Symposium OPEN IVR

Integration Package for Meridian Link User Guide

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The first standard issue of the *Symposium OPEN IVR Integration Package for Meridian Link User Guide* for Release 4.0 is released.

Contents

About this guide

This section provides general information about the *Symposium OPEN IVR Integration Package for Meridian Link User Guide*.

Who should use this guide

This guide is written for installers and administrators of the Integration Package for Meridian Link, as well as for application developers who are developing and administering applications using this package.

The guide assumes that you are familiar with the Nortel Meridian 1 and Meridian Link products and the UNIX operating system, and that you have a knowledge of telecommunications. It assumes that application developers have in experience creating applications with OPEN Interactive Voice Response (IVR).

How to use this guide

This guide contains the following chapters and appendixes:

Chapter 1: Overview

Provides you with an overview of the functions and features of the Integration Package for Meridian Link.

Chapter 2: Planning and engineering

Provides you with information about the requirements of the Integration Package.

Chapter 3: Installation and configuration

Describes how to install and configure the Integration Package.

Chapter 4: System administration

Explains how to perform administration tasks, including starting and stopping the server; viewing the logs, statistics, and status information; and customizing preferences.

Chapter 5: Application development

Describes the cells that are provided with the Integration Package for Meridian Link, and explains how to use them to develop applications.

Chapter 6: Troubleshooting

Provides troubleshooting procedures and describes troubleshooting tools.

Appendix A: Tables and files

Lists and describes the tables used by the Integration Package for Meridian Link.

Appendix B: The initialization file

Describes the format of ccip.ini, the file that stores the configuration information for the Integration Package.

Appendix C: Integration Package processes

Lists the processes used by the Integration Package.

Appendix D: DN types and DN type values

Lists DN and agent types supported by Meridian Link.

Appendix E: Meridian 1 switch configuration

Describes the Meridian 1 switch configurations required by the Integration Package.

Appendix F: Localization

Provides instructions for localizing the Integration Package for different languages.

Related documentation

This section lists the Symposium OPEN IVR and other documents that you might find useful while reading this guide.

Symposium OPEN IVR documentation

Additional information about Symposium OPEN IVR 4.0 is presented in the following Release 4.0 documentation:

Document	NT number/ A0 number/ P0 number
Symposium OPEN IVR 4.0 Getting Started Guide	NTVE8201 A0732100 P0881271
Symposium OPEN IVR 4.0 Product Guide	NTVE8202 A0732101 P0881273
Symposium OPEN IVR 4.0 System Administration Guide	NTVE8203 A0732102 P0881274
Symposium OPEN IVR 4.0 Application Development Guide	NTVE8209 A0732108 P0881275
Symposium OPEN IVR 4.0 Cell Catalog	NTVE8208 A0732107 P0881276
Symposium OPEN IVR 4.0 Installation, Upgrade, and Maintenance Guide	NTVE8204 A0732103 P0881277
Symposium OPEN IVR Planning and Engineering Guide	NTVE8205 A0732104 P0881278
Symposium OPEN IVR 4.0 Error Messages Guide	NTVE8206 A0732105 P0881279

Symposium OPEN IVR 4.0 Web Option Guide	NTVE8210 A0732109 P0881281
Symposium OPEN IVR 4.0 SQL Server User Guide	NTVE8216 A0732115 P0881282
Symposium OPEN IVR 4.0 Service Console Interface Reference Manual	NTVE8207 A0732106 P0881284
Symposium OPEN IVR 4.0 VT100 Host Connectivity Configuration and Development Guide	NTVE8221 A0732120 P0881286
Symposium OPEN IVR 4.0 Text-to-Speech Option Guide	NTVE8213 A0732112 P0881292
Symposium OPEN IVR 4.0 Speech Recognition Option Guide	NTVE8212 A0732111 P0881293
Symposium OPEN IVR 4.0 Fax Option Guide	NTVE8211 A0732110 P0881294
Symposium OPEN IVR 4.0 CAS and ISDN Signaling Option Guide	NTVE8214 A0732113 P0881296
Symposium OPEN IVR 4.0 Prompt Import Utility Guide	NTVE8218 A0732117 P0881400
Symposium OPEN IVR 4.0 SNA Host Communications Guide	NTVE8227 A0732774 P0881750

Other documentation

You may find the following documentation useful while reading this guide:

- *Meridian 1 Software Input/Output guide* (P0868065)
- *Meridian Link Release 5.0/Customer Controlled Routing Installation and Upgrade Guide (*NTP 553-3202-210)

Conventions used in this guide

Throughout this guide, several typographic conventions have been used to highlight certain types of information:

- Items that appear on the Symposium OPEN IVR screens are identified in quotes, for example:

  the “Timeout” part of the Parameters window

- Prompts, file and menu names, directories, accounts, and options are shown in a different typeface, for example:

  `/sci>`

  `sci/install` menu

  `/u/nortel/3270/getbalance.act` file

- Symposium OPEN IVR buffer names are shown in all uppercase characters, for example:

  the CURRENT MESSAGE buffer

- Field names are shown in italics, for example:

  the *Device* field

- Items you must type are shown in bold in a different typeface, for example:

  type **`tn5250`** at the prompt

- Variables that you must replace with valid values are shown in italics, for example:

  nnnn

  You would replace this value with a directory number (DN).

- Key names you press are shown in angled brackets, for example:

  the <F1> key

- Keyboards usually have keys named <Return> or <Enter> that perform the same function. For convenience, this guide uses the keyname <Enter> to represent both keynames.

Chapter 1: Overview

The Integration Package for Meridian Link is an optional feature of Symposium OPEN Interactive Voice Response (IVR) Release 4.0 that integrates OPEN IVR with Meridian Link and the Meridian 1 Private Branch Exchange (PBX). This package adds the following functionality to OPEN IVR:

- digital login of IVR agents configured as Automatic Call Distribution (ACD) positions through Meridian Link messaging
- the ability to transfer and conference calls through Meridian Link messaging (A fast one-step transfer function takes advantage of Meridian Link's fast transfer feature.)
- provision of caller information, such as Calling Line Identification (CLID), Dialed Number Identification Service (DNIS), Call ID, and Hold In Queue with an IVR treatment variable, to OPEN IVR
- the ability to extract data from a call-offered to a predefined agent set
- debug and support facilities to trace messages
- an administration interface that is accessible both locally and remotely by modem

Integration Package for Meridian Link configuration

To use the Integration Package for Meridian Link feature, you must have OPEN IVR 4.0, Meridian Link Release 5.04, and Meridian 1 PBX (Release 22).

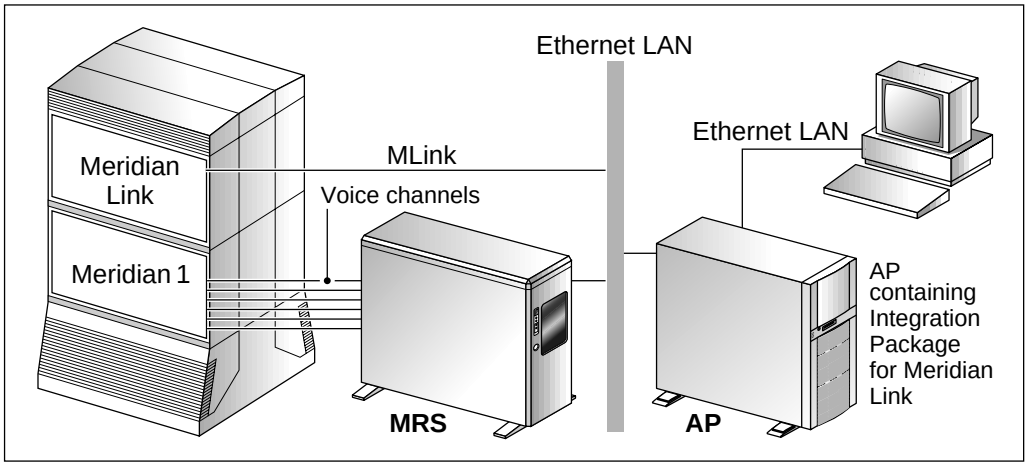
> ***Note:*** To use CCR Interworking with the Integration Package, you need Meridian Link/CCR Co-Residency Release 6.03 or higher, or Meridian Link Release 5.05.

OPEN IVR consists of two components, the Application Processor (AP) and the Multimedia Resource Server (MRS). These components may run on separate processors, or they may run on the same processor. The Integration Package software runs on either an MRS/AP or a standalone AP.

The AP and Meridian Link are physically connected by an Ethernet LAN, and they communicate using the proprietary Meridian Link (MLINK) message set over Transmission Control Protocol/Internet Protocol (TCP/IP).

Figure 1-1 shows how the Integration Package for Meridian Link is configured in an environment where the AP and MRS run on separate processors.

Figure 1-1: Integration Package for Meridian Link configuration



The Integration Package also supports Token Ring. In a Token Ring environment, the AP has an Ethernet connection to Meridian Link, and a Token Ring connection to the customer LAN.

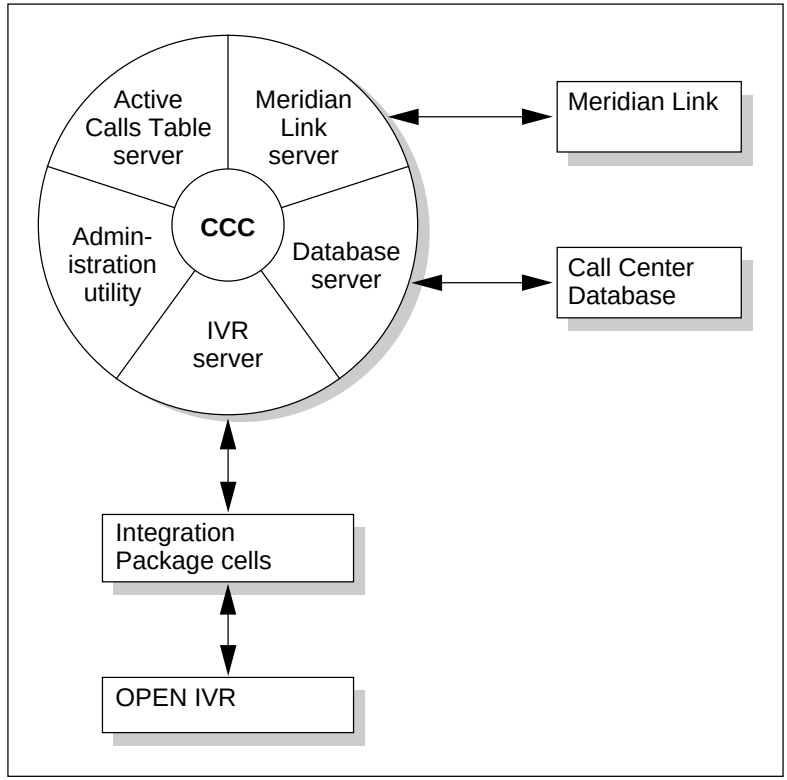
Integration Package for Meridian Link components

The Integration Package comprises the following servers:

- Call Center Controller (CCC)
- Meridian Link server
- IVR server
- Database server
- Active Calls Table (ACT) server

Figure 1-2 shows these servers and how they interact. They are described in the following sections.

Figure 1-2: Integration Package for Meridian Link components



Call Center Controller

The Call Center Controller (CCC) manages all aspects of the Integration Package for Meridian Link environment. It initializes the other servers and coordinates the execution of requests from the servers.

Meridian Link server

The Meridian Link server acts as an interface between the Meridian Link module and the other servers.

IVR server

The IVR server is the interface between the OPEN IVR application and the other servers.

Database server

The Database server processes database requests from each of the servers. It maintains history, log, and configuration information in the following tables and files.

Configuration file

This file (`ccip.ini`) contains configuration and location information for the Integration Package for Meridian Link servers, as well as all directory numbers (DNs) to be monitored by the Meridian Link server. You can update it with the Integration Package for Meridian Link administration utility. For more information about `ccip.ini`, refer to Appendix B, “The initialization file.”

ACT History file

This file contains a history of call information recorded by the Active Calls Table. Each call event is recorded in this file, which you can view with the administration utility. For more information about this file, refer to Appendix A, “Tables and files.”

ACT Summary file

This file contains an hourly summary of call information recorded by the Active Calls Table. You can view this file with the administration utility. For more information about this file, refer to Appendix A, “Tables and files.”

Error Log file

This file contains all system errors reported by Integration Package components, as well as trace messages for any servers for which tracing is enabled. (By default, tracing is disabled. You might want to enable tracing during troubleshooting. To do so, refer to “Error and Event Log” on page 6-8.)

All entries written to this file include a date and time stamp, and an error number. Each server has a range of error numbers that it generates, so by looking at the error number, you can identify the server that generated the error.

You can view this file with the administration utility. For more information about error messages, refer to the *Symposium OPEN IVR Error Messages Guide*.

Active Calls Table server

The Active Calls Table (ACT) server manages information on all active calls monitored by the Meridian Link server. It retains a running history of all events in the ACT History file, and a summary of activity for each hour in the ACT Summary file.

Cells

The cells are the interface between OPEN IVR and the IVR server. The Integration Package for Meridian Link uses these cells to request caller information from the IVR application and to perform transfers and conferences. For more information about these cells and how to use them, refer to Chapter 5, “Application development.”

Administration utility

The Integration Package provides an administration utility that runs in both X-Windows and text-based environments. The utility is accessible both locally and remotely (over a modem).

With this utility, you can perform the following tasks:

- Start and stop the Integration Package for Meridian Link.
- Configure the Integration Package. (Configuration changes do not take effect until you restart the Integration Package for Meridian Link server.)

- Register and de-register IVR and Agent DNs. (Registrations and de-registrations do not take effect until you restart the Integration Package for Meridian Link server.)
- View the log files.
- Enable tracing for one or more of the component servers.

Chapter 2: Planning and engineering

This chapter describes the hardware and software requirements of the Integration Package for Meridian Link and its memory and disk requirements. The chapter also explains how to use the Integration Package with an existing Token Ring customer LAN, and with multiple APs.

> ***Note:*** You should also be familiar with the planning and engineering guidelines for OPEN Interactive Voice Response (IVR). For more information, refer to the *Symposium OPEN IVR Planning and Engineering Guide.*

Hardware and software requirements

To install the Integration Package for Meridian Link, you must have the following hardware and software:

- Meridian 1 Private Branch Exchange (PBX) Release 22 or higher
- Symposium OPEN Interactive Voice Response (IVR) Release 4.0 or higher

  Follow the instructions in the documentation to install the Application Processor (AP) or Multimedia Resource Server/AP (MRS/AP) and the OPEN IVR software.

  Note: If you upgrade from OPEN IVR 2.x to OPEN IVR 4.0, you must also upgrade your Call Center Integration Package 1.0 to the OPEN IVR 4.0 version Integration Package for Meridian Link.

- Meridian Link Release 5.04 or higher with Option 97 and Option 98

  Note: To use the Integration Package with CCR interworking, you need Meridian Link/CCR Co-Residency Release 6.03 or higher or Meridian Link Release 5.05

  Follow the instructions in the documentation to install the Application Module (AM) or Intelligent Peripheral Equipment (IPE) Module and the Meridian Link software. Ensure that Meridian Link is communicating with the OPEN IVR AP using TCP/IP, and that the AP and Meridian Link are on the same Ethernet LAN (that is, there should be no LAN bridges or gateways between them).

- Integration Package for Meridian Link feature

If you have a Token Ring customer LAN, you also need the following:

- Token Ring option for Meridian Link
- ZNYX ZX13 Ethernet card
- ZNYX PCI Ethernet driver
- a DOS boot disk

ATTENTION

If you are using an MRS/AP, and you are using both the Uninterruptible Power Supply (UPS) and Fax options of OPEN IVR, you cannot use the Integration Package for Meridian Link with a Token Ring LAN.

Memory requirements

The Integration Package for Meridian Link requires 12 Mbytes of memory, plus 20 kbytes for every IVR channel it monitors, and 10 kbytes for every agent it monitors. For example, if you have 24 IVR channels and 200 agents, you would need:

12 Mbytes + (*number of channels* x 20 kbytes) + (*number of agents* x 10 kbytes)
= 12 Mbytes + (24 x 20 kbytes) + (200 x 10 kbytes)
= 12 Mbytes + 480 kbytes + 2000 kbytes
= 14.48 Mbytes

Note: This calculation includes memory required by the Integration Package for Meridian Link cells only. If you use other cells, they may require additional memory.

Disk requirements

The Integration Package for Meridian Link requires 10 Mbytes of disk space on the `/u` file system, plus space for log files. By default, the log files require 610 kbytes of disk space, but you can configure them to use up to 12.3 Mbytes.

The Integration Package software maintains three log files, the Error and Event Log, the ACT History file, and the ACT Summary file. You can configure the maximum amount of space used by each of these files. (For more detailed information about these files, refer to Appendix A, “Tables and files.”)

Error and Event Log

The Integration Package for Meridian Link logs error and trace messages to a log file. After a configurable period of time (default 24 hours), or when the file reaches a configurable size (default 300 kbytes)—whichever comes first—the Integration Package software makes a backup copy of the file and clears it to begin collecting messages again. If you are using the default parameters, you need 600 kbytes of disk space for the log files—300 kbytes for the Error Log and 300 kbytes for the backup file.

You can increase the maximum size to 3 Mbytes. (For instructions, refer to “DATAS” on page B-10.) If you do, you need 6 Mbytes of disk space for the log files.

You can also control the amount of information written to the log by setting the trace level. For instructions, refer to “Error and Event Log” on page 6-8. The trace level determines how quickly the file reaches its maximum size.

ACT History file

The Integration Package for Meridian Link logs each event to the ACT History File. After a configurable period of time (default 4 hours), or when the file reaches a configurable size (default 300 kbytes)—whichever comes first—the Integration Package software makes a backup copy of the file and clears it to begin collecting statistics again. If you are using the default parameters, you need 600 kbytes of disk space for the log files—300 kbytes for the ACT History file and 300 kbytes for the backup file.

You can increase the maximum size to 3 Mbytes. If you do, you need 6 Mbytes of disk space for the history files.

To change these parameters, refer to “Customizing preferences” on page 4-15 and “ACTS” on page B-17.

ACT Summary file

Every hour, the Integration Package for Meridian Link logs call summary information. After a configurable period (default 1 day), the Integration Package makes a backup copy of the file and clears it, to begin collecting statistics again. If you are using the default parameters, the file will contain 24 lines; you need less than 10 kbytes for both the ACT Summary file and its backup file.

