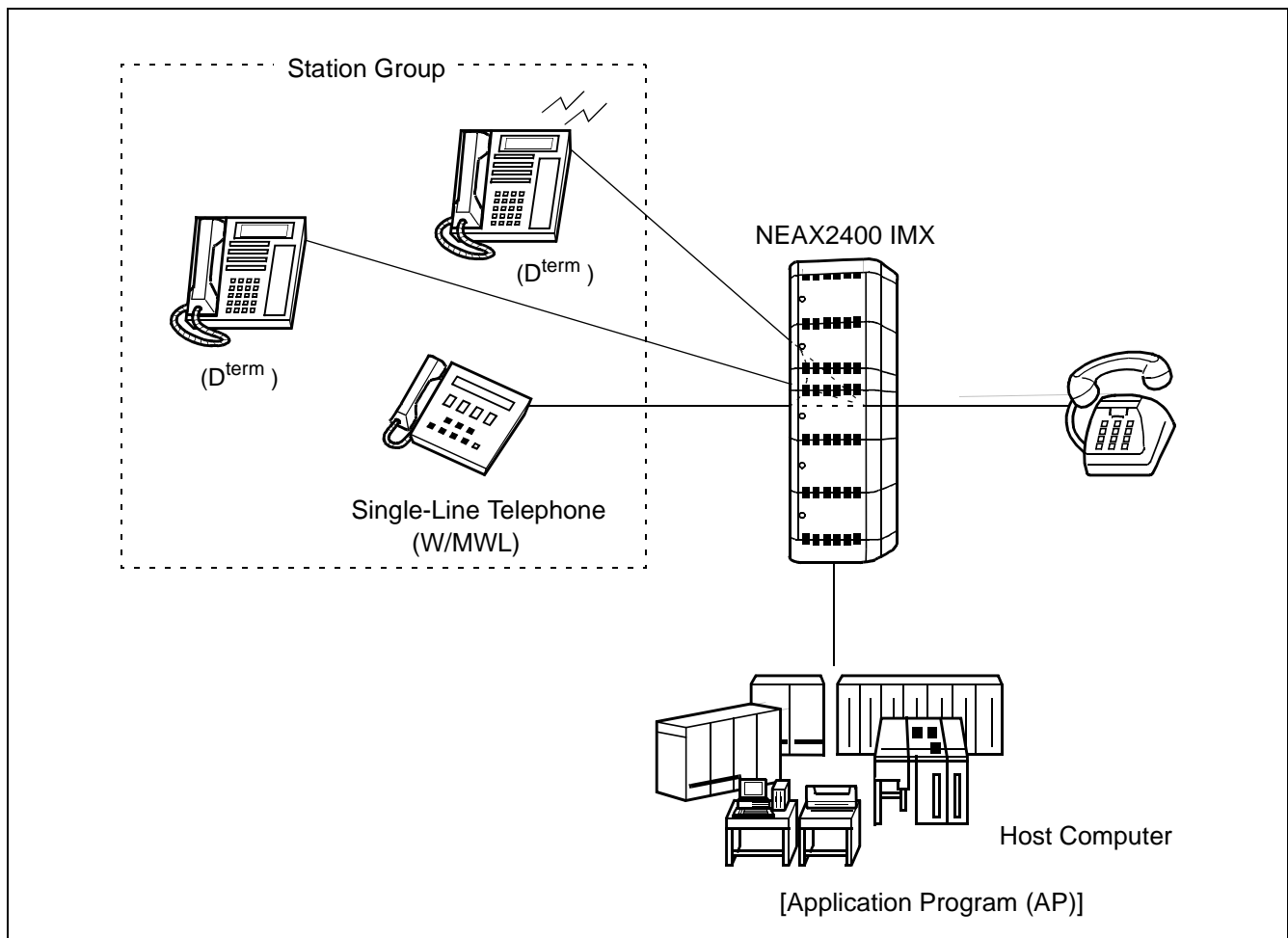
Procedure for Setting Office Data for OAI Services

3.3 MWL Control (SSF) STEP-1

3.3.1 Functional Outline

This function allows the Application Program (AP) to provide a single-line telephone equipped with Message Waiting Lamp (MWL) or a D^{term} with the following Message Waiting (MW) services by the OAI Service Set Facility (SSF).

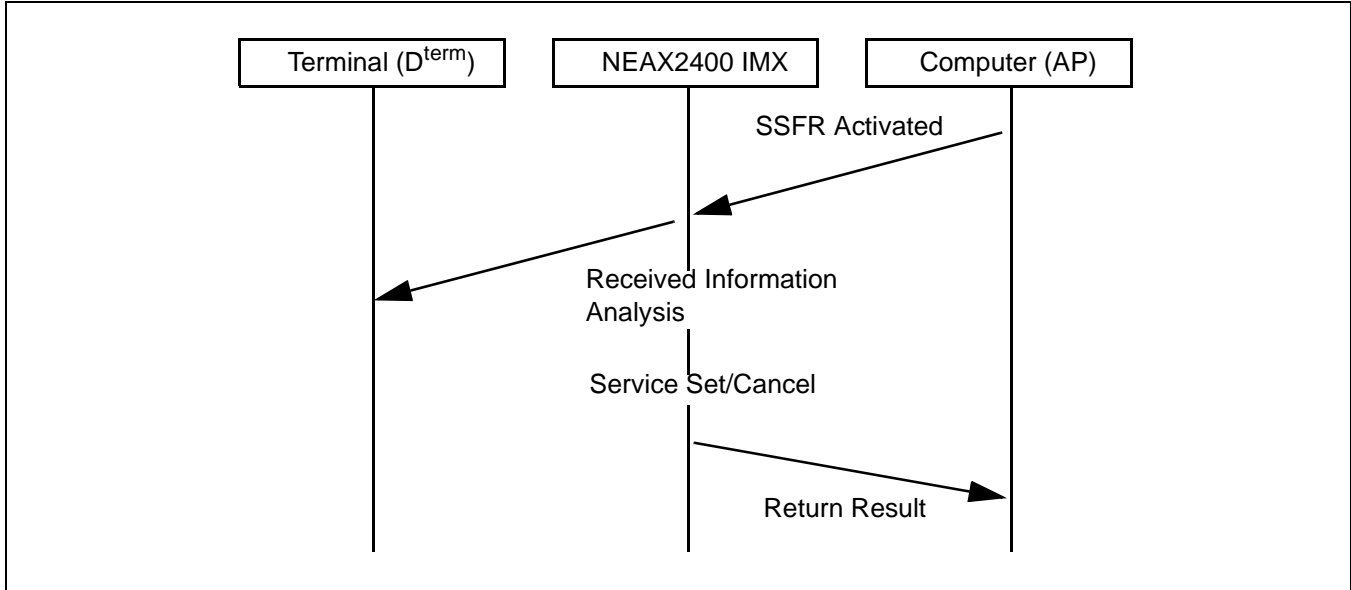
1. MW Setting (Turning MW Lamp On)
2. MW Resetting (Flashing MW Lamp)
3. MW CANCEL (Turning MW Lamp Off)
4. LCD Display on each MW type
Display contents: Message Waiting (MW)
Voice Mail Module (VMM)
Text Mail Module (TMM)
Facsimile Mail Module (FMM)



