

CONFERENCE 911

INSTALLATION GUIDE

NEC America, Inc.

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Chapter 1 About This Manual

The *Conference 911 Installation Guide* provides the information you need to install and configure the Conference 911 (C911) software. This manual is based on Revision 1.0 of the software.

What is Conference 911?

Conference 911 (C911) is an OAI application that enables telephone users, C911 agents, and emergency agencies or PSAPs (Public Safety Answering Point) to communicate when an emergency call is placed. When an emergency call is placed, C911 notifies the C911 agents and all designated parties of the emergency call and allows the C911 agents to monitor and participate in the emergency calls between telephone users and the PSAP. C911 uses the NEC Open Applications Interface (OAI) to communicate with the NEAX2400.

The Conference 911 package consists of the C911 Server and the C911 Client:

- The C911 Server provides connectivity between the PBX, the C911 agent's D^{term}, and the C911 Client application.
- The C911 Client application is used by C911 agents to monitor and participate in emergency calls.

Refer to the *Conference 911 User Guide* for information about the operations of the C911 Client application.

How This Guide is Organized

The chapters in this guide are as follows:

Chapter 1 - About This Manual

This chapter outlines how to use the manual, including the actual manual organization, chapter layout, keyboard conventions, function keys, and basic terminology for C911.

Chapter 2 - Before Installation

This chapter specifies the applications, components, and settings that must be in place prior to the installation and configuration of the C911 application, including the hardware and software requirements.

Chapter 3 - Installing the C911 Server Software

This chapter details the step-by-step instructions for the installation of the C911 Server.

Chapter 4 - Application Configuration

This chapter describes how to configure the applications that make up the C911 package, including step-by-step instructions.

Chapter 5 - Database Requirements

This chapter describes the databases used by C911, including a detailed description of the fields used in each database.

Chapter 6 - Installing the C911 Client

This chapter details the step-by-step instructions for the installation of the C911 Client.

Chapter 7 - Running the C911 Package

This chapter details how to test, initialize, and terminate the C911 system, in addition to the limitations of the applications.

Appendix A - Software Limitations

This appendix describes the limitations of the Conference 911 software.

Appendix B - Beeper Interface

This appendix describes the functions and features of the Beeper Interface used by C911.

Appendix C - Glossary

This appendix gives definitions of the common terms relating to C911.

Using This Guide

This guide is designed to make the application easy to understand and simple to use. There are examples of the screens you will see in C911, with step-by-step instructions for the procedures you need to perform.

General Conventions

This guide uses the following type conventions:

Item	Typeface or Convention	Example
Book titles	Italics	<i>Conference 911 Operations Manual</i>
User input, variables	Boldface	Enter password at the prompt.
Menu names, Window titles, field names	Capitalized	Options menu, Line Status window, User ID field
Any screen output generated by C911	Monospace	A message that appears in a popup window or the status area of the screen.

This guide uses the following conventions for menus and shortcuts:

Example	Means
File > Workstation	Choose the Workstation submenu on the File menu.
CTRL+N	Hold down the CTRL key while pressing the “n” key
CTRL+Shift+N	Hold down the CTRL key and the Shift key while pressing the “n” key
Click	Click the left mouse button
Right-click	Click the right mouse button

Procedures

Step-by-step instructions are numbered. Simply follow the numbered steps to perform the desired function.

Sometimes in step-by-step instructions, you will have more than one option to complete the task. These options are presented in bulleted lists, as shown in the following example:

1. The Fields to display group box contains the fields that are displayed in the Directory window.
 - To add a field, select it from the Employee group box, and click **Add**.
 - To select all of the fields, click **Add all**.
2. Click **OK**.

Keyboard Conventions

General Key Usage

The general keys used throughout the C911 application are:

Arrow keys	Scrolls among options within a menu or field.
Backspace	Erases the character to the left of the cursor.
Enter	Accepts a selection or field entry.
ESC	Exits the current screen or action and moves to the previous screen or action.
Tab	Moves forward through fields and options.
Shift+Tab	Moves backward through fields and options.
CTRL+Tab	Moves forward through tabs.
CTRL+Shift+Tab	Moves backward through tabs.
ALT+ highlighted letter	Moves to that screen element.

Manual Descriptions

Following are descriptions of the manuals referenced in the chapters of this guide:

- *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 C911 are configured in the APM environment and how its databases are created, 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.

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Chapter 2 Before Installation

Overview of the Installation Process

The installation process, including its presentation in this and other manuals, is outlined below:

Table 2-1 Conference 911 (C911) Installation

Installation Step	Section in this Guide	Instructions in Other Manuals
<p>Before installing C911:</p> <ul style="list-style-type: none"> • Gather information on the C911 agents, including the name and station. • Verify that you have all the components included in the C911 package. • Set up sublines at each agent D^{term}. • Assign data settings on the NEAX Maintenance Administration Terminal (MAT). 	<p>Chapter 2 - Before Installation</p>	<p>NEAX2400 IMS System Manuals</p>
<p>Install software:</p> <ul style="list-style-type: none"> • Load the C911 Server software. • Load the C911 Client software on the server. • Load the Message Server software. • Load the Beeper Interface software. 	<p>Chapter 3 - Installing the C911 Server Software</p>	<p>APM Installation Manual</p>
<p>Configure application:</p> <ul style="list-style-type: none"> • Characterize the applications. • Assign the applications' parameters. • Designate the facilities. • Assign the OAI parameters. • Assign the user-defined parameters. 	<p>Chapter 4 - Application Configuration</p>	<p>APM Operations Manual</p>
<p>Populate the Customer, Station, Agent, ALI, Pager, Trunk, and PBX APM databases:</p> <ul style="list-style-type: none"> • Review the master definition file. • Review the master database file. 	<p>Chapter 5 - Database Requirements</p>	<p>APM Operations Manual</p>
<p>Install the C911 Client</p> <ul style="list-style-type: none"> • Install the C911 Client software. • Configure the C911 Client. • Initialize the C911 application. 	<p>Chapter 6 - Installing the C911 Client</p>	<p>APM Operations Manual</p>

What is Included in the C911 Package?

C911 package should include the following:

- C911 Server Disk
- C911 Client Disks (2 disks)
- AddClient Utility Disk
- Message Server Disk
- Beeper Interface Disk
- Java (TM) 2 RunTime Environment Disk (5 disks)
- Serial Number and Activation Key for C911 OAI Application
- Conference 911 Installation Guide
- Conference 911 User Guide

Equipment Requirements

The hardware required for any OAI application includes the Private Branch Exchange system (PBX) and the OAI Telephony Server. In order for C911 to operate properly, your operating environment must meet the following requirements.

C911 Server Requirements

Hardware

- UAP (User Application Processor) 1000, 2000, or 3000
- Floppy drive
- Ethernet connection to the NEAX 2400 PBX and all C911 agent workstations
- Unique IP Address

Note: *(The IP Address in the UAP must be on the same address as the PBX except for the last octet.)*

- 2 serial ports (if using the optional Beeper Interface); one port for a modem and one port for the Beeper Interface

Software

- SCO UNIX OpenServer 5.x
- APM (Applications Manager) 3.x or higher
- Security dongle connected to a parallel port of the UAP. The dongle looks similar to a null modem or DB25 gender changer.

Note: *The dongle is only for this UAP and should be included with the UAP packaging. The dongle from a different UAP will not work.*

- Registration serial number for the security dongle

C911 Client Requirements

Hardware

- Pentium class processor
- 64 Megabytes of RAM recommended; 32 Megabytes of RAM minimum
- 200 Megabytes of available hard drive space
- Network Interface Card (NIC) to connect to the LAN that houses the UAP
- Sound card
- Maximum of eight C911 Client workstations

Software

- Java™ 2 Runtime Environment version 1.2 or higher
- Any operating system that is compatible with the Java™ 2 Runtime Environment 1.2 or higher, including:
 - Microsoft® Windows NT® 4.0
 - Microsoft® Windows® 95
 - Microsoft® Windows® 98

C911 Agent Requirements

- D^{term} with a minimum 2-line 16 character display
- Optional workstation on UAP LAN for C911 Client application

PBX Requirements

- NEAX2400 with HDS XH 3.x ('M' Version) software or higher with OAI-compatible hardware and software
- Ethernet connection to the UAP

Note: *A separate, isolated segment is recommended for the connection between the PBX and the UAP. The UAP should be multi-homed with two network cards to meet this recommendation and still achieve full client/server functionality.*

LAN Requirements

In order to run C911, the computer must be able to access the LAN where the PBX is located, in addition to the following considerations:

- Ethernet connection to the PBX
- Dedicated link to the PBX on a hub that will not cause an interruption if the rest of the LAN has problems.

MAT Assignments

This manual assumes that the 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 settings and the MAT commands described below for C911, refer to the *OAI System Manual*. This section specifies the required commands and the values at which they are to be set.

General MAT Assignments

ASYD - Assignment of System Data

Use this command to configure the NEAX2400 MAT settings for the delivery of “MyLine” information over CCIS. If there are no additional NEAX2400s using CCIS, this setting is not needed.

This information must be set in the remote PBX, not the main PBX that has the outgoing 911 trunks.

Feature: SMDR For Subline Via CCIS
System Data: 1
Index: 240
Bit: 5
 0 = Subline Number (default)
 1 = My Line Number/Terminal

This bit needs to be set (0x20) for the NEAX2400 to send “term id” instead of “line id” for CCIS calls. This feature is supported in HDS J4.5 and newer.

The following settings should also be made using the ASYD command:

Feature: OAI in Service
System Data: 1
Index: 79
Bit: 6=0

Feature: SMFN notification enabled
System Data: 1
Index: 241
Bit: 2=1

Feature: SCF return error notification enabled
System Data: 1
Index: 241
Bit: 3=1

ASDT – Assignment of Station Data

Use this command to make station assignments for the C911 agents. The D^{term} at each agent's workstation must be assigned a unique station number and a subline set in off-hook suppress. Each C911 agent must have a D^{term} to be notified which station dialed 911. The C911 agent's D^{term} should also have a one subline for each outbound 911 trunk.

Note: *Sublines for C911 agents need to be in Direct Call Restriction mode. This prevents these dedicated lines from being busy or in use when needing to conference in to a 911 call.*

- STN (Station Number)
- LENS (Line Equipment Number)
- TEC (Telephone Class)

Configuring Direct Call Restriction

It is highly recommended by NEC that you restrict direct calling on the C911 sublines, so that no one can use them internally to call that D^{term}.

Sublines dedicated for C911 conferencing should have the SFI 95 Service Feature Index 95 option set to **one**.

AKYD - D^{term} Key Data Programming

For every D^{term} which is going to be used for C911 agent, you need to assign the sublines chosen for agents on specific keys on the D^{term}, preferably the same keys on each C911 agent D^{term}.

ASFC - Service Feature Restriction Class Data

Assuming you already programmed your phones with SFC 1 Service Restriction Class 1 option, choose an SFC set that is not being used. For example, to use SFC2, turn on all SFIs in SFC 2 that are already turned on in SFC 1.

Use the backspace every time you assign an SFI to re-enter the same SFC, then enter the new SFI and the "on" or "off" value.

To prevent making a call to that station, turn on SFI 95 in the SFC that you choose.

ASCL - Assignment of Station Class Data

If using a NEAX2400 for business, do the following:

1. Enter the tenant number
2. Enter the station number for each C911 agent subline.
3. Enter **TEC 12** for D^{term}.
4. Enter **RSC 1**.
5. Enter **SFC 2**.

This setting applies all your normal restriction along with Direct call restriction for these sublines

6. Press **Esc**, then choose **Yes**.
The changes are saved.

AACL - Administrative Station Class Change

If using a NEAX2400 for hospitality, do the following:

1. Enter the tenant number
2. Enter the station number for each C911 agent subline.
3. Enter **TEC 12** for D^{term}.
4. Enter **RSC 1**.
5. Enter **SFC 2**.

This setting applies all your normal restriction along with Direct call restriction for these sublines

6. Press **Esc**, then choose **Yes**.
The changes are saved.

Chapter 3 Installing the C911 Server Software

This chapter provides instructions for installing the Conference 911 (C911) Server software. C911 includes the following applications:

- **C911 Monitor** - manages communications among internal processes, agent stations, beepers, and the NEAX2400. This application is the lifeline to C911.
- **C911 Agent Server** - manages the agents configured to use the C911 application.
- **Message Server** - allows multiple C911 agents to communicate with the C911 Agent Server. All C911 agents send their requests to log on and log off as well as receive all 911 event information when a 911 call takes place through this NEC proprietary communications link. The C911 Agent Server will send one event, such as “Station 1234 dialed 911” and the Message Server will send this information to all C911 agents.
- **Beeper Interface** - sends information from C911 to pagers configured in the Pager database.

Installing the C911 Server Software

To install the C911 Server software, you must use a UNIX terminal. (For more information about the general installation process, refer to the *APM Operations Manual*.)