You can set the collection period to 30 days. If you do, you need about 300 kbytes of disk space for the summary files.

To change these parameters, refer to “Customizing preferences” on page 4-15 and “ACTS” on page B-17.

LAN requirements

This section describes the LAN connectivity required for the Integration Package. It also describes how to use the Integration Package with a Token Ring LAN.

LAN connectivity

The AP on which the Integration Package is installed must be located on the same LAN as the Meridian Link module, with no bridges or gateways between them.

If LAN traffic is heavy, Nortel recommends that this LAN be a dedicated LAN, to maximize the performance of OPEN IVR and the Integration Package.

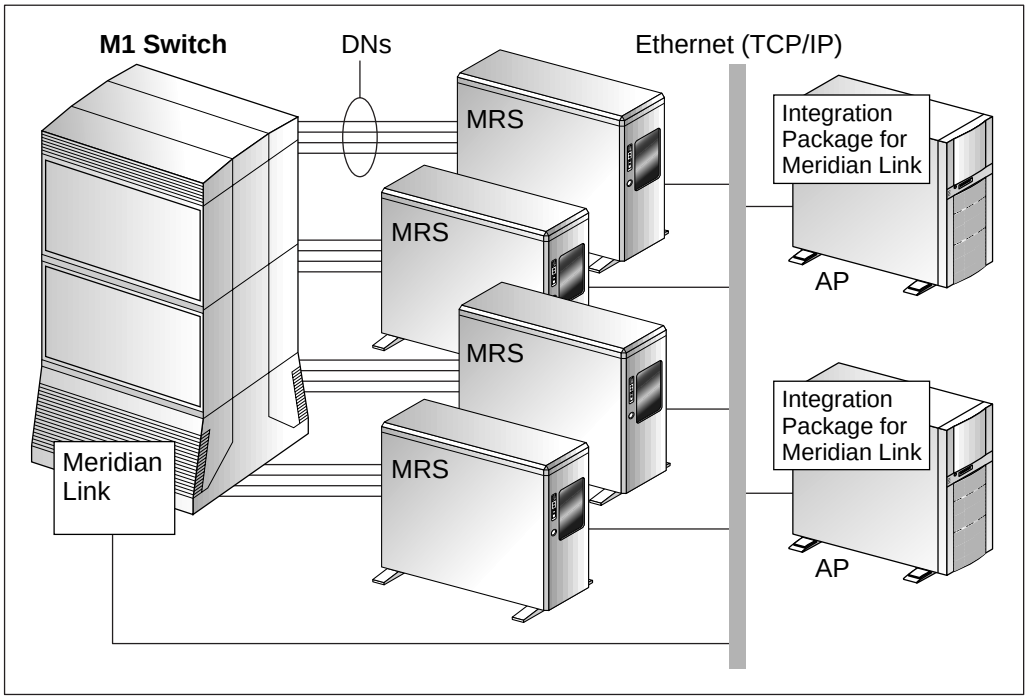
Using the Integration Package with a Token Ring LAN

If you have an existing Token Ring LAN, you must install two network cards in the AP or MRS/AP: a Token Ring card that connects to the MRS or corporate LAN, and an Ethernet card that connects to Meridian Link. For detailed installation instructions, refer to the *Symposium OPEN IVR Installation, Upgrade, and Maintenance Guide*.

Using the Integration Package with multiple APs

The Integration Package for Meridian Link monitors all agents, but it is configured to monitor only those IVR DNs that are located on the Application Processor (AP) on which it is installed. (Each agent DN can be monitored by multiple copies of the Integration Package for Meridian Link.) If you have multiple APs, to ensure that incoming calls on both APs are processed by your customized call center applications, install a separate copy of the Integration Package on each one (as illustrated in Figure 2-1).

Figure 2-1: Integration Package for Meridian Link with multiple APs



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Each copy of the Integration Package must have a unique Meridian Link application ID, to identify it to Meridian Link. You must configure and administer each copy of the Integration Package separately.

Note: Each AP may have up to 16 Integration Package and Meridian Link applications.

Chapter 3: Installation and configuration

This chapter describes how to install and configure the Integration Package for Meridian Link on a single Application Processor (AP). You must repeat the procedures in this chapter for each AP on which you are installing the Integration Package.

This chapter contains the following sections:

- pre-installation checklist, specifying the information you need to collect before installing
- installing the License file
- installing the Integration Package for Meridian Link software
- configuring the Integration Package for Meridian Link
- starting the Integration Package for Meridian Link
- configuring the Multimedia Resource Server (MRS)
- verifying the installation

Pre-installation checklist

Before you begin the installation, make sure you have the following information:

- the Meridian 1 machine ID and customer number

  To find out the Meridian 1 machine ID, log in to Meridian Link as **mlusr**, and enter the `get links` command. For detailed instructions, refer to the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide*.

- the Internet Protocol (IP) address of the OPEN IVR AP or MRS/AP

  Check the `/etc/hosts` file to find out the IP address.

> **ATTENTION**
>
> Ensure that the entry in the `/etc/hosts` file contains an alias that includes the domain name of the host. For example:
>
> ```
> 50.100.200.10      ivr_ap      ivr_ap.corp.com
> ```

- the OPEN IVR root and Nortel passwords

  Refer to the *Symposium OPEN IVR Installation, Upgrade, and Maintenance Guide* for the Nortel password.

- the MRS number

  To find out the MRS number, use the System Monitor utility of OPEN IVR. Refer to the *Symposium OPEN IVR Installation, Upgrade, and Maintenance Guide* for detailed instructions.

- the IP address and mlusr password for Meridian Link

  Refer to the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* for the mlusr password.

- the Meridian Link machine ID

  To find out the Meridian Link machine ID, use the `display link 1` command. For detailed instructions, refer to the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide*.

- the Meridian Link port number
- root password for the AP
- the IVR directory numbers (DNs) on the MRS
- all agent DNs and Automatic Call Distribution (ACD) position IDs

Installing the license file on the MRS

To enable the Integration Package for Meridian Link, you must load a new license file on your MRS or MRS/AP. To load the license file, follow these steps.

Note: Nortel generates the license file for initial installations and upgrades.

1 Before installing licenses, make sure of the following:

- The build process has been completed successfully.
- The network (between the APs and MRSs) is functioning properly.
- Remote commands (for example, `rcp`) work properly.
- All hosts have been assigned the correct nt aliases in the hosts files (see the *Symposium OPEN IVR 4.0 Installation, Upgrade, and Maintenance Guide* for more information).

2 Log in to the AP as root.

3 Insert the license disk into the floppy drive of the AP.

Note: Any files named differently from the above will *not* work.

4 At the UNIX prompt, type the following command:

```
install_licenses
```

5 Monitor the progress of the installation.

If the installation of the licenses to an AP or an MRS was successful, the message `Successfully installed license for ...` is displayed.

Note: If there are any problems distributing the files to the different MRSs or APs, the following message is displayed:

```
Unable to copy license file for  ....
```

This indicates a problem with the network connection. Test your network connections with `ping` or `telnet`, and try again.

If there is a problem unwrapping a KDS enveloped license file, the following message is displayed:

```
Unable to extract license file for ....
```

This indicates a likely problem with either the diskette itself or the drive that you are using. Test both of these and then try the installation again.

6 Restart the OPEN IVR system.

The license takes effect upon startup.

Installing the Integration Package software

You can install the Integration Package for Meridian Link from a CD or a hard drive. If you are installing from a hard drive, make a note of the path in which the installation file (ccipinst.Z) is located.

To install or upgrade the Integration Package for Meridian Link, follow this procedure.

Note: During an upgrade, your existing configuration (stored in `ccip.ini`) is retained. However, all log files are replaced.

CAUTION
Risk of data loss
Shut down OPEN IVR before installing the Integration Package for Meridian Link.

1. Back up the AP on which you are installing the Integration Package for Meridian Link. For detailed instructions, refer to the *Symposium OPEN IVR 4.0 Installation, Upgrade, and Maintenance Guide.*
2. If you are reinstalling the Integration Package, delete the IPML sections from the severity.rsp and xae.lng files.
3. Shut down OPEN IVR and exit from X-Windows.
4. Reboot the AP by logging in as **`root`**, typing **`shutdown -y -g0,`** and pressing <Enter>.

   When the shutdown is complete, the following prompt appears:

   ```
   Press Any Key to Reboot
   ```
5. Press <Enter>.
6. When the `Boot:` prompt appears, press <Enter>.

   The following prompt appears:

   ```
   INIT: SINGLE USER MODE

   Type CONTROL-d to proceed with normal start-up,
   (or give root password for system maintenance).
   ```
7. Type the root password and press <Enter>.

8 If you are installing from a CD, mount the CD by typing **`mount /dev/cd0/mnt`** and pressing <Enter>.

9 Copy the install script to the /tmp directory. If you are installing from CD, type **`cp /mnt/ipml/install.ipml /tmp`** and press <Enter>. If you are installing from a hard disk, replace */mnt/ipml* with the path in which the Integration Package source is located.

10 Change the working directory to `/tmp` by typing **`cd /tmp`** and pressing <Enter>.

11 Start the installation or upgrade by typing **`./tmp/install.ipml`** and pressing <Enter>.

The following prompt appears:

```
================================================
Visual TCL and IPML Install Utility
Version 1.00
================================================

(1) Install/Reinstall IPML

(2) Abort installation
```

12 Type **1** and press <Enter>.

The following prompt appears:

```
Integration Package for Meridian Link Installation program
------------------------------------------------

In order for installation to proceed, ensure the
following:

1) User is logged in as root.
2) System is in single-user mode (reboot).
3) You have the SOIVR 4.0 CD or you know the
   directory path where ccipinst.Z is stored in the
   hard drive.
4) You know the IP address of this machine.

Are the above conditions met? (y/n)
```

13 Type **Y** to indicate that all of these conditions have been met, and press <Enter>.

The following prompt appears:

```
Please enter the IP address of this machine:
```

14 Type the IP address of the machine on which you are installing the Integration Package for Meridian Link, and press <Enter>.

The following prompt appears:

```
Please select the source media
Enter 1 for CD, enter 2 for hard disk
```

15 If you are installing from CD, type **1** and press <Enter>. If you are installing from hard disk, type **2** and press <Enter>.

If you are installing from a hard drive, the following prompt appears:

```
Please enter the path where ccipinst.Z is stored:
```

Type the path to the installation source files and press <Enter>.

The installation process begins. It takes several minutes to complete. The following messages appear:

```
--->Transferring files from CD
--->Customizing Drop down menu for IPML
--->Uncompressing the required file. Please wait.
--->Distributing the required files. Please wait.
--->Setting the required profile for nortel account.
Please make sure you have manually edited
severity.rsp and xae.lng if doing an upgrade
--->Distributing additional files and enhancing
    severity file.
--->Defining a service port number & adding IPML's
    logfile to syslog.conf file.
--->Putting Machine IP address in IPML database.
--->Distributing Startup/Shutdown scripts
--->Rebuilding the database

--->Changing file permissions/ownership.
```

```
--->Setting the S-bit for required files.
--->Clean up in progress!
--->Tuning the kernel for IPML requirements!

  The UNIX Operating System will now be rebuilt
  This will take a few minutes. Please wait

  Root for this system build is /.

  The UNIX Kernel has been rebuilt.

Backing up /unix to /unix.old
Installing new /unix
Setting up new kernel environment

The installation of the IPML Package is complete now!
Please reboot your system now for the changes to take
place.
Thank You for using IPML installation program.
```

Note 1: For an upgrade, the message `This is an Upgrade, Invoking Upgrade Procedure` appears at the beginning of the installation, and the kernel tuning process does not occur.

Note 2: The message `--->Transferring files from CD` appears only for a CD installation.

16 When the installation is complete, remove the installation tape.

17 Reboot the system by typing **`reboot`** and pressing <Enter>.

Configuring the Integration Package server

After you install the Integration Package for Meridian Link, you must configure it. Configuring the Integration Package involves the following procedures:

- configuring IVR DNs
- configuring agent DNs
- setting up the channel map
- configuring Meridian Link parameters

To perform all of these tasks, you use the Integration Package for Meridian Link administration utility. This section explains how to start the utility and use it to perform these tasks. All configuration information is stored in `ccip.ini`.

> ***Note:*** For more information about this file, refer to Appendix B, "The initialization file."

CAUTION
Risk of data loss
If you need to change the configuration after your initial installation, make a backup copy of `/u/nortel/ccip/bin/ccip.ini` before proceeding.

Starting the administration utility

This section explains how to use the Integration Package for Meridian Link administration utility from the system on which the Integration Package is installed. To find out how to access the utility remotely, refer to "Accessing the administration utility remotely" on page 4-3.

To use the administration utility on the AP, press the right mouse button on the desktop and choose `Start Integration Package Admin` from the menu. Click the left mouse button to drop the window. The Integration Package for Meridian Link Administration window appears.

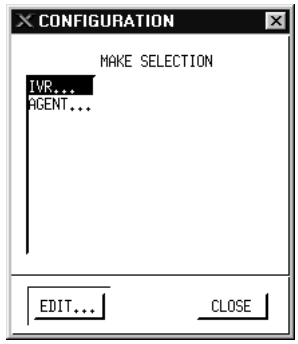
Configuring IVR DNs

You must tell the Integration Package for Meridian Link about all of the IVR DNs on the AP on which the Integration Package is installed. To do so, follow this procedure.

> ***Note:*** The Integration Package registers only 1000 DNs. Therefore, you should not configure more than 1000 agent and IVR DNs combined. Also, make sure you do not configure more DNs than your Meridian Link application can support.

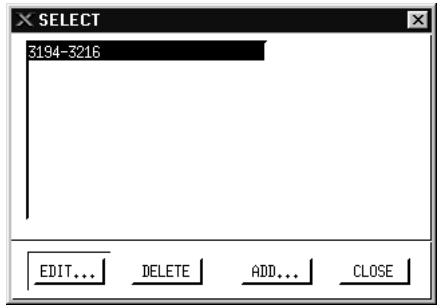
1 From the Config menu, choose `Agent Position ID's`.

The Agent Position ID's window appears.



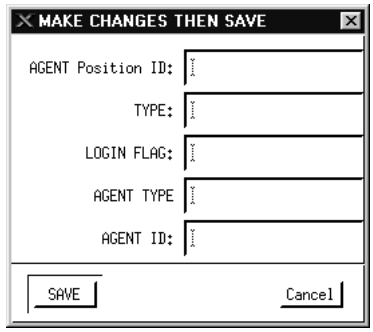
2 Select `IVR` and click EDIT....

The IVR DN window appears.



3 To add a new IVR DN, click ADD....

The Add IVR DN window appears.



4 For *AGENT Position ID*, enter a DN or DN range in one of the following formats:

nnnn	a single DN, for example, 4000
nnnn–nnnn	a range of DNs, for example, 4000–4095

You can enter a range if the DNs are in sequence, and if their agent ID is the same as their position ID.

5 For all DN types, type **130** in the *TYPE* field. This the decimal number that identifies the agent type. For a list of types, refer to Table D-2, “DN types for registration with Meridian Link,” on page D-3.

6 For *LOGIN FLAG*, type **1** if you want to log in these DNs when the Integration Package starts and log them out when the Integration Package stops. Type **0** if you do not want to log them in and out automatically.

7 For *AGENT TYPE*, type **8**. This is the decimal number that identifies the DN type as “internal.” For a list of DN types, refer to Table D-1, “DN types used in call event messages,” on page D-1.

8 For *AGENT ID*, type the ID that the agent uses to log in to this DN. If the agent ID is the same as the position ID, type an asterisk (*****). If you are defining a range of DNs, the agent IDs for all the DNs must be the same as the position ID. If they are not, you must define each DN separately.

9 Click SAVE.

The Agent Position ID’s window appears.

10 Repeat steps 3 to 9 for each DN or DN range that you want to define.

11 When you are finished, click CLOSE.

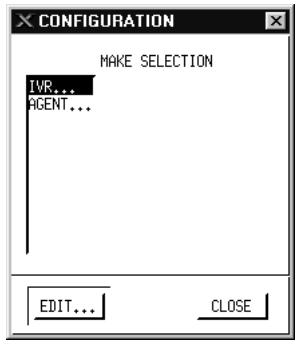
Configuring Agent DNs

You must tell the Integration Package for Meridian Link about all of the agent position IDs that it will be serving (that is, to which it will be transferring or conferencing calls). To do so, follow this procedure.

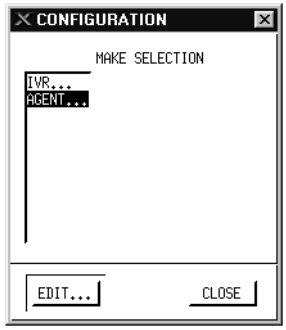
> ***Note:*** The Integration Package registers only 1000 DNs. Therefore, you should not configure more than 1000 agent and IVR DNs combined. Also, make sure you do not configure more DNs than your Meridian Link application can support.

1 From the Config menu, choose `Agent Position ID's`.

The Agent Position ID's window appears.

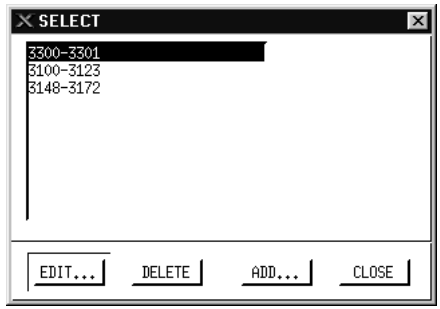


2 Select `AGENT`.



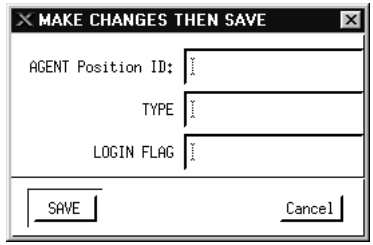
3 Click EDIT....

The Agent DN window appears.



4 To add an agent position ID, click ADD....

The Add Agent DN window appears.



5 For *AGENT Position ID*, enter a DN or DN range in one of the following formats:

nnnn	a single DN, for example, 4000
nnnn–nnnn	a range of DNs, for example, 4000–4095

6 For all DN types, type **130** in the *TYPE* field. This the decimal number that identifies the agent type. For a list of types, refer to Table D-2, “DN types for registration with Meridian Link,” on page D-3.

7 For all DN types, type **0** in the *LOGIN FLAG* field.

8 Click SAVE.

The Agent Position ID’s window appears.

