NEC

SERVER

INSTALLATION GUIDE

NEC America, Inc.

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Chapter 1   Introduction

This guide provides specific field entries that need to be made in the process of installing and configuring Server. In addition to this guide, use the following manuals for this installation:

- **Applications Manager (APM) Installation Manual** – Contains step-by-step instructions for installing the software from the release media.

- **Applications Manager (APM) Operations Manual –** Explains how applications like Server are configured in the APM environment, using the entries and values provided in this guide.

- **NEAX2400 System Manuals –** Give very detailed explanations about the assignments that need to be made through the Maintenance Administration Terminal (MAT) commands on the NEAX2400.

Briefly, the installation and set up of Server involves the following processes:

- **Software Installation** – Server software must first be loaded from the release media. Log in to the APM Platform Management Menu, select the Installation of Applications/Packages option, and follow the instructions provided in the *APM Installation Manual* to complete this part of the installation.

- **Application Configuration** – Server is internally supported by the APM and must be configured in the APM environment. This section provides the information that must be entered into this APM configuration file. Use the instructions provided in the *APM Operations Manual* for the entries provided in this section.

- **MAT Assignments** – Data settings that must be assigned at the NEAX Maintenance Administration Terminal (MAT) depend upon the needs of the application that Server is to support. This section discusses some of the relationships between the NEAX facilities that the application may require and the MAT commands that frequently correspond to those facility functions. Use the instructions provided in the *NEAX2400IMS System Manuals* for any required MAT command assignments.

The installation process and a list of reference manuals are shown in the diagram below:

SERVER INSTALLATION

Discussed in chapter: Instructions in:

Introduction

Step 1:
Software Installation
Software Release Media

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Manual

Application Configuration

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Manual

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NEAX2400 Facilities and NEAX2400 MAT Commands.

Chapter 2   Application Configuration

Server is configured into the APM system using the **Add** function of the Application Configuration option on the APM System Administration menu.

- Enter the APM option from the APM Platform Management Menu.
- Enter the System Administrator password at the APM password screen.
- Enter the Application Configuration option from the System Administration menu.

This section contains the information that should be entered to the configuration file for Server. For specific instructions on what these parameters mean and how to make these entries, refer to the *APM Operations Manual*.

The following components must be configured for Server:

- The Command Controller, the background process that manages Server functionality.
- Each Facility Messenger supported by Server. There must be one per PBX served.
- The Logical Monitor for each Facility Messenger. The Logical Monitor component is only required if Server commands #60 and #61 are used.

Note: *Fully configure one component at a time (steps 1-5), rather than attempting to configure all components at each step.*

Step 1: Application Characteristics (All Components)

In this step, each component is characterized.   This characterization determines what other parameters must be configured for the component. Characterize each component as follows:

Parameter	Facility Messenger	Command Controller	Logical Monitor	Description
OAI Application (Y,N)	Y	N	Y	Indicates whether or not (Yes or No) this component communicates with the NEAX2400 using OAI processes.
CRT Application (Y,N)	N	N	N	Indicates whether or not (Yes or No) this component requires a terminal screen that is of the same type as the one used by the APM.
Communication Queue (Y,N)	N	Y	N	Indicates whether or not (Yes or No) this non-OAI application needs an IPC queue to communicate with other processes.

Step 2: Primary Configuration Parameters (All Components)

On the Configuration Entry screen, make the entries shown below to the parameters indicated.