Use the following steps to install the C911 Server software:

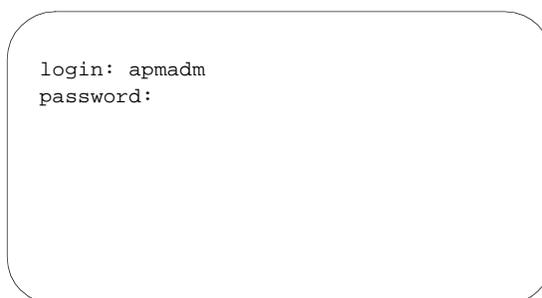


Figure 3-1 UNIX Login prompt

1. At the UNIX login prompt, type **apmadm** (and a password, if one is required) and press Enter.
The APM Administration menu is displayed.

```
NEC America          APM Administration          Sat - Sep 11, 1999

APM Platform Release  Rel3.1.2      (Feb 2, 1999)

Main Menu

APM
Debug Facilities
Halt APM System
File Archive
Installation of Applications/Packages
Configuration of UAP
Removal of Packages
Startup APM System
Manage Activation Keys

Logout
UNIX

Enter Option:  [i]

APM Status: ACTIVE
```

Figure 3-2 APM Administration Main menu

2. Type **i** at the prompt and press Enter to choose the Installation of Applications/Packages option.
The “Enter Package to be installed” prompt is displayed.

```
NEC America          APM Administration          Sat - Sep 11, 1999

Installation of Applications/Packages

Available Packages are:

applications  asl  mtl  tcpip  timesync  x25

Enter Package to be installed:  applications

APM Status: ACTIVE
```

Figure 3-3 Installation Applications/Packages menu

3. Type **applications** at the prompt and press Enter.
The “Enter Release Media Device” prompt is displayed:

```
NEC America                APM Administration                Sat - Sep 11, 1999

      Installation of Applications/Packages

      Available Packages are:

      applications  asl  mtl  tcpip  update  x25

      Enter Package to be installed:  applications

      Release Media Devices are:

      (F)loppy Disk Device                (C)artridge Tape Device

      Enter Release Media Device:  F
```

Figure 3-4 Release Media Device menu

4. Type **F** and press Enter to choose the Floppy Disk Device.
The Installation Procedure screen is displayed, prompting you to insert the C911 installation diskette in the floppy disk device.

```
                        Installation Procedure

      Installing from /dev/fd0

      Insert OAI Release Media #1
      Enter <Return> to continue:
```

Figure 3-5 Insert C911 Disk prompt

5. Insert the disk labeled “C911 Server Release 3.0” into the floppy disk device and press Enter.
The screen displays the status of the application files as they are installed.

```
Installation Procedure

Installing from /dev/fd0

Insert OAI Release Media #1
Enter <Return> to continue:

Copying...
tar: block size = 20
x oai/app/C911/bin/agent, 69955 bytes, 137 tape blocks
x oai/app/c911/bin/monitor, 259623 bytes, 508 tape blocks
x oai/app/c911/bin/report, 231124 bytes, 452 tape blocks
x oai/chksum_app, 553 bytes, 2 tape blocks

Has all release media been loaded? [y or n] ? y
```

Figure 3-6 Processing C911 Installation Files

When all the files from the disk have been installed, the prompt “Has all the release media been loaded [y or n]?” is displayed.

6. Type **y** at the prompt and press Enter.

```
C911 Installation

Installation requires Super User (root) password.
You will need the root password.
Password:
```

Figure 3-7 Root Password prompt

The prompt “Password” is displayed for you to enter the root (Super User) password.

7. Type the root password and press Enter.
The APM installation procedures begin processing the C911 installation files.

```
Installing the Release Files

Conference 911 Installation Procedure for SCO UNIX
Transferring database definition files...

Agent Database defined.
Ali Database defined.
Customer Database defined.
PBX Database defined.
Pager Database defined.
Station Database defined.
Trunk Database defined.

Processing Files
```

Figure 3-8 Configure Monitor prompt

The screen indicates the status of the installation as it defines the database files and processes the installation files. You will see messages indicating that the databases are defined.

Note: *If there is a problem with the files during C911 installation, the message “Validation error, OAI installation failed” is displayed.*

When the installation is complete, “C911 installation has completed successfully” is displayed. Then, “Please press Enter to return to APM Administration menu.” is displayed.

8. Press Enter.
The APM Administration Main menu is displayed.

Installing the Message Server

To install the Message Server software, you must use a UNIX terminal to access the APM. (For more information about the general installation process, refer to the *APM Operations Manual*.)

Use the following steps to install the Message Server software:

```
NEC America          APM Administration          Sat - Sep 11, 1999

      APM Platform Release  Rel3.1.2      (Feb 2, 1999)

              Main Menu
                APM
                Debug Facilities
                Halt APM System
                File Archive
                Installation of Applications/Packages
                Configuration of UAP
                Removal of Packages
                Startup APM System
                Manage Activation Keys

                Logout
                UNIX

                Enter Option:  [i]

APM Status: ACTIVE
```

Figure 3-9 APM Administration Main menu

1. From the APM Administration Main menu, type **i** at the prompt and press Enter to choose the Installation of Applications/Packages option. The “Enter Package to be installed” prompt is displayed.

```
NEC America          APM Administration          Sat - Sep 11, 1999

      Installation of Applications/Packages

      Available Packages are:

      applications  asl  mtl  tcpip  timesync  x25

      Enter Package to be installed:  applications

APM Status: ACTIVE
```

Figure 3-10 Installation Applications/Packages menu

2. Type **applications** at the prompt and press Enter.
The “Enter Release Media Device” prompt is displayed:

```
NEC America                APM Administration                Sat - Sep 11, 1999

Installation of Applications/Packages

Available Packages are:

applications  asl  mt1  tcpip  update  x25

Enter Package to be installed:  applications

Release Media Devices are:

(F)loppy Disk Device          (C)artridge Tape Device

Enter Release Media Device:  F
```

Figure 3-11 Release Media Device menu

3. Type **F** and press Enter to choose the Floppy Disk Device.
The Installation Procedure screen is displayed, prompting you to insert the Message Server installation diskette in the floppy disk device.

```
Installation Procedure

Installing from /dev/fd0

Insert OAI Release Media #1
Enter <Return> to continue:
```

Figure 3-12 Insert Message Server Disk prompt

4. Insert the disk labeled “Message Server Version 3.0” into the floppy disk device and press Enter.
The screen displays the status of the application files as they are installed.

```
Installation Procedure

Installing from /dev/fd0

Insert OAI Release Media #1
Enter <Return> to continue:

Copying...
tar: block size = 20
x oai/app/msgserver/msgserver, 136780 bytes, 268 tape blocks
x oai/app/msgserver/installmsgserver, 8468 bytes, 17 tape blocks
x oai/app/msgserver,I,1, 5631 bytes, 11 tape blocks
x oai/chksum_app, 113 bytes, 1 tape block

Has all release media been loaded? [y or n] ? y
```

Figure 3-13 Processing Message Server Installation Files

When all the files from the disk have been installed, the prompt “Has all the release media been loaded [y or n]?” is displayed.

5. Type **y** at the prompt and press Enter.

```
Message Server Installation

Installation requires Super User (root) password.
You will need the root password.
Password:
```

Figure 3-14 Root Password prompt

The prompt “Password” is displayed for you to enter the root (Super User) password.

6. Type the root password and press Enter.
The APM installation procedures begin processing the Message Server installation files.

```
Press enter key to re-run /etc/inittab (using "init q" command),  
otherwise press CTRL-C.
```

Figure 3-15 Installing Message Server Files

The prompt “Press enter key to re-run /etc/inittab (using “init q” command), otherwise press CTRL-C.” is displayed.

7. Press Enter.

The screen indicates the status of the installation as the installation files are processed.

Note: *If there is a problem with the files during the Message Server installation, the message “Validation error, OAI installation failed” is displayed.*

```
Installing the Release Files
```

```
Message Server installation has completed successfully.  
Please press Enter to return to APM Administration menu.
```

Figure 3-16 Message Server Installation Complete prompt

When the installation is complete, “Message Server installation has completed successfully” is displayed. Then, “Please press Enter to return to APM Administration menu.” is displayed.

8. Press Enter.

The APM Administration Main menu is displayed.

Installing the Beeper Interface

To install the Beeper Interface software, you must use a UNIX terminal to access the APM. (For more information about the general installation process, refer to the *APM Operations Manual*.)

Use the following steps to install the Beeper Interface software:

```
NEC America                APM Administration                Sat - Sep 11, 1999

      APM Platform Release  Rel3.1.2      (Feb 2, 1999)

                Main Menu
      APM
      Debug Facilities
      Halt APM System
      File Archive
      Installation of Applications/Packages
      Configuration of UAP
      Removal of Packages
      Startup APM System
      Manage Activation Keys

      Logout
      UNIX

      Enter Option:  [i]

      APM Status: ACTIVE
```

Figure 3-17 APM Administration Main menu

1. From the APM Administration Main menu, type **i** at the prompt and press Enter to choose the Installation of Applications/Packages option. The “Enter Package to be installed” prompt is displayed.

```
NEC America                APM Administration                Sat - Sep 11, 1999

      Installation of Applications/Packages

      Available Packages are:

      applications  asl  mtl  tcpip  timesync  x25

      Enter Package to be installed:  applications

      APM Status: ACTIVE
```

Figure 3-18 Installation Applications/Packages menu

2. Type **applications** at the prompt and press Enter.
The “Enter Release Media Device” prompt is displayed:

```
NEC America                APM Administration                Sat - Sep 11, 1999

Installation of Applications/Packages

Available Packages are:

applications  asl  mtl  tcpip  update  x25

Enter Package to be installed:  applications

Release Media Devices are:

(F)loppy Disk Device          (C)artridge Tape Device

Enter Release Media Device:  F
```

Figure 3-19 Release Media Device menu

3. Type **F** and press Enter to choose the Floppy Disk Device.
The Installation Procedure screen is displayed, prompting you to insert the Beeper Interface installation diskette in the floppy disk device.

```
Installation Procedure

Installing from /dev/fd0

Insert OAI Release Media #1
Enter <Return> to continue:
```

Figure 3-20 Insert Beeper Interface Disk prompt

4. Insert the disk labeled “Beeper Interface Version 3.3” into the floppy disk device and press Enter.
The screen displays the status of the application files as they are installed.

```
Installation Procedure

Installing from /dev/fd0
Insert OAI Release Media #1
Enter <Return> to continue:

Copying...
tar: block size = 20
x oai/app/beeper/bin/beeper, 210876 bytes, 412 tape blocks
x oai/app/beeper/bin/beeperq, 152065 bytes, 298 tape blocks
x oai/app/beeper/cfg/config, 1145 bytes, 3 tape blocks
x oai/app/beeper/cfg/version, 11 bytes, 1 tape blocks
x oai/app/beeper/install/kprofile, 18670 bytes, 37 tape blocks
x oai/app/beeper/install/bprins, 2935 bytes, 6 tape blocks
x oai/app/beeper/install/installer, 5786 bytes, 12 tape blocks
x oai/app/beeper/install/pkg.ini, 4680 bytes, 10 tape blocks
x oai/app/beeper/install/profile, 947 bytes, 2 tape blocks
x oai/app/beeper/install/S98bpradmin, 676 bytes, 2 tape blocks
x oai/app/beeper/cfg/varSplit, 140 bytes, 1 tape block
x oai/app/beeper/install/beeper.cfg, 933 bytes, 2 tape blocks
x oai/app/beeper.ins, 3521 bytes, 7 tape blocks
x oai/chksum_app, 483 bytes, 1 tape block

Has all release media been loaded? [y or n] ? y
```

Figure 3-21 Processing Beeper Interface Installation Files

When all the files from the disk have been installed, the prompt “Has all the release media been loaded [y or n]?” is displayed.

5. Type **y** at the prompt and press Enter.

The APM installation procedures begin processing the Beeper Interface installation files.

```
Beeper Pre-Install Script

Checking the system configuration....
/oai/app/beeper/install/pkg.ini [113]: test: --
Option requires an argument

Would you like to upgrade? (y or n)
```

Figure 3-22 Beeper Pre-Install Script

The prompt “Would you like to upgrade? (y or n)” is displayed.

6. Type **n** and press Enter.

```
Beeper Installation

Installation requires Super User (root) password.
You will need the root password.
Password:
```

Figure 3-23 Root Password prompt

The prompt “Password” is displayed for you to enter the root (Super User) password.

7. Type the root password and press Enter.
The Beeper Installation files are processed. The screen indicates the status of the installation as the installation files are processed.

Note: *If there is a problem with the files during the Beeper Interface installation, the message “Validation error, OAI installation failed” is displayed.*

```
Beeper Installation

Installation requires Super User (root) password.
You will need the root password.
Password: xxxxx

Creating beeper directories...
Installing bpradm on SCO UNIX.

Press Enter to continue. [ ]
```

Figure 3-24 Beeper Interface Installation Complete prompt

When the installation is complete, the prompt “Please press Enter to continue.” is displayed.

8. Press Enter.
The APM Administration Main menu is displayed.

Installing the C911 Client Software

You can install the C911 Client software on the UAP to facilitate installing the software on each C911 Client workstation. To install the C911 Client software, you must use a UNIX terminal. (For more information about the general installation process, refer to the *APM Operations Manual*.)

