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Meridian Mail

AdminPlus on the MSM

System Administration Guide

Product release 9.0 Standard 1.0 December 1994

northern telecom

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About this document

Typographic conventions

The following typographic conventions are used throughout this document:

- *Softkeys* are referred to in a procedure by using the label of the softkey (as displayed on a screen) enclosed by square brackets (for example, [Exit], [OK to Delete]).
- *Keyboard keys* are denoted by enclosing the label of the key by angle brackets (for example, <1>, <2>, <Return>).
- *Text input/user input* (where you are required to input specific text) is presented in bold print (for example, **abcd**).
- *Fields in a menu or screen*, when referred to in the text, appear in a different font and are italicized (for example, *Last Name*, *Invalid Logon Attempts*).
- *Values in Fields*, when referred to in the text, are in quotes (for example, "Yes", "No", "Enable", "Disable").

References

In this manual, where reference is made to another part of the manual, or to another document, the following conventions are used:

- A reference to text in the same chapter appears surrounded by double quotation marks, giving the heading under which the required text is found (for example, see "Typographic conventions" in this chapter).
- A reference to text in another section appears with double quotation marks, giving the name of the chapter and, where necessary, the heading under which the required text is found (for example, see "Voice recordings" in the chapter on "User Administration").

- A reference to text in another manual appears in italics, giving the title of the manual in which the required text is found, along with any applicable reference number. For example, see the *Product Guide (*NTP 557-7001-010).

System Administration Guide references

For references to the *Meridian Mail System Administration Guide*, refer to the list below to find the version of the NTP (as identified by the NTP number) that applies to the system you are working on.

- *System Administration Guide for Multi-Customer System*s NTP 557-7001-300
- *Customer Administration Guide for Multi-Customer System*s NTP 557-7001-301
- *System Administration Guide* (for single-customer systems) NTP 557-7001-302

Chapter 1: Introduction

This guide describes the special features provided to Meridian Mail administrators who use Meridian Mail AdminPlus on the MSM.

Instructions for the installation and configuration of AdminPlus are included in this guide. It contains the following chapters:

- ***AdminPlus installation*** Discusses AdminPlus installation and configuration, and should be read if you are installing AdminPlus, moving it, or changing its configuration.
- ***AdminPlus configuration*** Presents procedures for configuring AdminPlus.
- ***Using AdminPlus*** Gives general information on using AdminPlus, including start-up and shut down procedures, and access to the DOS operating system.
- ***File download*** Presents procedures for downloading billing files from the MSM and for converting these files into a format suitable for most popular database packages.
- ***Troubleshooting*** Provides information on possible problems with AdminPlus and their resolution.
- ***AdminPlus event and error reports (Appendix A)*** Lists error messages that may appear on the PC monitor.

Chapter 2: AdminPlus installation

This chapter outlines the minimum equipment and cabling requirements for AdminPlus and presents instructions for hardware and software installation. The "Hardware installation" section describes the installation and configuration of the personal computer, as well as the connection to the Message Services Module (MSM). The "Software installation" section describes the installation of the AdminPlus software.

The minimum PC system requirements for AdminPlus are

- 80386-based or higher IBM-compatible PC
- One serial port
- Keyboard
- Monitor and display adapter
- 640 kbytes random access memory (RAM)
- One floppy disk drive (3.5" or 5.25")
- Hard disk drive (with 100 Mbytes of available space)
- MS DOS Version 3.1 or later
- Cables to connect the AdminPlus PC to the MSM (see the section on "Hardware installation" in this chapter)

Hardware installation

The first stage of installation is to assemble the personal computer. Please refer to the instructions provided with your chosen PC. Once the PC is assembled, connect the PC to the MSM and other peripherals as shown in Figure 2-1 and 2-2. Use Table 2-1 to determine the appropriate AdminPlus dataport.

The serial connection, shown in Figure 2-1 and 2-2, connects the RS-232 transition modules (NTGX06AB) in the signal processing nodes (SPNs) of the MSM to the PC.

Figure 2-1
Cable configuration for transition module NTGX06AB

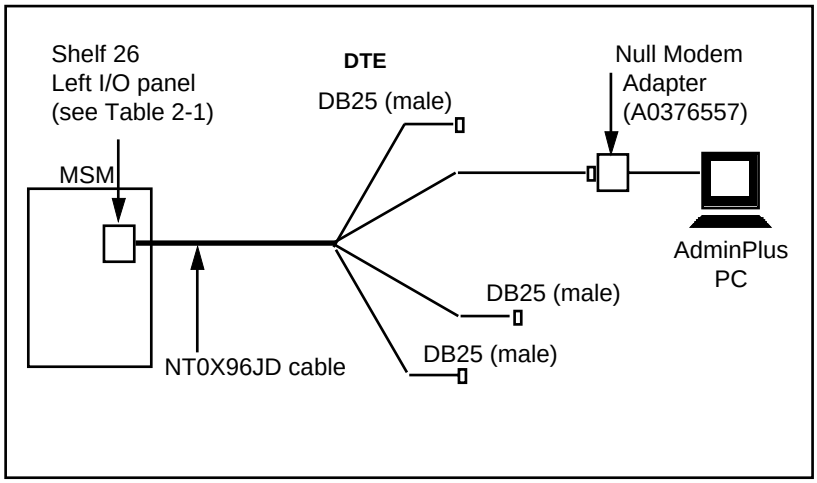
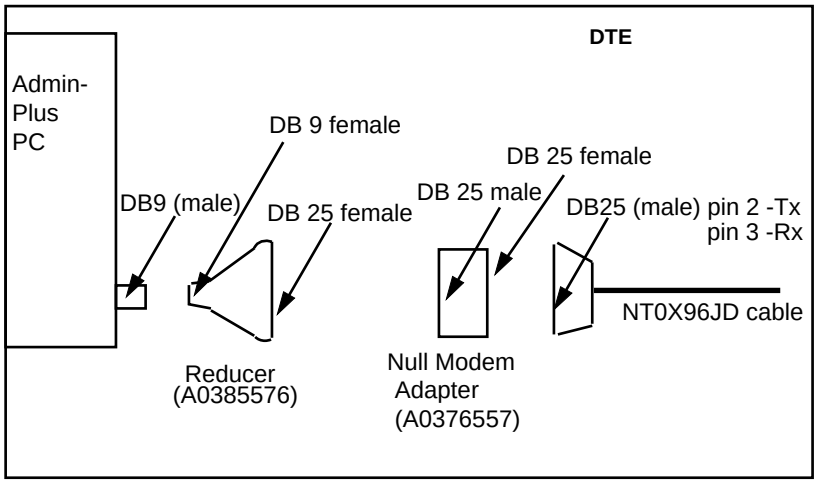


Table 2-1
AdminPlus data port locations

System	Node	Port	I/O Panel	External NT0X96ID Cable	
			Shelf	I/O panel connector	DB25M connector
48 ports	3 (SPN1)	1	26 left	P1A	CONN #1
72 ports and larger	5 (SPN3)	1	26 left	P3	CONN #1

Figure 2-2
Recommended serial connection



Note: The Reducer is required only if the PC has a DB9 connector.

The next step is to install the MS-DOS operating system. The instructions for doing this are supplied with your PC.

Once the operating system is installed, restart your PC to ensure that the installation is complete and correct. If the PC manufacturer supplies diagnostics, run them to verify that the system has been correctly installed and configured. The Meridian Mail AdminPlus software may now be installed.