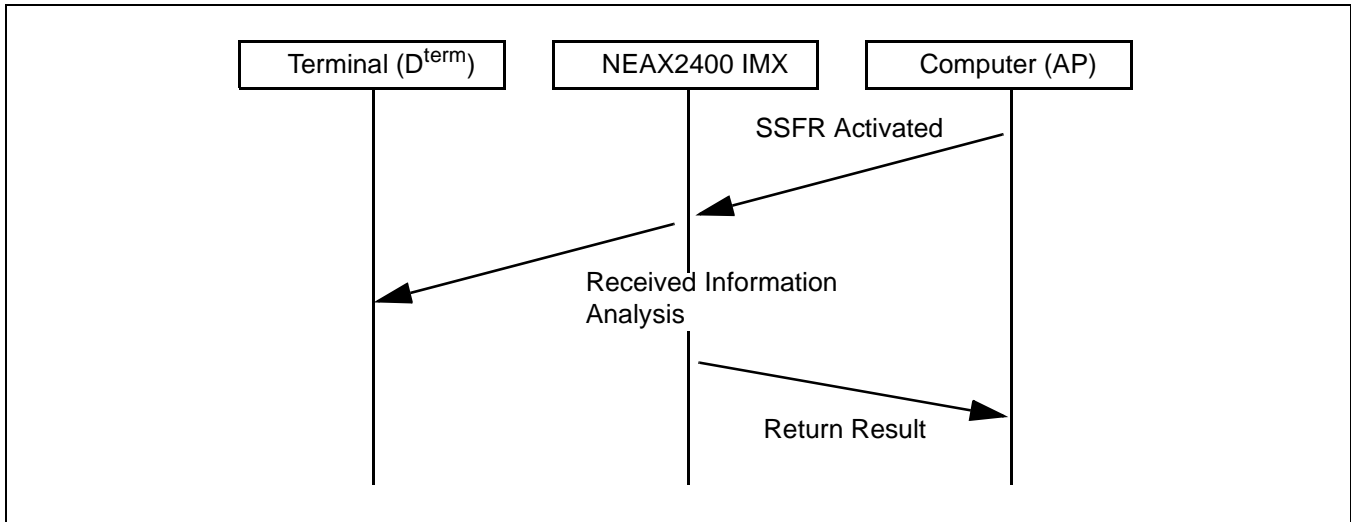
3.3.2 Using Conditions

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

[Normal Sequence]



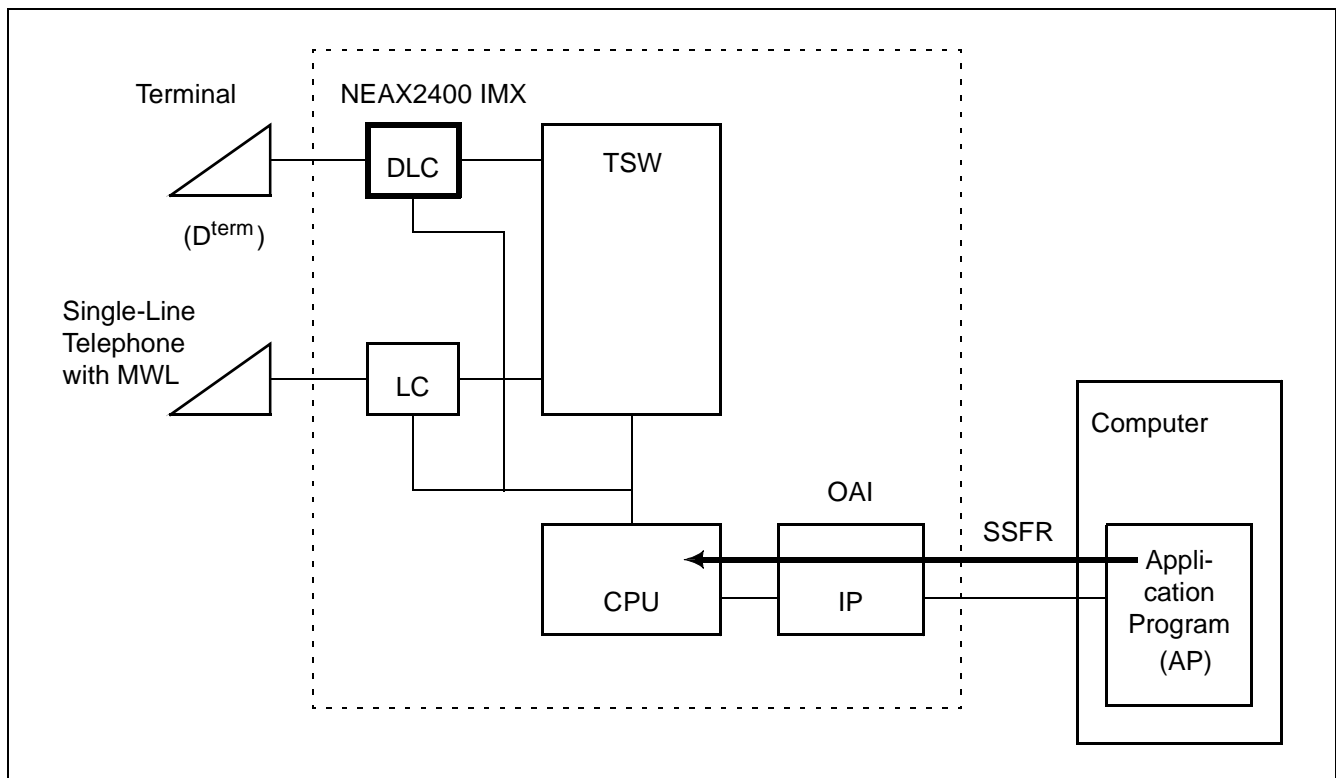
[Abnormal Sequence]



OFFICE DATA DESIGN

Procedure for Setting Office Data for OAI Services

2. This service cannot be used simultaneously with other MW control services (VMM/MCI: Message Center Interface/Message Waiting from Station, ATTCON and MAT).
3. The conditions for the telephone that controls MW are as follows.
 - MW can be serviced only on a telephone equipped with MW lamp function.
 - On a single-line telephone and/or D^{term} , 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 D^{term} . (MW indication is available only on a D^{term} equipped with the indicator.)
 - D^{term} can control only lamp flashing (LCD display cannot be controlled).
4. In the case of MW service by SSFR (Confirm-type <Computer → NEAX> Performer facility), the same kinds of display (MW, VMS) as those of MCI (Message Center Interface) are possible.
5. In the case of deletion of all the station data and all the type data, only the same data as those of MCI are deleted. MW service information for stations from the OAI Terminal Control Facility (TCF) are 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 the station data and all the type data, a delay time of maximum 196 seconds generates until the status of the terminal changes actually.
7. The system configuration for implementing this service is as illustrated below.



3.3.3 Data Programming

Assignment

1. ASYD (System Data)
SYS1
INDEX 77
b2: 0 (MW Lamp Refresh Control is in service)
INDEX 179
b6: 0 (OAI services are provided)
2. ARPC (Remote Point Code for Centralized Service)
For providing centralized services at the Message Center within a No. 7 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)

Deletion

1. ARPC (Remote Point Code for Centralized Service)
Delete the point codes of the remote offices belonging to the main office
2. ASYD (System Data)
SYS1
INDEX 77
b2: 1 (MW Lamp Refresh Control is not in service)
INDEX 179
b6: 1 (OAI services are not provided)

OFFICE DATA DESIGN

Procedure for Setting Office Data for OAI Services

3.4 TCP/IP Address (Assignment from MAT)

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 NEAX2400 IMX assigned from the MAT.