Use the following steps to install the C911 Client software to the UAP:

```
NEC America                APM Administration                Sat - Sep 11, 1999

      APM Platform Release  Rel3.1.2      (Feb 2, 1999)

                Main Menu
      APM
      Debug Facilities
      Halt APM System
      File Archive
      Installation of Applications/Packages
      Configuration of UAP
      Removal of Packages
      Startup APM System
      Manage Activation Keys

      Logout
      UNIX

      Enter Option:  [i]

APM Status: ACTIVE
```

Figure 3-25 APM Administration Main menu

1. From the APM Administration menu, type **i** at the prompt and press Enter to choose the Installation of Applications/Packages option.
The “Enter Package to be installed” prompt is displayed.

```
NEC America                APM Administration                Sat - Sep 11, 1999

      Installation of Applications/Packages

      Available Packages are:

      applications  asl  mtl  tcpip  timesync  x25

      Enter Package to be installed:  applications

APM Status: ACTIVE
```

Figure 3-26 Installation Applications/Packages menu

2. Type **applications** at the prompt and press Enter.
The “Enter Release Media Device” prompt is displayed:

```
NEC America                APM Administration                Sat - Sep 11, 1999

                                Installation of Applications/Packages

                                Available Packages are:

                                applications  asl  mtl  tcpip  update  x25

                                Enter Package to be installed:  applications

                                Release Media Devices are:

                                (F)loppy Disk Device                (C)artridge Tape Device

                                Enter Release Media Device:  F
```

Figure 3-27 Release Media Device menu

3. Type **F** and press Enter to choose the Floppy Disk Device.
The Installation Procedure screen is displayed, prompting you to insert the C911 Client installation diskette in the floppy disk device.

```
                                Installation Procedure

                                Installing from /dev/fd0

                                Insert OAI Release Media #1
                                Enter <Return> to continue:
```

Figure 3-28 Insert C911 Disk prompt

4. Insert the disk labeled “C911 Client Release 3.0 disk 1 of 2” into the floppy disk device and press Enter.
The screen displays the status of the application files as they are installed from Disk 1.

- When all files from Disk 1 have been installed, the prompt “Has all the release media been loaded [Y or N]?” is displayed.

```
Installation Procedure

Installing from /dev/fd0

Insert OAI Release Media #1
Enter <Return> to continue:

Copying...
tar: block size = 20
x oai/app/C911/bin/client, 69955 bytes, 137 tape blocks

Has all release media been loaded [y or n] ? y
```

Figure 3-29 Processing C911 Installation Files

Type **n** at the prompt and press Enter.

- Insert the disk labeled “C911 Client Release 3.0 disk 2 of 2” into the floppy disk device and press Enter.
The screen displays the status of the application files as they are installed.
When all the files from Disk 2 have been installed, the prompt “Has all the release media been loaded [y or n]?” is displayed.
- Type **y** at the prompt and press Enter.

```
C911 Client Installation

Installation requires Super User (root) password.
You will need the root password.
Password:
```

Figure 3-30 Root Password prompt

The prompt “Password” is displayed for you to enter the root (Super User) password.

8. Type the root password and press Enter.

The C911 Client Installation files are processed. The screen indicates the status of the installation as the installation files are processed.

```
C911 Client Installation

Installation requires Super User (root) password.
You will need the root password.
Password: xxxxxx

Creating C911 client directories...
Installing C911 Client on SCO UNIX.

Press Enter to continue. [ ]
```

Figure 3-31 C911 Client Software Installation Complete prompt

Note: *If there is a problem with the files during C911 Client software installation, the message “Validation error, OAI installation failed” is displayed.*

When the installation is complete, “C911 Client installation has completed successfully” is displayed. Then, “Please press Enter to return to APM Administration menu.” is displayed.

9. Press Enter.

The APM Administration Main menu is displayed.

Installing the Web Server

The UAP with the SCO OpenServer 5 Operating System should be configured with the Netscape FastTrack Web Server. The main web page of the Netscape FastTrack Web Server should be set to the **/oai/internet** directory. OAI applications use the **/oai/internet** directory to keep all of the web-based installation applications and instructions.

Some of the earlier UAPs with the SCO OpenServer 5 do not have this setting. In this case, a special disk is used to configure the proper directories and programs. If the AddClient Utility disk is not included in the application package, you should request it.

If Netscape FastTrack Web Server is not configured on the UAP, install and configure the web server from the AddClient Utility disk using the following steps:

1. Login as **root** and insert the AddClient Utility floppy disk.
2. At the # prompt, type **cd /** and press Enter to go to the root directory.
3. At the # prompt, type **tar xv** and press Enter to go to the root directory.
4. At the # prompt, type **ksh /oai/utills/netscapeconfig** and press Enter.
5. Log out.

The UAP is now ready for the installation of web-based OAI applications.

Install the Java Runtime Environment

The C911 Client and the Web Server require the Java 2 Runtime Environment. Use the following steps to install the Java 2 Runtime Environment software:

```
NEC America                APM Administration                Sat - Sep 11, 1999

      APM Platform Release   Rel3.1.2       (Feb 2, 1999)

                Main Menu

      APM
      Debug Facilities
      Halt APM System
      File Archive
      Installation of Applications/Packages
      Configuration of UAP
      Removal of Packages
      Startup APM System
      Manage Activation Keys

      Logout
      UNIX

      Enter Option:  [i]

                                APM Status: ACTIVE
```

Figure 3-32 APM Administration Main menu

1. From the APM Administration menu, type **u** at the prompt and press Enter to get to the UNIX prompt.
2. At the UNIX prompt, type `cd /oai/internet` to connect to the web server files subdirectory. (See [“Installing the Web Server”](#) on page 28 for more information.)

```
> cd /oai/internet
```

Figure 3-33 Connect to the Web Server files subdirectory

3. Insert the first disk (1 of 5) labeled “Java Runtime Environment” into the floppy disk device and type `tar -xv` to extract the code from this diskette. The files are copied.

4. Insert the second disk (2 of 5) labeled “Java Runtime Environment” into the floppy disk device and type **tar -xv** to extract the code from this diskette. The “tar” command will show that this file is divided over four separate diskettes. After tar has finished processing this disk, you will be prompted to insert the next floppy disk.
5. When prompted, insert disk 3 and press Enter. After tar has finished processing this disk, you will be prompted to insert the next floppy disk.
6. When prompted, insert disk 4 and press Enter. After tar has finished processing this disk, you will be prompted to insert the next floppy disk.
7. When prompted, insert disk 5 and press Enter.
8. When disk 5 is finished processing, type **ls -la** to check the file and size. When tar has completed you should have one executable file called “jre1_2_2-win.exe” of approximately 5,283,296 bytes.

Installing the C911 Serial Number and Dongle Activation Key

The UAP should also have a serial number and activation key for the APM platform. The serial number and activation key should already be installed, but you should make sure that they are installed correctly.

1. From the APM Administration menu, type **m** at the prompt to select the Manage Activation Keys option and press Enter. The License Administration window is displayed.
2. Type **a** to add a new license.
3. Enter **C911** for the application, then enter the **serial number** and **activation key** for C911. The License Manager verifies that these entries are correct for this UAP. Make sure this C911 display shows “Verified” prior to exiting.

Completion

This completes installation of the C911 software to the UAP. For information about configuring C911, see [Chapter 4 - Application Configuration](#).

Chapter 4 Application Configuration

This chapter contains the information that you will enter to configure C911. You can configure the applications after installing the C911 software, as shown in [Chapter 3](#). (See “[Installing the C911 Server Software](#)” on page 11). C911 includes the following applications:

- **C911 Monitor** - manages communications among internal processes, agent stations, beepers, and the NEAX2400. This application is the lifeline to C911.
- **C911 Agent Server** - manages the agents configured to use the C911 application.
- **Message Server** - allows multiple C911 agents to communicate with the C911 Agent Server. All C911 agents send their requests to log on and log off as well as receive all 911 event information when a 911 call takes place through this NEC proprietary communications link. The C911 Agent Server will send one event, such as “Station 1234 dialed 911) and the Message Server will send this information to all C911 agents.
- **Beeper Interface** - sends information from C911 to pagers configured in the Pager database.

Before Configuring the C911 Software

To configure the C911 Server software, you must log in to the APM Administration applications on a UNIX terminal. Use the following steps to log in to the APM Administration application:

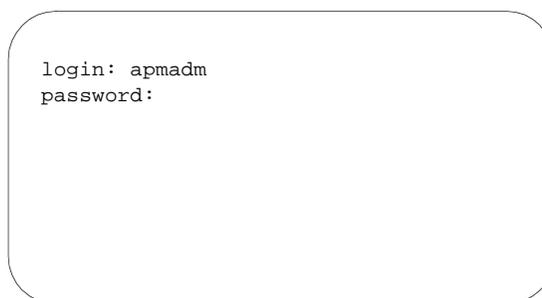


Figure 4-1 UNIX Login prompt

1. At the UNIX login prompt, type **apmadm** (and a password, if one is required) and press Enter.
The APM Administration menu is displayed.

```
NEC America                APM Administration                Sat - Sep 11, 1999

      APM Platform Release  Rel3.1.2      (Feb 2, 1999)

                Main Menu

      APM
      Debug Facilities
      Halt APM System
      File Archive
      Installation of Applications/Packages
      Configuration of UAP
      Removal of Packages
      Startup APM System
      Manage Activation Keys

      Logout
      UNIX

      Enter Option:  [a]

                                                                APM Status: ACTIVE
```

Figure 4-2 APM Administration Main menu

2. Type **a** at the prompt and press Enter to choose the APM option. Enter the password when prompted.

The APM System Administration menu is displayed.

```
Applications Manager        Administrator                Sat - Sep 11, 1999

      *** System Administration ***

      > System Configuration
      Application Configuration
      Database Administration
      Control Options
      Password Maintenance
      UAP Status Administration
      Operations Menu
      Quit

      Arrow keys to move cursor, <RET> to select, <ESC> to quit
```

Figure 4-3 APM System Administration menu

3. Choose the **Application Configuration** option from the System Administration menu.

Once you are in the Application Configuration mode, you can check the parameters set up in the APM for the C911 package. For specific instructions on what these parameters mean and how to make these entries, refer to the *APM Operations Manual*.

C911 Monitor Configuration

The following steps outline the process for configuring the C911 Monitor application.

Follow these steps to verify that the C911 Monitor application is set up correctly in the APM Application Configuration file:

1. Log in to a UNIX terminal as **apmadm**.
2. Choose the **APM** option from the APM Platform Management Menu.
3. Enter the System Administrator password at the APM password screen.
4. Choose the **Application Configuration** option from the System Administration menu.
5. Choose **Select**.
6. On the APM Configuration Entry screen, verify that the entries shown below are configured in the primary parameters for the C911 Monitor application.

Table 4-1 C911 Monitor Primary Configuration Parameters

Parameter	Entry	Definition
Application Name	C911_Monitor	Specifies the name to be displayed in the APM menus. This name is displayed however it is entered here; lower case letters and punctuation are acceptable; spaces are not.
Executable Filename	/oai/app/c911/bin/monitor	Defines the path and name of the executable file.
Group	C911	Names the group to which the C911 Monitor application is associated.
Response Mode	N(otify)	Indicates the action that the APM is to take with the C911 Monitor application should a member of the group terminate.
Initialization Batch	Y(es)	Indicates whether or not (Yes or No) the C911 Monitor application is to be initialized automatically when the OAI system is initialized.
Termination Mode	M(essage)	Indicates how the APM is to notify the C911 Monitor application to terminate.
Standard Output	/oai/log/dbg/c911mon	Designates the file into which Monitor application output is redirected.
Number of Restarts	*(always)	Indicates how many times the APM may restart the C911 Monitor application after it terminates erroneously.
Queue Key	420	Indicates the unique number of the queue that is to be assigned to the component.

7. Verify that the following NEAX2400 facilities are configured for the C911 Monitor using the **Facilities** command on the APM Configuration Entry screen. (Use the instructions provided for this option in the *APM Operations Manual*.)
 - **SCF** - Switch Control Facility
 - **SMFN** - Status Notification Facility
 - **SMFR** - Status Request Facility
 - **TCFI** - Terminal Control Facility
8. Verify that the following OAI Configuration parameters are configured for the C911 Monitor application using the **OAI-Conf** command on the APM Configuration Entry screen. (Use the instructions provided for this option in the *APM Operations Manual*.)

Note: *Italicized entries may be changed as desired.*

Table 4-2 C911 Monitor OAI Configuration Parameters

Parameter	Entry	Definition
Database Name #1	not used	Indicates the path and name of the database containing information about C911 agent.
Database Name #2	not used	Indicates the path and name of the database containing information about C911 agent.
Timeout Value #1	60	Designates the number of minutes following an abandonment that C911 can recover the call; 0 means no limit.
Timeout Value #2	0	Designates the number of minutes following an abandonment that C911 can recover the call; 0 means no limit.
Tenant Number	0	Specifies the number of the tenant that C911 serves. (0 means all tenants)
Source Link Name	OAIITCP	Identifies the port on the source side of the communication link; entry should correspond to a link name in the APM system configuration file. Refer to the <i>APM Operations Manual</i> for information about the system configuration option.
Destination Link Name	PBXITCPB	Identifies the port on the destination side of the communication link; entry should correspond to a link name in the APM system configuration file. Refer to the <i>APM Operations Manual</i> for information about the system configuration option.
Association Recovery	15	Designates the number of seconds C911 waits before trying to re-establish an association with the NEAX that has been released.