9 Repeat steps 4 to 8 for each DN or DN range that you want to add.

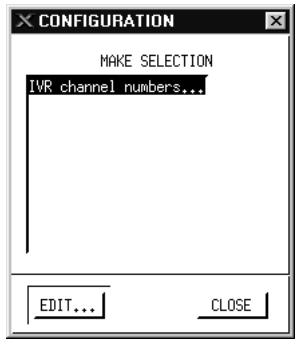
10 When you are finished, click CLOSE.

Setting up the channel map

You must also map IVR channel numbers to their associated DNs (or ACD position IDs). To do so, follow this procedure.

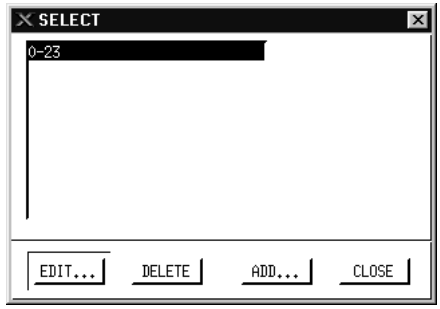
1 From the Config menu, choose `Channel Map`.

The Channel Map window appears.



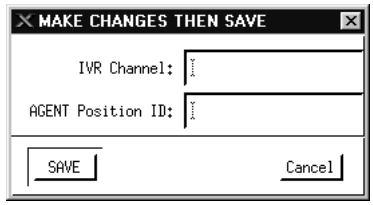
2 Select `IVR channel numbers` and click EDIT....

The IVR Channel Numbers window appears.



3 To map a new channel, click ADD....

The Add New Channels window appears.



4 For *IVR Channel*, enter a channel or channel range in one of the following formats:

ccc	a single channel number, for example, 0
ccc–ccc	a range of channels, for example, 0–95

5 For *AGENT Position ID*, enter the DNs associated with these channels. The format of the DN can be one of the following:

nnnn	a single DN, for example, 8200
nnnn–nnnn	a range of DNs, for example, 7000–7095

6 Click SAVE.

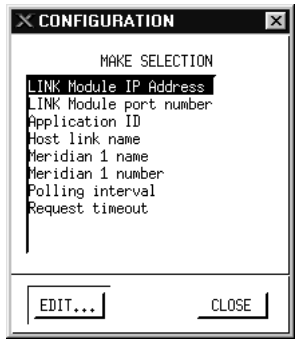
7 Repeat steps 3 to 6 for each channel or channel range that you want to add.

Configuring Meridian Link parameters

You must configure the Integration Package for Meridian Link to connect to Meridian Link. Before you proceed, make sure that you have the information specified in the "Pre-installation checklist" on page 3-1. When you have assembled the information, follow this procedure.

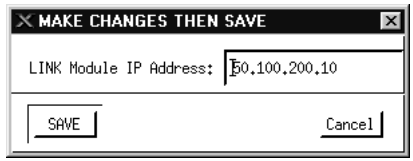
1 From the Config menu, choose `Interface to Meridian Link`.

The Interface to Meridian Link window appears.



2 Select `LINK Module IP Address` and click EDIT....

The Link Module IP Address window appears.



3 For *LINK Module IP Address*, enter the IP address or host name of the Meridian Link module. Enter the IP address in the format *nnn.nnn.nnn.nnn*. If you enter a host name, it must be defined in the `etc/hosts` file on the AP.

Note: Example values include

mlink

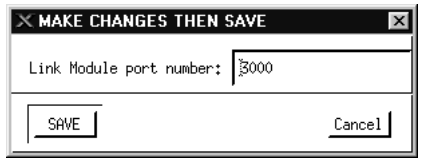
50.100.200.10

4 Click SAVE.

The CONFIGURATION window appears.

5 Select `LINK Module port number` and click EDIT....

The Link Module Port Number window appears.



6 For *Link Module port number*, type **`3000`**.

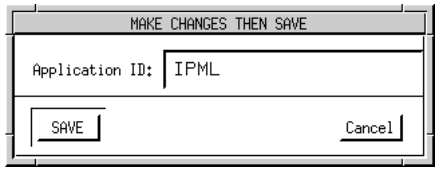
Note: The default value is 3000.

7 Click SAVE.

The CONFIGURATION window appears.

8 Select `Application ID` and click EDIT....

The Application ID window appears.



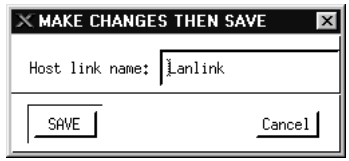
9 For *Application ID*, enter a Meridian Link application ID. This name must be unique; that is, no two Meridian Link applications should have the same ID.

10 Click SAVE.

The CONFIGURATION window appears.

11 Select `Host link name` and click EDIT....

The Host Link Name window appears.



12 For *Host link name*, enter the name of the Meridian Link machine ID.

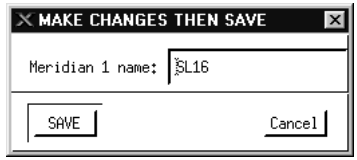
Note: The default value is Lanlink.

13 Click SAVE.

The CONFIGURATION window appears.

14 Select `Meridian 1 name` and click EDIT....

The Meridian 1 Name window appears.



15 For *Meridian 1 name*, type the Meridian 1 machine ID.

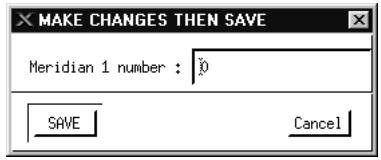
Note: The default value is SL16.

16 Click SAVE.

The CONFIGURATION window appears.

17 Select `Meridian 1 number` and click EDIT....

The Meridian 1 Number window appears.



18 For *Meridian 1 number*, type the Meridian 1 customer number.

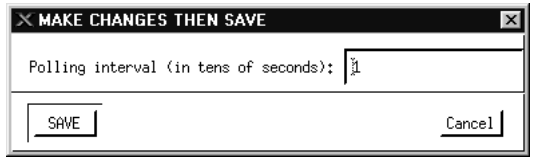
Note: The default value is 0.

19 Click SAVE.

The CONFIGURATION window appears.

20 Select `Polling interval` and click EDIT....

The Polling Interval window appears.



21 For *Polling interval (in tens of seconds)*, enter the interval between polling messages from the Meridian Link module to the Meridian Link server.

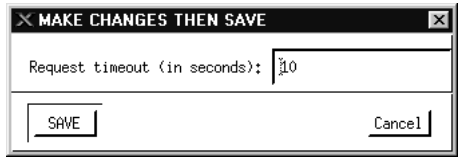
Note: Valid values are 0 to 24. The default value is 1.

22 Click SAVE.

The CONFIGURATION window appears.

23 Select `Request timeout` and click EDIT....

The Request Timeout window appears.



24 For *Request timeout (in seconds)*, enter the time that the Meridian Link server will wait for a response to a request sent to the Meridian Link module. If a response is not received in the specified time, the request fails and a timeout error is returned.

Note: Valid values are 0 to 240. The default value is 10.

25 Click SAVE.

The CONFIGURATION window appears.

26 Click CLOSE.

The Integration Package for Meridian Link is now installed and configured.

CAUTION
Risk of data loss
To ensure that you do not lose your configurations, you should include the `ccip.ini` file in your regular system backup.

Configuring the MRS

If you configure the Integration Package for Meridian Link to log in IVR DNs automatically, you must configure the MRS so that OPEN IVR does not log them in. To do so, use the SCI utility to select a trunk type that does not log in IVR DNs. Select the trunk type that corresponds to your interface to the Meridian 1 switch (see the following table).

IF your interface to the M1 is	THEN choose this trunk file
Loop Start (LSI120/LSI80 and D41ESC)	Loop-B
Line Side T1	nt-fxs-t1-ls

For detailed instructions, refer to the *Symposium OPEN IVR Service Console Interface Reference Manual*.

For detailed instructions, refer to the *Symposium OPEN IVR Service Console Interface Reference Manual*.

Starting the Integration Package software

After installing and configuring the Integration Package, you must start it. To do so, follow this procedure.

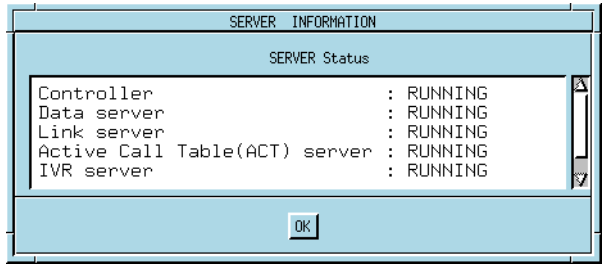
1 Ensure that the AP has a network connection to Meridian Link. To do so, on the AP type

`ping` *`nnn.nnn.nnn.nnn`*

and press <Enter>, where *nnn.nnn.nnn.nnn* is the IP address of the Meridian Link host. Make sure that you can ping this host before continuing. If you cannot connect to the Meridian Link host, check the network connection.

2 From the Main menu of the administration utility, choose `Start`.

The Server Information window opens. As the servers start, their status changes to RUNNING.



For more information about start-up, refer to “Starting the Integration Package server” on page 4-5.

Verifying the installation

After installing and starting the Integration Package for Meridian Link, make sure that the Integration Package is registered with Meridian Link and OPEN IVR. To do so, follow this procedure.

1 Log in to Meridian Link as **mlusr**.

2 Display all applications registered with Meridian Link by entering

`get assoc`

The resulting list should include the application ID for the Integration Package for Meridian Link application. Note the application's association number.

If the application is not in the list, the Meridian Link parameters are not configured correctly. Refer to "Configuring Meridian Link parameters" on page 3-16.

3 Display all of the DNs monitored by the Integration Package for Meridian Link by entering

`get dns` ***nn***

where *nn* is the association number assigned to the Integration Package. The resulting list should include all of the IVR and agent DNs being monitored by the Integration Package. If the list is incomplete, the IVR or agent DNs are not configured correctly. Refer to "Configuring IVR DNs" on page 3-10 and "Configuring Agent DNs" on page 3-12.

4 Check the OPEN IVR console. It should display the message

```
Integration Package for Meridian Link is Ready
```

Using NTTEST

The NTTEST software is installed during the system installation, and is resident on the system. It includes diagnostics for testing various applications on your system, including the Integration Package for Meridian Link. For more information about NTTEST, refer to the *Installation, Upgrade, and Maintenance Guide*.

Note: This section assumes that you are familiar with standard system administration procedures, the details of which are documented in the *System Administration Guide*.

1 From the Symposium OPEN IVR Control Panel, choose Application Management.

2 Choose `Run script` from the menu.

3 Load and start NTTEST and its subapplications by running the script `NTTEST_STR`.

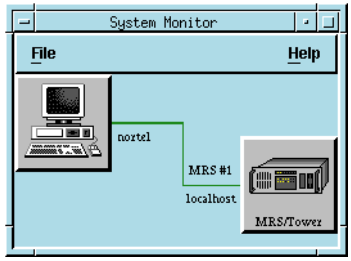
Note: You can load and start just the Integration Package from the Application Management window. Press <F3> and load the `NTTEST_MN` and `NTTEST_IML` scripts. Then, start them by pressing <F2>. For detailed instructions, see the *System Administration Guide*.

4 Verify the channel alignment by following these steps.

Note: Your system must have been configured already. It should be set to Ring trip, Input, and LoopStart Initialization type as the preferred configuration. Any TELCO changes required would be done through editing of the trunk type files.

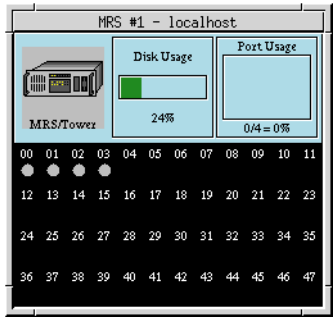
a Access the System Administration pull-down menu by clicking the left mouse button on the System Administration icon (the MRS box with arrows) on the Control Panel.

b Choose the System monitor menu option. When the outline of a box appears, move the box to a space on the desktop where you can view it. Click the left mouse button to drop the System Monitor Administration menu.



Note: For more information on how the System Monitor works, refer to the *System Administration Guide*.

c Select the MRS icon to display the system status window. This window contains information about the status of the various channels.



On the channel monitor, a gray ring means outgoing. A gray circle means incoming. When the application is loaded, channels assigned, and the application started, the gray circle will change to a yellow ring.

5 If the channels assigned to the test do not include all of the IVR channels that you want to monitor for the test application, change the channel range by following these steps.

a In the Application Management window, press **F3**.

b Enter the channel range and press <Enter>.

The channels you enter will be listed in the Channel Range column of the Application Management screen.

Note: These channels must have been configured following the procedure in “Setting up the channel map” on page 3-14.

6 Test the Integration Package setup by calling one of the configured channels.

7 Dial **7** to select the Application submenu.

8 Dial **1** to select the Integration Package for Meridian Link.

Note: You can dial ***** to return to the previous menu, or **9** to repeat the current menu.

9 Follow the instructions in the voice prompts to test the INFO, transfer, and conference cells. (When you are prompted for DN type, enter the number that identifies the type of DN to which you want to transfer or conference the call. For an internal DN, enter **8**, and for an ACD queue, enter **16**.)

If the test application does not work, the Integration Package for Meridian Link is not configured correctly.

10 To stop the test application, choose `Run script` from the Appliction Management menu.

11 Run the `NTTEST_stp` script. This script unloads NTTEST and all the subapplications.

12 Select `Exit`. The System Application management window closes.

All test results are recorded in the `event.log` file in the `/u/nortel/log.d` directory.

Chapter 4: System administration

This chapter provides instructions for administering the Integration Package for Meridian Link. Administering the Integration Package involves the following tasks:

- Start, shut down, and reset the Integration Package.
- View logs and statistics.
- Customize preferences for the Integration Package.
- Change the IP address of the Application Processor (AP).

To perform these tasks, use the Integration Package for Meridian Link administration utility. You can run this utility locally (on the system on which the Integration Package is installed), or remotely, with a modem.

This chapter explains how to start the administration utility and use it to perform these tasks. To use the utility to configure the Integration Package for Meridian Link, refer to “Configuring the Integration Package server” on page 3-9.

Starting and stopping the administration utility

You can access the Integration Package for Meridian Link administration utility locally or remotely. This section provides instructions for starting the utility in either of these different ways. It also explains how to exit from the utility.

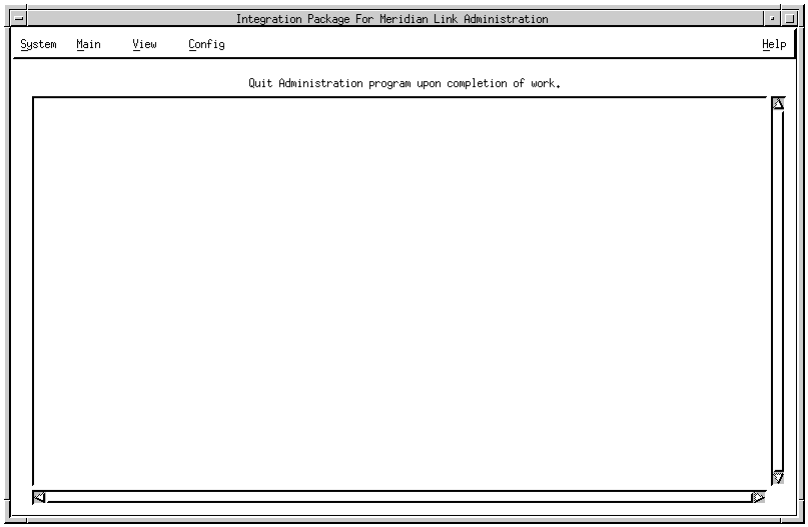
CAUTION
Risk of data loss
Multiple users can access the administration utility simultaneously. To avoid corruption of the configuration files, make sure only one user makes changes at a time.

Accessing the administration utility locally

You can access the Integration Package for Meridian Link administration utility from the AP on which the Integration Package is installed. (When you access the utility locally, you see the X-Windows interface.)

To start the administration utility, press the right mouse button on the desktop and choose `Start Integration Package Admin` from the menu. Click the left mouse button to drop the window. The Integration Package For Meridian Link Administration window appears.

Figure 4-1: Integration Package For Meridian Link Administration window



Accessing the administration utility remotely

You can also access the administration utility remotely, using a modem. (When you access the utility remotely, you use the text-based interface.) If you have a MRS/AP, follow the instructions in "On an MRS/AP" below. If you have an AP, follow the instructions in "On an AP" on page 4-4.

This section also explains how to use the text-based interface if you do not have a mouse (refer to "Using the text-based interface" on page 4-4).

On an MRS/AP

To access the administration utility remotely on an MRS/AP, follow these steps.

1 Use your communications application to log in to the MRS/AP as the Nortel user.

2 Make the `/u/nortel/ccip/bin` directory the current directory by typing the following command and pressing <Enter>:

`cd /u/nortel/ccip/bin`

3 Type **`ccipadmin.sh`** and press <Enter>.

The text-based administration interface appears.

On an AP

To access the administration utility remotely on an AP, follow these steps.

1. Use your communications application to log in to the MRS as the Nortel user.
2. Use your telnet application to connect to the AP on which the Integration Package is installed.

   The program prompts you for a login ID.
3. Enter **`nortel`**.

   The program prompts you for a password.
4. Enter the password for the Nortel user.
5. Change to the `/u/nortel/ccip/bin` directory by entering

   `cd /u/nortel/ccip/bin`
6. Type **`ccipadmin.sh`** and press <Enter>.

   The text-based administration interface appears.

Using the text-based interface

The mouse is not available in the text-based interface. You use the keyboard to select menu options and switch between screens.

To choose a menu option in the text-based interface, follow these steps.

1. Press the left and right arrow keys to highlight the name of the menu containing the desired option.
2. Press <Enter> to display the menu.
3. Press the up and down arrow keys to highlight the option.
4. Press <Enter> to choose the option.

To switch between the menus and the report screen, use the <Tab> key. When the cursor is in the report screen, you can use the cursor movement keys to move around the screen.

Quitting from the administration utility

Whether you are accessing the Integration Package for Meridian Link administration utility locally or remotely, from the System menu, choose `Quit`.

Starting, stopping, and resetting the Integration Package server

This section explains how to start, stop, and reset the Integration Package for Meridian Link from the administration utility.

Starting the Integration Package server

> **ATTENTION**
>
> Start the Integration Package for Meridian Link before you start any Integration Package for Meridian Link applications. If you do not, the Integration Package will not respond to requests from the applications.