Also, whether system message “4-R” (IOC card for 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 switch setting 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] $128 \leq A \leq 191 \rightarrow A, B, 0, 0 \quad (0 \leq B \leq 255)$
Class C: [3] $192 \leq A \leq 223 \rightarrow A, B, C, 0 \quad (0 \leq B \leq 255, 0 \leq C \leq 255)$
Class D, E: [4] $244 \leq A \rightarrow A, B, C, D \quad (0 \leq B \leq 255, 0 \leq C \leq 255, 0 \leq D \leq 255)$
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
ASYDL (System Data (LDM))
Assign TCP/IP address
SYS1
INDEX 515 ~ 518
2. Deletion
ASYDL (System Data (LDM))
Delete TCP/IP address
SYS1
INDEX 515 ~ 518

Stopping the system message of “4-R”

1. Assignment
ASYDL (System Data (LDM))
SYS1
INDEX 864
b1 = 1 (The system message (4-R) is not output when TCP/IP connection is normally disconnected.)
2. Deletion
ASYDL (System Data (LDM))
SYS1
INDEX 864
b1 = 0

OFFICE DATA DESIGN

Procedure for Setting Office Data for OAI Services

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 D^{term}.

1. Catch internal call
2. Catch 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. Maximum 16 digits of user's information can be displayed on LCD according to internal numbers.
2. What is available for this service to display, is alphabet, digit, sign or etc..
3. For administrating user's information clearly, it is not available to use both "Name Display Service" which is assigned by ANDD command and "OAI Service" at same time.
4. It is not available to use both 8-digit Display Service and 16-digit Display Service at same time. For changing from 8-digit Display Service to 16-digit Display Service, can be changed by using "System Data".
5. There are limitations below for 16-digit Display Service.
 - User's information can not 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.
 - It is not able to set multi-line on this D^{term}.
6. There is a limitation below for 8-digit Display Service.
 - User's information is displayed from the middle of top line and if the information is less than 8 digits, the rest of frames will be blank. And the bottom line will display the clock.
7. If the user's information is not assigned, normally station number will be displayed.
8. There is no guarantee for the user's information since you change from 16-digit Display Service to 8-digit Display Service.
9. The service will be effective, if either of calling party or called party has D^{term} which has the LCD.

3.5.3 Data Programming (Set up from User's Application)

1. Assignment

ASYD
SYS1

INDEX31: 04: mount capacity of Common Memory (CM) 4Mbyte

INDEX78

b0 = 1 (Intermediate Station Number Display is in service)

b1 = 1 (Service Assortment Display is in service)

b3: Dial Number Display 0/1: Out/In service

b5 = 1 (Name Display Service is in service)

INDEX79

b5: Expanded Name Display (displaying 16-digit) 0/1: Out/In service

b6 = 0 (OAI Service is in service)

INDEX241

b1: Name Display 0/1: 8-digit/16-digit

2. Deletion

ASYD
SYS1

INDEX78

b0: Intermediate Station Number Display 0/1: Out/In service

b1: Service Assortment Display 0/1: Out/In service

b3: Dial Number Display 0/1: Out/In service

b5 = 0 (Name Display service is Out)

INDEX79

b5: Expanded Name Display (displaying 16-digit) 0/1: Out/In service

b6 = 1 (OAI Service is Out)

INDEX241

b1 = 0 (Name Display is displaying 8-digit)

OFFICE DATA DESIGN

Procedure for Setting Office Data for OAI Services

3.6 Inter Node Name Display

3.6.1 Functional Outline

Name Display Service is available between the network.

Name Display Service means for the facility of displaying letters (alphabet and etc.) on LCD of the D^{term}.

Catching call from other internal line

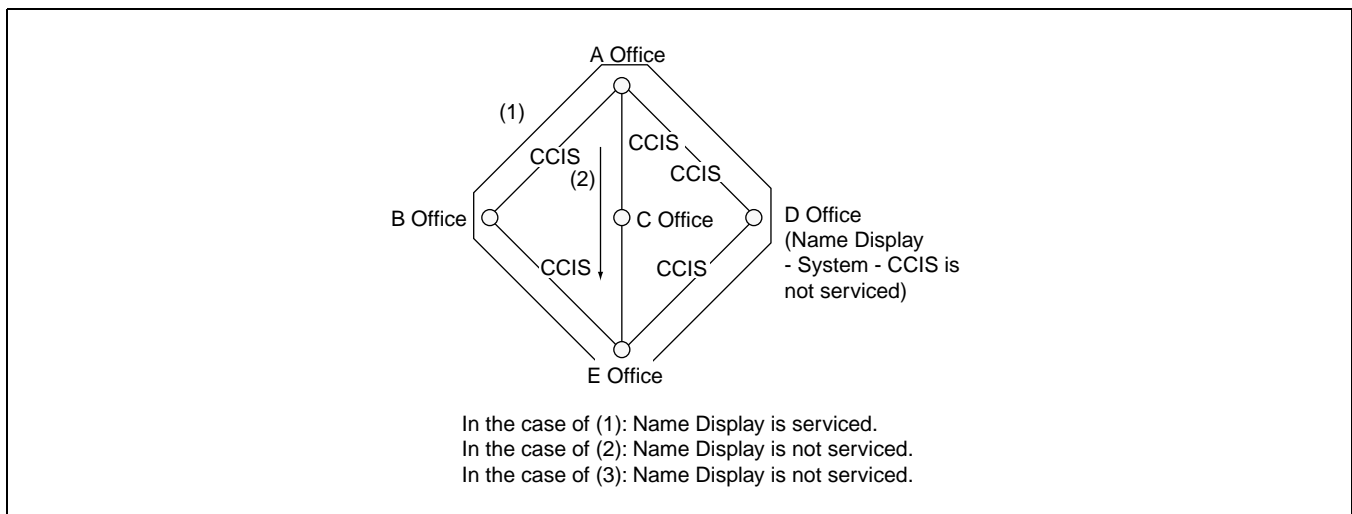
3.6.2 Using Conditions

1. When Calling party is calling Called party, the LCD of Calling party will 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 Calling party or Called party's will be displayed.
3. When there are both 8-digit and 16-digit of Inter Node Name Display Service in same Node, Calling party/Called party's name will 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 will be unable to set up multi-line at the D^{term}.
5. When Calling party reaches CCIS call to Called party by using D^{term} Sub-Line, the display of Called party will display the Sub-Line name of Calling party. (Only for 8-digit)
6. The Name Display of Called party indicates prime line only for Both of 8-digit and 16-digit.
7. What is available to display for this service, are alphabet, figure, sign and etc....
8. Assign the Name Information Data, based on each D^{term} LEN, by using the Free Location Facility available on the user's application.
9. The route which is set up Inter Node Display Service and the route which is not set up Inter Node Display Service should be separated from each other.
10. Even Dial Number Display Service is activate, the dial number won't be displayed between the Inter Node.

11. The objected terminal of Name Display Service is only D^{term} which has LCD.
12. "Office Code" + "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 D^{term} will display "Name Information" of Called party, instead of dialed number.
14. When you call to a party by the way of a party which doesn't have Inter Node Name Display Service in CCIS network, or the other Node of CCIS network, the Name Display Service will not serve.



15. This service can not be used in conjunction with ISDN Information Transfer-CCIS Service.
16. Those below are the Inter Node Services which 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 which are able serve Inter Node Name Display.
 - Call Pick Up
 - Ringing for Call Hold
 - Answering for call park
 - Call waiting
 - Catching call from UCD Queuing
18. For the terminal which is able to serve Inter Node Display Service, please see the Item of Name Display Service.

OFFICE DATA DESIGN

Procedure for Setting Office Data for OAI Services

3.6.3 Data Programming (Set up from User's Application)

Assignment

Those below are explanation of the Assignment according to Name Information which is set up from User's Application.