9. Verify that the following User Defined parameters are configured for the C911 Monitor application using the **UserDefined** command on the OAI Configuration screen. (Use the instructions provided for this option in the *APM Operations Manual*.)

Note: *Italicized entries may be changed as desired.*

Table 4-3 C911 Monitor User Defined Parameters

User Defined	Entry	Definition
#1	/oai/app/c911/bin/report	Indicates the path and name of the process that performs the 911 event logging.
#2	/oai/log/c911	Indicates the path and name of the directory of the log files.
#3	/oai/db/cur/c9agt_m	Indicates the path and name of the APM database for C911 agents
#4	/oai/db/cur/c9ali_m	Indicates the path and name of the APM database for ALI records
#5	/oai/db/cur/c9cus_m	Indicates the path and name of the APM database for customer, employee, or student records
#6	/oai/db/cur/c9pbx_m	Indicates the path and name of the APM database for PBX records
#7	/oai/db/cur/c9pgr_m	Indicates the path and name of the APM database for beeper records
#8	/oai/db/cur/c9sta_m	Indicates the path and name of the APM database for all station records
#9	/oai/db/cur/c9trk_m	Indicates the path and name of the APM database for 911 trunk records
#10	Daily	Indicates whether or not the call log file is to be backed up automatically, and if so how frequently, using the following entries: None Not automatic; backup must be done manually through Administrator application. (Default entry) Daily Automatic backup every day for 7 days; files named C9log.Sun through C9log.Sat; each file saved for 7 days. Weekly Automatic backup every week for 26 weeks; files named C9log.w01 through C9log.w26; each file saved for 26 weeks. Monthly Automatic backup every month for 12 months; files named <i>C9log.Jan</i> through <i>C9log.Dec</i> ; each file saved for 12 months.
#11	1	Indicates the number of the tenant assigned to the emergency trunks.

Table 4-3 C911 Monitor User Defined Parameters

User Defined	Entry	Definition
#12	15	Indicates the number of seconds between heartbeats
#13	/oai/app/beeper/cfg/config	Indicates the path and name of the beeper configuration
#14	425	Indicates the message queue that receives responses from the beeper interface.

Agent Server Configuration

The following steps outline the process for configuring the C911 Agent Server application.

Follow these steps to verify that the C911 Agent Server application is set up correctly in the APM Application Configuration file:

1. Log in to a UNIX terminal as **apmadm**.
2. Choose the **APM** option from the APM Platform Management Menu.
3. Enter the System Administrator password at the APM password screen.
4. Choose the **Application Configuration** option from the System Administration menu.
5. Choose **Select**.
6. On the APM Configuration Entry screen, verify that the entries shown below are configured in the primary parameters for the C911 Agent Server application.

Table 4-4 C911 Agent Server Primary Configuration Parameters

Parameter	Entry	Definition
Application Name	C911_AgentServer	Specifies the name to be displayed in the APM menus. This name is displayed however it is entered here; lower case letters and punctuation are acceptable; spaces are not.
Executable Filename	/oai/app/c911/bin/agentserver	Defines the path and name of the executable file.
Group	C911	Names the group to which the C911 Agent Server application is associated.
Response Mode	N (otify)	Indicates the action that the APM is to take with the C911 Agent Server application should a member of the group terminate.
Initialization Batch	Y (es)	Indicates whether or not (Yes or No) the C911 Agent Server application is to be initialized automatically when the OAI system is initialized.
Termination Mode	M (essage)	Indicates how the APM is to notify the C911 Agent Server application to terminate.

Table 4-4 C911 Agent Server Primary Configuration Parameters

Parameter	Entry	Definition
Standard Output	/oai/log/dbg/c911agt	Designates the file into which the C911 Agent Server application output is redirected.
Number of Restarts	*(always)	Indicates how many times the APM may restart the C911 Agent Server application after it terminates erroneously.
Queue Key	421	Indicates the unique number of the queue that is to be assigned to the component.

7. Verify that the following User Defined parameters are configured for the C911 Agent Server application using the **UserDefined** command on the OAI Configuration screen. (Use the instructions provided for this option in the *APM Operations Manual*.)

Note: *Italicized entries may be changed as desired.*

Table 4-4 C911 Agent Server User Defined Parameters

User Defined	Entry	Definition
#1	C911_AgentServer	Indicates the application name.
#2	C911_Monitor	Indicates the application name.
#3	UAP2000 arena	Indicates the name of the UAP being used as a server. To obtain the UAP name, type the following from the UNIX prompt: uname -X The UAP name is listed as the Node. Enter UAP2000 in this field.
#4 - #14	Not used	

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Chapter 5 Database Requirements

Overview

C911 uses seven databases that are constructed through the APM: Agent, Ali, Customer, PBX, Pager, Station, and Trunk.

These databases are created during the C911 installation process, but they will need to be populated. When the C911 installation process created the databases, a master definition file was created and built for each database, as shown in [Figure 5-1](#):

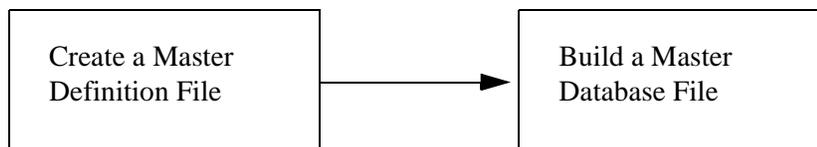


Figure 5-1 Database Creation Process

1. **Create a Master Definition File:** This step involves creating the master definition file that defines the fields in the master database file. C911 creates the master definition files for all seven databases during installation. These files should not be changed.
2. **Build a Master Database File:** This step involves entering tenant-specific data (e.g., name, account code, station, room number or building) into the master database fields that were just defined in the master definition files in Step 1.

Note: *If you have installed the C911 software as described in “[Installing the C911 Server Software](#)” on page 11, the master definition file has been created for each of the seven databases.*



Once the databases are built, deleting or changing the field definitions may adversely affect the integrity of the database records. Do not change the field definitions in the C911 databases!



Once the databases are built, deleting or changing the field definitions may adversely affect the integrity of the database records. Do not change the field definitions in the C911 databases!

Working with the Databases

The information required for each of the seven C911 databases is provided in table form on the following pages. Using this information alongside of the procedural instructions provided in the APM Operations Manual, enter the Database Administration option on the APM System Administration Menu and build the C911 databases, one at a time. Any messages displayed during these steps are addressed in the Process and Error Messages chapter of the *APM Operations Manual*.

Use the following steps to build or view the C911 databases:

```
login: apmadm
password:
```

Figure 5-2 UNIX Login prompt

1. At the UNIX login prompt, type **apmadm** (and a password, if one is required) and press Enter.
The APM Administration menu is displayed.

```
NEC America                APM Administration                Sat - Sep 11, 1999

      APM Platform Release  Rel3.1.2      (Feb 2, 1999)

                Main Menu

      APM
      Debug Facilities
      Halt APM System
      File Archive
      Installation of Applications/Packages
      Configuration of UAP
      Removal of Packages
      Startup APM System
      Manage Activation Keys

      Logout
      UNIX

      Enter Option:  [a]

APM Status: ACTIVE
```

Figure 5-3 APM Administration Main menu

2. Type **a** at the prompt and press Enter to choose the APM option. Enter the password when prompted.

The APM System Administration menu is displayed.

```
Applications Manager      Administrator      Sat - Sep 11, 1999

*** System Administration ***

> System Configuration
  Application Configuration
  Database Administration
  Control Options
  Password Maintenance
  UAP Status Administration
  Operations Menu
  Quit

Arrow keys to move cursor, <RET> to select, <ESC> to quit
```

Figure 5-4 APM System Administration menu

3. Select the **Database Administration** option from the System Administration menu.

The Database Administration menu is displayed.

```
Applications Manager      Administrator      Sat - Sep 11, 1999

*** Database Administration ***

> Define Master Database Fields
  Build Master Database
  Specify Application Database Fields
  Process Application Database
  Install Application Database
  Verify Application Database
  List Database Relationships
  Exhibit Master Database Views
  Quit

Arrow keys to move cursor, <RET> to select, <ESC> to quit
```

Figure 5-5 Database Administration menu

4. Select the Build Master Database option to create a new database or view an existing database.

This chapter contains the information about the individual C911 databases.

About the Agent Database

This database contains information about each of the C911 agents and is sorted by agent name. The fields in this database are defined by the user organization. The name of the Agent Master Definition file must be **c9agt_m.mdf**, and the name of the Agent Master Database file must be **c9agt_m**.

Table 5-1 Agent Database Description

Field Description	Master Definition File				Application Definition File	Master Database
	Type	Size	Min. Value	Max. Value	Data Type	Typical Entry
Name	A	25			ASCII	Mary S.
Password	A	25			ASCII	123456
Supervisor	A	25			ASCII	Smith, Ray
Station	A	25			ASCII	7301
Location	A	25			ASCII	Security Office 2nd Floor
Log on/off Date and Time	A	25			ASCII	1999-08-01 21:00:55
Arena Handle	A	4			ASCII	abcd
Status	A	1			ASCII	1

Field Definitions

Name

Name of the agent; up to 25 characters. This is the key field used in sorting. The recommended form is “Last name, First initial”. This is the login name for the C911 agent.

Password

The agent’s password; up to 25 characters.

Supervisor

Name of the agent’s supervisor; up to 25 characters.

Station

The agent’s station, up to 25 characters.

Location

User-defined alphanumeric field of up to 25 characters describing the agent’s location.

Log on/off Date & Time

The agent’s last activity, either logging in or logging out. It is formatted as yyyy-mm-dd hh:mm:ss. The server fills this field automatically.

Arena Handle

Computer generated alphanumeric code associated with this agent used by the C911 Agent Server. The server fills this field automatically.

Status

Indicates if this agent is logged on or logged off; “0” means that the C911 agent is logged off, and “1” means that the C911 agent is logged on. The server fills this field automatically.

About the Customer Database

This database contains information about the telephone users, such as residents, students, or employees. The name of the Customer Master Definition file must be **c9cus_m.mdf**, and the name of the Customer Master Database file must be **c9cus_m**.

Table 5-2 Customer Database Description

Field Description	Master Definition File				Application Definition File	Master Database
	Type	Size	Min. Value	Max. Value	Data Type	Typical Entry
Name	A	25			ASCII	Baker, Stan
ID	A	25			ASCII	123456
Station	A	25			ASCII	3456

Field Definitions**Name**

The name associated with this Customer record, up to 25 characters. This field can be cross-referenced with the Customer Name field in the ALI database.

ID

Identifies this customer record, up to 25 characters.

Station

The station associated with this customer record, up to 25 characters. This field is cross-referenced with the Station field in the Station database.

About the ALI Database

The Automatic Location Information or ALI database provides information about the callers for the C911 agents and emergency agencies. The name of the ALI Master Definition file must be **c9ali_m.mdf**, and the name of the ALI Master Database file must be **c9ali_m**.

The records in the ALI database are mapped to the Station database using the Calling Telephone number field. (See [“About the Station Database” on page 48 for more information.](#)) Although the ALI database records are very important, these records are not required for C911 to operate.

Table 5-3 ALI Database Description

Field Description	Master Definition File				Application Definition File	Master Database
	Type	Size	Min. Value	Max. Value	Data Type	Typical Entry
Calling Telephone Number	N	10			Numeric	817-555-2222
Status	A	1			ASCII	A or I
AddressA	A	25			ASCII	123 Main Street
AddressB	A	25			ASCII	Building A
Community	A	25			ASCII	Irving
State	A	2			ASCII	TX
Location Info A	A	25			ASCII	User-defined
Location InfoB	A	25			ASCII	User-defined
Also Rings at Address	A	25			ASCII	456 Broadway
Customer Name	A	25			ASCII	Jones, John
Class & Type of Service	A	2			ASCII	
Emergency Service Number	A	5			ASCII	
Main Number	N	10			Numeric	972-555-1111
Comments	A	25			ASCII	User-defined

Field Definitions

Calling Telephone Number

Telephone number that is cross-referenced from the Calling Number field in the Station table; numeric field of up to 10 characters.

Status

Indicates the status of this record; “A” means that this record is active and “I” means that this record is inactive.

AddressA

User-defined address field of up to 25 alphanumeric characters.

AddressB

User-defined address field of up to 25 alphanumeric characters.

Community

The city where this telephone number is located; up to 25 characters.

State

The abbreviation of the state where this telephone number is located; up to 2 characters.

Location Info A

User-defined field of up to 25 alphanumeric character; describes the location of this station.

Location Info B

User-defined field of up to 25 alphanumeric character; describes the location of this station.

Also Rings at Address

If this number also rings at secondary address, this field list the other address; up to 25 alphanumeric characters.