Note: *It is assumed that the Facility Messengers are all configured alike except for their names (e.g., Messenger 1, Messenger 2, etc.).*

Parameter	Facility Messenger	Command Controller	Logical Monitor
Application Name	Messenger	Controller	Logmon
Executable Filename	/oai/app/svr/messenger	/oai/app/svr/controller	/oai/app/svr/logmon
Group	---	---	---
Response Mode	I(gnore)	I(gnore)	I(gnore)
Initialization Batch	N(o)	N(o)	N(o)
Termination Mode	M(essage)	M(essage)	M(essage)
Standard Output	/oai/app/svr/msg.log	/oai/app/svr/con.log	/dev/null
Number of Restarts	0	0	0
Queue Key	---	200	---

Parameter Definitions:

- Application Name – Indicates the name to be displayed in the APM menus.
- Executable Filename – Contains the path name of the executable file.
- Group – Indicates the group to which the components are associated.
- Response Mode – Indicates the action that APM is to take with the component should a member of the group terminate.
- Initialization Batch – Indicates whether or not the component is to be initialized automatically when the OAI system is initialized.
- Termination Mode – Indicates how the APM is to tell the application to terminate.
- Standard Output – Designates the file into which component output is redirected.
- Number of Restarts – Indicates the number of times that the APM may restart the component after it terminates erroneously.
- Queue Key – Indicates the queue key to be assigned to that component.

Step 3: Facilities (Messenger and Logical Monitor only)

According to instructions in the *APM Operations Manual*, designate the following NEAX2400 facilities for each Messenger and Logical Monitor component using the **Facilities** command on the APM Configuration Entry screen. You only need to specify those facilities whose corresponding Server commands will be used. For example, if you only use commands 10 to 17, you should only select SCF. The only facilities that the Logical Monitor uses are SCF, SMFN, and SMFR.

Facility	Command
KTF	#33
MRFR	#42
MRFI	#30, #40
MSF	#40, #41
NTF	#33
RCF	#20-#24
SCF	#10-#17, #60, #61
SMFN	#50, #51, #60, #61
SMFR	#50-#52, #60, #61
TCFD	#33
TCFI	#32
TMF	#30, #31

Note: *The MSF Op-Codes and/or TMF Op-Codes that are selected in the APM during Step 3 must also be assigned at the NEAX MAT. For more information, see Chapter 3, "MAT Assignments".*

Step 4: Secondary OAI Configuration Parameters (Messenger and Logical Monitor only)

Using the **OAI-Conf** command on the Configuration Entry screen, make the entry shown for each of the following parameters required by the indicated Server components. Use the instructions provided for this option in the *APM Operations Manual*:

Parameter	Messenger	Logical Monitor
Timeout Value #1	10	0
Tenant Number	0	0
Source Link Name	OAI1TCP	OAI1TCP
Destination Link Name	PBX1TCP*	PBX1TCP*
Association Recovery	0	0

* Differs for each PBX link.

Parameter Definitions:

- Timeout Value #1: Designates the number of seconds that Server is to wait for NTF/KTF input (default, if not specified in a command). Applies to the Messenger only.

- Tenant Number: Specifies the number of the tenant that this Messenger and Logical Monitor each serves. 0=everyone.

- Source Link Name: Identifies the port on the source side of the communication link; entry should correspond to a link name in the APM system configuration file.

- Destination Link Name: Identifies the PBX port on the destination side of the communication link; entry should correspond to a link name in the APM system configuration file.

- Association Recovery: Designates the number of seconds this Messenger and Logical Monitor will each wait before trying to re-establish an association with the NEAX that has been released.

Step 5: User-defined Parameters (All Components)

Make the following additional parameter entries through the **UserDefined** command on the APM Configuration Entry screen.

- **Messenger User-defined Parameters**:

User-defined	Entry	Definition
#1	01	Messenger identifier. Used in the header of Server commands. Must be unique for each Messenger.
#2	Controller	Name of the Command Controller.
#3	Logmon	Name of the Logical Monitor associated with this Messenger. Required only when using commands #60 and #61.

- **Logical Monitor User-defined Parameters**

User-defined	Entry	Definition
#1	/oai/app/svr/logmon.log	Log filename (with path) of the Logical Monitoring process.
#2	Controller	Name of the Command Controller.