Software installation

Installing the AdminPlus software

The following procedure describes the installation of the AdminPlus software.

Procedure 2-1
AdminPlus software installation

1. Insert the AdminPlus software distribution diskette into the appropriate drive of the AdminPlus PC.
2. The prompts which occur during installation are illustrated in Figure 2-3. Explanations of the prompts follow the figure. Make the appropriate responses to the prompts.

   The install program creates a directory called "c:\MCON" which will contain the Meridian console program (MCONSOLE.EXE). After you run the install program, you are left in the c:\MCON directory. From this directory, you can run the MCONSOLE program immediately after the installation is complete by entering "MCONSOLE MSM" and pressing <Return> or <Enter>.

Note: The install program allows the user to choose the drive where the program is to be installed. It does not have to be "c".

3. If you selected the automatic start option, the MCONSOLE program is run automatically when you start or restart your PC. If not, run the MCONSOLE program, by entering "\MCON\MCONSOLE MSM" at the DOS prompt and pressing <Return> or <Enter>.

Note: It is recommended that no terminate-and-stay-resident (TSR) programs should be running on the PC being used for AdminPlus. These programs may interfere with the AdminPlus operation.

Figure 2-3
Example of the INSTALL program prompts and responses

```
C:> a:\install

Which drive do you wish to install MCONSOLE onto? (A to Z):c

Which drive do you wish to install MCONSOLE from? (A to Z): a

Do you wish MCONSOLE to be run automatically on power-up? (Y or
N): y

Are you using MCONSOLE with an MSM platform? (Y or N):y

*CURRENTLY,does MCONSOLE run automatically on power-up?(Y or N): n

**Which drive does this PC boot from? (A or C): c

  Make sure the MCONSOLE installation diskette
  is in drive a.

Press a key to continue:

Reading files...

Writing files...

Information messages follow at this point,including instructions
for running the MCONSOLE program from DOS.
```

* This line appears only if you enter "y" at the prompt "Do you wish MCONSOLE to be run automatically on power-up? (Y or N)".

** This line appears only if you enter "n" at the prompt "CURRENTLY, does MCONSOLE run automatically on power-up?".

The following prompts, as shown in Figure 2-3, appear when you run INSTALL.EXE:

- ***Which drive do you wish to install MCONSOLE onto? (A to Z):***

  Enter the hard drive on which you wish to install MCONSOLE.

- ***Which drive do you wish to install MCONSOLE from? (A to Z):***

  Enter the drive containing the diskette with the INSTALL.EXE program.

- ***Do you wish MCONSOLE to be run automatically on power-up? (Y or N):***

  Enter "y" if you want MCONSOLE to start up automatically when you turn on your PC. Enter "n" if you want to manually execute the MCONSOLE program after your PC is turned on.

- ***Are you using MCONSOLE with an MSM platform? (Y or N):***

  Enter "y" since you are using an MSM platform.

- ***CURRENTLY, does MCONSOLE run automatically on power-up? (Y or N):***

  Enter "y" if you have previously installed the MCONSOLE software with the option to run automatically on start-up.

  A file called AUTOEXEC.BAT resides in the main drive of most PCs and contains instructions to run specific programs automatically when you reboot or turn on the PC. If the software has already been installed with the "automatic startup" option, then the AUTOEXEC.BAT file has already been modified to automatically start up the MCONSOLE program when the PC is turned on, so the file does not have to be modified at this time.

  Enter "n" if you have not previously installed the MCONSOLE software, or if the MCONSOLE software is not currently set up to run automatically when you turn on your PC. In this case, the INSTALL program searches for and modifies the AUTOEXEC.BAT file to start the MCONSOLE program automatically when you turn on your PC.

  Note: This prompt appears only if you enter "y" at the prompt "Do you wish MCONSOLE to be run automatically on power-up.

- ***Which drive does this PC boot from? (A to Z):***

  Enter the drive with the system software used to start up your PC. This is usually the main drive (Drive C). If you entered "n" at the prompt "CURRENTLY, does MCONSOLE run automatically on power-up?", then the INSTALL program needs to locate and modify the AUTOEXEC.BAT file, which is found on the drive that the PC boots from (usually drive C).

  Note: This prompt appears only if you enter "n" at the prompt "CURRENTLY, does MCONSOLE run automatically on power-up?".

Enabling AdminPlus on the MSM

The AdminPlus feature must be enabled on the MSM before you can run AdminPlus successfully on your PC. Contact your customer support organization to have this feature installed.

Chapter 3: AdminPlus configuration

This section deals with the configuration of AdminPlus. This task is performed on the AdminPlus Configuration screen (Figure 3-2). Begin by starting the program (type **\mcon\mconsole msm** followed by <Return> at the command prompt). Figure 3-2 currently shows sample values. To view this screen press <3> on the AdminPlus Functions menu (Figure 3-1).

Figure 3-1
AdminPlus Functions menu

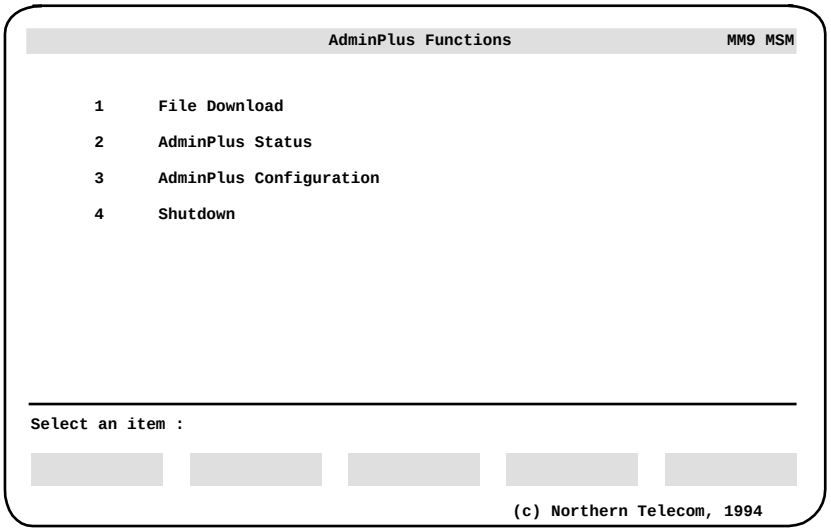
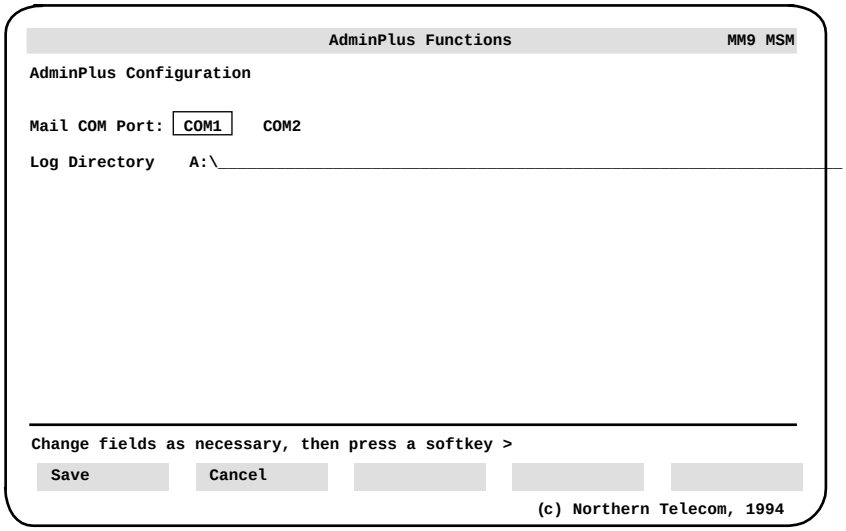


Figure 3-2
AdminPlus Configuration screen



Note: Boxes indicate highlighted text.