Customer Name

The name of the employee, resident, guest, or occupant associated with this station; up to 25 characters. This can be cross-referenced with the Name field in the Customer Database.

Class & Type of Service

Code that specifies whether the phone is PBX station, cell phone, residential, private unlisted; up to 2 digits.

Emergency Service Number

Main number associated with a company or location, assigned by NENA.

Main Number

The main number for this station; up to 10 digits.

Comments

User-defined field for miscellaneous comments; up to 25 characters.

About the PBX Database

This database contains information about the PBXs in use, such as descriptions, IP addresses, and IP ports. The name of the PBX Master Definition file must be **c9pbx_m.mdf**, and the name of the PBX Master Database file must be **c9pbx_m**.

Table 5-4 PBX Database Description

Field Description	Master Definition File				Application Definition File	Master Database
	Type	Size	Min. Value	Max. Value	Data Type	Typical Entry
PBX Index	N	2	1	99	Short Integer	2
Description	A	25			ASCII	Building 1
C911 Monitor Application	A	25			ASCII	C911_Monitor
IP Address	A	25			ASCII	143.128.69.43
IP Port	N	5	0		Short Integer	206

Field Definitions:

PBX Index

Number in the APM database that identifies this PBX, up to 2 digits ranging from 1 - 99

Description

Description of this PBX; up to 25 characters.

C911 Monitor Application

Identifies the C911 application that uses this PBX, such as C911 Monitor; up to 25 characters.

IP Address

The IP address associated with this PBX; up to 25 characters.

IP Port

The port used at the IP address associated with this PBX; up to 5 digits.

About the Pager Database

This database contains information about the beepers configured for use with the Beeper Interface, such as descriptions, beeper access numbers, and the last message sent to that beeper. The name of the Pager Master Definition file must be **c9pgr_m.mdf**, and the name of the Pager Master Database file must be **c9pgr_m**.

Table 5-5 Pager Database Description

Field Description	Master Definition File				Application Definition File	Master Database
	Type	Size	Min. Value	Max. Value	Data Type	Typical Entry
Pager ID	A	8			ASCII	
Pager Description	A	25			ASCII	Security
Pager Access Number	A	25			ASCII	800-555-1111
Paging Application	A	4			ASCII	C911
Last Pager Message	A	25			ASCII	911: 7301
Last Pager Result	A	25			ASCII	Successful
Use this pager	N	1	0	2	Short Integer	1 (means yes)

Field Definitions:

Pager ID

ID identifying the pager to be notified

Pager Description

Description of who carries this pager, such as “Security” or “Hotel Manager”; up to 25 characters.

Pager Access Number

Number used to access paging service; up to 25 characters.

Paging Application

The name of the APM application using this paging record; such as C911; up to 4 characters.

Last Pager Message

The last message sent to paging device, up to 25 characters. The server fills this field automatically.

Last Pager Result

The response supplied by the paging interface, such as the page was successful; up to 25 characters. The server fills this field automatically.

Use this pager

Specifies whether or not this pager should be used; “0” means that this pager should not be used and “1” means that this pager should be used.

About the Station Database

This database contains information about all relevant stations in the PBX. The name of the Station Master Definition file must be **c9sta_m.mdf**, and the name of the Station Master Database file must be **c9sta_m**.

Table 5-6 Station Database Description

Field Description	Master Definition File				Application Definition File	Master Database
	Type	Size	Min. Value	Max. Value	Data Type	Typical Entry
Station	A	25			ASCII	3600
PBX Index	N	2	0	99	Short Integer	0
Tenant	N	5	0	99999	Short Integer	tenant associated in PBX Typ. 1
Calling Number	N	10	0		Long Integer	972-555-1111

Field Definitions:

Station

The actual station number; this is the key field used in sorting. This field is cross-referenced with the Station field in the Customer database.

PBX Index

Identifies the PBX that controls this station; up to 2 digits. This field is cross-referenced with the PBX Index field in the PBX database.

Tenant

The tenant number associated with this station; up to 5 digits.

Calling Number

Identifies the telephone number associated with this station; up to 10 digits. This field is cross-referenced with Calling Telephone Number in the ALI database.

About the Trunk Database

This database contains information about the outgoing 911 trunk. It is organized by Station Name and configured as *E9opdb*. The name of the Trunk Master Definition file must be **c9trk_m.mdf**, and the name of the Trunk Master Database file must be **c9trk_m**.

Table 5-7 Trunk Database Description

Field Description	Master Definition File				Application Definition File	Master Database
	Type	Size	Min. Value	Max. Value	Data Type	Typical Entry
Trunk Index	N	2	1	99	Short Integer	2
PBX Index	N	2	1	99	Long Integer	3
Tenant Number	N	5	0	99999	Long Integer	
Class	N	5	0	99999	Long Integer	
Route	N	5	0	99999	Long Integer	
Trunk	N	5	0	99999	Long Integer	
Conference Line	A	25			ASCII	
Calling Station	A	25			ASCII	
Calling Route	N	5	0	99999	Long Integer	
Calling Trunk	N	5	0	99999	Long Integer	
Agent Station on cnf call	A	25			ASCII	
Status-Trk, Caller & Agent	A	3			ASCII	
Monitor this Trunk	A	1	0	2	ASCII	0 = No 1 = Yes

Field Definitions

Trunk Index

Code that identifies this trunk; up to 2 digits.

PBX Index

Index for this trunk record; up to 2 digits.

Tenant Number

Identifies the tenant number associated with this trunk; up to 5 digits.

Class

Identifies the class associated with this trunk; up to 5 digits.

Route

Identifies the route associated with this trunk; up to 5 digits.

Trunk

The trunk number associated with this trunk; up to 5 digits.

Conference Line

The dedicated subline used to conference with the 911 caller and the PSAP; up to 25 characters. The Conference Line should be available on every agent's D^{term}.

Calling Station

Identifies the station of party calling 911; up to 25 characters. The server automatically fills this field.

Calling Route

Identifies the route being used by the party calling 911; up to 5 digits. The server automatically fills this field.

Calling Trunk

Identifies the route being used by the party calling 911 for calls originating over CCIS; up to 5 digits. The server automatically fills this field.

Agent Station on cnf call

Identifies the agent that is conferenced in to the 911 call and the PSAP; up to 25 characters. The server automatically fills this field.

Status-Trk, Caller & Agent

ASCII code that indicates the status of the parties connected to the call, such as the connection between the PSAP and the caller is idle. The server automatically fills this field.

Monitor this Trunk

Code that specifies whether or not this trunk is to be monitored; "0" means that this trunk is not monitored and "1" means that this trunk is monitored.

Chapter 6 Installing the C911 Client

Overview

This chapter provides step-by-step procedures to install and configure the C911 Client application. Descriptions and step-by-step instructions are found in the following sections of this chapter:

The C911 Client software can be installed on the workstations used by C911 agents to assist them in processing emergency calls. This element can be installed on any workstation that is networked and connected to the C911 Server. For more information about the Web Server, see [“Installing the Web Server” on page 28](#).

Installing the C911 Client

Use the following steps to install the C911 Client software:

1. Access the NEC UNIX OAI Applications site from your web browser through one of the following addresses:
 - Enter your UAP name and your domain name. For example, if your UAP name is “myuap” and your domain name is “mydomain.com”, then enter “myuap.mydomain.com” to access the UNIX OAI Applications Page, as shown in [Figure 6-1](#).
 - Enter the IP Address of your UAP. For example, enter 143.101.192.16.

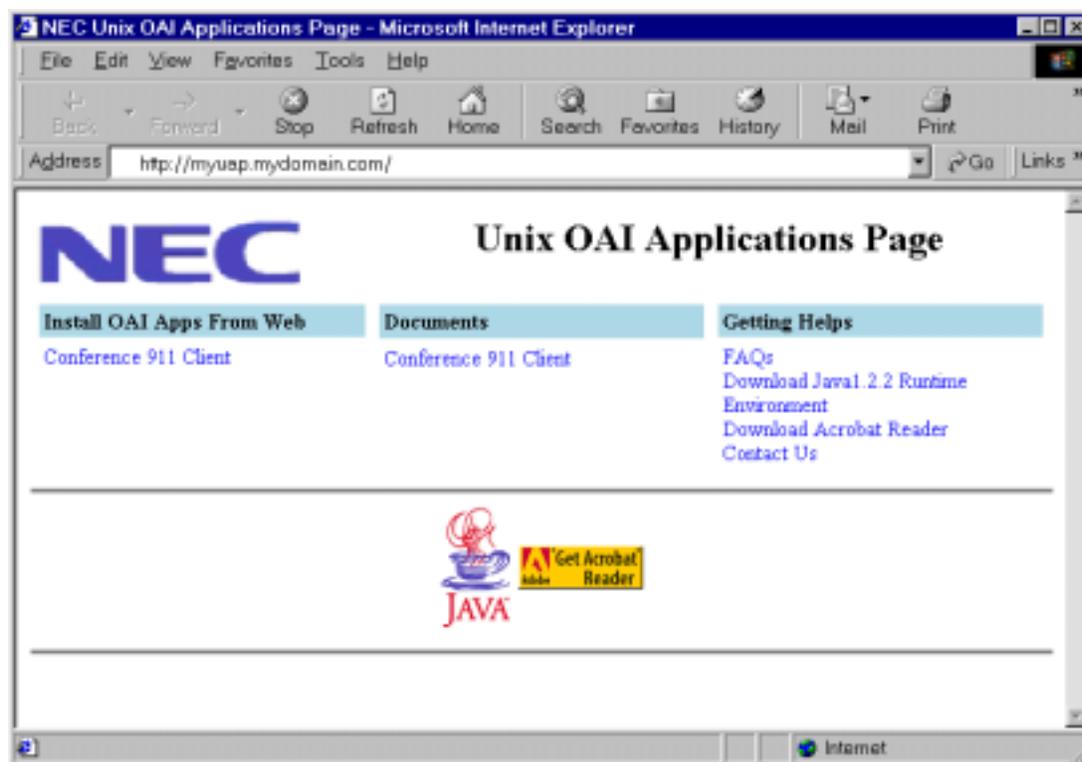


Figure 6-1 NEC UNIX OAI Applications Installation Page

2. Select **Download Java1.2.2 Runtime Environment** from the “Getting Help” section to install the Java Runtime Environment on your workstation. Your browser guides you through a series of prompts to install the Java Runtime Environment. Follow the prompts to complete the Java Runtime Environment installation program.

After the Java Runtime Environment installation is complete, the NEC UNIX OAI Applications Installation Page is displayed.

3. Select the **Conference 911 Client** from the “Install OAI Apps From Web” section to begin installing the C911 Client.

The Java Virtual Machine option dialog box is displayed.

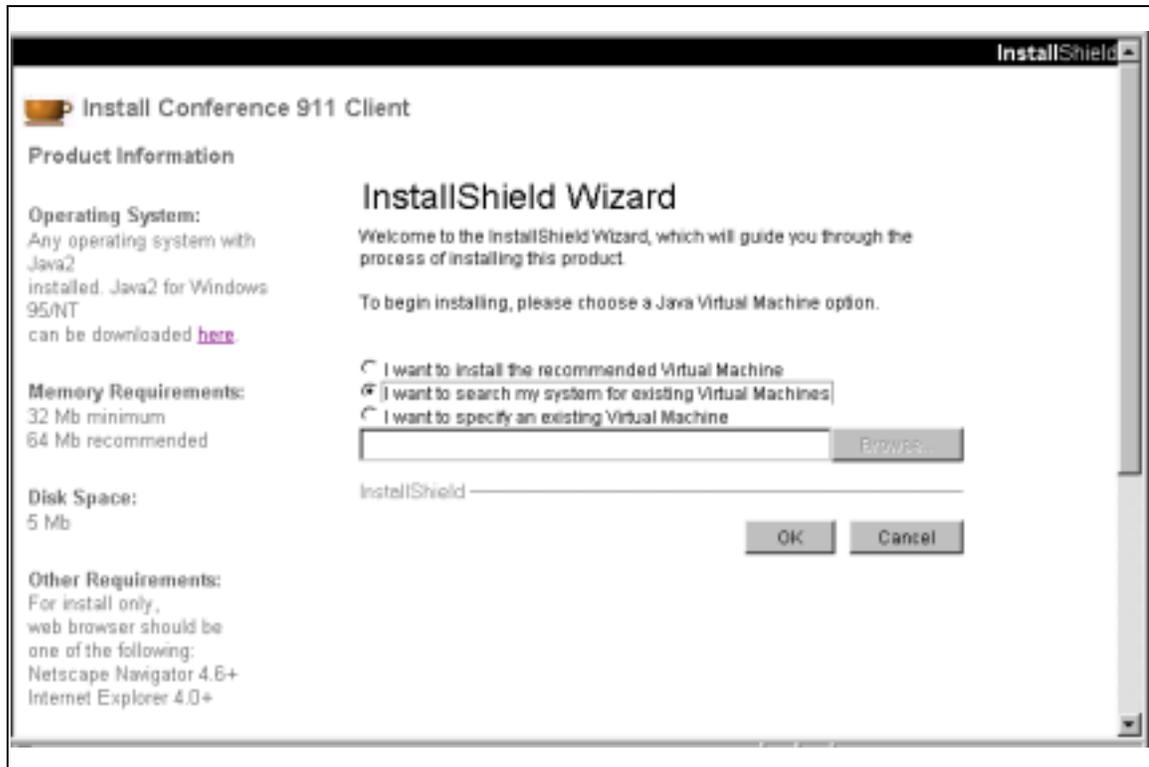


Figure 6-2 Java Virtual Machine option dialog box

4. Select the **I want to search my system for existing Virtual Machines** option. The Searching for VMs dialog box is displayed.