- **Controller User-defined Parameters**

  Note: *An application can create a command file containing a sequence of commands that Server reads and executes, or it can exchange messages interactively with Server through a command FIFO. If the application interacts with Server, it sends to Server through a <u>command</u> FIFO and receives from Server through a <u>response</u> FIFO. These are configured with the User-defined Parameters.*

User-defined	Entry	Definition
#1	no	Whether or not (yes/no) a command file exists.
#2	/oai/app/svr/cfifo	If #1 is yes, the name (with path) of the command file; if #1 is no, the name of the command FIFO.
#3	yes	Whether or not (yes/no) to set up for a response FIFO; must be no if #1 is yes (uses a command file).
#4	/oai/app/svr/rfifo	Response FIFO name (if #3 is yes).
#5	all	Logging options: All - log comments, responses, asynchronous messages. Error - log only responses with errors. None - no logging requested
#6	/oai/app/svr/log	Path name of the directory where logging file is to be updated and maintained.
#7	daily	Log file backup period: daily or hourly.
#8	50	Maximum number of unresponded commands that will be queued before new incoming messages are rejected.
#9	1	Time (in seconds) to wait for one or more commands (from the FIFO) or one or more responses (from the application's queue). If this value is 0, at most one command and one response will be processed every second.

<u>This completes the configuration of Server in the APM. Now go to the next section to make the necessary command assignments at the NEAX2400 Maintenance Administration Terminal (MAT).</u>

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Chapter 3 MAT Assignments

This guide assumes that data settings that affect the operation of all OAI software on a system-wide basis have already been assigned on the NEAX Maintenance Administration Terminal (MAT). Such settings include, system index values and assignment of Interface I/O Port Data in the Interface Processor (IP). For more information about these system data settings and the MAT commands described below for Server, refer to the *OAI Module Installation Manual for the NEAX2400 IMS*, the *NEAX2400 IMS Command Manual*, and the *NEAX2400 IMS Job Specification Manual*.

Server is configured for access to several facilities, but its use of those facilities is dictated by the application(s) that uses Server to interface with the NEAX2400 IMS. Refer to the *NEAX2400 IMS Programming Manual* to determine what MAT assignments are necessary as the needs of applications supported by Server become clear. The following relationships between NEAX facilities and MAT assignments are provided as examples only:

Mode Set Facility (MSF) And Terminal Multi-Transfer Facility (TMF)

Server requires MAT assignment of the MSF and TMF to an OAI-assigned function key on all D^{terms} that will be enabled to communicate with Server, and in turn, the user application. This description is more detailed than those that follow it because of the relationship between the two commands and between the commands and the configuration of the user application.