From the Main menu, choose `Start`. If the Integration Package is not running, the following events occur:

1 The backbone process starts. This process manages communication between the servers.

2 The Server Information window opens (see Figure 4-2).

3 The backbone process starts each of the servers. As each server starts up, it goes to IDLE state.

4 The Call Center Controller (CCC) initializes the Database server. (As each server is initialized, its status in the Server Information window changes first to STARTING and then to RUNNING.)

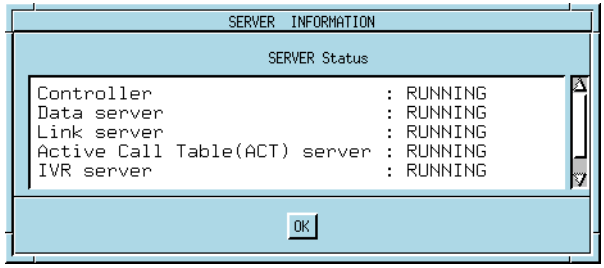
5 The CCC initializes the Meridian Link server.

6 If the Integration Package for Meridian Link is configured to log on Interactive Voice Response (IVR) directory numbers (DNs), the Meridian Link server logs on any that are not logged on. (This is the default configuration. To change it, refer to “Configuring IVR DNs” on page 3-10.)

7 The CCC initializes the Active Calls Table (ACT) server.

8 The CCC initializes the IVR server.

Figure 4-2: Server Information window



If start-up is unsuccessful, the log displays start-up errors.

Shutting down the Integration Package server

You can use either a forceful shutdown, which shuts down the Integration Package for Meridian Link immediately, or a courtesy shutdown, which waits a configurable amount of time before shutting down. (To find out how to configure this time, refer to “Configuring IVR DNs” on page 3-10.)

Forceful shutdown

To perform a forceful shutdown, from the Main menu choose `Stop (Forceful Shutdown)`. The following events occur:

1. The Integration Package for Meridian Link stops immediately and all of its servers are shut down.
2. If the Integration Package is configured to log IVR DNs off automatically, it logs off all IVR DNs.

Courtesy shutdown

To perform a courtesy shutdown, from the Main menu choose `Stop (Courtesy Shutdown)`. The following events occur:

1. The Integration Package for Meridian Link stops accepting new requests.
2. If the Integration Package is configured to log off IVR DNs automatically, all idle IVR DNs are logged off.

3 The Integration Package waits for existing requests (such as call transfers) to complete before it executes a forceful shutdown. The amount of time it waits is configurable, defaulting to 60 seconds. (To change the time, refer to “Customizing preferences” on page 4-15.) During this period, if the Integration Package is configured to log off IVR DNs, it does so as they become idle.

4 If the Integration Package is configured to log off IVR DNs, it logs off all remaining IVR DNs.

5 The system then shuts down all servers.

Resetting the Integration Package server

If you need to stop and restart the Integration Package for Meridian Link, from the Main menu choose `Reset`. This menu option performs a `Stop (Forceful Shutdown)`, followed by a `Start`.

Viewing logs and statistics

To view log messages, Integration Package status, channel status, or statistics, you can use the View menu. You can choose the following options from the View menu.

System Status

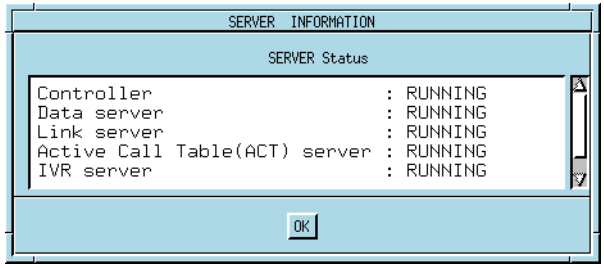
Displays the current status for each server.

If the Integration Package for Meridian Link is not running, the following message appears:

```
This service is unavailable since server is not running.
```

If it is running, the System Status window appears.

Figure 4-3: System Status window



Server status is either Idle, Starting, Running, or Stopping. The display is updated every few seconds.

Channel Status

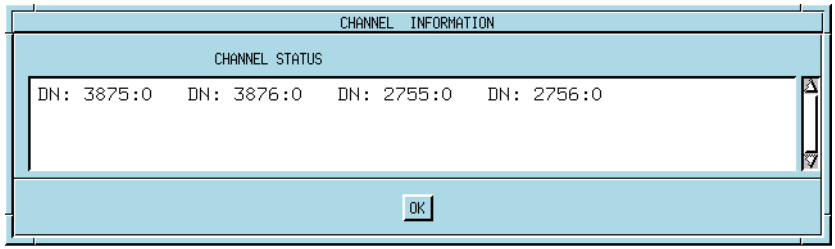
Displays the current channel status. If you have configured the Integration Package for Meridian Link to log on IVR DNs automatically, use this menu option instead of the `sci/status/map` menu option. When IVR DNs are logged on and off automatically, the map option does not accurately reflect Automatic Call Distribution (ACD) status.

If the Integration Package is not running, the following message appears:

```
This service is unavailable since server is not running.
```

If it is running, the Channel Information window appears.

Figure 4-4: Channel Information window



For each channel, this window contains an ACD status number. This number can be one of the following:

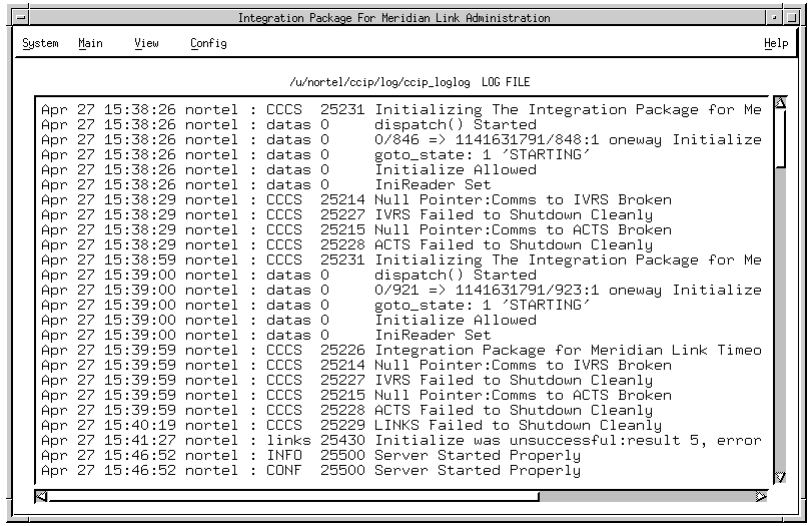
0	The channel is logged off and idle.
1	The channel is logged on and idle.
2	The channel is logged off and a call is ringing on the channel. (This might occur if the Integration Package is not configured to log in IVR DNs automatically.)
3	The channel is logged on and a call is ringing on the channel.
4	The channel is logged off and a call is active on the channel. (This might occur if the Integration Package is not configured to log in IVR DNs automatically.)
5	The channel is logged on and a call is active on the channel.

8	The channel is waiting to log on.
16	The channel is idle, waiting to log off, and logged off.
17	The channel is idle, logged in, and waiting to log off.
18	The channel is ringing, logged off, and waiting to log off.
19	The channel is ringing, logged on, and waiting to log off.
20	The channel is active, logged off, and waiting to log off.
21	The channel is active, logged in, and waiting to log off.

Error Log

Displays the Integration Package for Meridian Link error log. You can scroll through the log using the scroll bar. To find out how to change the level of error reporting, refer to “Error and Event Log” on page 6-8.

Figure 4-5: Error Log window



Each log entry contains the following information:

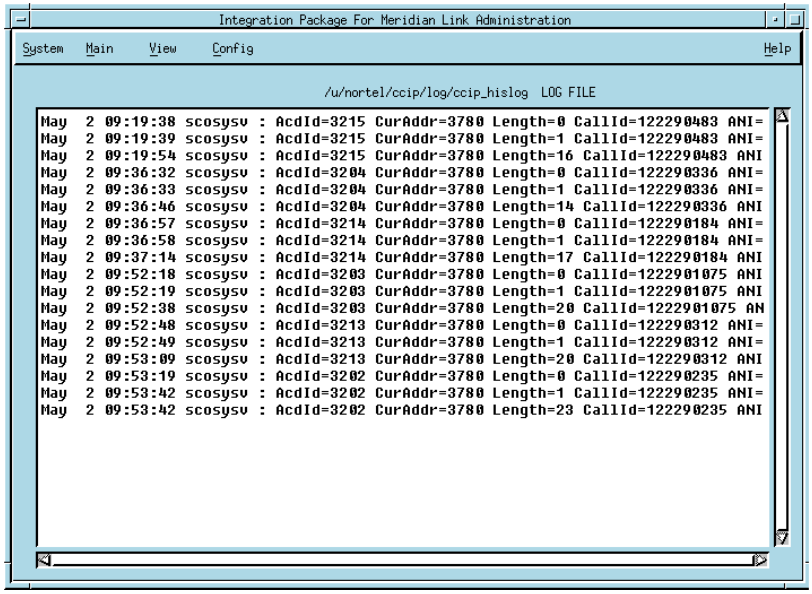
- date and time
- the host name of the AP on which the Integration Package is installed
- the server that generated the error message
- the error message number
- the text of the error message

Note: If you enable trace logging for a server, the log also contains trace messages generated by that server. To enable tracing, refer to “Error and Event Log” on page 6-8.

Call History

Displays the ACT History file.This file contains a history of call information recorded by the Active Calls Table. Each call event is recorded in this file. You can scroll through the file using the scroll bar.

Figure 4-6: Call History window



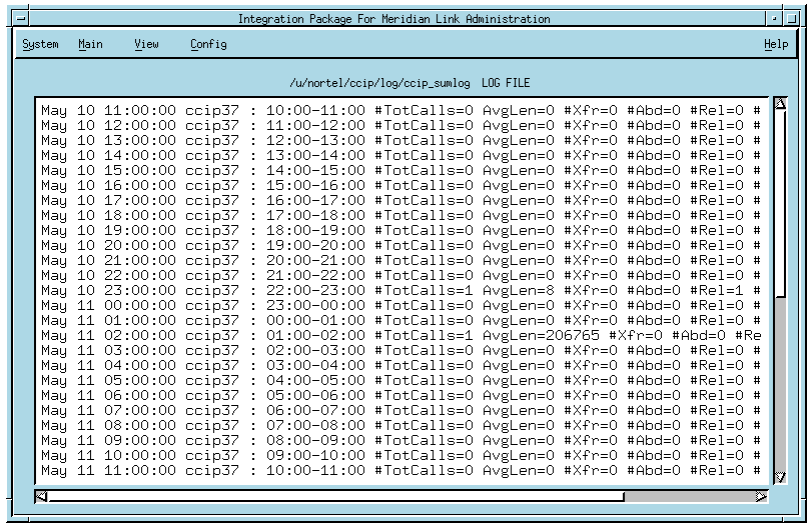
Each entry in the Call History file contains the following information:

- date/time
- host name of the AP on which the Integration Package is installed
- Automatic Call Distribution (ACD) Position ID (AcdId)
- ACD queue (CurAddr)
- length of call, in seconds
- Call ID
- Automatic Number Identification (ANI)
- Dialed Number Identification Service (DNIS)
- event (call offered, call answered, call abandoned, and so on)

Call Summary

Displays the ACT Summary file. This file contains an hourly summary of call information recorded by the Active Calls Table. You can scroll through the file using the scroll bar.

Figure 4-7: Call Summary window



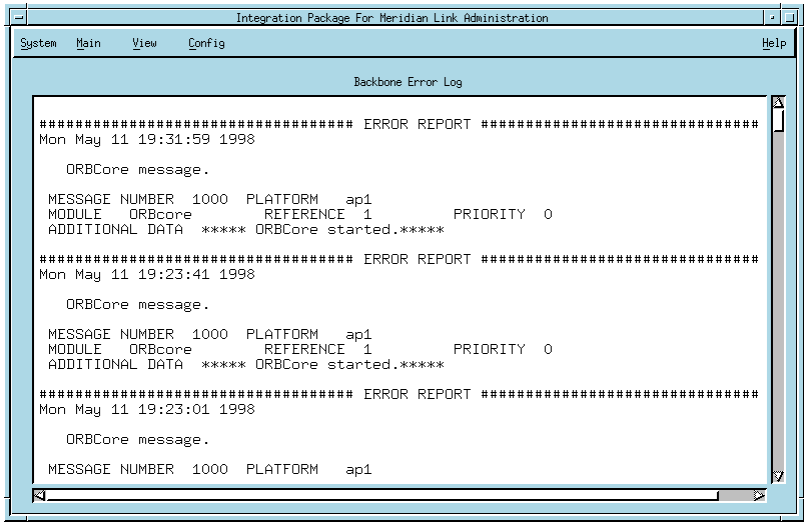
Each entry in the Call Summary file contains the following information:

- date/time
- host name of the AP on which the Integration Package is installed
- hour range (for example, 12:00–13:00)
- total number of calls (`#TotCalls`)
- average length of call (`AvgLen`)
- number of transferred calls (`#Xfr`)
- number of abandoned calls (`#Abd`)
- number of released calls (`#Rel`)
- number of different ANIs (`#ANI`)
- number of different DNISs (`#DNIS`)

Backbone Error Log

Displays the error log generated by the backbone process—the process that manages communication between the servers. Your service representative will use this log to troubleshoot problems with the Integration Package for Meridian Link.

Figure 4-8: Backbone Error Log window



Each log entry contains the following information:

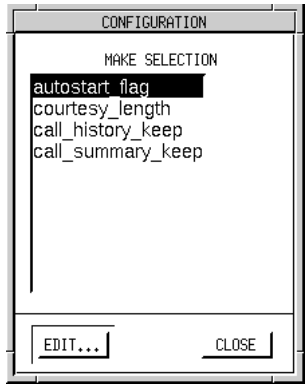
- the host name of the AP where the backbone is running (`PLATFORM`)
- the source code module in which the error occurred (`MODULE`)
- a reference number in the module which will help your service representative locate the error in the backbone code (`REFERENCE`)
- the priority level of the error (`PRIORITY`)
- an error description (`ADDITIONAL DATA`)

Customizing preferences

You can customize the way some of the Integration Package for Meridian Link functions work. To do so, follow this procedure.

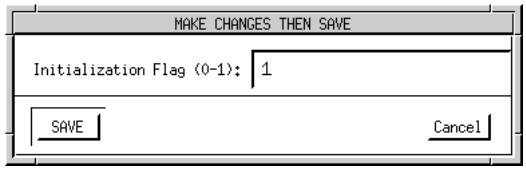
1 From the Config menu, choose `Preferences`.

The Preferences window appears.



2 Select `autostart_flag` and click EDIT....

The autostart_flag window appears.



3 For *Initialization Flag*, type **1** if you want the Call Center Controller to automatically start the Integration Package servers when the AP is booted. Type **0** if you do not want the servers to be started.

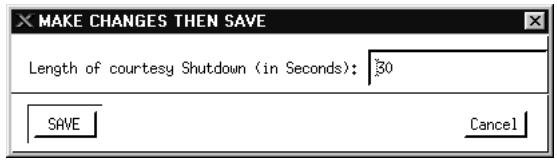
Note: The default value is 1.

4 Click SAVE.

The CONFIGURATION window appears.

5 Select `courtesy_length` and click EDIT....

The courtesy_length window appears.



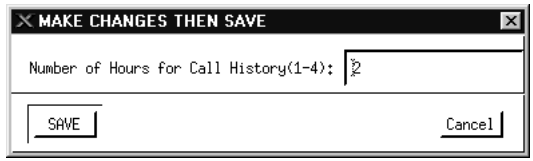
6 For *Length of courtesy Shutdown (in Seconds)*, enter the number of seconds that courtesy shutdown will wait for ongoing requests to complete before it ends the call and shuts down.

7 Click SAVE.

The CONFIGURATION window appears.

8 Select `call_history_keep` and click EDIT....

The call_history_keep window appears.



9 For *Number of Hours for Call History (1–4)*, enter the number of hours that the Integration Package will keep in its call history log.

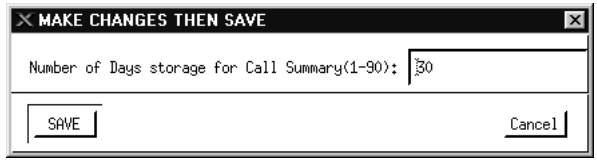
Note: The default value is 4.

10 Click SAVE.

The CONFIGURATION window appears.

11 Select `call_summary_keep` and click EDIT....

The call_summary_keep window appears.



12 For *Number of Days storage for Call Summary (1–90)*, enter the number of days that the Integration Package will keep in its call summary log.

Note: The default value is 1.

13 Click SAVE.

The CONFIGURATION window appears.

14 Click CLOSE.

Changing the IP address

When you install the Integration Package for Meridian Link, you specify the IP address of the AP. This information is stored in internal files used by the Integration Package. If you change the IP address of the AP, you must modify these files. You can do so by reinstalling the Integration Package, but it is much easier to use the `changeip` utility. This procedure explains how to use the `changeip` utility to notify the Integration Package for Meridian Link that the IP address of the AP has changed.

1 Shut down the Integration Package (for detailed instructions, refer to "Shutting down the Integration Package server" on page 4-6).

2 Make `/u/nortel/ccip` the current directory by entering

`cd /u/nortel/ccip`

3 Run the `changeip` utility by entering

`changeip`

The program prompts, `Please enter the new IP address of this machine:`

4 Enter the new IP address.

The UNIX $ prompt appears. You can now start the Integration Package.

Chapter 5: Application development

The Integration Package for Meridian Link allows you to add call transfer and call conferencing to the customized voice applications that you build with Symposium OPEN Interactive Voice Response (IVR). You can also retrieve information about calls for use in your applications.

In the Integration Package for Meridian Link, these additional abilities are implemented as customized cells. The Integration Package includes six customized cells:

- ***INFO (Query Call Info)*** This cell retrieves information about a call, including current location, Automatic Call Distribution (ACD) position, calling line ID (CLID), Dialed Number Identification Service (DNIS), IVR treatment DN, device type, and call arrival time.
- ***IXFR (Init Transfer)*** This cell initiates a two-step transfer. The transfer is completed by the CXFR cell.
- ***CXFR (Complete Transfer)*** This cell completes a two-step transfer. When the transfer is complete, the caller is connected to the destination directory number (DN), and IVR is disconnected.
- ***FXFR (FastTransfer)*** This cell initiates a fast, one-step transfer. When the transfer is complete, the caller is connected to the destination DN, and IVR is disconnected.
- ***ICNF (Init Conference)*** This cell initiates a digital call conference. The conference is completed by the CompleteSupervisedTransfer function.
- ***CCNF (Complete Conference)*** This cell completes a digital call conference. When the conference is complete, the caller and IVR are connected to the destination DN.