1. ASYD

SYS1

INDEX 78

b5 = 1 (Name Display Service is in service)

b3: Dial Number Display 0/1: Out/In service

INDEX 79

b6 = 0 (OAI Service is in service)

INDEX 241

b1: Name Display 0/1: 8-digit/16-digit displaying

2. Route Class Data (ARTD)

Change the Route Class Data of CCIS Trunk

Busy Line Service (BT): 1 (Active)

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

ISDN Output Information (CI): 0 (Existing)

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

Deletion

1. Route Class Data (ARTD)

Delete the Route Class Data of CCIS Trunk

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

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

ISDN Output Information (CI): 0 ~ 15

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

2. ASYD

SYS1

INDEX 78

b5: Name Display Service 0/1: Out/In service

b3: Dial Number Display 0/1: Out/In service

INDEX 79

b6 = 1 (OAI Service is not in service)

INDEX 241

b1 = 0 (Name Display 8-digit)

3.7 OAI Fusion

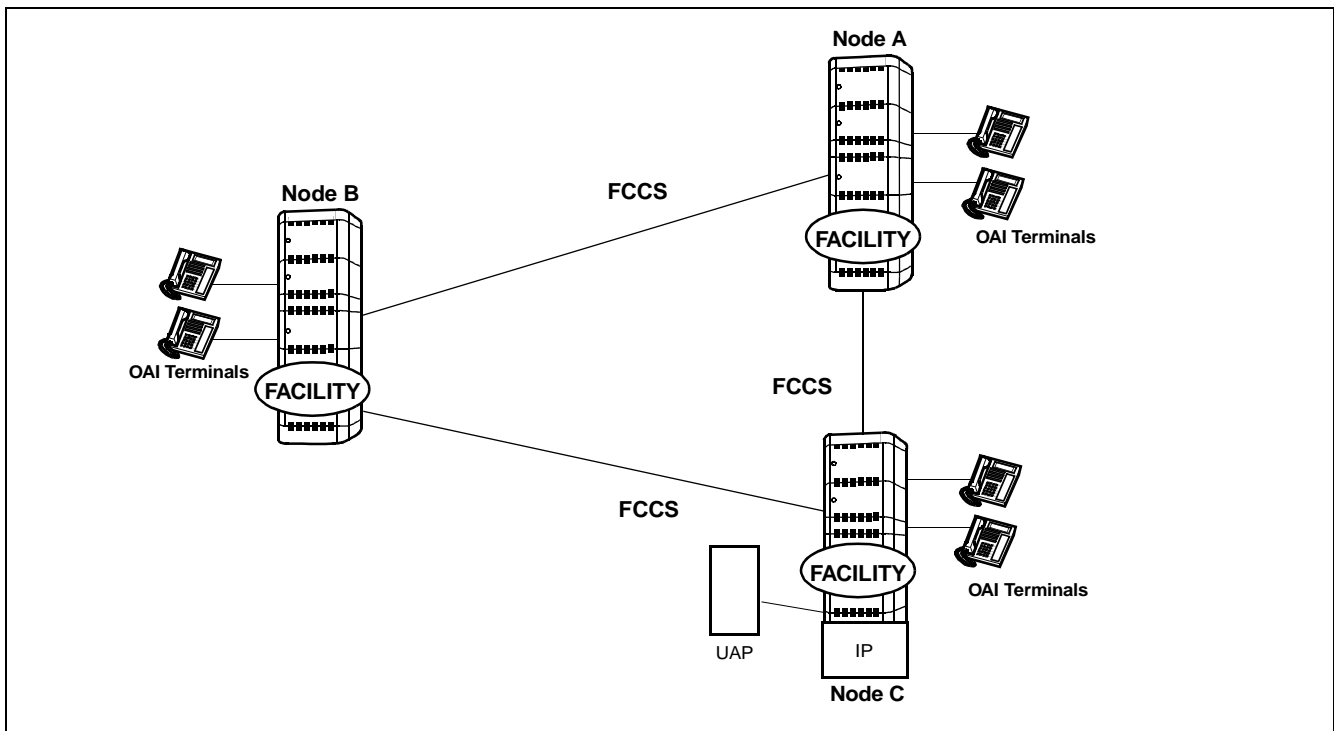
Main advantages of OAI Fusion fall down into the following. OAI Fusion systems can be divided into the following two types:

- OAI Terminal Anywhere
- Multiple IPs

3.7.1 OAI Terminal Anywhere

3.7.1.1 Functional Outline

In this configuration (OAI Terminal Anywhere), the OAI terminal can be installed in any Fusion node whether the node has the IP or not (those OAI terminals in multiple nodes are controlled by one IP). In other words, the facilities in multiple nodes (any Fusion node whether the node has the IP or not) are controlled by one IP. (“Facility” which can be used through the Fusion Network varies in “the OAI application”.)



3.7.1.2 Using Conditions

- (a) The Node that accommodates the IP is one node only in a Fusion network.
- (b) Telephone Number (max. 5 digits) is used for the station number type to activated OAI system through Fusion network.
- (c) Logical Route is used for the route type to activate OAI system through Fusion network.

OFFICE DATA DESIGN

Procedure for Setting Office Data for OAI Services

- (d) The node that accommodates the IP must be initialized when all the other nodes are in on-line mode.
- (e) The User's Application (UAP) must be booted up after the confirmation of the establishment of the Fusion link.
- (f) When you add a node/nodes to the network, you have to initialize the node that accommodates the IP.

3.7.1.3 Data Programming

STEP 1: Assignment of System Data

(Data for OAI Fusion)

ASYDL/ASYDN

- The data below must be set to all nodes in the network
 - (a) ASYDL-SYS1 INDEX512 b0~7: Assign the self-Fusion Point Code (self-FPC) at each node.
(1~253)
INDEX865 b0~7: FPC of the node providing IP
Note: Assign 0 for the node that providing IP in the self-node only.
 - (b) ASYDN-SYS1 INDEX514 : NDM usage
INDEX533 : FPC number of the node that has the standard VNDM
(1-253)