The MSF/TMF facility and its Op-Code are assigned to one of the 14 OAI Key Codes in the MAT. (The MSF Op-Codes range from 128 to 191 and TMF from 192 to 255; assignments are available for on-screen viewing through the **Providers** command in the APM Application Configuration option.) Each of the OAI Key Codes corresponds to an AKYD Function Key Index (FKI) value which is then assigned to the specific D^{term} function key. This process is illustrated on the next page.
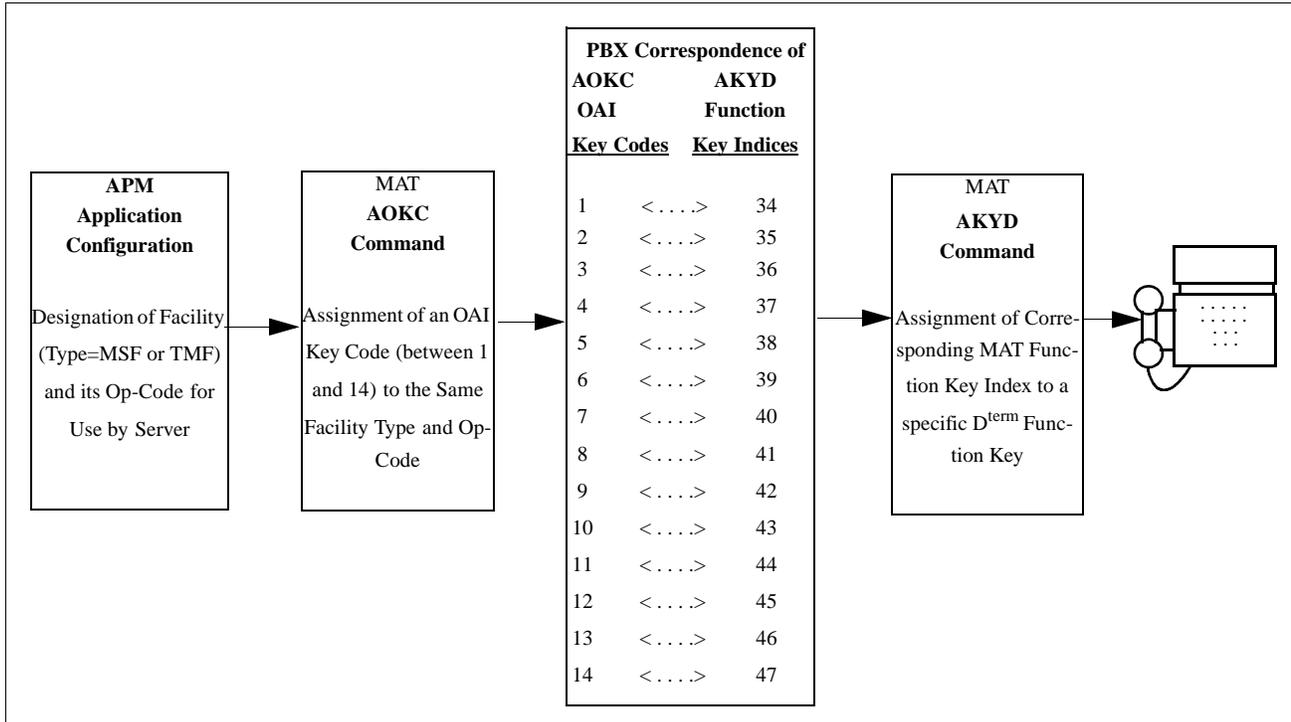

Figure 3-1   OAI Function Key Assignment

A knowledge of the D^{term} stations in the NEAX system and which ones will be set up to access the user application through Server is necessary to using the following commands:

AOKC: Assignment of OAI Key Codes

This command is used to associate the MSF or TMF facility and its Op-Code that was configured in the APM for Server to one of the OAI Key Codes in the MAT.

(a) Select an unused OAI Key Code, from 1 to 14. To determine what Key Codes are available for assignment, use the LOKC command to list the AOKC Key Codes that are already assigned.

(b) Enter the type of facility using the value that designates the MSF or the TMF.

(c) Enter the same Op-Code that was configured for Server in the APM. If necessary, retrieve it using the **Providers** command on the APM Configuration Entry screen (See page 3 of this guide).

AKYD: Assignment of D^{term} Function Key

The AKYD command (formerly AKY1) can only be used to assign key data on those D^{terms} that have already been assigned through the ASDT command.

MAT Function Key Indexes #34 to #47 have been designated for use in the OAI system and correspond to the 14 OAI Key Codes as illustrated above. The AKYD command is used to assign a D^{term} function key to the specific MAT Function Key Index that, in turn, corresponds to the previously assigned OAI Key Code. This command must be used to assign the function key on each D^{term} that is to be set up with access to Server.

    (a) Enter the tenant and station number of the D^{term} on which the function key is being assigned.

    (b) Enter the number of the D^{term} function key that is to be pressed to activate Server from the D^{term}.