These cells are included on the Integration Package cells palette.

Figure 5-1: Integration Package cells palette

To find out how to include these cells in your applications, refer to the following section. For more information about these cells, including their input buffers, output buffers, and reply codes, refer to “Cell catalog” on page 5-6. For a sample application, refer to “Sample application” on page 5-28.

Including cells in your application

This section illustrates how to insert one of these cells in your application. To illustrate the procedure, it uses the Fast Transfer (FXFR) cell. The process for inserting other cells is similar. For detailed instructions, refer to the *Symposium OPEN IVR Application Development Guide*.

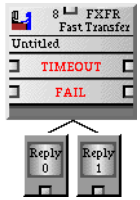
1 Point and click mouse button 1 on the name of the cell type that you want to place (for example, FXFR).

2 Point and click mouse button 2 on the empty area of the drawing board where you want to place the cell. The Application Editor displays a cell icon for the selected cell.

Note 1: Make sure that no cell on the drawing board is selected, and be careful not to point and click on a cell already located on the board. If you do, the Application Editor assumes you want to move a cell.

Note 2: Alternatively, hold mouse button 2 until an outline of the cell appears, and drag the outline to the location where you want to place the cell.

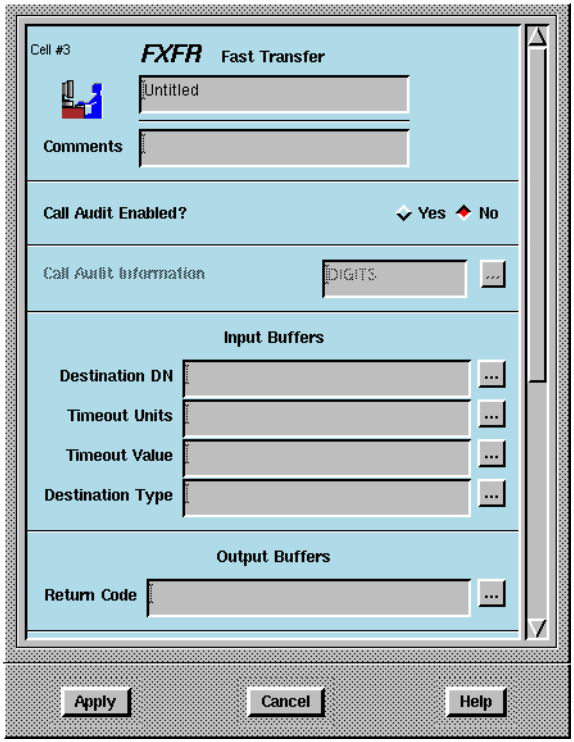
The cell appears on the drawing board.



3 Connect the cell to the preceding cell by clicking on the Success branch of the preceding cell and then clicking on the Input branch of this cell.

4 To modify the cell properties, double-click it.

The cell properties appear.



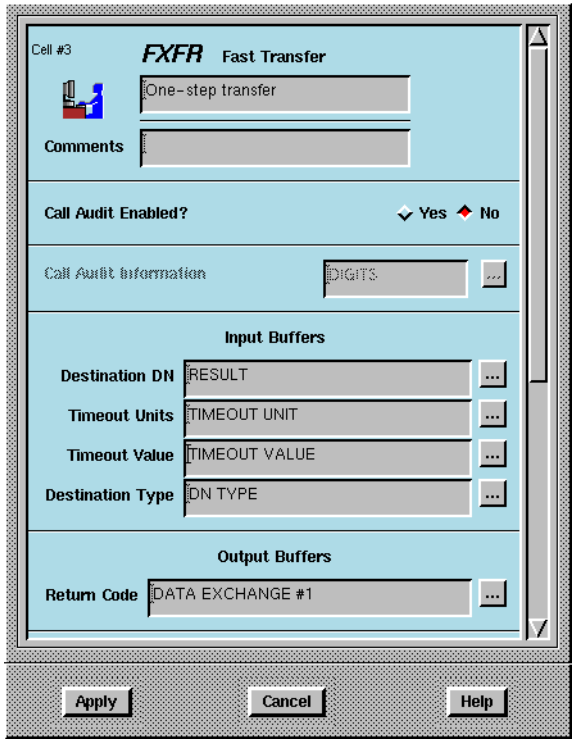
5 In the first field, enter the name of the cell.

6 Optionally, for Comments, enter additional descriptive information.

7 In the Input Buffers table, list the buffers from which the cell will obtain input.

8 In the Output Buffers field, identify the buffer that the cell will use to store output.

The following illustration shows an FXFR cell that has been defined.



For detailed instructions, refer to the *Symposium OPEN IVR Application Development Guide.*

Cell catalog

This section describes each of the cells provided with the Integration Package for Meridian Link. The cells are listed in alphabetical order.

CCNF—Complete Conference

This cell completes a conference that began earlier with the ICNF cell. The inputs indicate whether to complete the conference or retrieve the original caller.

If the function is successful, one of the following occurs:

- The original caller and IVR are connected with the destination DN specified in the ICNF cell.
- The original caller is reconnected to IVR and the destination DN is disconnected.

If the function is unsuccessful, the result depends on the reply code (refer to “Next branch” on page 5-8).

Buffers used

This cell uses the buffers specified in the parameters.

Buffers updated

This cell updates the buffers specified in the parameters.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines whether this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Parameter	Initial value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Complete/ Retrieve		The input buffer that indicates whether the conference should be completed or the original call should be retrieved. This buffer can contain the following values: 0 complete the conference 1 retrieve original call
Return Code		The buffer that indicates whether the conference was successfully established. It can contain a Meridian Link error number or one of following values: 0 success 6 request disallowed (Integration Package not in RUNNING state)
Interruptible Prompts?		If prompts are played during cell processing, determines whether this cell can interrupt the prompts if cell processing finishes before the prompts are completely played.
Repeat Prompts?		If prompts are played during cell processing, determines whether the prompts will repeat if cell processing is not complete.

Next branch

The next branch is determined by the reply code.

Reply code	Meaning	Results
0	Success	The caller and IVR are connected to the destination DN or the call is retrieved.
1	Failure	The call is lost. The return code is one of the following: 3 Caller abandoned 99 Cell aborted because Integration Package shutdown was started. Meridian Link error number.

Tables

Table	Explanation
Prompts	Specifies the prompts to be played during cell processing.

CXFR—Complete Transfer

This cell completes a supervised transfer that was initiated with the IXFR cell. The inputs indicate whether to complete the transfer or to retrieve the original caller.

If the function is successful, one of the following occurs:

- The original caller is connected with the destination DN specified in the InitSupervisedTransfer, and IVR is disconnected.
- The original caller is reconnected to IVR and the destination DN is disconnected.

If the function is unsuccessful, the result depends on the reply code (refer to “Next branch” on page 5-11).

Buffers used

This cell uses the buffers specified in the parameters.

Buffers updated

This cell updates the buffers specified in the parameters.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines whether this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Parameter	Initial value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Complete/ Retrieve		The input buffer that indicates whether the transfer should be completed or the original call should be retrieved. This buffer can contain the following values: 0 complete the transfer 1 retrieve original call
Return Code		The buffer that indicates whether the transfer was successfully established. It can contain a Meridian Link error number or one of following values: 0 success 6 request disallowed (Integration Package not in RUNNING state)
Interruptible Prompts?		If prompts are played during cell processing, determines whether this cell can interrupt the prompts if cell processing finished before the prompts are completely played.
Repeat Prompts?		If prompts are played during cell processing, determines whether the prompts will repeat if cell processing is not complete.

Next branch

The next branch is determined by the reply code.

Reply code	Meaning	Results
0	Success	The caller is connected to the destination DN, and IVR is disconnected or the call is retrieved.
1	Failure	The call is lost.

Tables

Table	Explanation
Prompts	Specifies the prompts to be played during cell processing.

FXFR—Fast Transfer

This cell performs a fast transfer. A fast transfer is a one-step transfer, and it is faster than a two-step, supervised transfer.

If the transfer is successful, the original caller is transferred to the destination DN and IVR is disconnected.

If an invalid DN is passed, the return code is Integration Package error 25445 and IVR is still connected to the caller. If the transfer is unsuccessful for any other reason, the call is lost.

> ***Note:*** The fast transfer cell cannot transfer calls from one PBX to another in a networked environment.

Buffers used

This cell uses the buffers specified in the parameters.

Buffers updated

This cell updates the buffers specified in the parameters.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines whether this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Parameter	Initial value	Explanation
Destination DN		The buffer that identifies the ACD or DN to which the call is to be transferred.
Timeout Units		The buffer that specifies the units to be used for call timeout (the timeout determines how long Integration Package waits for the call to be answered before recovering it). It can contain one of following values: 0 rings 1 minutes
Timeout Value		The buffer that specifies the length of the timeout, in either rings or minutes. The buffer can contain a value from 1 to 32.
Destination Type		The buffer that contains the DN type. It can contain a decimal value from 0 to 30. For a list of DN types, refer to Table D-1 on page D-1. If the buffer is empty, DN type 8 (Internal DN) is assumed.
Return Code		The buffer that indicates whether the transfer was successfully established. It can contain a Meridian Link error number or one of following values: 0 success 1 busy 2 ring-no-answer 3 caller-abandoned 4 timeout 6 request disallowed (Integration Package not in RUNNING state)
Interruptible Prompts?		If prompts are played during cell processing, determines whether this cell can interrupt the prompts if cell processing finished before the prompts are completely played.
Repeat Prompts?		If prompts are played during cell processing, determines whether the prompts will repeat if cell processing is not complete.

Next branch

The next branch is determined by the reply code.

Reply code	Meaning	Result
0	Success	The caller is transferred to the destination DN.
1	Failure	Refer to the return code.

Tables

Table	Explanation
Prompts	Specifies the prompts to be played during cell processing.

ICNF—Init Conference

This cell initiates a digital call conference. The conference is completed by the CCNF cell.

If the function is successful, the IVR application is connected to the destination DN and the original caller is placed on hold. IVR can then play prompts (using the agent whisper feature) and complete the conference, or retrieve the original caller, using the CCNF cell.

If this function is unsuccessful, the result depends on the reply code (refer to “Next branch” on page 5-18).

Buffers used

This cell uses the buffers specified in the parameters.

Buffers updated

This cell updates the buffers specified in the parameters.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines whether this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Destination DN		The buffer that stores the ACD or DN with which the call is conferenced.

Parameter	Initial value	Explanation
Timeout Units		The buffer that specifies the units to be used for call timeout (the timeout determines how long Integration Package waits for the call to be answered before recovering it). It can contain one of following values: 0 rings 1 minutes
Timeout Value		The buffer that specifies the length of the timeout, in either rings or minutes. The buffer can contain a value from 1 to 32.
Destination Type		The buffer that contains the DN type. It can contain a decimal value from 0 to 30. For a list of DN types, refer to Table D-1 on page D-1. If the buffer is empty, DN type 8 (Internal DN) is assumed.
Return Code		The buffer that indicates whether the conference was successfully established. It can contain a Meridian Link error number or one of following values: 0 success 1 busy 2 ring-no-answer 3 caller-abandoned 4 timeout 6 request disallowed (Integration Package not in RUNNING state) If reply code is 1 (Failure), then only this buffer is defined; all other buffers are empty.
Unique Call ID		The buffer that stores the 32-bit number that uniquely defines the call.
Unique Network Call ID		The buffer that stores the 32-bit number that uniquely identifies the call in a network environment. This buffer is empty unless the call is from a networked ACD (NACD).

Parameter	Initial value	Explanation
Current Location (DN)		The buffer that stores the DN to which the IVR application is connected. If the conference was made to an ACD DN, then this buffer contains the ACD DN and the next parameter (ACD Position) contains the ACD position.
ACD Position		The buffer that stores the Position ID within the ACD DN. This field is empty until the call is offered to an ACD position.
Interruptible Prompts?		If prompts are played during cell processing, determines whether this cell can interrupt the prompts if cell processing finished before the prompts are completely played.
Repeat Prompts?		If prompts are played during cell processing, determines whether the prompts will repeat if cell processing is not complete.

Next branch

The next branch is determined by the reply code.

Reply code	Meaning	Results
0	Answered (success)	IVR is connected to the destination DN and the caller is on hold.
1	Failure	For simple failures like Invalid DN, IVR is still connected to the caller. Severe errors, such as the retrieve call failure, cause IVR to be disconnected.
2	Busy	The caller is reconnected to IVR.
3	RingNoAnswer	The caller is reconnected to IVR.

Tables

Table	Explanation
Prompts	Specifies the prompts to be played during cell processing.

INFO—Query Call Info

This cell retrieves information about the current call, or about a call with the specified call ID. The Integration Package for Meridian Link is able to obtain information about changes to a call's status even after it is transferred out of IVR. For example, after a call is offered to an agent DN that is configured in the Integration Package, the package is able to obtain the agent ACD position.

Buffers used

This cell uses the buffers specified in the parameters.

Buffers updated

This cell updates the buffers specified in the parameters.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines whether this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Call Parameter		The buffer that identifies the type of call for which information is desired. It can contain the following values: 0 current call 1 call identified by call ID 2 call identified by network call ID
Unique Call ID		The buffer that contains the call ID or network call ID of the call for which information is desired. If the Call Parameter buffer contains a 0, this buffer is ignored. If it contains a 1, this buffer must contain the call ID; if it contains a 2, this buffer must contain the network call ID.

Parameter	Initial value	Explanation
Return Code		The buffer that indicates whether the request was successful. It can contain an ACTS error number or one of following values: 0 success 6 request disallowed (Integration Package not in RUNNING state) If reply code is 1 (Failure), then only this buffer is defined; all other buffers are empty.
Unique Call ID		The buffer that stores the 32-bit number that uniquely defines the call.
Unique Network Call ID		The buffer that stores the 32-bit number that uniquely identifies the call in a network environment. This buffer is empty unless the call is from a networked ACD (NACD).
Current Location (DN)		The buffer that stores the DN to which the call is connected. If the call is on an ACD DN, then this buffer contains the ACD DN and the next parameter (ACD Position) contains the ACD position.
ACD Position		The buffer that stores the Position ID within the ACD DN. This buffer is empty until the call is offered to an ACD position.
Calling Line ID		The buffer that stores the Calling Line ID. This is typically the 10-digit telephone number of the caller. (CLID is an ISDN service. If it is not available, this buffer is empty.)

Parameter	Initial value	Explanation
DNIS		The buffer that stores the Dialed Number Identification Service or IVR treatment DN. Typically, the DNIS is the last 3 or 4 digits in the number dialed by the caller. (DNIS is an optional package. If it is not available, this buffer is empty.) If a call arrives from CCR (using GIVE IVR *qqqq* with TREATMENT *tttt*), this buffer contains the IVR treatment DN. If a call has both a DNIS and an IVR treatment, this buffer contains the IVR treatment.
Device Type		The buffer that stores the type of device that made the call. Valid device types include 0 Unknown 1 500 set 2 2500 set 3 SL-1 set 4 Attendant 5 Proprietary set 6 Trunk 7 SL-1 set using EES (end-to-end signaling) 8 Proprietary set using EES
Call Arrival Time		The buffer that stores the number of seconds since midnight on January 1, 1970.
Interruptible Prompts?		If prompts are played during cell processing, determines whether this cell can interrupt the prompts if cell processing finished before the prompts are completely played.
Repeat Prompts?		If prompts are played during cell processing, determines whether the prompts will repeat if cell processing is not complete.

Next branch

The next branch is determined by the reply code.

Reply code	Meaning
0	Success
1	Failure

Tables

Table	Explanation
Prompts	Specifies the prompts to be played during cell processing.

IXFR—Init Transfer

This cell initiates a supervised digital call transfer. The transfer is completed by the CXFR cell.

If the function is successful, the IVR application is connected to the destination DN and the original caller is placed on hold. IVR can then play prompts (using the agent whisper feature) and complete the transfer, or retrieve the original caller, using the CXFR cell.

If the transfer is unsuccessful, the result depends on the reply code (refer to “Next branch” on page 5-27).

Buffers used

This cell uses the buffers specified in the parameters.

Buffers updated

This cell updates the buffers specified in the parameters.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines whether this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Destination DN		The buffer that identifies the ACD or DN to which the call is transferred.

Parameter	Initial value	Explanation
Timeout Units		The buffer that specifies the units to be used for call timeout (the timeout determines how long Integration Package waits for the call to be answered before recovering it). It can contain one of the following values: 0 rings 1 minutes
Timeout Value		The buffer that specifies the length of the timeout, in either rings or minutes. The buffer can contain a value from 1 to 32.
Destination Type		The buffer that stores the type of device that got the call. Valid device types include 0 Unknown 1 500 set 2 2500 set 3 SL-1 set 4 Attendant 5 Proprietary set 6 Trunk 7 SL-1 set using EES (end-to-end signaling) 8 Proprietary set using EES
Return Code		The buffer that indicates whether the transfer was successfully established. It can contain a Meridian Link error number or one of following values: 0 success 1 busy 2 ring-no-answer 3 caller-abandoned 4 timeout 6 request disallowed (Integration Package not in RUNNING state) If reply code is 1 (Failure), then only this buffer is defined; all other buffers are empty.

Parameter	Initial value	Explanation
Unique Call ID		The buffer that stores a 32-bit number that uniquely identifies the call.
Unique Network Call ID		The buffer that stores a 32-bit number that uniquely identifies a call in a network environment. This buffer is empty unless the call is from a networked ACD.
Current Location (DN)		The buffer that stores the DN to which the IVR application is connected. If the transfer was made to an ACD DN, this buffer contains the ACD DN, and the buffer specified in the next parameter (ACD Position) contains the ACD position.
ACD Position		The buffer that stores the Position ID within the ACD DN. This field is empty until the call is offered to an ACD position.
Interruptible Prompts?		If prompts are played during cell processing, determines whether this cell can interrupt the prompts if cell processing finished before the prompts are completely played.
Repeat Prompts?		If prompts are played during cell processing, determines whether the prompts will repeat if cell processing is not complete.

Next branch

The next branch is determined by the reply code.

Reply code	Meaning	Results
0	Success	Answered. IVR is connected to the destination DN. The caller is on hold.
1	Failure	For simple failures like Invalid DN, IVR remains connected to the caller. Severe errors, such as the retrieve-call failure, cause IVR to be disconnected.
2	Busy	The caller is reconnected to IVR.
3	Ring and no answer	The caller is reconnected to IVR.