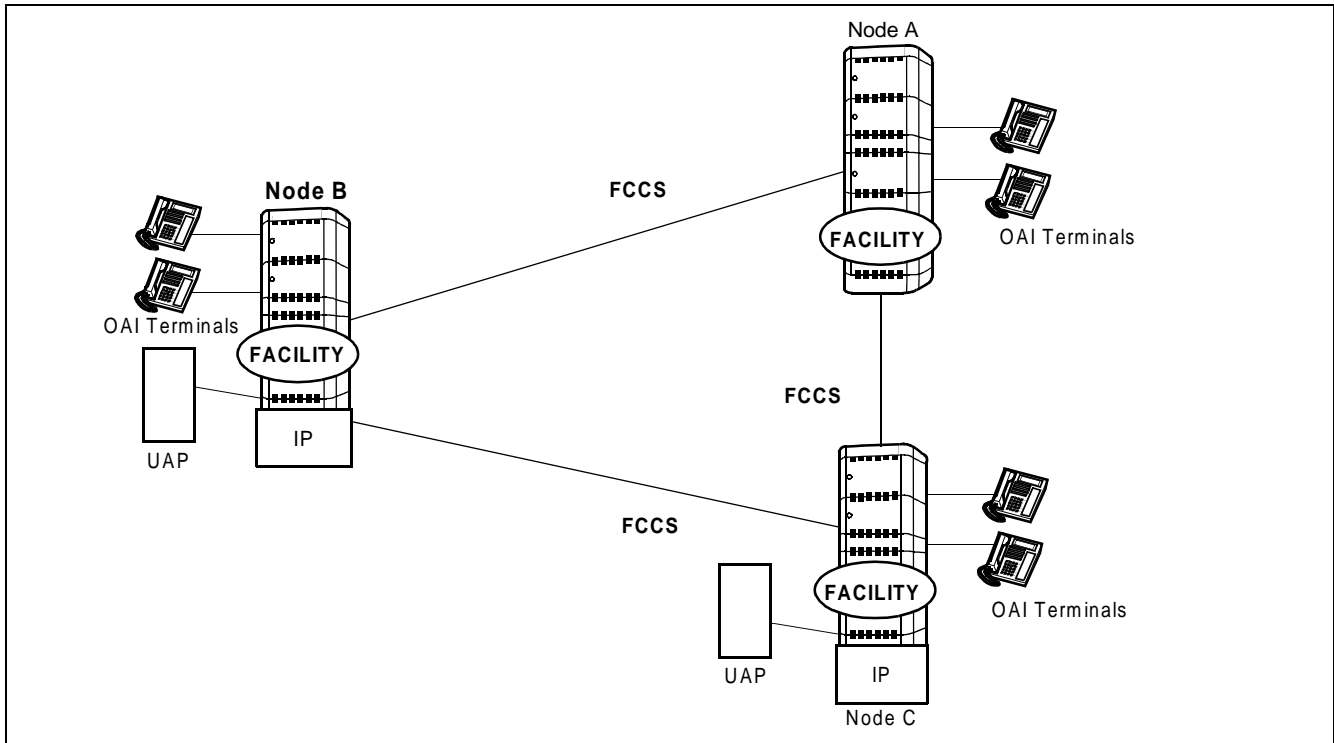
STEP 2: Data programming procedures other than STEP 1 are the same as that of the non-Fusion system. Therefore, only notification or condition of the data programming is shown below in this section.

- (a) ASYD/ASYDL
 - The data below are set to the node that accommodates IP
ASYD - SYS1, INDEX207, b0:1=IP0 is used
SYS1, INDEX207, b1:0/1=IP1 is not used/used
ASYDL - SYS1, INDEX864, b0:1=Built-in IP is used
 - The others are set to all nodes in the Fusion network.
- (b) Following are the notification Fusion 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 Fusion network to be provided OAI system.
(For these commands, assign data by the corresponding commands written in DM)

3.7.2 Multiple IPs

3.7.2.1 Functional Outline

In this configuration (Multiple IPs), IP can be accommodated to multiple nodes in a Fusion Network. Since Series 7400 (Release 8) software, establishing the CCIS line is not necessary to use OAI system through the network. (“Facility” which can be used through the Fusion Network varies in “the OAI application”.)



This feature is available with Series 7400 (Release 8) software.

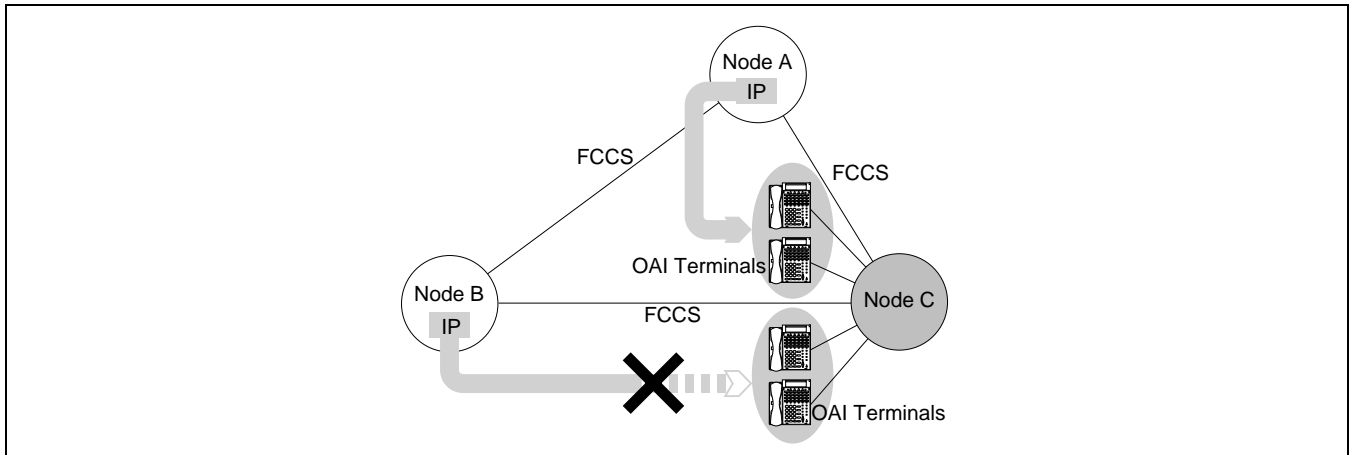
3.7.2.2 Using Conditions

- Telephone Number (max. 5 digits) is used for the station number type to activated OAI system through Fusion network.
- Logical Route is used for the route type to activate OAI system through Fusion network.
- Only one IP to be used for “OAI Terminal Anywhere” can be contained in a Fusion Network (Multiple IPs).
- IP can be accommodated to multiple nodes in a Fusion Network. However, maximum number of Status Monitoring Requests to a terminal is decided by the system data (max. 8 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.

OFFICE DATA DESIGN

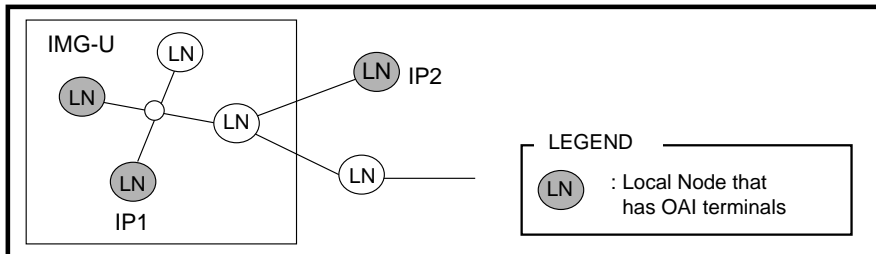
Procedure for Setting Office Data for OAI Services

(e) OAI terminals to be controlled from different IPs can not be accommodated in a node.



(f) When the IMG-U system is included in a Fusion Network (Multiple IPs), take the following conditions into consideration when programming data.

(a) IMG-U system where the OAI terminals are accommodated in multiple Local Nodes.
 In the IMG-U system, data programming for “OAI terminal Anywhere” must be programmed at the node that has IP (“IP1” in the figure below). In the network, another IP can not be used for “OAI terminal Anywhere” any more.



3.7.2.3 Data Programming

[Notice for Data Programming]

This section shows data programming divided into the types of OAI system (Figure 5-1).