    (c) Enter the MAT Function Key Index that corresponds to the previously assigned OAI Key Code.
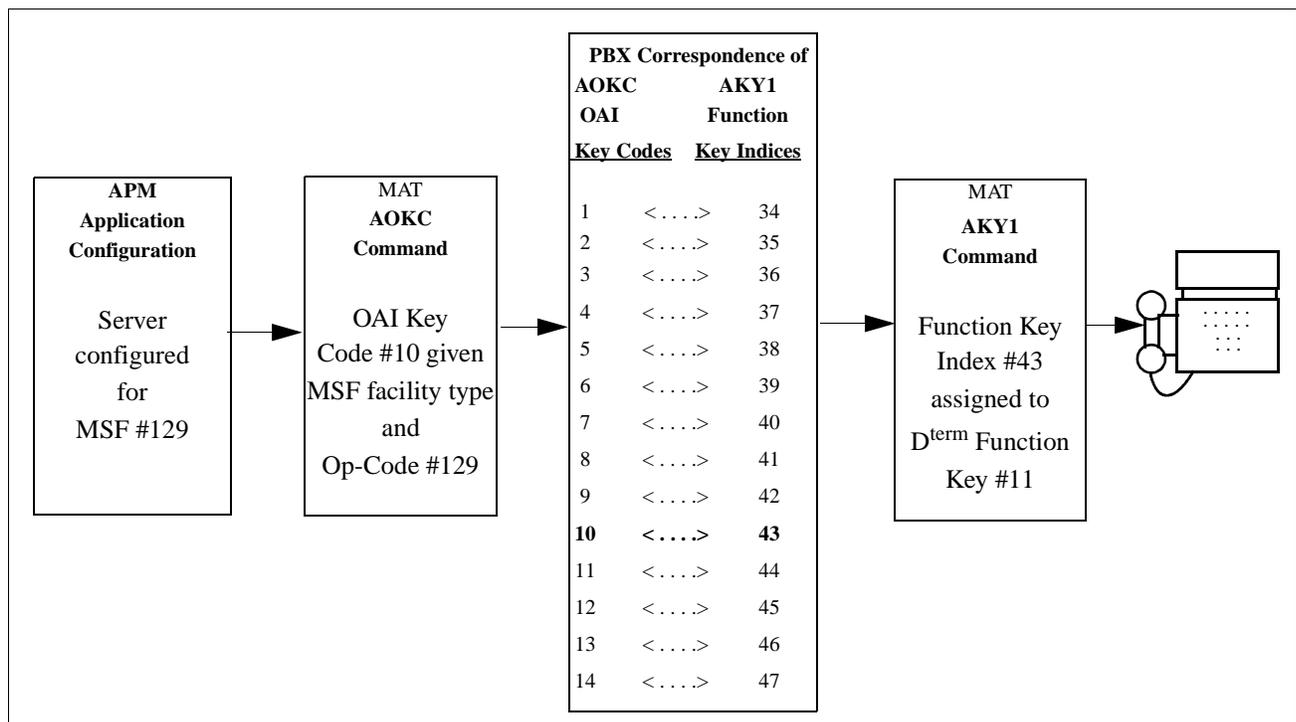

Figure 3-2   OAI Function Key Assignment Example

For example, suppose that the Messenger component is configured to use MSF Op-Code #129. Through the AOKC command, OAI Key Code #10 is assigned MSF #129. In this example, we want to use D^{term} function key #11 to access the server. Since OAI Key Code #10 corresponds in the PBX to MAT Function Key Index #43, D^{term} function key #11 is assigned to Function Key Index #43 using the AKYD command.

Now whenever a phone user presses function key 11 on any assigned D^{term}, MSF 129 initiates communication with Server.

Key Transfer Facility (KTF)

Activities needing KTF as an input device require MAT commands AKYD and AOKC for the assignment of the KTF op-code to a particular function key on specified D^{terms}. Refer to the descriptions above for the MSF and TMF.