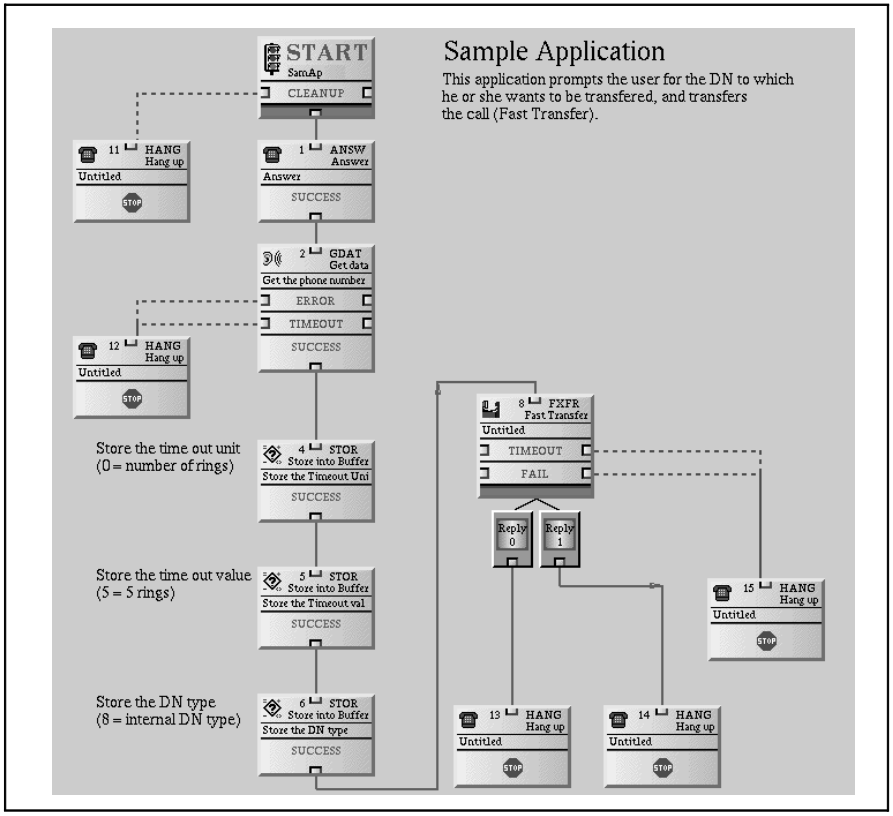
Tables

Table	Explanation
Prompts	Specifies the prompts to be played during cell processing.

Sample application

The sample application illustrated in Figure 5-2 receives an incoming call, prompts the user for the DN to which he or she wants to be transferred, and uses the FXFR cell to transfer the call. This application might be useful if no direct inward dial DNs are available, and incoming calls arrive on IVR DNs.

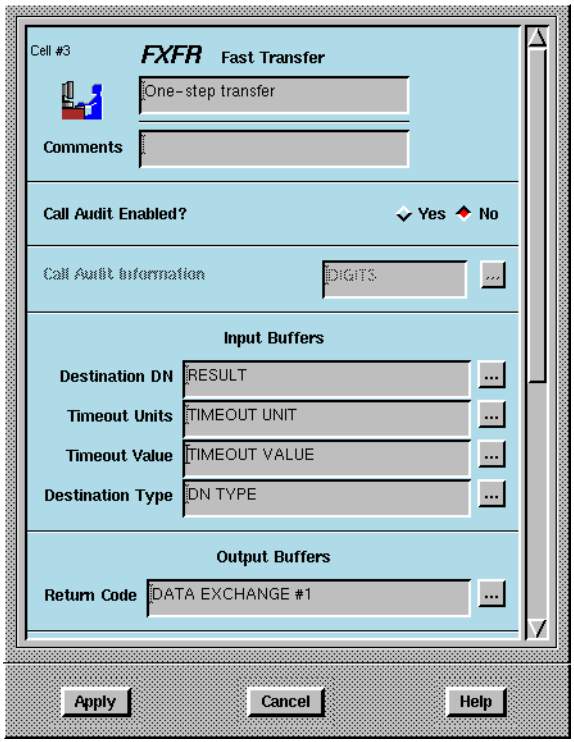
Figure 5-2: Sample application



The call arrives, and if it is successfully retrieved, the user is prompted for a DN. The timeout units, timeout interval, and DN type are stored, and the FXFR cell is invoked. It transfers the call using the DN number entered by the user and the stored timeout units, timeout interval, and DN type. If the transfer is successful, reply code 0 is returned to the application, and the application follows the reply code 0 branch. If the transfer is unsuccessful, reply code 1 is returned, and the application follows this branch. If the cell fails or times out, the call hangs up.

The FXFR cell is set up as illustrated in Figure 5-3.

Figure 5-3: FXFR cell



Note that the Input Buffers and Output Buffers fields have been completed.

Chapter 6: Troubleshooting

This chapter provides instructions for troubleshooting problems with the Integration Package for Meridian Link. It also describes useful troubleshooting tools.

Troubleshooting problems

This section explains how to solve problems that might occur when you are using the Integration Package for Meridian Link.

Integration Package fails to reach RUNNING state

This section explains how to isolate the problem if the Integration Package fails to reach RUNNING state during startup.

When the Integration Package for Meridian Link starts, the backbone process starts the server processes. As each server process starts up, it goes to IDLE state. Then the Call Center Controller (CCC) validates the licenses. Then, it initializes each of the servers in the following order:

- Database server
- Meridian Link server
- Active Calls Table (ACT) server
- Interactive Voice Response (IVR) server

As each server is initialized, its status changes first to STARTING, and then to RUNNING. Each server starts only if the previous server was initialized successfully. After all servers are initialized, the CCC goes to RUNNING state.

If a server fails to start, the CCC returns all servers to IDLE state.

When the Integration Package fails to go to RUNNING state, you must find out which server failed to initialize. To do so, follow this procedure.

1 Start the Integration Package for Meridian Link administration utility. For detailed instructions, refer to “Starting and stopping the administration utility” on page 4-2.

2 Start the Integration Package servers by choosing Start from the Main menu.

3 Watch the status window. Each server, starting with the Database server, should go to STARTING and then RUNNING state. If all servers go to RUNNING state, startup has been successful. If the servers return to IDLE state, continue with the next step.

4 Check the ccclog.txt file to see if it reports license errors.

5 Check the OPEN IVR System Console to find out which server failed to initialize. It will display a message similar to:

```
LINKS failed to initialize.
```

6 Increase the tracing level for this server (refer to “Error and Event Log” on page 6-8).

7 Start the Integration Package again.

8 View the Error Log by choosing `Error Log` from the View menu. (If the error log is empty, a Database server problem has occurred.)

9 Check the ccip.ini file—especially the CCCS and default_map blocks—for corruption. (Refer to “Example ccip.ini file” on page B-1 for an example ccip.ini file.)

10 Refer to the troubleshooting procedure for the server that failed to initialize. The following table indicates the procedure you should use for each server.

Server	Procedure
Database server	“Troubleshooting Database server start-up problems” on page 6-3.
Meridian Link server	“Troubleshooting Meridian Link server start-up problems” on page 6-4.
ACT server	“Troubleshooting ACT server start-up problems” on page 6-6.

Server	Procedure
IVR server	“Troubleshooting IVR server start-up problems” on page 6-6.

Troubleshooting Database server start-up problems

Follow this procedure to troubleshoot database server start-up problems.

1 Log in to the Application Processor (AP) as root.

2 Check to make sure that the `cciplogd` process is running by typing **`ps -ef | grep cciplogd`** and pressing <Enter>.

3 If the process is not running, view the severity file (located in `$VOICE_HOME/ui_lang/$VOICE_LANG`) with a text editor. Make sure that it contains the Integration Package error numbers (25000–25600).

4 If the process is running, follow these steps:

a Make sure that the `/etc/services` file contains a `cciplogd` entry. If it does not, reinstall the Integration Package for Meridian Link.

b Make sure that the `syslog.conf` file in the `/etc` directory contains the following entries:

```
local1.debug    /u/nortel/ccip/log/ccip_loglog
local0.debug    /u/nortel/ccip/log/ccip_hislog
local2.debug    /u/nortel/ccip/log/ccip_sumlog
```

If they are not present, enter them manually.

5 Log in as **`root`** and determine the process ID of the `syslogd` process by typing **`ps -ef | grep syslogd`** and pressing <Enter>.

6 Kill the process by typing **`kill -9`** ***nnnn***, where *nnnn* is the process ID. Press <Enter>.

7 Restart the process by typing **`syslogd &`** and pressing <Enter>.

8 Restart the Integration Package by choosing `Reset` from the Main Menu of the Integration Package for Meridian Link administration utility.

9 Check the parameters in the DATAS configuration block in `ccip.ini` to make sure that they are configured correctly (refer to “DATAS” on page B-10).

Troubleshooting Meridian Link server start-up problems

Follow this procedure to troubleshoot Meridian Link server start-up problems.

1 Set the trace level for the Meridian Link server to 6, following the instructions in “Error and Event Log” on page 6-8.

2 Start the Integration Package by choosing `Start` from the Main menu of the Integration Package for Meridian Link administration utility.

3 View the Error Log by choosing `Error Log` from the View menu.

4 Look for log entries with the server name “links” that include a `goto_state` message, for example:

```
1996/11/12 16:33:36 links L5   0 (1550):goto_state: 0 'START'
```

The Meridian Link server passes through several states as it comes up. If the server enters the FAIL state, find out what state it was in before it failed.

Table 6-1
Meridian Link server states

State	Description
START	The server has sent a registration request to Meridian Link.
WAITING	The server is waiting for a response from Meridian Link. If no response is received, the server goes to TIMEOUT state (see below).
REREG	If the Integration Package did not deregister with Meridian Link the last time it shut down, this message is displayed. Meridian Link deregisters and re-registers the Integration Package.

Table 6-1 (continued)
Meridian Link server states

State	Description
DNREG	The Meridian Link server is trying to register IVR and agent DNs. If the server fails during DN registration, make sure that you have configured your IVR and agent DNs correctly (refer to “Configuring IVR DNs” on page 3-10 and “Configuring Agent DNs” on page 3-12). Configure only a few of your IVR channels, and try starting the Integration Package again. Repeat this procedure to isolate the DNs that are failing. When you determine which DNs are failing, ensure that they are configured correctly on the switch (refer to Appendix E, “Meridian 1 switch configuration”).
LOGIN	The Meridian Link server is logging on all IVR DNs. If a DN is already logged on, the Integration Package reports an error, and continues. If login fails, ensure that the DNs are configured correctly on the switch (refer to Appendix E, “Meridian 1 switch configuration”).
SUCCESS	The server has started up.
TIMEOUT	The server has not received a response from Meridian Link within the required time. Ensure that Meridian Link is operating correctly, and check the network connection between Meridian Link and the AP.
FAIL	The previous step in start-up failed. Check the last `goto_state` message to find out what state the server was in.

5 Check the parameters in the `LINKS` configuration block in `ccip.ini` to make sure that they are configured correctly (refer to “LINKS” on page B-13).

Troubleshooting ACT server start-up problems

Follow this procedure to troubleshoot ACT server start-up problems.

1. Check the following parameters in `ccip.ini`, to ensure that they are configured correctly: `call_history_size`, `call_history_max`, `call_summary_size`, `history_location`, `summary_location`, `hisfiledir`, `hisfilename`, `sumfiledir`, `sumfilename` (refer to "ACTS" on page B-17).
2. Check the remaining parameters in the ACTS configuration block in `ccip.ini` to make sure that they are configured correctly.

Troubleshooting IVR server start-up problems

Follow this procedure to troubleshoot IVR server start-up problems.

1. Verify that the "s" attribute is set for the IVR server executable file. To do so, make the `/u/nortel/ccip/bin` directory the working directory by typing **`cd /u/nortel/ccip/bin`** and pressing <Enter>.
2. Then display the attributes for the IVR server executable file by typing **`ls -l ivrs`** and pressing <Enter>.

   The attributes for the `ivrs` file should be: `-rwsr-sr-x`
3. If the file does have the "s" attribute, go to step 5. Otherwise, log in as **root** and continue with the next step.
4. Change the attributes for the `ivrs` file by typing **`./setivrs.sh`** and pressing <Enter>.
5. Check the parameters in the IVRS configuration block in `ccip.ini` to make sure that they are configured correctly (refer to "IVRS" on page B-21).

Integration Package reports LINKS ping failure

If the connection to Meridian Link is lost and then restored (for example, if Meridian Link goes down, or the network connection is lost), the Call Center Controller (CCC) logs the following error three times:

```
LINKS PING Failed
```

After the third error, no more errors will be logged. The following problems also occur under these conditions:

- The INFO cell reports errors or gives the wrong information.
- The CXFR and CCNF cells report the following error:

  ```
  Error : An IVRS Sequence Timer Has Fired
  ```

When these problems occur, you must restart the Integration Package. To do so, from the Main menu of the Integration Package for Meridian Link administration utility, choose `Reset`.

Agents do not receive transferred calls

If agents hear silence when they pick up calls transferred from the Integration Package, the agent is not configured correctly. Check the agent configuration (refer to “Configuring Agent DNs” on page 3-12).

Troubleshooting tools

This section describes some tools that are useful in troubleshooting problems with the Integration Package for Meridian Link. These tools include the following:

- ***Error and Event Log*** This log contains all error and trace messages generated by the Integration Package.
- ***Integration Package commands*** Two utilities are provided, `stopccip.sh`, which initiates a forceful shutdown, and `killccip.sh`, which terminates all processes.

Error and Event Log

The Integration Package for Meridian Link logs error and trace messages to a log file. To view this file, select `Error Log` from the View menu. For detailed information about the messages in the log, refer to the *Symposium OPEN IVR Error Messages Guide*.

You can control the amount of information written to the log, either temporarily (until the next time the Integration Package restarts), or permanently (until the next time you change the trace level).

To change the trace level temporarily, refer to “Changing the trace level temporarily” on page 6-9. To change the trace level permanently, refer to “Changing the trace level permanently” on page 6-10.

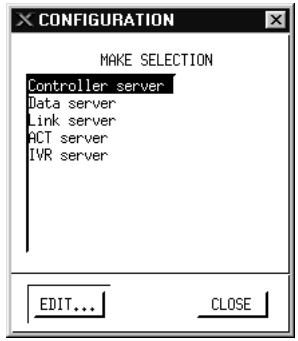
CAUTION
Risk of system performance degradation
Tracing increases the number of messages transmitted between servers and, thus, can degrade system performance.

Changing the trace level temporarily

To change the trace level temporarily, follow this procedure.

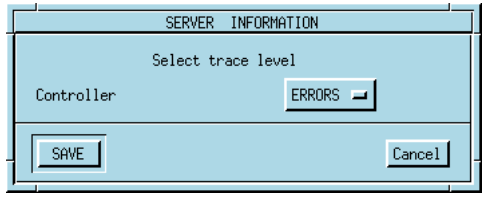
1 From the View menu, choose `Set Error Log Trace Level`.

The Tracing Level window appears.



2 Select the server for which you want to configure tracing, and click EDIT....

The Set Error Log Trace window appears.



3 From the drop-down list box, select OFF if you do not want to log system activity. Select ERRORS to log errors only. Select EVENTS to log all error and trace messages. (Trace messages are generated when a request arrives at an Integration Package server. They also include Meridian Link messages.)

4 Click SAVE.

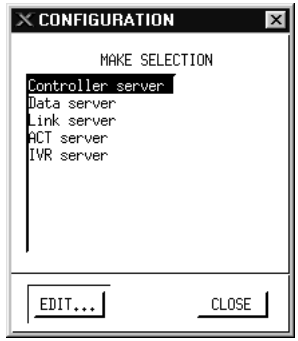
The CONFIGURATION window appears. The changes take effect immediately.

Changing the trace level permanently

To change the trace level permanently, follow this procedure.

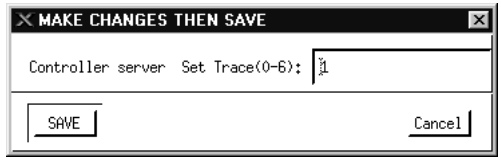
1 From the Config menu, choose `Tracing Level`.

The Tracing Level window appears.



2 Select the server for which you want to configure tracing, and click EDIT....

The Set Trace window for the appropriate server appears.



3 Enter a number from 0 to 6. Type **0** if you do not want to trace activity by this server. Type **1** if you want to log only error messages. Type **2** to log error and trace messages. (Trace messages are generated when a request arrives at an Integration Package server. They also include Meridian Link messages.) Enter a number from 3 to 6 if you want to log increasingly detailed debug messages. Only use the debug options during testing. They are not supported for live applications.

4 Click SAVE.

The CONFIGURATION window appears.

5 Click CLOSE.

6 Restart the Integration Package by choosing `Reset` from the Main menu.

Integration Package commands

When you install Integration Package for Meridian Link, the following utilities are also installed. These utilities are useful for troubleshooting the Integration Package problems.

Utility	Description
`stopccip.sh`	This script does a forceful shutdown of the Integration Package. It attempts to set all servers to IDLE state, and then stops all processes.
`killccip.sh`	This script terminates all the Integration Package server processes. This script might leave the Meridian Link association active.

Appendix A: Tables and files

This appendix lists the fields in each of the statistics files and tables used by the Integration Package for Meridian Link.

Active Calls Table (ACT)

This table contains the following fields.

Table A-1
Active Call Table fields

Field	Description
Call Arrival Time	date and time of call arrival
DN	the IVR/Agent queue or directory number (DN) where the call is currently residing
Unique Call ID	the Unique Call ID of the call as delivered by Meridian Link
Networked Call ID	the Network Call ID of a call routed through a network
Origination Address	the calling DN (the DN of the caller)
Destination Address	the called DN (DN dialed by the caller)
ANI	the Automatic Number ID (ANI) of the call
DNIS	the Dialed Number Identification Service (DNIS) of the call (if available)
Device Type	the device type of the call

Table A-1 (continued)
Active Call Table fields

Field	Description
ACD Position ID	the unique ID of an Automatic Call Distribution (ACD) agent set
Call Stop Time	date and time of call termination
Call length	length of call

ACT History file

For each event, the ACT server writes the following information to this file:

- date/time
- host name of the AP on which the Integration Package is installed
- ACD Position ID
- current address (ACD queue)
- length of call, in seconds
- call ID
- ANI
- DNIS
- event (call answer, call transfer, call abandon, and so on)

To view this file, choose `Call History` from the View menu of the Integration Package for Meridian Link administration utility.