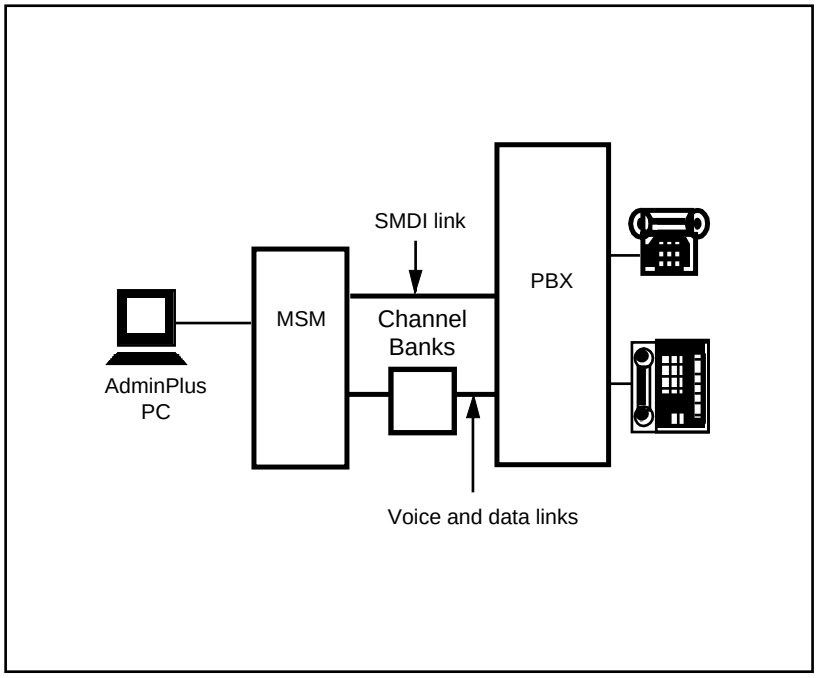
This screen contains the following fields:

- ***Mail COM Port*** Meridian Mail must be connected to the port selected. Use the space bar to toggle between COM1 and COM2. After choosing the com port, press <Tab> to move to the *Log Directory* field.
- ***Log Directory*** The directory to which log files are copied. Enter the required directory name.

Chapter 4: Using AdminPlus

Meridian Mail AdminPlus can download operational measurement (OM) data files from the MSM to a PC for further processing, allowing integration of this data with other billing and reporting systems. The AdminPlus connections are shown in Figure 4-1.

Figure 4-1
Meridian Mail AdminPlus connections



Starting AdminPlus

AdminPlus is started using the following DOS command on your PC:

Starting point: DOS command prompt

1 Enter \MCON\MCONSOLE MSM followed by <Return>.

The AdminPlus Functions menu appears.

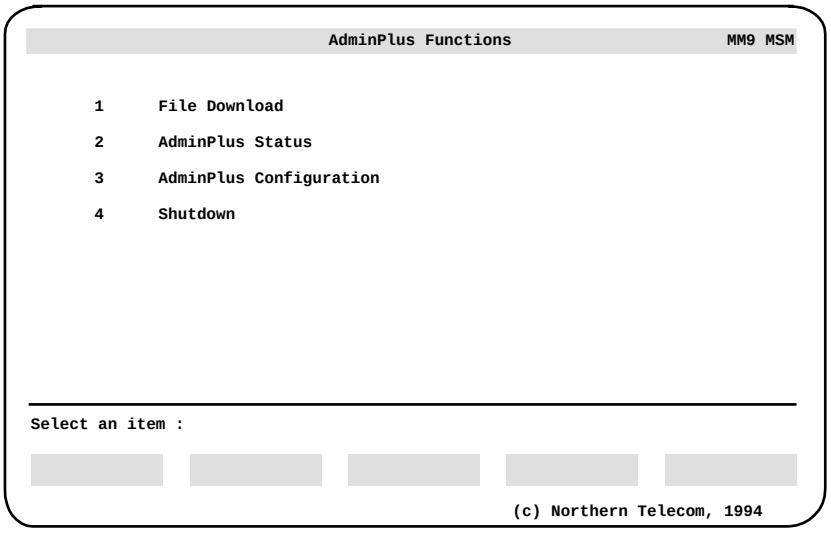
AdminPlus may also be started automatically when you power up your PC. See "AdminPlus installation", Chapter 2, for details.

The AdminPlus Functions menu

The AdminPlus Functions menu (Figure 4-2) appears when you start AdminPlus. The options are:

- *File Download* permits the transfer of data from the MSM to AdminPlus for billing or other tracking activities.
- *AdminPlus Status* displays the current view of the most recent errors.
- *AdminPlus Configuration* includes the initial setup of AdminPlus, as well as any adjustments required over time.
- *Shutdown* stops the AdminPlus program.

Figure 4-2
AdminPlus Functions menu



Selecting AdminPlus functions

Starting point AdminPlus Functions menu

1 Choose an item by entering its number and pressing <Return> or <Enter>.

The menu corresponding to your selection appears.

See the following chapters and referenced figures for details:

<1> "File download" (Chapter 5)

<2> "Troubleshooting" (Chapter 6)

<3> "AdminPlus configuration" (Chapter 3)

Chapter 5: File download

The file download capability is provided so that organizations can retrieve information collected by Meridian Mail and integrate it into billing or other reporting systems. Once downloaded and processed with the supplied conversion utilities (discussed in the section "Processing the download" later in this chapter), the data can be exported to a commercial database or spreadsheet product for processing and report generation.

For information on operational measurements, see the *Meridian Mail MSM System Administration Guide*.

File download

The File Download Request List screen (Figure 5-1) lists the current file download requests and allows you to access the File Download Edit screen (Figure 5-2) where you can enter new download requests. A series of files can be requested.

Downloading progress as well as any problems are reported to the File Download Request List screen. The File Download Request List screen also allows you to delete, reissue (resubmit), or cancel file download requests.

Adding a file download request to the queue

The following procedure describes how you can add a request to download a file to the File Download Request List screen (Figure 5-1).

Procedure 5-1
Adding a file download request

Starting point: AdminPlus Functions main menu

1 Type <1> and press <Return> or <Enter>.

The File Download Request List screen is displayed (Figure 5-1).

2 Press [Add Request].

The File Download Edit screen is displayed (Figure 5-2).

3 Use the cursor keys to move to and change the value of fields. The Priority field is *not applicable to AdminPlus for the MSM*; toggling "Low" and "High" has no effect on the operation of AdminPlus.

- ***File Type*** File types are one of the following: Usage, Menu_Stat, Ntwk_Bill, Aud_Trail, Directory, SEER, Traffic, or Loc_bill.
- ***Starting Date*** Starting day for the desired data interval. For example, if data for January 31, 1994 is desired, a starting date of "31/01/94" would be specified. The date format is fixed as DD/MM/YY.
- ***Ending Date*** Last day for the desired data interval. For example, if data for January 31, 1994 is desired, an ending date of "31/01/94" would be specified.