Restriction Control Facility(RCF)

When Server uses RCF, it specifies RSC and SFC values that have been defined through the following MAT commands:

ARSC: Assignment of Route Restriction Class

Assigns and displays route restriction information for a tenant and route number. Combined with ASDT, this command activates route restrictions at a station.

ASFC: Assignment of Service Feature Class

Assigns various NEAX call processing features to SFC values from 0 to 15. Combine with ASDT, this command activates service features at a station.

ASDT: Assignment of Station Data

Associates the pre-assigned route restrictions and service features to a specific station, besides specifying the telephone class and LENS of the station. Use the same tenant number (except 0) that was configured for Server.

Switch Control Facility(SCF)

AADT: Assignment of Announcement or Dictation Trunk

This MAT command may apply when Server commands #14 (Announce a Call) or #15 (Monitor a Conversation) is used.

Up to eight trunks can be assigned to each announcement package and up to eight trunks can be assigned to each dictation package.

1. Enter the type of trunk to be assigned (announcement –ANT or Dictation– DCT).

2. Assign a package number (message number) — announcement packages are numbered between 1 and 58, and dictation packages are numbered between 1 and 5.

3. For announcement packages only: Enter the duration of the message timer, an even number of seconds within the range of 2-120 seconds. When this timer expires, a call is detached from the announcement package, unless the disconnect timer (D parameter) is disabled. (If D=0, the caller hears the announcement repeatedly.)

4. Enter at the CNT prompt the number of announcement or dictation trunks required, up to a maximum of 8 each.

5.   Enter the route and trunk numbers to be assigned to the package.

Status Monitor Facility – Request (SMFR)

If Server is to support an application that requires a monitored (sometimes called pilot) number, use MAT command AMNO to establish the monitored number, as follows:

AMNO: Assignment of Monitored Number

Assigns a virtual station number as a monitored number that is controlled by Server. Enter the same tenant number (except 0) configured for Server, the monitored number that Server will monitor, and the optional UCD pilot number to which calls will be routed when Server is not monitoring the monitored number.

This completes the installation of Server. Now enter the APM Operations Menu and initialize these three components.

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Chapter 4   Initialization and Termination

Initialization

The Command Controller and Facility Messenger components must be initialized by the user through the APM. Command Controller needs to be started prior to or in conjunction with a Facility Messenger. To begin initialization, select the Non-CRT Application Control option of the APM's System Operations Menu. (Make sure that OAI system has been initialized before you begin this process.) Then, choose the Initialize command, and select the Command Controller and Facility Messenger application names. For more information, refer to the *APM Operations Manual*.

The Logical Monitor component is initialized by Facility Messenger when needed. The user should never start the Logical Monitor manually. Only two commands require an active Logical Monitor: Initialize Logical Station Monitoring command (60) and Terminate Logical Station Monitoring command (61).

Command Controller does not open the command and response FIFOs (or command file) until a Facility Messenger is ready to receive commands. If the FIFOs do not exist, Command Controller creates them.

Termination

The Command Controller can be terminated in two ways:

- The user chooses the Terminate command form the APM's Non-CRT Application Control Menu.

- The user's application issues a Terminate Controller command (09) to Server.

In both cases, Command Controller tells all Facility Messengers to terminate and closes the FIFOs (or command file) before terminating itself. Any responses to completed commands remain in the response FIFO until the non-APM application reads them or closes the FIFO. Any unprocessed or incomplete commands are lost.

The user may terminate a Facility Messenger from the APM at any time. The Facility Messenger will notify the Command Controller that is terminating, halt any Logical Monitor, and release its OAI association with the NEAX. Any incomplete commands for that Facility Messenger are lost.

A Logical Monitor is usually terminated by its corresponding Facility Messenger (via the APM). However, the user may also terminate a Logical Monitor by using the APM. Prior to termination, the Logical Monitor disconnects any listening parties, stops monitoring all lines, and releases its OAI association with the NEAX.

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