The file is backed up after a configurable period of time (by default, 4 hours) or when it reaches a specified size (by default, 300 kbytes). Then, the file is cleared. For more information, refer to “Customizing preferences” on page 4-15 and “ACTS” on page B-17.

ACT Summary file

Every hour, the ACT server writes the following information to this file:

- date/time
- host name of the AP on which the Integration Package is installed
- hour range (for example, 12:00–13:00)
- total number of calls
- average length of call
- number of transferred calls
- number of abandoned calls
- number of released calls
- number of different ANIs
- number of different DNISs

To view this file, choose `Call Summary` from the View menu of the Integration Package for Meridian Link administration utility.

The file is backed up after a configurable period of time (by default, one day). Then, the file is cleared. For more information, refer to “Customizing preferences” on page 4-15 and “ACTS” on page B-17.

Error Log file

This file contains the following fields:

- date/time
- host name of the AP on which the Integration Package is installed
- Integration Package server that generated the error
- error code
- error description

To view this file, choose `Error Log` from the View menu of the Integration Package for Meridian Link administration utility.

The file is backed up after a configurable period of time (by default, 24 hours), or when it reaches a specified size (by default, 300 kbytes). Then, the file is cleared. You can configure the error log size in the Database Server (DATAS) configuration block of the `config.ini` file. For more information, refer to “DATAS” on page B-10.

Appendix B: The initialization file

Configuration information for the Integration Package for Meridian Link is stored in an ASCII text file, `/u/nortel/ccip/bin/ccip.ini`. This file is similar in format to a Windows INI file. A separate `ccip.ini` file is created for each Application Processor (AP).

To modify configuration parameters, use the Integration Package for Meridian Link administration utility. Advanced users can modify `ccip.ini` directly using an ordinary text editor. (Some parameters can be changed only by modifying the `ccip.ini` file directly.)

> ***Note:*** The Integration Package must be restarted for any changes to the `ccip.ini` file to take effect.

Each server retrieves configuration information from a configuration block in this file. During initialization, the Call Centre Controller (CCC) tells each server which configuration block to use.

This appendix describes the format of the `ccip.ini` file and the configuration parameters it contains.

Example ccip.ini file

Following is a sample `ccip.ini` file.

```
#ccip.ini -- Config file for IPML
#version 2.0.0

#Each server will gets its config info from a section in
#this file. For flexibility, CCC will pass
#each server its section name at Initialize time.

#These values are generally read at Initialization time.

#Put comments at the beginning of a section because
#entries will move around
```

```
#Entries that must be filled in during installation have
#a value of "xxx"

#For example. LINK_address=xxx


[CCCS]

# -- server startup parameters --
#NAME: start flag, config block, servicemap
DATAS=1,DATAS,default_map
LINKS=1,LINKS,default_map
ACTS=1,ACTS,default_map
IVRS=1,IVRS,default_map
autostart_CCIP=1
courtesy_length=60
ping_time=60
sleeptime=5
start_time=60
stop_time=20
trace_level=1
trace_location=2
trace_msgfmt=1


[DATAS]

cciplogd_dir=bin
cciplogd_file=cciplogd
errlog_dir=log/
errlog_file=ccip_loglog
errlog_keep=24
errlog_size=3
pid_location=/tmp
pid_filename=cciplogd.pid
lowerror=25000
trace_level=1
trace_location=2
trace_msgfmt=1
sev_filename=severity.rsp
```

```
[LINKS]

LINK_address=50.100.200.10
LINK_portnum=3000
app_id=IntegrationPackage1
host_name=Lanlink
M1_name=SL16
M1_num=0
polling_interval=1
default_timeout=10
IVR_DN_section=IVR_DNs
agent_DN_section=agent_DNs
dntype_internalDN=8
dntype_ACD_pos_id=30
trace_level=1
trace_location=2
trace_msgfmt=1
service_mask=7


[ACTS]

call_history_size=4
call_history_max=3
call_summary_size=30
history_location=2
summary_location=2
hisfiledir=log/
hisfilename=ccip_hislog
sumfiledir=log/
sumfilename=ccip_sumlog
trace_level=1
trace_location=2
trace_msgfmt=1


[IVRS]

#chmap entries map IVR channel numbers to ACD Position
#IDs.
#sample: chmap0=0-47:8200-8247
chmap0=0-47:8200-8247
dn_key_type=3
trace_level=1
trace_location=2
trace_msgfmt=1
```

```
[IVR_DNs]

DNs0=8200-8247:130:1:8:*


[agent_DNs]

DNs0=8101:130:0
DNs1=8104:130:0
DNs2=8300-8347:130:0


[default_map]

# -- service maps --
# The default map is used by most servers
ACT_SRV=acts
CCC_SRV=cccs
DATA_SRV=datas
IVR_SRV=ivrs
LINK_SRV=links


#end of file
#Put comments at the beginning of a section because
#entries will move #around
#
#Entries that must be filled in during installation have
#a value of "xxx"
#For example. LINK_address=xxx
```

Configuration blocks

Configuration parameters are grouped into configuration blocks. At start-up, the Call Center Controller tells each server which configuration block to use. The block contains all the configuration parameters for the server. The following sections describe the parameters in each configuration block.

CCCS

This configuration block contains the parameters for the Call Center Controller (CCC) server.

autostart_CCIP

Description: Determines whether the CCC sends initialization requests to all servers after CCIP starts. Specify "1" to initialize the Integration Package automatically. Specify "0" to initialize it from within the administration utility. You can set this parameter with the administration utility (refer to "Customizing preferences" on page 4-15).

Type: Boolean

Default value: 1 (True)

courtesy_length

Description: The number of seconds that the Integration Package waits for ongoing requests to finish after a courtesy shutdown is initiated. After this period, all active processes are shut down. You can set this parameter with the administration utility (refer to "Customizing preferences" on page 4-15).

Type: number

Default value: 30

Range: 0–32767

ping_time

Description: The interval at which the CCC pings each Integration Package server, to ensure that it is active.

Type: number

Default value: 30

Range: 1–32767

sleep_time

Description: The time that the CCC waits before sending initialization requests to the Integration Package servers. The `sleep_time` gives the servers time to reach IDLE state.

Type: number

Default value: 10

Range: 0–32767

start_time

Description: The time that the CCC waits for each server to start up before logging a timeout error and shutting down.

Type: number

Default value: 60

Range: 0–32767

stop_time

Description: The time that the CCC waits for each server to shut down before logging an error and advancing to the next stage of shutdown.

Type: number

Default value: 10

Range: 0–32767

trace_level

Description: The trace level used for this server. The trace level is set at the start of CCC's `Initialize()` function so that initialization can be traced. You can set this parameter with the Integration Package for Meridian Link administration utility (refer to "Error and Event Log" on page 6-8).

Type: number

Default value:	1	
Range:	0	Off
	1	Errors (this is the default setting)
	2	Events (all incoming requests)
	3	DEBUG1
	4	DEBUG2
	5	DEBUG3
	6	DEBUG4

Note: Each level includes all the levels beneath it. For example, level 3 includes errors, events, and debug level 1 messages. For production applications, use only levels 0 to 2. The higher levels impact system response times, and should be used only during application development and debugging.

trace_location

Description:	The destination for trace output.	
Type:	number	
Default value:	2	
Range:	0	screen
	1	a text file
	2	the Database server

trace_msgfmt

Description:	The format in which trace messages are logged.	
Type:	number	
Default value:	1	
Range:	0	hex
	1	normal
	2	Meridian Link

The remainder of this configuration block contains start-up information for each of the Integration Package servers.

DATAS

Description: The start-up information for the Database server, which the CCC passes to it on start-up. The parameter consists of three parts: the first specifies whether the CCC should start the server (1 = Yes and 0 = No); the second identifies the configuration block the server should use; and the third identifies the configuration block that specifies the name of the server process.

Type: string

Default value: 1,DATAS,default_map

LINKS

Description: The start-up information for the Meridian Link server, which the CCC passes to it on start-up. The parameter consists of three parts: the first specifies whether the CCC should start the server (1 = Yes and 0 = No); the second identifies the configuration block the server should use; and the third identifies the configuration block that specifies the name of the server process.

Type: string

Default value: 1,LINKS,default_map

ACTS

Description: The start-up information for the Active Calls Table (ACT) server, which the CCC passes to it on start-up. The parameter consists of three parts: the first specifies whether the CCC should start the server (1 = Yes and 0 = No); the second identifies the configuration block the server should use; and the third identifies the configuration block that specifies the name of the server process.

Type: string

Default value: 1,ACTS,default_map

IVRS

Description:	The start-up information for the IVR server, which the CCC passes to it on start-up. The parameter consists of three parts: the first specifies whether the CCC should start the server (1 = Yes and 0 = No); the second identifies the configuration block the server should use; and the third identifies the configuration block that specifies the name of the server process.
Type:	string
Default value:	1,IVRS,default_map

DATAS

This block contains the parameters for the Database server.

cciplogd_dir

Description: The directory in which the `cciplogd` daemon is located. The value you enter is relative to `$CCIP_HOME` (by default, `/u/nortel/ccip`).

Type: string (maximum 80 characters)

Default value: "bin"

cciplogd_file

Description: The name of the `cciplogd` daemon executable file.

Type: string (maximum 48 characters)

Default value: "cciplogd"

errlog_dir

Description: The directory in which the Error Log file is located if you set `trace_location` for a server to 1. The value you enter is relative to `$CCIP_HOME` (by default, `/u/nortel/ccip`).

Type: string (maximum 80 characters)

Default value: ""

errlog_file

Description: The name of the file to which the Error Log file is written if you set `trace_location` for a server to 1.

Type: string (maximum 48 characters)

Default value: "ccip_loglog"

errlog_keep

Description: The amount of time (in hours) that the Error Log file is kept. After this period elapses, the Database server backs up the file and clears it.

Type: 24

Default value: 24

Range: 0–32767

errlog_size

Description: The maximum size (in hundreds of kbytes) of the Error Log file. When the file reaches this size, the Database server backs it up and clears it.

Type: number

Default value: 3 (300 kbytes)

Range: 0–30

pid_location

Description: The directory in which the `cciplogd` daemon pid text file is stored. This file stores the process ID (pid) for the `cciplogd` process (the Integration Package log daemon). This file exists only while the `cciplogd` process is running. The Database server uses this file to determine whether the process is currently running.

Type: string (maximum 80 characters)

Default value: "/tmp"

pid_filename

Description: The name of the `cciplogd` daemon pid text file.

Type: string (maximum 48 characters)

Default value: "cciplogd.pid"

lowerror

Description: The lowest number in the range of error numbers to be read from the severity file.

Type: number

Default value: 9000

Range: 0–32767

trace_level

Description: The trace level for this server. You can set this parameter with the Integration Package for Meridian Link administration utility (refer to “Error and Event Log” on page 6-8).

Type: number

Default value: 1

Range: 0 Off

1	Errors (this is the default setting)
2	Events (all incoming requests)
3	DEBUG1
4	DEBUG2
5	DEBUG3
6	DEBUG4

Note: Each level includes all the levels beneath it. For example, level 3 includes errors, events, and debug level 1 messages. For production applications, use only levels 0 to 2. The higher levels impact system response times, and should be used only during application development and debugging.

trace_location

Description:	Sets the destination for trace output.	
Type:	number	
Default value:	2	
Range:	0	screen
	1	a text file
	2	the Database server

trace_msgfmt

Description:	The format in which trace messages are logged.	
Type:	number	
Default value:	1	
Range:	0	hex
	1	normal
	2	Meridian Link

sev_filedir

Description:	The directory in which the severity file is stored.
Type:	string (maximum 80 characters)
Default value:	"$VOICE_HOME/ui_lang/$VOICE_LANG"

sev_filename

Description:	The name of the severity file.
Type:	string (maximum 48 characters)
Default value:	"severity"

LINKS

This block contains the parameters for the Meridian Link server.

LINK_address

Default value: The IP address or host name of the Meridian Link module. This parameter corresponds to the *LINK Module IP address* field (refer to "Configuring Meridian Link parameters" on page 3-16).

Type: string

Default value: none

LINK_portnum

Description: The port number of the Meridian Link module. This parameter corresponds to the *LINK Module port number* field (refer to "Configuring Meridian Link parameters" on page 3-16).

Type: number

Default value: 3000

app_id

Description: The Meridian Link application ID. The Meridian Link server uses this ID when it registers with Meridian Link. This parameter corresponds to the *Application ID* field (refer to "Configuring Meridian Link parameters" on page 3-16).

Type: string

Default value: CCIP1

host_name

Description: The name of the TCP/IP host link with which the Meridian Link server registers. This parameter corresponds to the *Host link name* field (refer to "Configuring Meridian Link parameters" on page 3-16).

Type: string

Default value: Lanlink

M1_name

Description: The Meridian 1 machine ID. This parameter corresponds to the *Meridian 1 name* field (refer to

"Configuring Meridian Link parameters" on page 3-16).

Type: string

Default value: SL16

M1_num

Description: The Meridian 1 customer number. This parameter corresponds to the *Meridian 1 number* field (refer to "Configuring Meridian Link parameters" on page 3-16).

Type: number

Default value: 0

polling_interval

Description: Specifies how often Meridian Link sends polling messages to the Meridian Link server. This parameter corresponds to the *Polling interval* field (refer to "Configuring Meridian Link parameters" on page 3-16).

Type: number

Default value: 1

Range: 1–60

default_timeout

Description: The amount of time that the Integration Package waits for a response from Meridian Link before logging a timeout error. This parameter corresponds to the *Request timeout* field (refer to "Configuring Meridian Link parameters" on page 3-16).

Type: number

Default value: 10

Range: 0–32767

IVR_DN_section

Description: The name of the configuration block in which the list of IVR DNs is stored.

Type: string

Default value: IVR_DNs

agent_DN_section

Description: The name of the configuration block in which the list of Agent DNs is stored.

Type: string

Default value: agent_DNs

dntype_internalDN

Description: The default DN type to use for internal DNs, in decimal format. For a list of DN types, refer to Table D-1, “DN types used in call event messages,” on page D-1.

Type: number

Default value: 8

dntype_ACD_pos_id

Description: The default agent type to use for ACD position IDs, in decimal format. For a list of agent types, refer to Table D-2, “DN types for registration with Meridian Link,” on page D-3.

Type: number

Default value: 30

trace_level

Description: The trace level used by the Meridian Link server. You can set this parameter with the Integration Package for Meridian Link administration utility (refer to “Error and Event Log” on page 6-8).

Type: number

Default value: 1

Range:

0	Off
1	Errors (this is the default setting)
2	Events (all incoming requests)
3	DEBUG1
4	DEBUG2
5	DEBUG3
6	DEBUG4

Note: Each level includes all the levels beneath it. For example, level 3 includes errors, events, and debug level 1 messages. For production applications, use only levels 0 to 2. The higher levels impact system response times, and should be used only during application development and debugging.

trace_location

Description:	Sets the destination for trace output.	
Type:	number	
Default value:	2	
Range:	0	screen
	1	a text file
	2	the Database server

trace_msgfmt

Description:	The format in which trace messages are logged.	
Type:	number	
Default value:	1	
Range:	0	hex
	1	normal
	2	Meridian Link

service_mask

Description:	The Meridian Link services with which the Integration Package registers.	
Type:	number	
Default value:	7	
Range:	0	no services
	1	Service 1
	2	Service 97
	3	Services 1 and 97
	4	Service 98
	5	Services 98 and 1
	6	Services 98 and 97
	7	all services

ACTS

call_history_size

Description: The amount of time (in hours) that the ACT History file is kept. After this period elapses, the Database server backs up the file and clears it. You can set this parameter with the Integration Package for Meridian Link administration utility (refer to “Customizing preferences” on page 4-15).

Type: number

Default value: 4

Range: 1–24

call_history_max

Description: The maximum size (in hundreds of kbytes) of the ACT History file. When the file reaches this size, the Database server backs it up and clears it.

Type: number

Default value: 3 (300 kbytes)

Range: 0–30

call_summary_size

Description: The amount of time (in days) that the ACT Summary file is kept. After this period elapses, the Database server backs up the file and clears it. You can set this parameter with the Integration Package for Meridian Link administration utility (refer to “Customizing preferences” on page 4-15).

Type: number

Default value: 1

Range: 1–30

history_location

Description:	Sets the destination for the ACT History file output.	
Type:	number	
Default value:	2	
Range:	0	screen
	1	a text file (If you select this option, you can set the file name and location with the hisfiledir and hisfilename parameters.)
	2	the Database server

summary_location

Description:	Sets the destination for the ACT Summary file output.	
Type:	number	
Default value:	2	
Range:	0	screen
	1	a text file (If you select this option, you can set the file name and location with the hisfiledir and hisfilename parameters.)
	2	the Database server

hisfiledir

Description:	The directory in which the ACT History file is located if you set `history_location` to 1. The value you enter is relative to `$CCIP_HOME` (by default, `/u/nortel/ccip`).
Type:	string (maximum 80 characters)
Default value:	"log/"

hisfilename

Description:	The name of the file in which the ACT History statistics are written if you set `history_location` to 1.
Type:	string (maximum 48 characters)
Default value:	"ccip_hislog"

sumfiledir

Description: The directory in which the ACT Summary file is located if you set `summary_location` to 1. The value you enter is relative to `$CCIP_HOME` (by default, `/u/nortel/ccip`).

Type: string (maximum 80 characters)

Default value: "log/"

sumfilename

Description: The name of the file in which the ACT Summary statistics are written if you set `summary_location` to 1.

Type: string (maximum 48 characters)

Default value: "ccip_sumlog"

trace_level

Description: The trace level used by the ACT server. You can set this parameter with the Integration Package for Meridian Link administration utility (refer to “Error and Event Log” on page 6-8).

Type: number

Default value: 1

Range:

0	Off
1	Errors (this is the default setting)
2	Events (all incoming requests)
3	DEBUG1
4	DEBUG2
5	DEBUG3
6	DEBUG4

Note: Each level includes all the levels beneath it. For example, level 3 includes errors, events, and debug level 1 messages. For production applications, use only levels 0 to 2. The higher levels impact system response times, and should be used only during application development and debugging.

trace_location

Description:	Sets the destination for trace output.	
Type:	number	
Default value:	2	
Range:	0	screen
	1	a text file
	2	the Database server

trace_msgfmt

Description:	The format in which trace messages are logged.	
Type:	number	
Default value:	1	
Range:	0	hex
	1	normal
	2	Meridian Link

IVRS

chmap0, chmap1 ...

Description: Maps IVR channel numbers to their associated DNs (or ACD position IDs). You can set this parameter with the Integration Package for Meridian Link administration utility (refer to "Setting up the channel map" on page 3-14).