  Note 1: When downloading a Directory file type or Usage file type, the start and end dates are ignored.
- ***Destination Filename*** Full path name for drive, directory, and file to which you wish the data to be downloaded. For example, "c:\spdata\october\billing" would refer to the "C" drive, the "\spdata\october" directory, and a file called "billing.dta". (The ".dta" extension is automatically appended if no extension is provided.) If the destination file already exists, it is automatically overwritten.
- ***Download Priority*** This field is not applicable to AdminPlus for the MSM.

4 Choose step 4a to save the changes or 4b to cancel.

a. Press [Save].

The changes are saved and you are returned to the File Download Request List screen.

b. Press [Cancel].

You are returned to the File Download Request List screen without saving any changes made in the File Download edit.

5 Check that your download request is listed on the File Download Request List screen.

6 From the File Download Request List screen, press [Exit] to return to the AdminPlus Functions menu.

Figure 5-1
File Download Request List screen

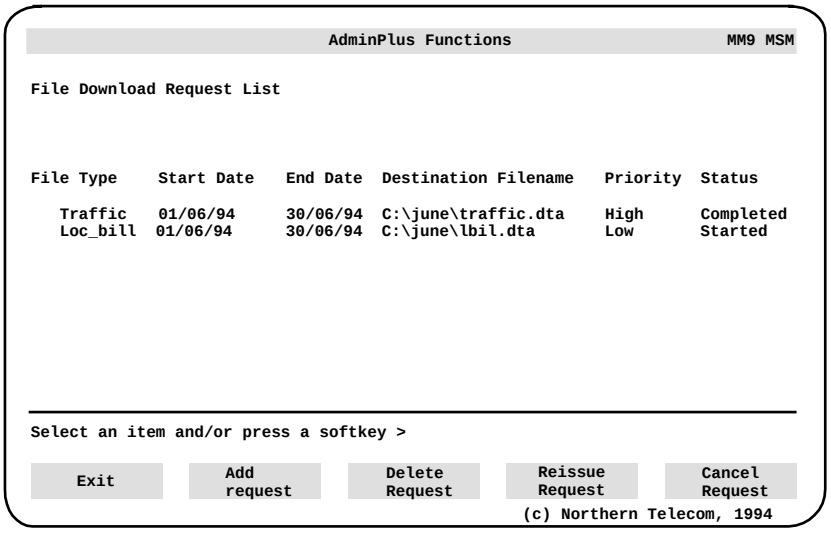
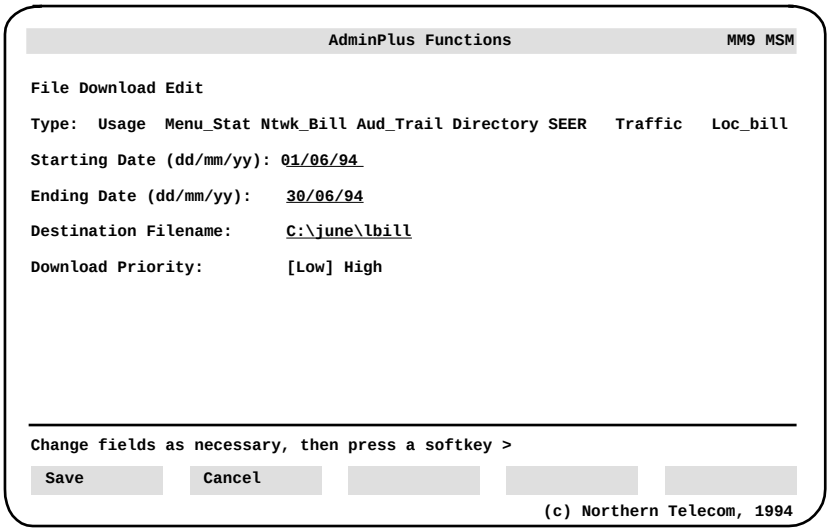


Figure 5-2
File Download Edit screen



Functions of the File Download Request List screen

The File Download Request List screen (Figure 5-1) permits the user to add, delete, reissue, or cancel a file download request.

In addition to the fields entered on the File Download Edit screen, the File Download Request List screen also displays the downloading status (*Status* column). This read-only column displays the status of all the requests in the list.

Table 5-1
Download request status values

Field	Meaning
Waiting	The transfer hasn't started.
Started	The transfer process has just started.
Completed	The transfer was successfully completed.
Cancelled	The transfer request was cancelled (by you).
xx% Done	The transfer request is xx percent complete.
xxkB Recd	xx kilobytes have been transferred to date.
Not Found	The requested data is unavailable for the requested date range.
Open Error	The destination file could not be opened; this usually means the destination drive or directory does not exist, is full, or is write-protected.
Write Error	The destination file could not be written to; this usually means that the destination drive has become full during the download process. Clear space on the destination drive (from DOS), or select a different destination drive.
Timeout	The system is not responding to the download request; try repeating the request. If it fails again, contact your support organization.
Sys.Error, Int.Error	A software problem occurred. Contact your support organization.
- end -	

Reissuing an existing file download request

The following procedure allows you to reissue any request still on the File Download Request List screen. You may wish to reissue an old request or one that failed.

Procedure 5-2
Reissuing an existing file download request

Starting point: AdminPlus Functions main menu

1 Type <1> and press <Return> or <Enter>.

The File Download Request List screen is displayed (Figure 5-1).

2 Use the up and down arrow keys to highlight the request you wish to modify.

3 Press [Reissue Request].

The File Download Edit screen is displayed (Figure 5-2) with your request shown.

4 Use the tab and arrow keys to move to and change the value of fields on the screen.

5 Choose step 5a to save the changes or 5b to cancel the changes.

a. Press [Save].

The changes are saved and you are returned to the File Download Request List screen.

b. Press [Cancel].

You are returned to the File Download Request List screen without saving any changes.

6 Verify your request in the File Download Request List.

Deleting a file download request from the queue

The following procedure allows you to remove a request from the File Download Request List.

Procedure 5-3
Deleting a file download request

Starting point: AdminPlus Functions main menu

1 Type <1> and press <Return>.

The File Download Request List screen is displayed (Figure 5-1).

2 Use the up and down arrow keys to select the request you wish to delete.

3 Press [Delete Request].

Your selection is deleted from the File Download Request List.

4 Press [Exit] to return to the AdminPlus Functions menu.

Cancelling an active file download request

You may cancel a request that has not yet been completed. This will stop the requested download from occurring, or terminate a download that is in progress. The request will remain in the queue for later reissue.

Procedure 5-4
Cancelling a file download request

Starting point: AdminPlus Functions main menu

1 Type <1> and press <Return>.

The File Download Request List screen is displayed (Figure 5-1).

2 Use the up and down arrow keys to select the request you wish to Cancel.

3 Press [Cancel Request].

The selection is marked "Cancelled".

4 Press [Exit] to return to the AdminPlus Functions menu.

Processing the download

Files are downloaded from the Meridian Mail MSM System in their internal binary format. Before the data can be loaded into a commercial database product, the files must be converted into ASCII. Included with the AdminPlus software is a file conversion utility (FCV) that performs this task. FCV uses templates, included with the AdminPlus software, that describe the translations from internal binary format to ASCII format.

FCV runs from the DOS environment. In order to execute the FCV utility, the AdminPlus program must be shut down. The FCV utility (FCV.EXE) generates the ASCII file or files for each type of data.