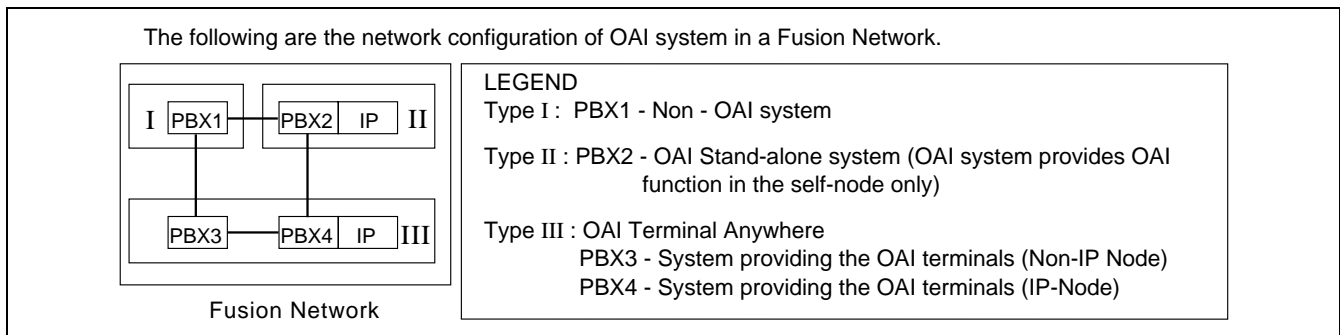


Figure 5-1 Network Configuration of OAI systems

- The following are the quick reference table of optional software and system data programming for each OAI system configuration. (See [Figure 5-1](#) “Network Configuration of OAI systems” for network configuration of OAI systems.)

Table 5-1 OAI Software and System Data

OAI		Type and Node	I	II	III	
			PBX1	PBX2	PBX3	PBX4
OAI Software						
1	OAI Option Service software (basic) [Series 7400 (Release 8)]			◎	◎	◎
2	ACD Option Service Software for “Agent Anywhere”				◎	◎
System Data						
3	CM Usage (ASYD:SYS1, INDEX31, b0~b3) Note 1		0	4	4	4
4	OAI in service/out of service (ASYD:SYS1, INDEX79, b6)		1	0	0	0
5	No.0 CPU Mounted Status of IP00/1: Not mounted/Mounted (ASYD:SYS1, INDEX207, b0)		0	1	0	1
6	No.1 CPU Mounted Status of IP00/1: Not mounted/Mounted (ASYD:SYS1, INDEX207, b1)		0	Note 2	0	Note 2
7	OAI Call Processing Event Notification (ASYD:SYS1, INDEX241, b2)		0	1	1	1
8	SCF Return Error Detail Notification (ASYD:SYS1, INDEX241, b3)		0	1	1	1
9	Built-in IP:Not used/Used (ASYDL:SYS1, INDEX864, b0)		0	1	0	1
10	OAI Terminal Anywhere:Out of service/In service Note 3 (ASYDL:SYS1, INDEX864, b2)		0	0	1	1
11	MULTIPLE IPs:Out of service/In service Note 4 (ASYDL:SYS1, INDEX864, b3)		0	0	1	1
12	FPC Number of the node providing IP (ASYDL:SYS1, INDEX865)		0	0	Note 5	Note 5
13	Number of ports for SMFN (terminal) (ASYDL:SYS1, INDEX864, b4~5)		0	Note 6	Note 6	Note 6
14	FPC Number of Center Node providing VNDM (ASYDN:SYS1, INDEX533)		Note 7	Note 7	Note 7	Note 7

◎ : The software is installed to be linked with the standard service software using MSVIP command.

Note 1: When CM is used for another function, this setting may be changed.
(Ex. Assign “6” Hex. when FLF Fusion service is used.)

Note 2: When the CPU in system 1 is used, assign “1”.

Note 3: Assign “1” at the all nodes using “OAI Terminal Anywhere” in the Fusion network that “MULTIPLE IPs” is provided.

Note 4: When the all fusion nodes in the network are used for “MULTIPLE IPs”, this data may be assigned using ASYDN.

Note 5: This data is required for UAP connection.

Note 6: (This data is not necessary for the example above.) Assign this data so that the proper number of ports can be used when more than three ports of Status Monitoring for terminal (SMFN). The identical data should be assigned at all nodes.

ASYDL SYS1 INDEX864 b4~5:

<u>b5</u>	<u>b4</u>	
0	0	=2 ports
0	1	=8 ports

Note 7: When the node using “OAI Terminal Anywhere” is included in the Fusion network that “Multiple IPs” is provided, assign the FPC no. of IP node using “OAI Terminal Anywhere”.

OFFICE DATA DESIGN

Procedure for Setting Office Data for OAI Services

2. Some notices for PBX commands data programming are described below. (See [Figure 5-1](#) “Network Configuration of OAI systems” for network configuration of OAI systems.)

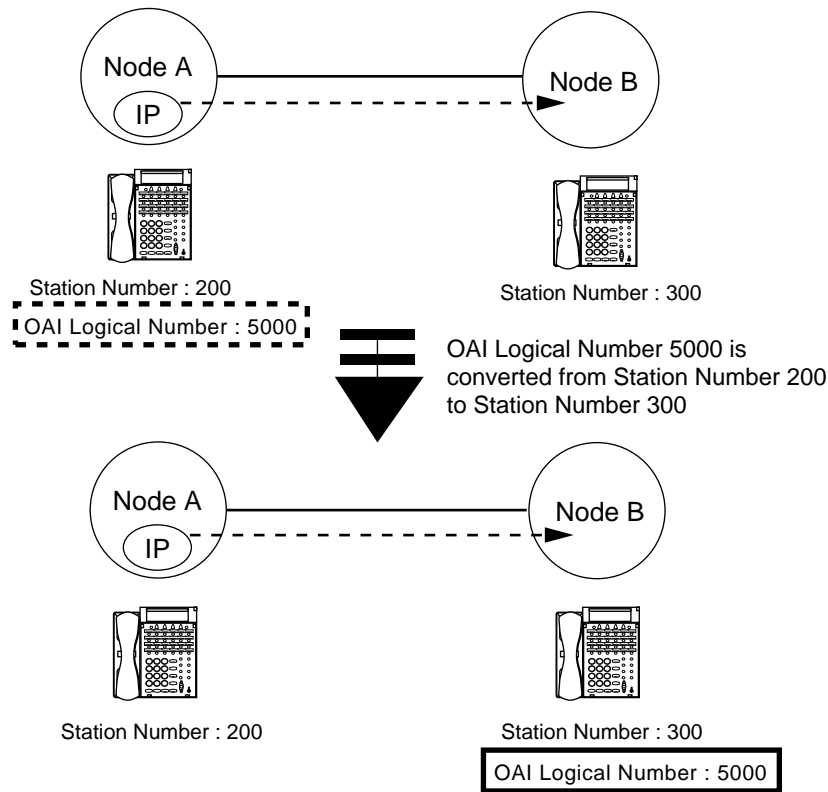
Type and Node PBX Command Data	I	II	III	
	PBX1	PBX2	PBX3	PBX4
Monitor Number Data (AMNO)		N/L		N
Conversion Number Data (ACNO)		N/L		N
Announcement/Dictation Data (AADT)		N		N
OAI Key Code Data (AOKC)		○	○	○
Key Data for D ^{term} (AKYD)		○	○	○

- : 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.

3.7.3 Example of Use of Facility on Fusion Network

As a example of use of facilities through Fusion Network, the explanations will give in the following about Free Location Facility (FLF).

By using Free Location Facility (FLF) through Fusion Network, OAI Logical Number services can be used at any nodes in the Fusion network. This feature is available with the Series 7400 (Release 8) software.



This service enables the Free Location Facility (FLF) beyond the nodes via the Fusion 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 (Fusion network) nodes.

Note: For this service, assign the system data as follows;

ASYD-SYS1 INDEX 31:06 (Mounting Capacity of Common Memory (CM) 6 Mbytes)

ASYDN-SYS1 INDEX 870, b0=1(FLF Fusion service is available)

ASYDL-SYS1 INDEX 864, b6=1 (FLF Error detailed Information is provided)

This page is for your notes.