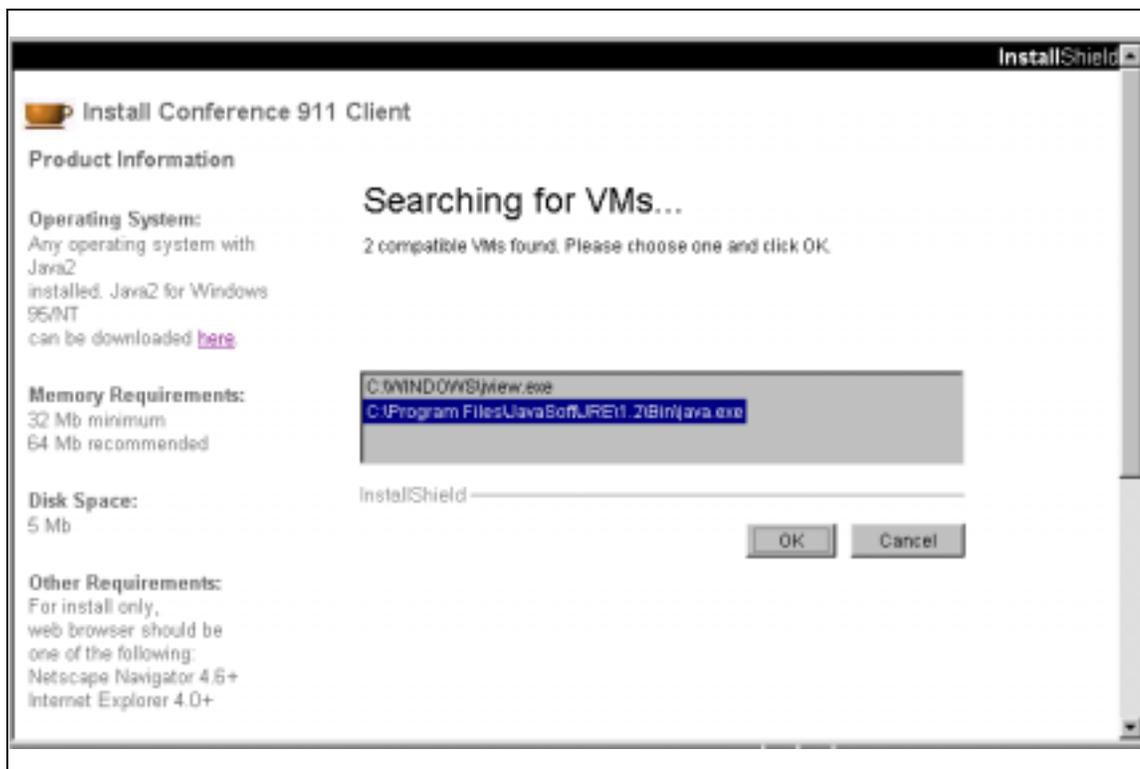


Figure 6-3 Searching for VMs dialog box

The installation program searches for installed virtual machines and displays the installed virtual machines in the window.

Select the pathname of the Java Virtual machine, then click **OK**.

For example, select “c:\Program Files\JavaSoft\JRE\1.2\Bin\java.exe” to select the pathname of the Java Virtual Machine as shown in [Figure 6-3](#) above.

The application is installed to the default directory. A progress indicator in the browser window indicates how much of the installation is complete, as shown in [Figure 6-4 on page 54](#).

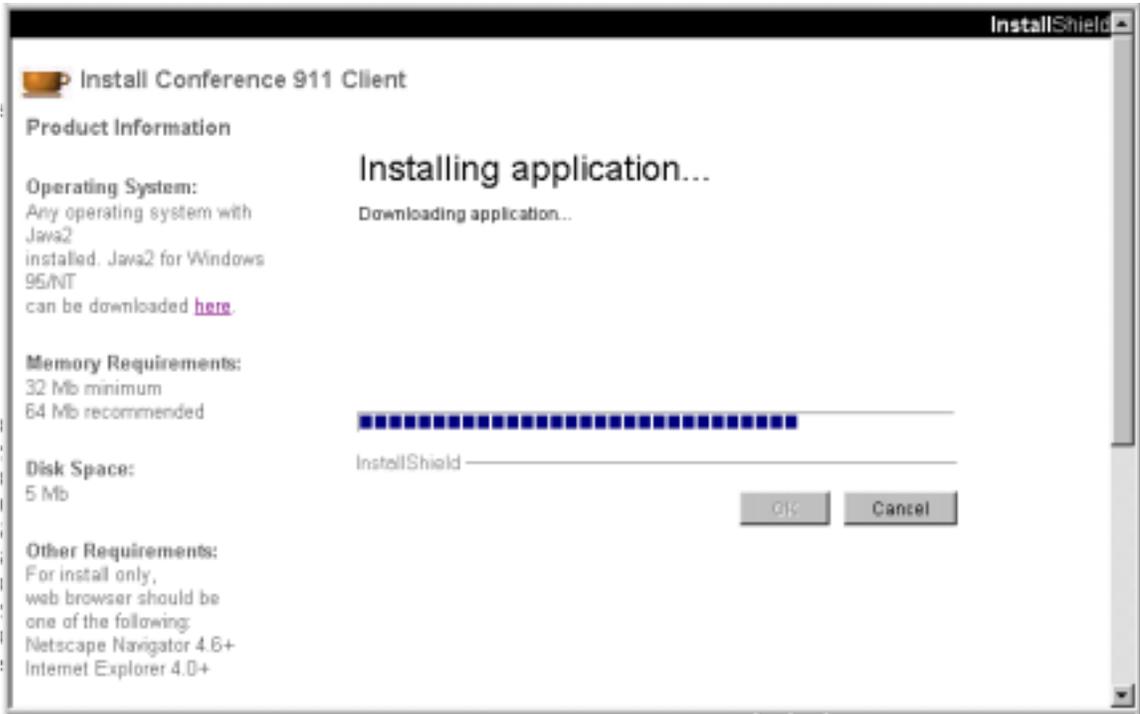


Figure 6-4 Installing Application progress indicator

5. When the virtual machine installation is complete, as shown in Figure 6-5, click OK.

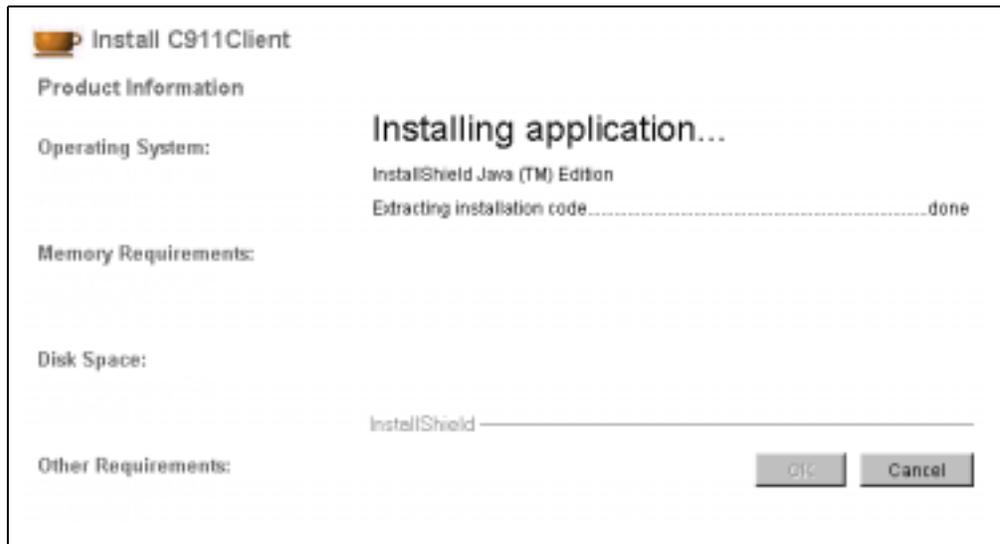


Figure 6-5 Installation Complete

The Welcome dialog box is displayed.

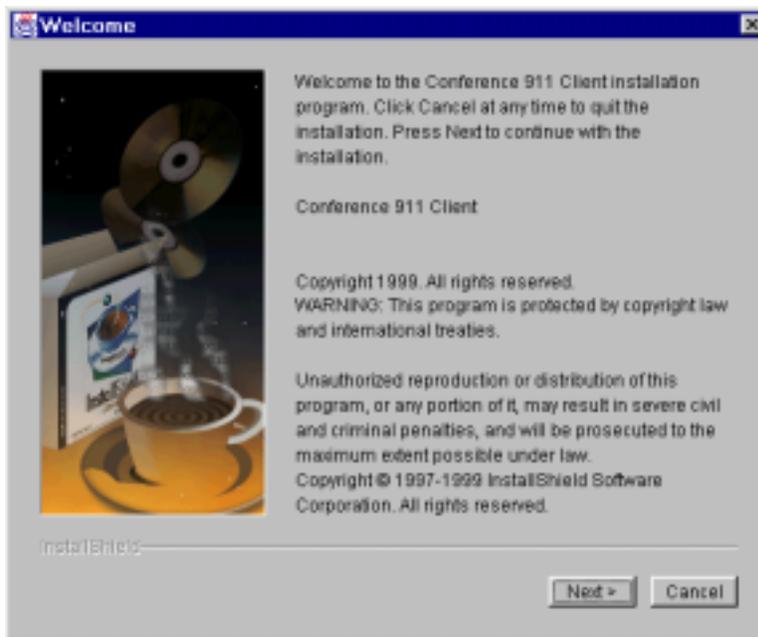


Figure 6-6 Welcome dialog box

- 6. Click **Next**.
The Choose Destination Directory dialog box is displayed

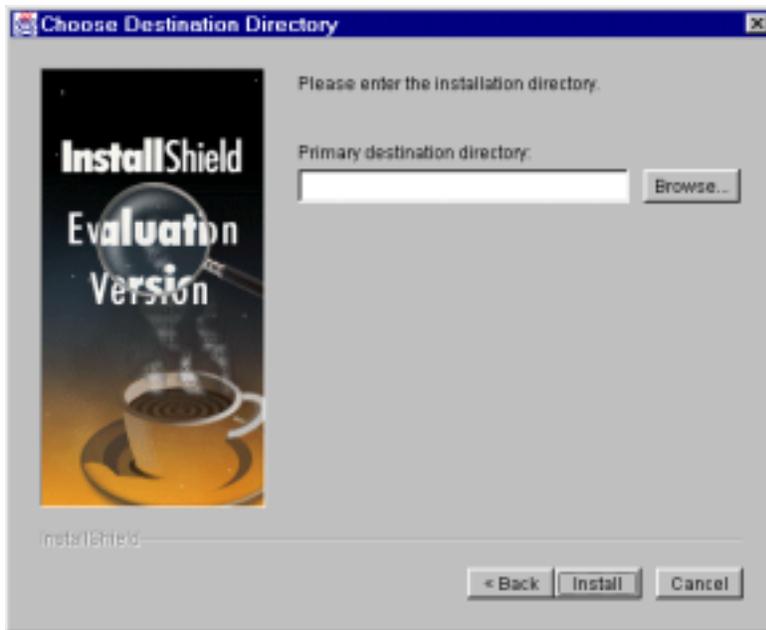


Figure 6-7 Choose Destination Directory dialog box

7. Do one of the following:
 - Type the desired pathname in the Primary Destination Directory field, then click **Install**.

**Warning!**

The pathname entered in the Primary Destination Directory field should not contain spaces. For example, do not enter the directory name “Program Files”.

- Click **Browse**.
The Primary Destination dialog box is displayed.

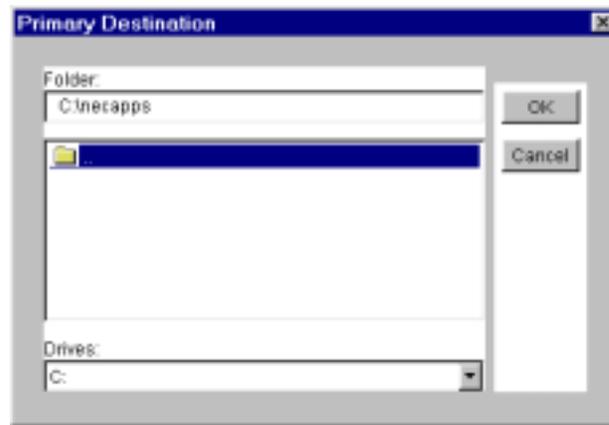


Figure 6-8 Primary Destination dialog box

Select the path from the available folders. Click **OK** when finished.