For the more sophisticated user, the syntax for FCV is

FCV [template-name [input-data-name [output-name]]]

template-name is the name of the template file. If no extension is given, ".TPL" is used. If no template name is given (no command line arguments), then FCV prompts interactively for its files. The supplied template files describe how the binary data is to be converted into one main file and possible sub-files. The sub-file names are embedded into the template and cannot be changed.

input-data-name is the name of the data file transferred from the MSM. If no extension is given, ".dta" is used. If this argument is omitted, then "template-name.dta" is used.

output-name is the name of the file to be created in ASCII. This refers to the main output file of the template. By default, the main output file name will be "input-data-name.prn". Some templates produce subfiles with predefined names. Consult the "templates" subsection to determine the files produced by each template. The output files consist of text lines. The records consist of fields separated by commas; character strings are enclosed in double quotation marks.

Templates

The following templates are available with AdminPlus:

DIRECT.TPL	User directory and VSDN entry file template; produces the file DIRECT.PRN (unless another output file is specified) and VSDN.PRN.
LBIL.TPL	Local voice message billing file template; produces the file LOCBIL.PRN.

NBIL.TPL	Networking message billing file template; produces the file NETBIL.PRN.
ATRAIL.TPL	Outcalling message billing file template; produces the files ATRAIL.PRN and FAXTRAIL.PRN.
UUSAGE.TPL	User Usage file template; produces the files UVMBIL.PRN and UNETBIL.PRN.
TRAFFIC.TPL	Traffic file template; produces the files TRAFFIC.PRN, VSERVICE.PRN, VMTRAF.PRN, MTA.PRN, NMTA.PRN, AMIS.PRN, PCACCESS.PRN, OUTCALL.PRN, FAXBACK.PRN, T1LHTRAF.PRN, SMDITRAF.PRN, VPORT.PRN, and VSD.PRN.
MSTATS.TPL	Voice menu statistics file template; produces the files MSTATS.PRN and PEGDATA.PRN.
SEER.TPL	SEER file template; produces the file SEER.PRN, unless another output file is specified.

If transferring a file from the AdminPlus to another PC, you should retain the same file name on the destination system (for example, C:\OM\TRAFFIC). This simplifies the process of converting the raw data files, since FCV automatically selects templates for the corresponding file names.

Examples of file conversion usage

The normal usage is to specify only the template name. In this case the default input data file and output file names are used, as explained in the previous section. For example, the command

```
FCV name
```

would use a template file named NAME.TPL to process the input data file NAME.DTA and generate the main output file NAME.PRN (plus any other .PRN sub-files specified by the template).

Example 1: Operational Measurements-Traffic Report
Enter: FCV traffic

The file TRAFFIC.DTA is read and converted into the ASCII file TRAFFIC.PRN as well as a set of sub-files, VSERVICE.PRN, VMTRAF.PRN, MTA.PRN, NMTA.PRN, AMIS.PRN, PCACCESS.PRN, OUTCALL.PRN, FAXBACK.PRN, T1LHTRAF.PRN, SMDITRAF.PRN, VPORT.PRN, and VSD.PRN.

Example 2: System Error and Event Report
Enter: FCV SEER

Under control of the SEER.TPL template, SEER.DTA is read and converted into the ASCII file SEER.PRN.

Output file types

The following types of output files are produced:

User Directory: DIRECT.PRN and VSDN.PRN.
The DIRECT.PRN file is a directory of all the local voice users available on the MSM. Each billing file and user usage file record can be cross-referenced with this file to obtain complete information on each user.

The VSDN.PRN file is a list of all of the VSDNs available on the system. Each record in the FAXTRAIL.PRN file can be cross-referenced with this file to obtain complete information on the VSDN.

Billing Files: LOCBIL.PRN, NETBIL.PRN, ATRAIL.PRN, and FAXTRAIL.PRN. These files contain billing information for various multimedia services on a per call basis.

User Usage Files: UVMBIL.PRN and UNETBIL.PRN. These files contain daily billing totals for various voice services on a per user basis.

Traffic Files:	TRAFFIC.PRN, VSERVICE.PRN, VMTRAF.PRN, MTA.PRN, NMTA.PRN, AMIS.PRN, PCACCESS.PRN, OUTCALL.PRN, FAXBACK.PRN, T1LHTRAF.PRN, SMDITRAF.PRN, VPORT.PRN, and VSD.PRN. These files contain interval totals (normally tallied hourly) for various voice services available on the MSM.
Menu Statistics:	MSTATS.PRN and PEGDATA.PRN. These files contain interval totals (normally tallied hourly) for voice menu, announcement, and fax item accesses.
Error Log Files:	SEER.PRN. This file contains a log of all system events and error reports (SEERs).

Output file format

The FCV program converts the raw data to an ASCII file format. Each line in the output file contains a set of fields. Each field in a set is separated by a comma and appears with the maximum specified width. This presentation format (known as a flat ASCII file) is compatible with the input requirements of most database and spreadsheet programs.

The following tables describe the format of a record in each output file. The width of the fields is given in ASCII characters. Dates are given in the format YY.MM.DD. Times are given in the format HH:MM:SS. Some fields are for development use only and are marked "internal".

> ***Note:*** In the tables that follow, all fields which appear marked off in parentheses and enclosed by double quotation marks, for example ("YY.MM.DD") and ("HH:MM:SS") are string fields. Other string type fields are identified by the word "string" enclosed in parenthesis.

For information on operational measurements, see the *Meridian Mail MSM System Administration Guide.*

Deleting users during reporting interval

CAUTION
Deleting users
Deleting a user mailbox from Meridian Mail removes all data associated with that user. If a user is deleted in the middle of a reporting interval, no user usage data will be available for the entire reporting interval.

For example, an administrator downloads all user usage data each Monday for the previous seven days. Any users that were removed from the system during the previous seven days will not appear in the report. Data is reported only for users that exist in the system while the download is being carried out.

User directory and VSDN entry file

This section describes the user directory output file and the voice service directory number (VSDN) entry file. The intended purpose of these files is to provide complete information on all users and VSDNs registered on the system.

Files generated using DIRECT.TPL

The template file DIRECT.TPL is used to convert the downloaded ".DTA" file into DIRECT.PRN and VSDN.PRN output files.

DIRECT.PRN

Each record in the DIRECT.PRN file contains information on a voice user in the system. This file lists the users in alphabetical order of their last names. Only local mailbox users are included in this file. Directory entry users and remote voice users will not be included.

The first three fields, *User organization number*, *User system number*, and *User serial numb*er, provide a unique identifier for a particular user. All billing files and user usage files will also have these three fields in every record. This allows a billing application to extract complete user information for those records.

The record format for the DIRECT.PRN file is presented in Table 5-2.

Table 5-2
DIRECT.PRN File record format (Directory of active users on the system)

Field No.	Width	Field description
1	6	User organization number
2	6	User system number
3	12	User serial number
4	18	User mailbox number (string)
5	3	Networking site ID (Always zero for local voice users. In future this report may include remote users.)
6	2	NMS Location ID (not applicable on the MSM)
7	41	Last name (string)
8	21	First name (string)
9	33	Department number (string)
10	31	Primary DN (string)
11	1	Billing class
12	6	Customer number
13	3	Class of Service

VSDN.PRN

Each record of the VSDN.PRN file contains information on the VSDN on the system. The first three fields, *Service organization number, Service system number,* and *Service serial number*, provide a unique identifier for each VSDN. The FAXTRAIL.PRN output file, which is generated using the billing output template, ATRAIL.TPL, will also contain these fields in every record. This allows a billing application to extract complete information on each VSDN for those records.