CHAPTER 6 MAINTENANCE

This chapter explains maintenance, fault diagnosis out of system messages, fault repair procedure of the NEAX2400 IMX OAI System.

1. General

When a fault has been discovered in the course of maintenance works, the fault is to be diagnosed out of system messages and is to be repaired by the following fault repair procedure (Refer to [Figure 6-1](#)).

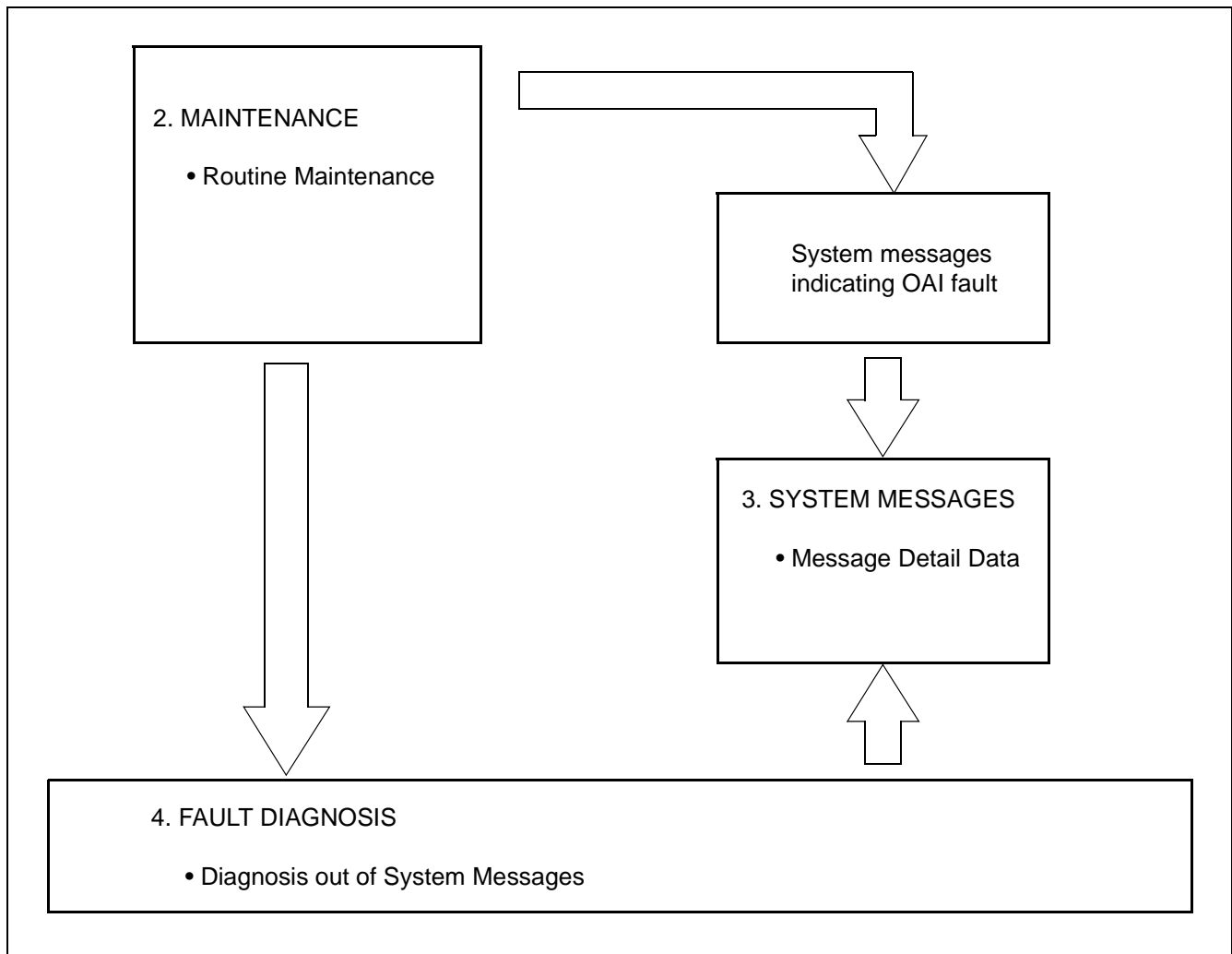


Figure 6-1 Flow of Maintenance Works

MAINTENANCE

Maintenance

2. Maintenance

2.1 Routine Maintenance

By the routine maintenance on the NEAX2400 IMX OAI System, the following are performed.

1. System messages pertaining to OAI faults

A check is made to see if any system message pertaining to OAI faults is printed out. (Refer to [Chapter 6, Section 3.1](#))

2.1.1 System Messages and Lamp Indications on TOPU

In the OAI system, an alarm lamp on TOPU corresponding to the faulty equipment lights up. The alarm lamps on TOPU corresponding to system messages are shown in [Table 6-1](#).

Table 6-1 Relationship between System Messages and Alarm Lamps on TOPU

SYSTEM MESSAGE		FRAME-TOP LAMP			REMARKS
No.	NAME	MJ	MN	SUP	
4-R	I/O Card Fault of IP			×	
26-V	LAN Interface Error Report			×	

3. System Messages

3.1 Outline

If any of the NEAX2400 IMX OAI functions becomes faulty, the corresponding system message shown in [Table 6-2](#) is displayed. This section explains the meaning of each system message and message detail data.

Table 6-2 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 PBX and Host, occurred.

3.2 Message Detail Data

This paragraph 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 Format

SYSTEM MESSAGE 4-R								TCP/IP Link Failure								
NEC - ESD								DEC 22 21:32								
1:	xx	xx	xx	xx	xx	xx	xx	2:	00	00	00	00	00	00	00	00
	①	②	③	④	⑤	⑥	⑦		⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯

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 Fault logical channel number (LCID) : 01~10H (00 means the data is invalid)

Relation between LCID and PBX TCP port number

LCID	TCP port number of the PBX
01	60030

⑤~⑧ IP address

Table 6-3 Error Code

② PROTOCOL	③ ERROR CODE	CONTENT OF FAULT
03 (ETHER + TCP/IP)	01	TCP Connection disconnected (Normal) Note 1
	02	Reception of a text that cannot be analyzed Note 2
	03~09	Not used
	10 (0A)	TCP Connection disconnected (On the way) Note 2
	11 (0B)	Transmission to PZ-PC19 (LANI) is disabled (Permanent) Note 2
	12 (0C)	Abnormal UAP is detected by Heart Beat function
	13 (0D)	Not used
	14 (0E)	TCP/IP Connection Error (B-level Infinite Loop, etc.) Note 2
	15 (0F)	Not used

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 SYS1, INDEX864, b1 in ASYDL (Other messages than ERRK = 01 is output when TCP connection disconnected is not output).

Note 2: This data is output for Series 7300 Release 6 or earlier. If your system is Series 7300 Release 7 or later, the message is output by 26-V” instead. (Refer to Section 3.2.2)

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-VLAN INTERFACE ERROR REPORT																	
NEC - ESDJULY 25 19:30																	
TCP/IP Part								Application Part									
1:	xx	xx	xx	xx	xx	xx	xx	xx	2:	xx	xx	xx	00	00	00	00	00
	①	②	③	④	⑤	⑥	⑦	⑧		⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯

2. Print-out information (typical)

-TCP/IP part-

- ① ~ ④ IP address of the error-detected OAI/MIS terminal
- ⑤ ~ ⑥ Port No.
- ⑦ Used socket No.
- 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

4. Fault Diagnosis

4.1 General

If a fault occurs to the NEAX2400 IMX OAI System, the corresponding system message is displayed. This section explains the procedures of fault diagnosis by system messages and of fault repairs.