The dialog box closes and the Choose Destination Directory dialog box is displayed with the pathname in the Primary Destination Directory field.

Click **Install** to continue.

The application is installed to the chosen directory. A progress indicator shows how much of the installation is complete, as shown in [Figure 6-4 on page 54](#).

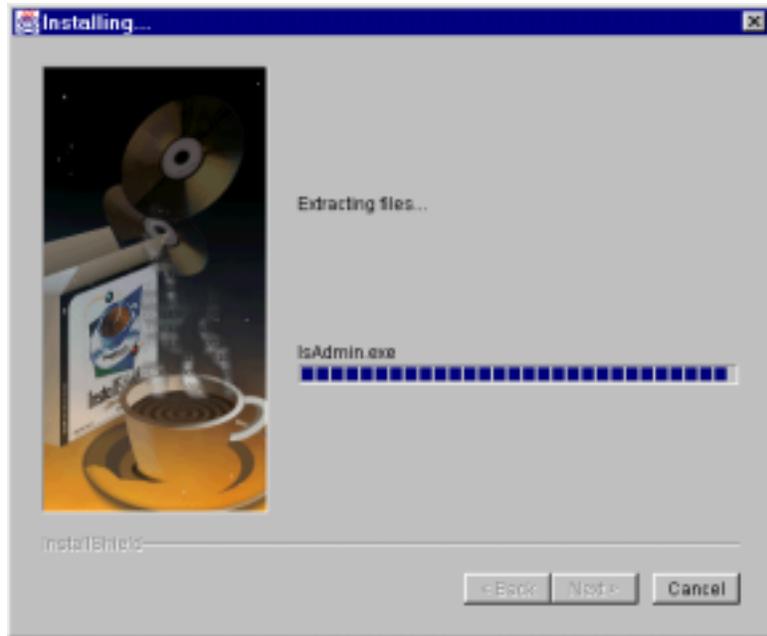


Figure 6-9 Installing Files progress indicator

8. When the installation program is finished, the Installation Complete dialog box is displayed.

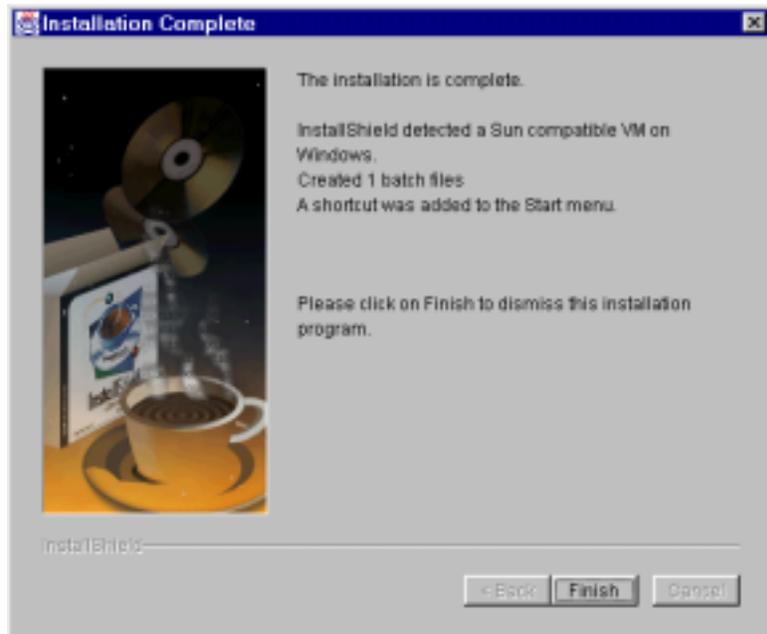


Figure 6-10 Installation Complete dialog box

9. Click Finish.

The C911 Client is now installed. Refer to the *Conference 911 User Guide* for more information about the C911 Client application.

Chapter 7 Running the C911 Package

Overview

This chapter details how to test, initialize, and terminate the C911 system, in addition to the limitations of the applications.

Initializing C911

C911 must be initialized through the APM Operations Menu according to instructions provided in the *APM Operations Manual*. Although each of the configured applications is initialized individually, **the C911 Monitor should be initialized prior to the Agent Server**. If the C911 Monitor is not running, all C911 agents are unable to log on until the Monitor is active.

Both the Agent Server and the C911 Monitor applications are non-CRT applications because they do not require the APM screen. These applications are initialized through the Non-CRT Application option on the APM Operations Menu.

Note: *The C911 Monitor and Agent Server applications should always remain running.*

Terminating C911

Termination of any or all of the applications of C911 may be performed at any time according to instructions provided in the APM Operations Manual. If the C911 Monitor is terminated, all C911 agents will be notified that the “PBX Link” is down. Out of courtesy, anyone who is going to terminate C911, the C911 Monitor, or the Agent Server should alert users.

Testing C911

After installing and configuring the C911 system, you should perform tests to ensure that all C911 applications are functioning correctly.

If the main NEAX2400 is using CCIS to get to another PBX, you can set up two or three trunks to be used for calls to a specific PBX or set of stations. The C911 Monitor application can then monitor these trunks instead of the real 911 trunks. Using this method, when a call is made over CCIS and these trunks are seized, this will simulate a 911 call to the PSAP.

Listed below are some suggested test cases for verifying the functionality of C911:

1. Local station calls 911 and hangs up.
2. Local station calls 911, the PSAP answers, then the caller hangs up.
3. Local station calls 911, the PSAP answers, then the PSAP hangs up.
4. Local station calls 911, the PSAP answers, the C911 agent answers, then the caller hangs up.
5. Local station calls 911, the PSAP answers, the C911 agent answers, then the C911 agent hangs up.
6. Local station calls 911, the PSAP answers, the C911 agent answers, then the PSAP hangs up.
7. Local subline calls 911 and hangs up.
8. Local subline calls 911, the PSAP answers, then the caller hangs up.
9. Local subline calls 911, the PSAP answers, then the PSAP hangs up.
10. Local virtual calls 911 and hangs up.
11. Local virtual calls 911, the PSAP answers, then the caller hangs up.
12. Local virtual calls 911, the PSAP answers, then the PSAP hangs up.
13. CCIS station calls 911 and hangs up.
14. CCIS station calls 911, the PSAP answers, then the caller hangs up.
15. CCIS station calls 911, the PSAP answers, then the PSAP hangs up.
16. CCIS subline calls 911 and hangs up.
17. CCIS subline calls 911, the PSAP answers, then the caller hangs up.
18. CCIS subline calls 911, the PSAP answers, then the PSAP hangs up.
19. CCIS virtual calls 911 and hangs up.
20. CCIS virtual calls 911, the PSAP answers, then the caller hangs up.
21. CCIS virtual calls 911, the PSAP answers, then the PSAP hangs up.

Appendix A Software Limitations

Overview

This section specifies the limitations and service conditions of the Conference 911 system.

Service Conditions

The following are some service conditions found in the C-911 applications.

- Conferencing with C-911 agent is not available when an attendant console calls 911.
- Conferencing with C-911 agent is not available during a screened transfer to 911. A Screened Transfer to 911 is a scenario where a party transfers another party to 911 number and the 911 trunk answers before the transferring party releases. The transferring party could be a station or attendant console.
- Conferencing with C-911 agent is not available when the caller is from a remote PBX (e.g. CCIS call to 911 trunk)
- Conferencing with C-911 agent is not available when the caller is a wireless phone.

In all of these cases, the C-911 agent screen will show the caller status, but no conferencing will take place.

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Appendix B Beeper Interface

Overview

This section specifies the features and basic operation of NEC's alphanumeric paging interface. The C911 application will automatically search the APM Pager database, select a specific individual or service, and enter an alphanumeric message that can be sent to an electronic paging device (beeper) through an alphanumeric paging terminal. Access to voice pagers will not be provided.

The communications protocol between C911 and the alphanumeric paging terminal will be that recommended by the Personal Communications Industry Association, Telocator. The protocol was previously known as the Motorola/IXO alphanumeric protocol. The Motorola/IXO protocol was adopted by Telocator in September of 1988 as an industry standard for devices accepting input for paging requests and is known as Telocator Alphanumeric Protocol (TAP).

The preferred access method to the paging terminal is through a serial I/O connection. The Beeper Interface will also support connection through a modem to a remote paging device. A beeper configuration menu will allow the input of a modem access number, response timers, and other control parameters.

A time stamped record of each page will be saved to a log. This log can be viewed and printed to a line printer.

Database Fields

The fields in the Pager database contain pager number information. The **Pager ID** field defines a person's pager address or Personal ID Number (PIN). The **Pager Access Number** field is a phone number field that is used to dial a user's paging provider or to access a pager that has a discrete phone number. If the database contains a dial number, that number will be used to place the page. If the database only contains a **Pager ID**, the local paging system will be accessed if the Beeper Interface is installed and active. (See ["About the Pager Database" on page 47 for more information.](#))

Note: *For this release, the Pager Access Number field is not supported.*

Architecture

This section provides information about the architecture of the beeper interface in order to give you a basic understanding how the beeper interface operates.

The following diagram depicts connectivity between the NEAX2400 and the C911 Monitor application. A brief explanation of the connections is provided below.

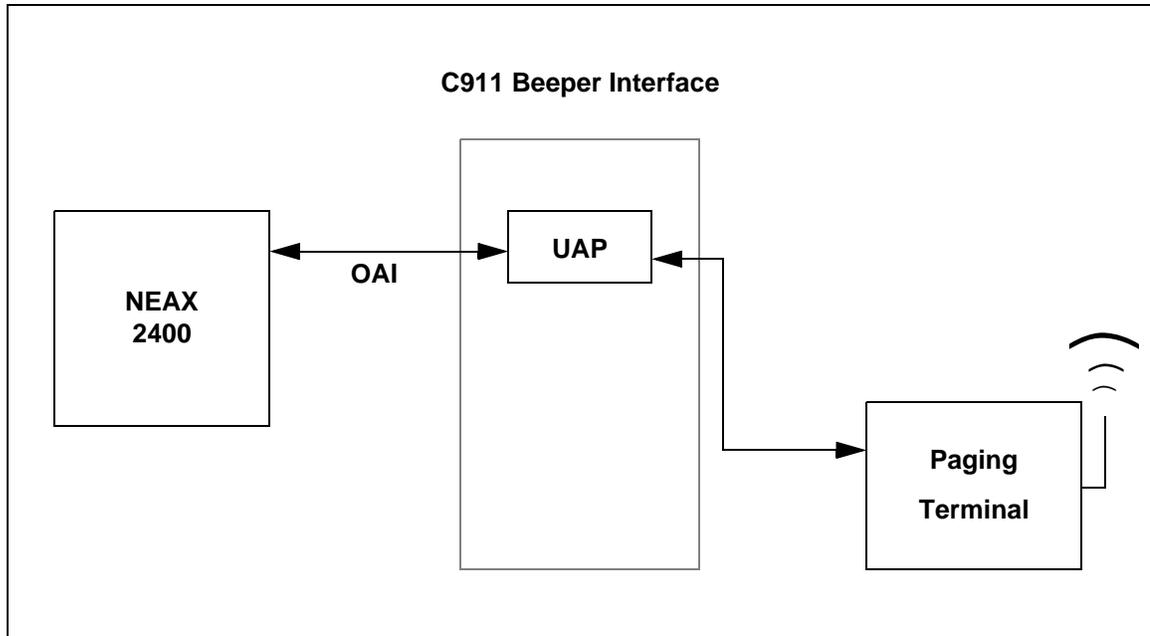


Figure B-1 Beeper Connectivity

The OAI link is TCP/IP. The connection from the UAP out to the Paging System is an RS-232C DTE. In most cases one of the COM ports of the UAP can be used, otherwise, a port from a multi-port serial I/O card will be required. (The Boundless Technologies stations have serial and parallel ports.) The paging terminal can be any device that can be interfaced using an RS-232C and accept the Telocator Alphanumeric Protocol (TAP) for paging requests.

NEC developed a beeper interface that can accept beeper request from a number of applications within the UAP. The beeper software interface can be used by both C911 and other OAI applications (such as D^{term} applications) concurrently. The beeper interface accepts IPC message from applications and communicates with the beeper terminal on the RS-232 connection.

A basic diagram of the beeper software interface is presented below. The diagram shows some of the basic UNIX internal's that will be required to process a message from an OAI application to the beeper terminal. The diagram might not be an accurate representation of the actual software interface since some of the details have been left out.