The record format for the VSDN.PRN file is presented in Table 5-3.

Table 5-3
VSDN.PRN File record format (VSDN entries on the system)

Field No.	Width	Field description
1	6	Service organization number
2	6	Service system number
3	12	Service serial number
4	6	Customer Number
5	31	VSDN (string)
6	3	Service type
		0 = Voice messaging
		1 = Call answering
		2 = Express Messaging
		3 = Thu-dial
		4 = Analog Transfer Agent
		5 = Voice menu
		6 = Announcement
		7 = ACCESS
		8 = Outcalling
		9 = Voice administration
		10 = Prompt maintenance
		11 = Time-of-day control
		12 = Hospitality
		13 = Post-checkout
		14 = Remote activation
		15 = Delivery to nonusers
		16 = Remote notification
		17 = Not applicable
		18 = AMIS
		19 = Transcription service
		20 = Voice forms
		21 = CCA greeting service

Field No.	Width	Field description
		22 = Fax information service
		23 = Fax item maintenance
		24 = Fax same call delivery
		25 = Fax call back delivery
		26 = Fax outcalling
7	19	VSDN Comment (string)

Billing files

This section describes the billing output files. The intended purpose of these files is to provide billing information on a per-session basis, which can be cross-referenced with the complete user information in the user directory file.

CAUTION
Billing file data life
Billing files only hold data for the previous two days. Applications which read this data will require a download at least every two days.

The billing files will only be generated if the *Collect User Usage Data* field in the Operational Measurement (OM) Options screen is enabled.

For more information on OM Options, see the *Meridian Mail MSM System Administration Guide.*

File generated using LBIL.TPL

LOCBIL.PRN

The LOCBIL.PRN output file is generated using the template LBIL.TPL. The records in the LOCBIL.PRN file are in chronological order. This data is updated continuously and can be downloaded as frequently as required.

Each record contains information on a local voice session that took place in the system. For security applications which need to count unsuccessful logon attempts, any record in the LOCBIL.PRN file which has a session length of zero (field #16) indicates an invalid logon attempt. The user identification fields (field numbers 18 to 20), *User organization number*, *User system number*, and *User serial number*, provide a unique identifier for a particular user. Billing applications can cross-reference this information with the contents of the DIRECT.PRN file to obtain complete user information.

The record format for the LOCBIL.PRN file is presented in Table 5-4.

Table 5-4
LOCBIL.PRN File record format (Local voice session billing information)

Field No.	Width	Field description
1	3	Record version (internal)
2	3	Record type (internal)
3	8	Session start date ("YY.MM.DD")
4	8	Session start time ("HH:MM:SS")
5	8	Session end date ("YY.MM.DD")
6	8	Session end time ("HH:MM:SS")
7	1	Session type 0 = Call answering 1 = Logon 2 = PC access 3 = Express Messaging
8	1	Call type 0 = Internal 1 = External
9	6	Number of composed messages created in one messaging session
10	6	Number of call answering messages created in one session
11	6	Number of reply messages in one session
12	6	Number of forwarded messages in one session

Field No.	Width	Field description
13	6	Shortest message length in seconds
14	6	Longest message length in seconds
15	6	Total message length in seconds
16	6	Session length in seconds
17	13	User ID (string)
18	6	User organization number
19	6	User system number
20	12	User serial number
21	18	User mailbox number (string)
22	11	Department (string)
24	6	Number of short messages deleted
25	12	Caller DN
26	3	Unread messages at start of session
27	3	Unread messages at end of session
28	3	Messages arrived during session
29	3	Unread messages read during session
30	3	Messages sent during session
31	3	Time delay messages sent
32	6	Total messages at start of session
33	1	Last MWI lamp action 0 = Off 1 = On 2 = Untouched

File generated using NBIL.TPL

NETBIL.PRN

The NETBIL.PRN output file is generated using the template NBIL.TPL. The records of this file are arranged in chronological order. Data is updated continuously and can be downloaded as frequently as required.

Each record contains information on a networking or AMIS session that has taken place in the system. AMIS sessions are distinguished by the value in the *Recipient networking site ID* field. For AMIS sessions, this field always reads 501.

The user identification fields (field numbers 10 to 12), *User organization number*, *User system number*, and *User serial number*, provide a unique identifier for each user. Billing applications can cross-reference this information with the contents of the DIRECT.PRN file to obtain complete user information. The record format for the NETBIL.PRN file is presented in Table 5-5.

Table 5-5
NETBIL.PRN File record format (Networking session billing Information)

Field No.	Width	Field description
1	3	Record version (internal)
2	3	Record type (internal)
3	8	Transmission start date ("YY.MM.DD")
4	8	Transmission start time ("HH:MM:SS")
5	8	Transmission end date ("YY.MM.DD")
6	8	Transmission end time ("HH:MM:SS")
7	3	Recipient networking site ID (501 for AMIS sessions)
8	6	Message type (0 or 1 are for normal messages. Other values are for system messages.)
9	6	Message priority 0 = Standard 1 = Economy 2 = Urgent
10	6	User organization number
11	6	User system number
12	12	User serial number
13	18	User mailbox number (string)*
14	19	Department (string)

*This information is kept in each billing record in case the user is deleted and, therefore, no longer appears in the DIRECT.PRN file.

Files generated using ATRAIL.TPL

The ATRAIL.PRN output file is generated using the template ATRAIL.TPL.

ATRAIL.PRN

Each record of the ATRAIL.PRN file contains information on an outcalling call (remote notification (RN) or delivery to a nonuser (DNU)) that took place in the system. The records within the ATRAIL.PRN file are in chronological order. This data is updated continuously and can be downloaded as frequently as required.

There are usually multiple records for each call, showing the various states of the call from submission to the actual placement and connection. Most applications will only bill for answered calls and should, therefore, filter records based on the state of the call answered field.

To determine the total call length, compare the answer call date and time with the terminated call date and time. If the audit trail record is reporting an outcall which has been answered, then the answered date and time and the terminated date and time will be set; otherwise, these fields will contain NIL dates ("335.255.255") and NIL times ("255.255.255"). For example, the following points describe a situation where these fields are not applicable:

- A user on the system receives a message which triggers a remote notification.
- The system places a call to the target DN to deliver the remote notification.
- The user is not available and does not answer the call.
- The system puts an entry into the audit trail to indicate that an unsuccessful attempt was made to notify the user. The audit trail entry for this case will contain a NIL date and time value in the answer date and time fields because the call was never answered. Similarly the terminated date and time fields will contain a NIL date and time value because the call was never answered and, therefore, also not terminated.

The user identification fields (field numbers 3 to 5), *User organization number*, *User system number*, and *User serial number*, provide a unique identifier for each user. Billing applications can cross-reference this information with the contents of the DIRECT.PRN file to obtain complete

user information. The record format for the ATRAIL.PRN file is presented in Table 5-6.