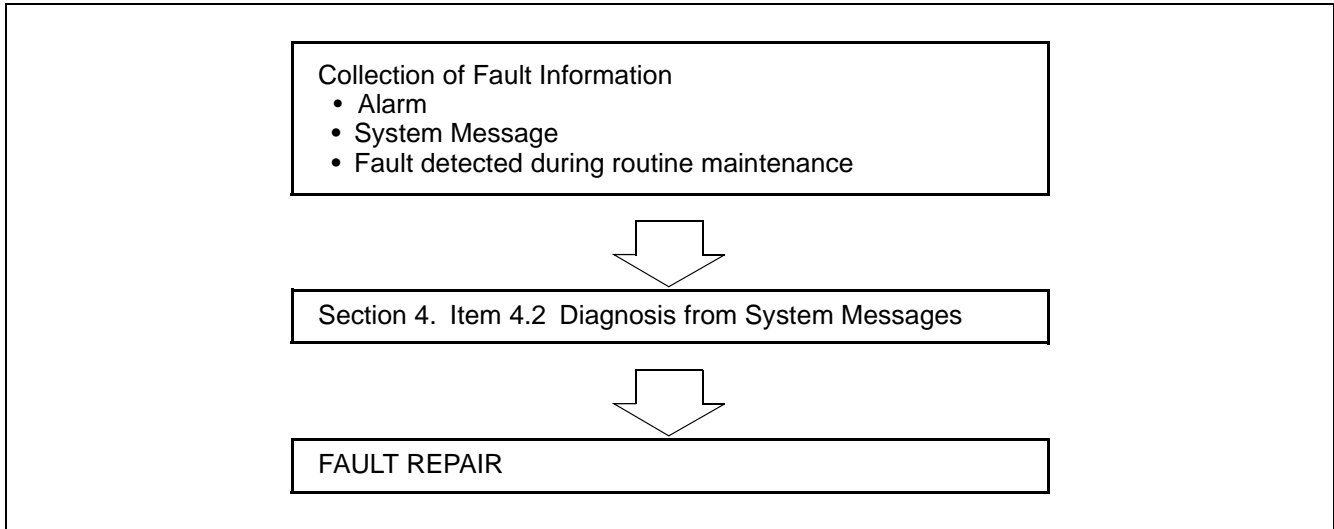


Figure 6-2 Flow of Fault Repair

4.2 Diagnosis from System Messages

The flow of works from diagnosis of system message up to discovery of the cause of the fault is shown in [Figure 6-3](#).

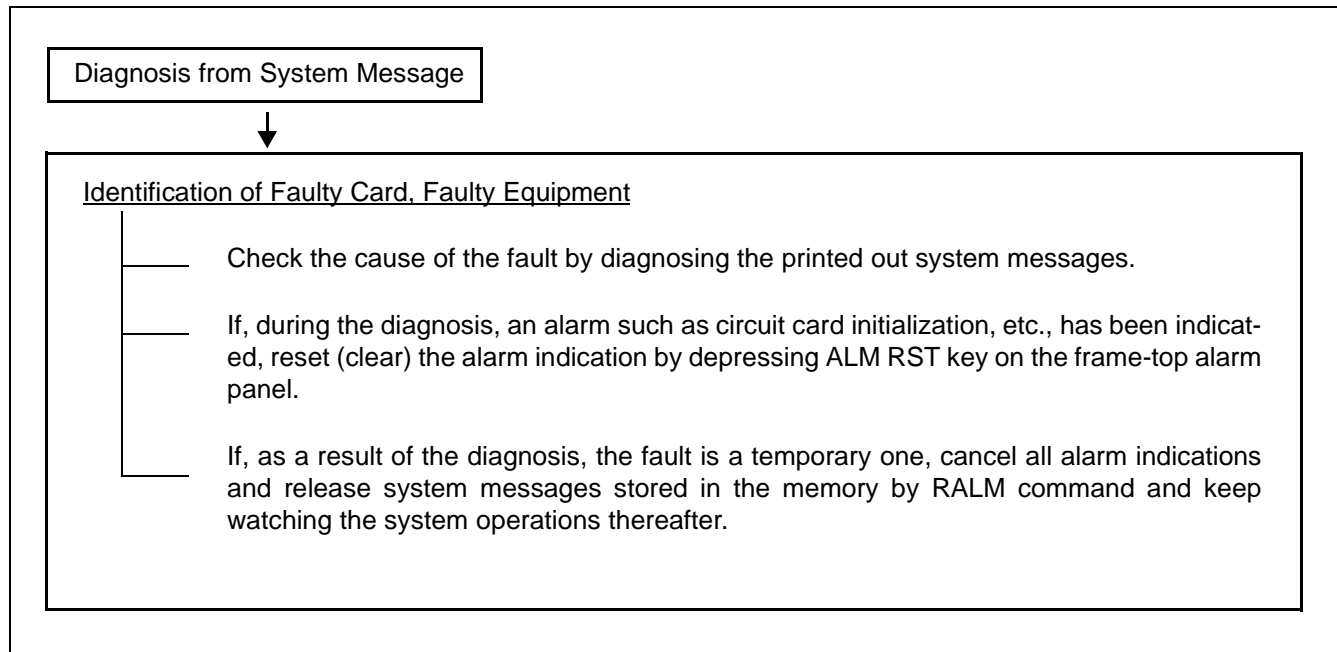


Figure 6-3 Flow of Diagnosis out of System Messages

4.2.1 TCP/IP Link Failure

For details of System Message “4-R” and “26-V”, see [Section 3.2.1](#) and [3.2.2](#) in this Chapter.

START

According to each fault situation, perform the repairing procedure referring to [Table 6-4](#) and [Table 6-5](#).

- When Message “4-R” is displayed:

Table 6-4 Repairing Procedure for TCP/IP Link Failure (Message “4-R”)

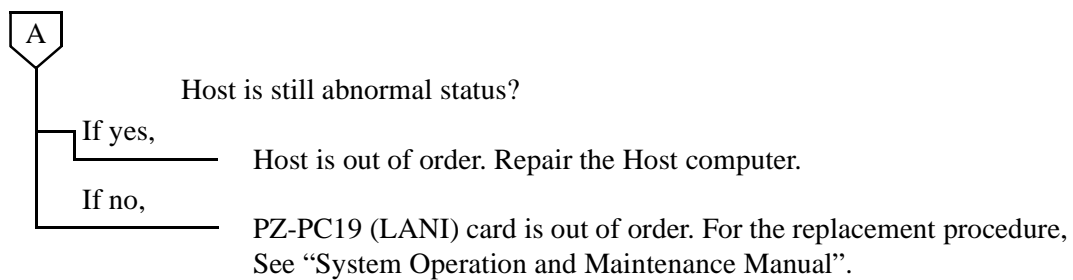
ERRK	Detail information of ERRK	Check Item
01	TCP/IP connection is down for the TCP connection disconnection from Host.	Re-start the Host
02	Incorrect text format is received.	[1] Check the software operation on the Host side
		[2] Check the LAN cable connection
0A	TCP/IP connection establishment is not completed for the TCP connection disconnection ordered from Host.	Re-start 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.).	Re-check the operation status of Host.
0F~FF	Not used	

- When Message “26-V” is displayed:

Table 6-5 Repairing Procedure for TCP/IP Link Failure (Message “26-V”)

ERRK	Detail information of ERRK	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 or not.
		[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.	Re-start the Host computer.
04	TCP port is released due to the detection of abnormal state in the Host operation.	Re-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.





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