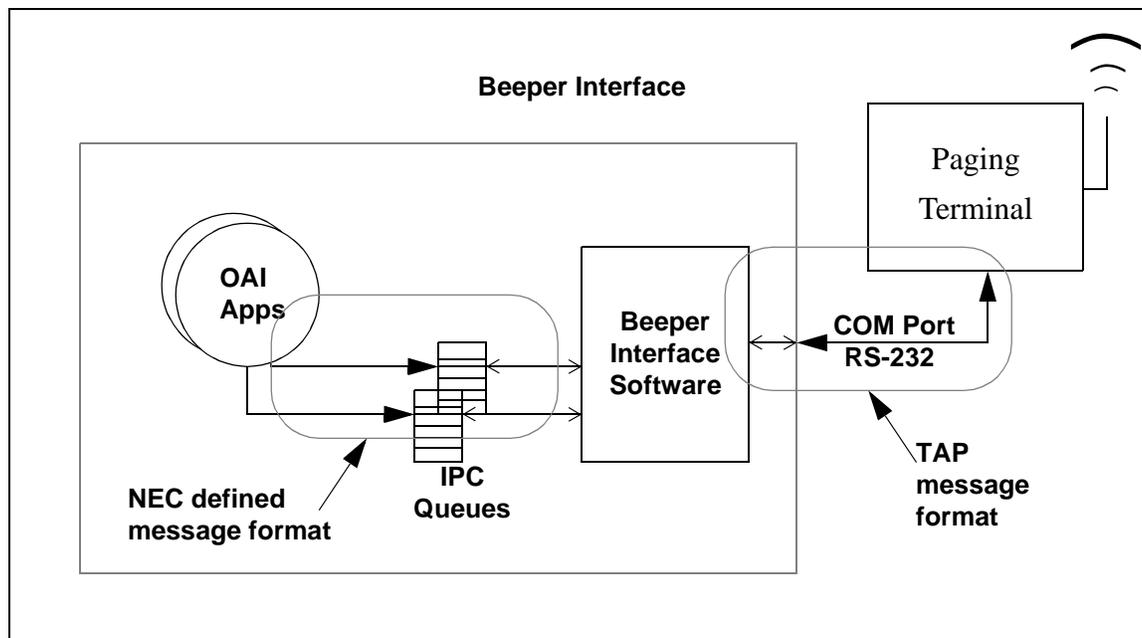


Figure B-2 Beeper Software Interface

The NEC defined message format can be provided to other application engineers upon request. The message format contains information that allows the beeper interface software to accept messages from unknown applications and return beeper status information to the application after the beeper request has been serviced by the beeper terminal.

Using the Beeper Interface

When a 911 call is placed, the Pager table is read and the Beeper Interface informs the appropriate party of the event via their pager.

Interface Configuration

A special UNIX user account, **bpradm**, allows access to configurable interface data. This section presents most of the screens that you might need to access during installation and support of the interface.

Main Menu

After logging into the UNIX system with the Beeper Administration account name *bpradm*, the following menu displays.

```
Beeper Interface Administration Menu

Interface Status: Active   Version: 1.0

Options
View Log File
Erase Log File
Initialize Interface
Terminate Interface
Configuration
UNIX
Logout

Enter Option: [ ]
```

Figure B-3 Beeper Interface Administration menu

In the figure above, the interface status is active. When the status is active, you can start and stop the interface from this menu as well as view some of the log files and set the interface configurable data.

Configuration Menu

Selecting **Configuration** displays the following menu of options:

```
Interface Configuration Menu

Modify Configuration Files
Modify Misc Parameters
Modify Port Parameters
Modify Timer Parameters

Save Configuration
Quit to Main Menu

Enter Option: [ ]
```

Figure B-4 Configuration menu

Valid commands or options are indicated by the bolded, underlined letters. Each option is discussed in detail below.

Configuration Files

To modify the configuration files enter “C” at the **Enter Option** prompt. All the configuration files, will be displayed as shown in the following window:

```
Enter transaction log file name
(/oai/app/beeper/log/trans.log) :
Enter beeper log file name
(/oai/app/beeper/log/beeper.log) :
Enter fifo device name
(/oai/app/beeper/beeper.fifo) :
Enter beeperq executable name
(/oai/app/beeper/bin/beeperq) :
Enter beeperq log file name
(/oai/app/beeper/log/beeperrq.log) :
Enter beeperq qkey filename
(oai/app/beeper/cfg/config) :
```

Figure B-5 Configuration Files

You will rarely need to change this information. These files indicate the location of configuration data.

Once the configuration file update is complete, you will be returned to the **Configuration Main Menu**.

Miscellaneous Parameters

To modify the miscellaneous parameters enter “M” at the **Enter Option** prompt. The window shown below will be displayed. Once you have entered the parameters you will be returned to the **Configuration Main Menu**.

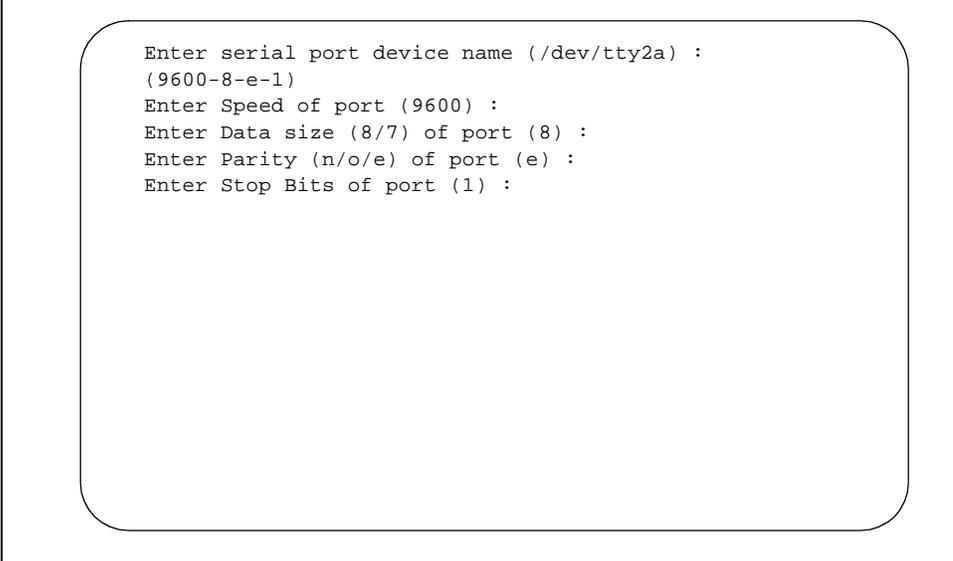
```
Enter log level value (9) :
Enter modem dial number () :
Enter pager name (PGI) :
Enter pager password (000000):
```

Figure B-6 Misc Parameters window

These miscellaneous parameters are vendor specific. In most cases the default values should work.

Port Parameters

To modify the port parameters enter “P” at the **Enter Option** prompt. The window shown below will be displayed.



```
Enter serial port device name (/dev/tty2a) :  
(9600-8-e-1)  
Enter Speed of port (9600) :  
Enter Data size (8/7) of port (8) :  
Enter Parity (n/o/e) of port (e) :  
Enter Stop Bits of port (1) :
```

Figure B-7 Port Parameters window

The port parameters are also vendor specific. In most cases the default values should work. Once you have entered the parameters you will be returned to the **Configuration Main Menu**.

Timer Parameters

To modify the timer parameters enter “**T**” at the **Enter Option** prompt. The timer parameters, will be displayed as shown in the window below.

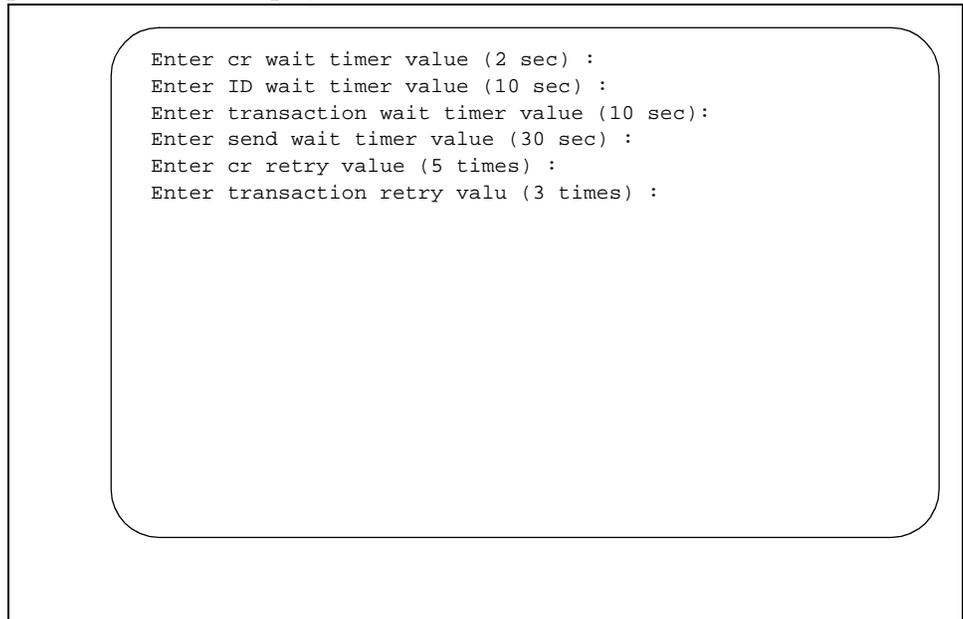


Figure B-8 Timer Parameters window

The timer parameters relate to the TAP message format. These timing variables might require coordination with the vendor specific beeper terminal data. Once you have entered the parameters you will be returned to the **Configuration Main Menu**.

Viewing Transaction Log Files

You can view the current transaction log by selecting **View Log File** option from the main screen. Three log files are saved by the beeper interface: One traces transaction messages between OAI application and the beeper interface, a second traces transaction messages between the beeper interface and the beeper terminal interface, and the third is a transaction only file. The third transaction log file will contain the results of each beeper request received by the interface. The disposition of each request is logged in this file - success or failure. Below is an illustration of the View Log File Menu:

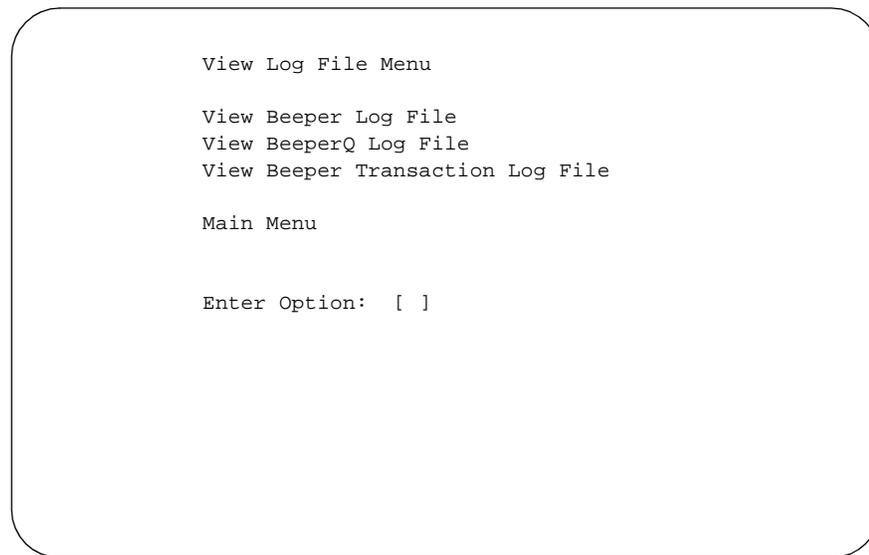


Figure B-9 View Log File menu

Select the log file that you want to view. A screen similar to the following displays. You can use **PgUp** and **PgDn** as well as command line options that are listed across the bottom of the display. These options are described below:

```
Beeper Transaction Log Tue Sep 21 10:20 1999
BEGINNING OF DATA

08/10-14:24:35  REPLY COMPLETE [ :No error ]
08/10-16:11:56  REPLY COMPLETE [ :No error ]
08/11-13:07:52  REPLY COMPLETE [ :No error ]
END OF DATA

Search      Top      Bottom    Command    Print      AutoScroll  Quit
```

Figure B-10 Beeper Transaction Log

The **AutoScroll** feature allows you to view the file in real-time. As new messages are received, they display at the bottom of the screen. The other command line options allow you to move within the file, print a screen display or the complete file, or execute an external UNIX command.

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Appendix C Glossary

911

The slogan for the United States is “One Nation, One Number” and “911” is that number. The goal is to be able to dial 911 from anywhere in the United States to request emergency service.

APM

Applications Manager. The support platform or software which resides on the UAP and provides the user with management capabilities within the Open Applications Interface system.

Beeper Interface

The device that will broadcast encoded information over radio frequencies to receiving devices that can decode these transmissions.

Conference Call

Connects two callers and an agent into a 3-way conversation; adds or rings a third party after two parties are in conversation.

Full Capcode Paging

A paging mode that allows the signaling of a beeper device by its pager address (capcode and function digit).

IP

Interface processor. A module within the NEAX2400 which services the OAI system.

IPC

Interprocess communication. A method used by one UNIX application process to inform another UNIX application process within the same discrete device.

My Line

Refers to the physical station used by a caller to make a call or answer a call, as opposed to one of the sublines that could be used for a call. The MyLine is very important because C911 needs to know the physical location of the caller, not what line was used. A line (subline, virtual,.) could be on several different phones in several different areas and would not help in knowing the origin of the call.

NENA

National Emergency Number Association

OAI

Open Applications Interface. A proprietary protocol and set of routines that links the NEAX2400 to a UAP. Programs executing on the UAP are able to monitor and control switch features and telephones.

UAP

User Application Processor. General purpose multi-tasking computer supporting System V UNIX and the Applications Manager running OAI.

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