Table 5-6
ATRAIL.PRN File record format (Outcalling session billing information)

Field No.	Width	Field description
1	1	Evaluation type 0 = Result from call 1 = Validation before call 2 = Normal submission of request 3 = Note of state or problem 4 = Recovery submission of a request 5 = Recovery submission cancelled 6 = Other submission
2	1	Request type 0 = Remote notification 1 = Delivery to nonuser
3	6	User organization number
4	6	User system number
5	12	User serial number
6	8	Audit trail date ('YY.MM.DD")
7	8	Audit trail time ("HH:MM:SS")
8	6	Identification number (internal)
9	3	Retry counter (current number of retry attempts)
10	8	Channel DN (string)
11	6	Customer number
12	1	Pager type 0 = Phone 1 = Tone pager 2 = Tone/Voice pager 3 = Numeric pager 4 = Paging service pager

Field No.	Width	Field description
13	8	Numeric pager data or PIN (string)
14	30	Target DN (string)
15	8	Delivery date ("YY.MM.DD")
16	8	Delivery time ("HH:MM:SS")
17	8	Answer date ("YY.MM.DD")
18	8	Answer time ("HH:MM:SS")
19	8	Terminated date ("YY.MM.DD")
20	8	Terminated time ("HH:MM:SS")
21	6	Return code from call 0 = Answered 1 = Busy 2 = Reorder tone heard on the call 3 = Not answered 4 = Call failed for unknown reason 5 = Resource delay 6 = RN disabled by external user 7 = No DTMF confirmation 8 = User disconnected before listening to message 9 = Stale dated message 10 = Illegal window for delivering message 11 = Site tone 12 = Invalid called DN 13 = Invalid billing DN 14 = Invalid client DN
22	1	Call answered 0 = No 1 = Yes

Field No.	Width	Field description
23	1	Action 0 = Go ahead with delivery 1 = Schedule for future 2 = Remove request 3 = No action 4 = Error 5 = Channel blocked 6 = SMDI delay 7 = Re-initiate
24	6	Reason (internal) Return code and reason for DNU calls 0 = Delivered 1 = Past delivery window 2 = Past system limit (for retry, stale date, etc.) 3 = Problem reading the message 4 = Message will be stale 5 = Problem delivering NDN 6 = Message deleted by utility 7 = Past system limit (no NDN given) 8 = DNU not set up 9 = Problem determining if customer has outcalling 10 = Duplicate call made due to DNU recovery 11 = Duplicate request discarded due to DNU recovery 12 = Invalid called DN

Field No.	Width	Field description
		Return code and reason for RN calls 0 = Delivered 1 = Notification cancelled because user is logged in 2 = Message arrival is outside time period 3 = Failed to read personal profile (mailbox access problem) 4 = RN not set up 5 = Retry limit reached 6 = RN not turned on 7 = Another RN exists 8 = RN cancelled 9 = Wrong message priority 10 = RN reactivated 11 = Cannot access RN schedule 12 = Cannot access phone number 13 = Failed to update personal profile (mailbox access problem) 14 = Empty mailbox found 16 = Duplicate recovery entry for user (another RN exists) 17 = Notification was cancelled by another request (another RN exists) 18 = Invalid profile 19 = DN no longer valid 20 = Invalid user id 21 = RN disabled by called party 22 = RN turned off due to multiple retry 23 = Problem determining if customer has outcalling 24 = Invalid phone number

FAXTRAIL.PRN

Each record contains information on a fax delivery attempt that took place in the system. The records within the FAXTRAIL.PRN file are in chronological order. This data is updated continuously and can be downloaded as frequently as required. There are usually multiple records for each call, which show the various states of the call, from submission to the actual placement and connection. Most applications will only bill for successful deliveries and should, therefore, filter records based on the state of the successful delivery field. To determine the total call length, compare the answer date and time with the terminated date and time.

Billing applications can use the customer number to bill a customer for fax outcalls. The service identification fields (field numbers 2 to 4), *Service organization number, Service system number,* and *Service serial number*, provide a unique identifier for a particular VSDN. Billing applications can cross-reference this information with the contents of VSDN.PRN file to obtain complete VSDN information.

The record format for the FAXTRAIL.PRN file is presented in Table 5-7.

Table 5-7
FAXTRAIL.PRN File record format (Fax delivery session billing information)

Field No.	Width	Field description
1	1	Evaluation type 0 = Result from call 1 = Validation before call 2 = Normal submission of request 3 = Note of state or problem 4 = Recovery submission of a request 5 = Recovery submission cancelled
2	6	Service organization number
3	6	Service system number
4	12	Service serial number
5	8	Audit trail date ("YY.MM.DD")
6	8	Audit trail time ("HH:MM:SS")
7	6	Identification number (internal)

Field No.	Width	Field description
8	3	Retry counter (current number of retry attempts)
9	8	Channel DN (string)
10	6	Customer number
11	30	Target DN (string)
12	8	Delivery date ("YY.MM.DD")
13	8	Delivery time ("HH:MM:SS")
14	8	Answer date ("YY.MM.DD")
15	8	Answer time ("HH.MM.DD")
16	8	Terminated date ("YY.MM.DD")
17	8	Terminated time ("HH.MM.SS")
18	6	Return code from call 0 = Transmitted 1 = Busy 2 = Reorder tone heard on the call 3 = Not answered 4 = Call failed for unknown reason 5 = Resource delay 6 = Stale dated 7 = Illegal window for delivering fax 8 = Site tone 9 = Invalid called DN 10 = Invalid billing DN 11 = Invalid client DN 12 = No carrier 13 = Transmit error
19	1	Successful delivery 0 = No 1 = Yes

Field No.	Width	Field description
20	1	Action 0 = Go ahead with delivery 1 = Schedule for future 2 = Remove request 3 = No action 4 = Error
21	6	Reason (internal) 0 = Delivered 1 = Past delivery window 2 = Past system limit (for retry, stale date, etc.) 3 = Problem reading the fax 4 = Stale dated 5 = Problem delivering NDN 6 = Message deleted by utility 7 = Past system limit (no NDN given) 8 = Fax on Demand not set up 9 = Problem determining if customer has Fax on Demand feature 10 = Duplicate call made due to fax processing recovery 11 = Duplicate request discarded due to fax processing recovery 12 = Invalid called DN

User usage files

This section describes the user usage output files. The intended purpose of these files is to provide daily billing summary information on a per user basis, which can be cross-referenced with the complete user information in the user directory file. The complete user usage file is downloaded in its entirety. The start and end date filter does not apply. The user usage files will only be generated if the *Collect User Usage Data* field in the OM Options screen is enabled.

For more information on OM Options, see the *Meridian Mail MSM System Administration Guide.*

Files generated using UUSAGE.TPL

The UVMBIL.PRN and UNETBIL.PRN output files are generated using the template UUSAGE.TPL.

UVMBIL.PRN

Each record of the UVMBIL.PRN file contains a set of daily billing totals for a particular local voice user in the system. These totals are automatically generated every night from the local billing files. The user identification fields (field numbers 1 to 3), *User organization number*, *User system number*, and *User serial number,* provide a unique identifier for a particular user.

Billing applications can cross-reference this information with the contents of the DIRECT.PRN file to obtain complete user information.

The record format for the UVMBIL.PRN file is presented in Table 5-8.