Type: channel map

Format: *aaa–bbb*:*cccc–dddd*

Example: 0–15:8200–8215

Default value: none

dn_key_type

Description: The DN type for the source DN (the IVR) server. Enter 3. The Meridian Link server translates 3 to the decimal value 30 (1Ex), which identifies an ACD position ID (refer to Table D-1, "DN types used in call event messages," on page D-1).

Type: number

Default value: 3

trace_level

Description: The trace level used by the IVR server. You can set this parameter with the Integration Package for Meridian Link administration utility (refer to "Error and Event Log" on page 6-8).

Type: number

Default value: 1

Range:

0	Off
1	Errors (this is the default setting)
2	Events (all incoming requests)
3	DEBUG1
4	DEBUG2
5	DEBUG3
6	DEBUG4

Note: Each level includes all the levels beneath it. For example, level 3 includes errors, events, and debug level 1 messages. For production applications, use only levels 0 to 2. The higher levels impact system response times, and should be used only during application development and debugging.

trace_location

Description:	Sets the destination for trace output.	
Type:	number	
Default value:	2	
Range:	0	screen
	1	a text file
	2	the Database server

trace_msgfmt

Description:	The format in which trace messages are logged.	
Type:	number	
Default value:	1	
Range:	0	hex
	1	normal
	2	Meridian Link

IVR_DNs

This configuration block specifies the IVR directory numbers (DNs) that the Integration Package serves.

DNs0, DNS1 ...

Description:	Defines the IVR DNs served by the Integration Package. Each entry contains the following information: the DN number or DN range; the DN type; whether to log in the DNs (1 = Yes or 0 = No); the Agent type; and the Agent ID. This parameter contains the information you enter in the Add IVR DNs and Add New Channels windows in the Integration Package for Meridian Link administration utility (refer to "Configuring IVR DNs" on page 3-10 and "Setting up the channel map" on page 3-14).
Type:	string
Format:	*nnnn*:*dn_type*:*login_flag*:*agent_type*:*agent_ID* *nnnn–mmmm*:*dn_type*:*login_flag*:*agent_type*:*agent_ID*
Example:	8200–8295:130:1:8:*
Default value:	none

Agent_DNs

This configuration block specifies the Agent directory numbers (DNs) that the Integration Package serves. You can set the parameters in this block with the Integration Package for Meridian Link administration utility (refer to “Configuring Agent DNs” on page 3-12).

DNs0, DNS1 ...

Description:	Defines the Agent DNs served by the Integration Package. Each entry contains the following information: the DN number or DN range; the Agent type; and whether to log in the DNs (1 = Yes or 0 = No).
Type:	string
Format:	*nnnn:dn_type:login_flag:agent_type:agent_ID* *nnnn–mmmm:dn_type:login_flag:agent_type:agent_ID*
Example:	8300–8323:130:1

default_map

The `ccip.ini` file contains one or more service maps which identify the name of the executable file that the Call Center Controller invokes to run the Integration Package servers. The default service map is `default_map`, which is stored in this configuration block.

ACT_SRV

Description: Specifies the name of the executable file that runs the Active Calls Table (ACT) server.

Type: string

Default value: none

CCC_SRV

Description: Specifies the name of the executable file that runs the Call Center Controller (CCC).

Type: string

Default value: none

DATA_SRV

Description: Specifies the name of the executable file that runs the Database server.

Type: string

Default value: none

IVR_SRV

Description: Specifies the name of the executable file that runs the IVR server.

Type: string

Default value: none

LINK_SRV

Description: Specifies the name of the executable file that runs the Meridian Link server.

Type: string

Default value: none

Appendix C: Integration Package processes

This appendix lists the Integration Package processes and the child processes that they spawn.

Table C-1
Integration Package processes

Process	Description
.ccipconf	The conference user functions.
.ccipinfo	The GetInfo user function.
.ccipxfer	The transfer user functions.
acts	The Active Call Table (ACT) server. This server spawns a child process, also called acts, which backs up the history and summary files.
adkill.sh	A script file used to kill the xm_vtcld daemon when the last Integration Package for Meridian Link administration utility window is closed.
cccs	The Call Center Controller (CCC) server.
ccipadmn.tcl	The source code for the Integration Package for Meridian Link administration utility. This process spawns the following child processes: cnlstat.exe, rcccs.exe, radini.exe, and systime.exe.
ccipadmin.sh	A script file that runs the Integration Package for Meridian Link administration utility.

Table C-1 (continued)
Integration Package processes

Process	Description
cciplogd	The Integration Package for Meridian Link log daemon, which logs errors, call history, and summary statistics through syslogd.
chnlstat.exe	The process that reports channel status when you choose CHannel status from the View menu of the Integration Package for Meridian Link administration utility.
datas	The Database server.
dbengine.exe	The process that logs backbone errors, and reads and writes information used by the backbone during start-up.
ivrs	The Interactive Voice Response (IVR) server.
killccip.sh	A script file used to kill all of the Integration Package for Meridian Link processes.
links	The Meridian Link server. This server spawns a child process, also called links, which translates messages received from Meridian Link to a format that can be used by the Meridian Link server.
orbcore.exe	The process responsible for managing and setting up communication between the CCIP server processes.
radini.exe	The process that the Integration Package for Meridian Link administration utility uses to read information from and write information to the ccip.ini file.
rcccs.exe	The process used by the Integration Package for Meridian Link administration utility to send requests to the CCC.
systime.exe	The process that monitors how long the servers take to respond to a request for status. Each Integration Package for Meridian Link administration utility window has a systime.exe process.
wake_up.exe	A process used by the backbone to keep track of timed events.

Table C-1 (continued)
Integration Package processes

Process	Description
xm_vtcld	The SCO Visual TCL run-time interpreter. (Visual TCL is the tool used to produce the Integration Package for Meridian Link administration utility interface.)

Appendix D: DN types and DN type values

This appendix lists the directory number (DN) types supported by Meridian Link. Table D-1 lists the DN type values used in call event messages that the Integration Package generates (during a transfer, for example). Table D-2 lists the DN types that the Integration Package submits to Meridian Link when it registers DNs during start-up.

Table D-1
DN types used in call event messages

Hex value	Decimal value	Type
00	0	Unknown
01	1	International
02	2	National
03	3	Special number
04	4	Subscriber number
05	5	Location code call
06	6	Coordinated dialing plan
07	7	Reserved
08	8	Internal
09	9	Route/member
0A	10	Route only (Network Automatic Call Distribution—NACD)

Table D-1
DN types used in call event messages (Continued)

Hex value	Decimal value	Type
0B	11	Attendant/member
0C	12	Automatic Call Distribution (ACD) DN/ACD Position
0D	13	ACD Position/Dialed Number Identification Service (DNIS)
0E	14	IANI: ACD DN/ACD position
0F	15	In-Band ANI
10	16	ACD DN
11	17	ACD DN/Position/DNIS
12	18	Transfer
13	19	Conference
14	20	Call waiting
15	21	Group call
16	22	Control Directory Number (CDN)
17	23	CDN/DNIS
18	24	Treatment DN
1E	30	ACD Position ID
25	37	Voice channel

Table D-2
DN types for registration with Meridian Link

80	128	All Types
81	129	Regular DN (Internal, ACD, and so on)
82	130	ACD Position ID
83	131	DNIS number
84	132	Voice class number

Appendix E: Meridian 1 switch configuration

To use the Integration Package for Meridian Link, you must have a Meridian 1 Private Branch Exchange (PBX) Release 22 or higher. The Integration Package requires that the Meridian 1 switch be configured to support Meridian Link. For detailed instructions, refer to the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide.*

This appendix lists the parameters that must be configured for each Interactive Voice Response (IVR) agent, IVR Automatic Call Distribution (ACD) position, agent ACD position, and Controlled Directory Number (CDN) that will be served by the Integration Package.

Table E-1
IVR agent position ID parameters

Prompt	Response	Description
AST	YES	Associate Set assignment. Specifies that this channel is controlled by Meridian Link.
IAPG	1	Meridian Link Unsolicited Status Message (USM) group. Specifies that all events on this channel are to be sent to Meridian Link.
CLS	LDTA	Line Disconnect Tone Allowed. Specifies that IVR hangs up the channel when the call is completed.
AACD	YES	Associate set (AST) ACD telephone.

Table E-2
Agent set profile parameters

Prompt	Response	Description
AST	03 00	Associate Set assignment. Specifies the keys controlled by Meridian Link.
IAPG	1	Meridian Link Unsolicited Status Message (USM) group. Specifies that Meridian Link is to be notified of changes on the set.

Table E-3
IVR and agent ACD queue parameters

Prompt	Response	Description
ISAP	YES	Specifies that events are to be returned to Meridian Link.
VSID	*nn*	Value Added Server ID of VAS providing VMS. Enter *nn*, where *nn* is the number of the link between Meridian Link and IVR. When you set this parameter, you are prompted to specify values for additional parameters. For more information, refer to your *Meridian 1 Software Input/Output Guide.*

Table E-4
CDN parameters

Prompt	Response	Description
VSID	*nn*	Value Added Server ID of VAS providing VMS. Enter *nn*, where *nn* is the number of the link between Meridian Link and IVR. When you set this parameter, you are prompted to specify values for additional parameters. For more information, refer to your *Meridian 1 Software Input/Output Guide.*

Appendix F: Localization

The Integration Package for Meridian Link administration utility can be easily localized to other languages. This appendix explains how this is done.

If the utility is localized, it reads all text (messages, buttons, and field labels) from a catalog (.cat) file at start-up. To localize the utility, you must generate a new, localized catalog file. Then you must install this catalog file.

Creating a localized catalog file

To create a localized catalog file, follow this procedure.

1. Change the working directory to `$CCIP_HOME/install` by typing **`cd $CCIP_HOME/install`** and pressing <Enter>.
2. Translate the `ccipadmn.msg` file, which is located in this directory.

   Each line of this file represents a label, button, or line of text in the Integration Package for Meridian Link administration utility. Make sure that each line of translated text remains on the same line as the original text. Do not change the line numbers.
3. Generate the catalog file by typing **`gencat ccipadmn.cat msg_file`**, where *msg_file* is the translated file. Press <Enter>.

Now that you have created the new catalog file, you must install it.

Installing the localized catalog file

Then, install the file following this procedure.

1 Before you install the localized catalog file, make sure that the following commands are included in your `.profile` file:

```
VOICE_HOME=home_directory
VOICE_LANG=language_directory
NLSPATH=$NLSPATH:$VOICE_HOME/ui_lang/$VOICE_LANG
export $VOICE_HOME $VOICE_LANG $NLSPATH
```

where *home_directory* is the directory in which `ccip` is located (by default, it is /u/nortel), and *language_directory* is the directory containing the localized catalog file (by default, it is en_US).

2 If you change any of these commands, log out and log back in again, so that the changes take effect.

3 Copy the new `ccipadmn.cat` to `$CCIP_HOME/install`.

4 Change the working directory to `$CCIP_HOME/install` by typing **`cd $CCIP_HOME/install`** and pressing <Enter>.

5 Copy the catalog file to the `$VOICE_LANG` directory by typing **`cp ccipadmn.cat $VOICE_HOME/ui_lang/$VOICE_LANG`** and pressing <Enter>.

Next time you start the Integration Package for Meridian Link administration utility, it will display the localized text.

Glossary

This glossary provides definitions of many of the terms as used in this guide. Some of these terms may have additional meanings not described here.

acoustic coupler

A device (such as the Audio Interface Unit) used to interface between sound equipment and a port on the MRS/AP.

Administration Tools

A set of tools, accessible from the Symposium OPEN IVR Control Panel, used to configure and control the Symposium OPEN IVR system.

agent

A person whose primary role is to handle customer calls that are transferred from a queue within a call center.

ANI

Automatic Number Identification. A protocol implemented in some trunk cards that records the calling number.

ANSI

American National Standards Institute.

AP

Application Processor. A computer or workstation running the AP software in a distributed configuration. Symposium OPEN IVR combines one or more Multimedia Resource Servers (MRSs) with a general-purpose Application Processor (AP) to provide a versatile application development and run-time environment. The AP provides the environment for developing, managing, and controlling the IVR applications.

AP software

Nortel's premiere voice application development and management software package that runs on the Application Processor (AP). Application development capabilites are a licensed feature of AP software, through IVR Developer software.

application

1 In Symposium OPEN IVR, a customized program that controls activity on one or more telephone trunks connected to an MRS voice system.

2 On a host computer, any type of program that carries out a task.

application developer

A person who creates Nortel IVR 2.0/S applications.

Application Editor

A utility used to graphically create or edit interactive voice response applications.

application processor

See AP.

Automatic Number Identification

See ANI.

branch

A pathway from one cell in an application to the next cell.

buffers

A part of computer memory used to store information from one cell and pass it to another cell.

call flow

A diagram of a Nortel IVR 2.0/S application.

caller

A person whose phone call is received or originated by a Nortel IVR 2.0/S application.

cell

The basic element of an application. Each cell causes some action to be performed—for example, playing a prompt to a caller. Each cell has a set of branches to other cells. After the cell performs its action, it determines which branch the application should follow to the next cell.

channel

1 A telephone trunk within a cluster of MRSs.

2 A path of communication between the AP and a communications or transmission facility. Channel sequences can span multiple MRSs, and their numbering starts at zero (0). Also referred to as a **port**.

CO

Central Office.

Control Panel

The Symposium OPEN IVR panel containing the buttons from which you can access the Administration, Information Database Editor, Report, Application, Prompt Management, and SmartHelp tools.

database

A collection of related information arranged for ease and speed of retrieval.

Dialed Number Identification Service

See DNIS.

DID

Direct inward dialing. A protocol used by some telephone equipment that allows callers to dial directly to an extension within a telephone system without going through a switchboard.

direct inward dialing

See DID.

DNIS

Dialed Number Identification Service. A feature of 800 and 900 numbers, in which the number dialed or a portion of it is sent to the MRS and stored in the DIGITS buffer in Symposium OPEN IVR.

DTMF

Dual Tone Multi-Frequency. Touchtone (push-button) dialing. DTMF is used to encode digits over analog telephone lines. Applications can collect information from callers by having them press telephone keys to create DTMF tones.

Dual Tone Multi-Frequency

See DTMF.

EXEC

The cell that executes a Symposium OPEN IVR application on the current channel.

falsing

A condition in which certain frequencies in a voice recording are incorrectly interpreted as DTMF tones. In some applications, false DTMF tones may cause the system to perform unwanted activities, such as selecting menu choices, terminating playback, or hanging up prematurely.

field

The specific location of information (data) within a record in a relational database.

gain

The increase in signal power, measured in decibels, when the signal is boosted by an electronic device.

ground start

A method of signaling on the trunk in which one side of the two wires (typically the ring wire) is momentarily grounded to obtain a dial tone. This type of signal is normally used with PBXs.

hook-flash

Depressing and releasing the plunger or handset-cradle on a telephone.

Host link

The ability of Symposium OPEN IVR to communicate with other host computers supported by one of the Symposium OPEN IVR gateway products.

Information Database

See database.

Information Database Editor

A utility used to create a message or information database, and to edit an information database.

IVR

Interactive Voice Response.

IVR Developer

A licensed component of AP software that provides application development tools to graphically create or edit interactive voice response applications.

loopstart

A method of signaling on the trunk in which a supervisory signal is given (by taking the phone off the hook). Loopstart seizes the line by bridging the resistance of the tip and ring wires of the telephone line to obtain a dial tone. Loopstart signaling is normally used for single lines or key systems.

MF tones

Multifrequency tones. These are tones used by ANI. Symposium OPEN IVR applications can receive and store MF digits when the ANI option is in use.

MRS

Multimedia Resource Server. Symposium OPEN IVR combines one or more Multimedia Resource Servers (MRSs) with a general-purpose Application Processor (AP) to provide a versatile application development and/or run-time environment.

MRS/AP

A single unit that runs a “folded” configuration; that is, a configuration that includes both the Multimedia Resource Server and the Application Processor. The MRS/AP contains the functionality of the other platforms, but in a single hardware unit.

MRS/Rack

A unit comprising a rack-mountable Application Processor (AP) and a rack-mountable Multimedia Resource Server (MRS). Multiple MRS/Racks can be installed in cabinets and stacked to take up less room.

MRS/Tower

The MRS/Tower platform is comprised of an Application Processor (AP) and a Tower Multimedia Resource Server (MRS).

multifrequency tones

See MF tones.

Multimedia Resource Server

See MRS.

node

A grouping composed of an AP (running Symposium OPEN IVR) connected to one or more MRSs.

parameter

A variable used to define the function of Symposium OPEN IVR cells. You set parameters in the parameter window for each cell (when using the Application Editor), or in the cell window (when using the character-based Application Editor).

PBX

Private branch exchange. A private phone system allowing communication within a business and between the business and the public telephone system.

port

A path of communication between the AP and a communications or transmission facility. Port sequences can span multiple MRSs, and their numbering starts at zero (0). Also referred to as a **channel**. *See also* trunk.

private branch exchange

See PBX.

prompt

A voice recording that helps lead a caller through a Nortel IVR 2.0/S application.

Prompt Management tools

A set of tools, accessed from the Symposium OPEN IVR Control Panel, that is used to record, load, and update prompts.

record

1 To store sound on tape or disk for later pla back.

2 In a database, a group of related data items (fields) treated as one item.

Reports tools

A set of tools, accessed from the Symposium OPEN IVR Control Panel, that is used to generate reports about the system's activities.

Send Fax

See SFAX.

SFAX

Send Fax. Cell that sends one or more faxes to a destination fax machine.

SQL

Structured Query Language. A type of relational database.

Structured Query Language

See SQL.

subscriber

A person serviced by a voice processing application (such as voice mail).

system administrator

A person responsible for configuring MRSs, installing and running Nortel IVR 2.0/S applications, managing prompts, and running reports.

Telco

Telephone company.

Terminal Resource Server

See TRS.

TRS

Terminal Resource Server. The Nortel IVR 2.0/S process that manages the assignment of system resources to the Host Link products.

trunk

A communication line between two switching systems, frequently referred to as a port. Trunk numbering starts at 1.

voice storage number

See VSN.

VSN

Voice storage number. Internal numbering system used by the MRS for prompts, messages, and faxes (if the fax option is installed); Symposium OPEN IVR uses its own numbering system.

wink

A momentary interruption in single frequency tone that indicates the distant central office (CO) is ready to receive the digits that were just dialed.

X-Window Application Editor

See XAE.

XAE

X-Window Application Editor. Another term for the Application Editor.

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