Table 5-8
UVMBIL.PRN File record format (Local voice user daily billing summary)

Field No.	Width	Field description
1	6	User organization number
2	6	User system number
3	12	User serial number
4	8	Date of summary collection ("YY.MM.DD")
5	8	Time of summary collection ("HH:MM:SS")
6	6	Total number of logon sessions
7	6	Total number of call answering sessions
8	6	Total number of ACCESS sessions (future use)
9	6	Total number of internal calls (on switch)
10	6	Total number of external calls (off switch)
11	6	Number of composed messages created
12	6	Number of call answering or express messaging messages created

Field No.	Width	Field description
13	6	Number of reply messages created
14	6	Number of forwarded messages created
15	12	Total message length in seconds (logon messages created and call answering or express messaging messages received)
16	12	Total call answering, express messaging, and logon session length in seconds
17	12	Total message storage in seconds. This is the message storage including internal and external greetings in use by the user's mailbox at the time this record was created. See fields 4 and 5 above for the date and time of creation.

UNETBIL.PRN

Each record of the UNETBIL.PRN file contains a set of daily billing totals for a particular networking or AMIS user in the system. The record type field can be used to distinguish AMIS totals from networking totals. These totals are automatically generated every night from the local billing files. The user identification fields (field numbers 1 to 3), *User organization number*, *User system number*, and *User serial number*, provide a unique identifier for a particular user. Billing applications can cross-reference this information with the contents of the DIRECT.PRN file to obtain complete user information. The record format for the UNETBIL.PRN file is presented in Table 5-9.

Table 5-9
UNETBIL.PRN File record format (Networking/AMIS User Daily Billing Summary)

Field No.	Width	Field description
1	6	User organization number
2	6	User system number
3	12	User serial number
4	8	Date of summary collection ("YY.MM.DD")
5	8	Time of summary collection ("HH:MM:SS")
6	6	Total number of urgent messages sent
7	12	Total duration of all urgent messages sent (seconds)
8	6	Total number of standard messages sent
9	12	Total duration of all standard messages sent (seconds)
10	6	Total number of economy messages sent
11	12	Total duration of all economy messages sent (seconds)
12	3	Record Type (137=Networking, 135=AMIS)

Traffic files

This section describes the traffic output files. The intended purpose of these files is to provide system totals on a per interval basis (normally hourly). The records within each file are stored chronologically.

The traffic files will only be generated if the *Collect Traffic Data* field in the OM Options screen is enabled. Traffic totals will only appear between the *Traffic Period Start* and the *Traffic Period End* time in the OM Options screen. The traffic data will remain on the system for the number of days specified in the *Number of Days of Traffic Stored* field in the OM Options screen. Since this can be set to a maximum of eight days, applications which use traffic data typically download the traffic data on a weekly basis.

Files generated using TRAFFIC.TPL

The following output files are generated using the template TRAFFIC.TPL: TRAFFIC.PRN, VSERVICE.PRN, VMTRAF.PRN, MTA.PRN, NMTA.PRN, AMIS.PRN, PCACCESS.PRN, OUTCALL.PRN, FAXBACK.PRN, T1LHTRAF.PRN, SMDITRAF.PRN, VPORT.PRN, and VSD.PRN.

For every service on the system for which traffic data is stored, there is a corresponding record type number. These numbers will appear in some of the traffic files to allow the application to identify the service associated with the traffic data. Refer to Table 5-10 for a list of record type numbers and a brief description (definition) of each record type.

Table 5-10
Traffic record type definitions

Number	Definition
5	Traffic date header record
128	VM detail traffic
129	Volume server traffic
130	Local MTA traffic
131	Voice port traffic
132	Network MTA traffic
133	VM PC access
134	User usage header
135	UNETBIL (AMIS)
136	UVMBIL

Number	Description
137	UNETBIL (networking)
138	VM Pegs-header record
139	VM Pegs-data record
140	Thru-dial traffic
141	Voice menu traffic
142	VM traffic
143	Call answer traffic
144	AMIS traffic
145	ACCESS traffic
146	Express Messaging traffic
147	Announcement traffic
148	Networking traffic
149	VAD (voice administration)
150	PAD (voice prompt maintenance)
151	TDC (Time-of-day control)
152	Post-checkout
153	OCA (outcalling agent)
154	DNU (delivery to non-users)
155	RN (remote notification)
157	Voice forms
158	Transcription service
* 159	Fax same call
* 160	Fax call back
* 161	Fax information service
* 162	Fax item maintenance
* 249	Detail fax delivery traffic
250	Detail T1 link handler traffic
251	Detail SMDI link handler traffic
252	Detail outcalling traffic
253	Detail AMIS traffic
254	Detail hospitality traffic
255	Detail FD traffic
256	Remote notification (RA)

* New for MM9

TRAFFIC.PRN

Each record of the TRAFFIC.PRN file contains a header for a particular traffic record stored on the system. This header contains a record type which identifies the service associated with the traffic record stored. The record format for the TRAFFIC.PRN file is presented in Table 5-11.

Table 5-11
TRAFFIC.PRN File record format (Header information for traffic data stored)

Field No.	Width	Field description
1	6	Number of instances recorded (for example, number of ports referred to in VPORT.PRN)
2	8	Start date of reporting interval ("YY.MM.DD")
3	8	Start time of reporting interval ("HH:MM:SS")
4	8	End date of reporting interval ("YY.MM.DD")
5	8	End time of reporting interval ("HH:MM:SS")
6	3	Record version (internal)
7	3	Record type. Refer to Table 5-10 for the definition corresponding to each record type number.

VSERVICE.PRN

Each record of the VSERVICE.PRN file contains a summary of traffic data for one of the voice services available on the system during a particular OM interval. The record is repeated for each configured service. The order of services is:

- Thru-dial
- Voice menu
- Voice Messaging
- Call Answering
- AMIS
- ACCESS
- Express Messaging

- Announcement
- Networking
- Voice administration
- Voice prompt administration
- Time-of-day service
- Post-checkout service
- Delivery to nonusers
- Remote notification
- Remote activation
- Voice forms
- Transcription service
- Fax same call
- Fax callback
- Fax information service
- Fax maintenance service

Use the record type field to identify the service associated with the traffic data. Refer to Table 5-10 for the definitions corresponding to each record type number. The record format for VSERVICE.PRN file is presented in Table 5-12.

Table 5-12
VSERVICE.PRN File record format (Voice service traffic summary)

Field No.	Width	Field description
1	8	Start date of reporting interval ("YY.MM.DD")
2	8	Start time of reporting interval ("HH:MM:DD")
3	8	End date of reporting interval ("YY.MM.DD")
4	8	End time of reporting interval ("HH:MM:SS")
5	3	Record type Refer to Table 5-10 for the definitions corresponding to each record type number.
6	6	Number of incoming calls
7	6	Number of outgoing calls

Field No.	Width	Field description
8	6	Average time spent handling incoming calls in seconds
9	6	Average time spent handling outgoing calls in seconds

VMTRAF.PRN

Each record of the VMTRAF.PRN file contains a detailed set of Voice Messaging Traffic totals for a particular OM interval. The record format for the VMTRAF.PRN file is presented in Table 5-13.

Table 5-13
VMTRAF.PRN File record format (Detail voice messaging traffic)

Field No.	Width	Field description
1	8	Start date of reporting interval ("YY.MM.DD")
2	8	Start time of reporting interval ("HH:MM:SS")
3	8	End date of reporting interval ("YY.MM.DD")
4	8	End time of reporting interval ("HH:MM:SS")
5	12	Number of call answering sessions
6	12	Number of logon sessions
7	12	Number of internal calls (on switch)
8	12	Number of external calls (off switch)
9	12	Number of logon messages created
10	12	Number of call answering messages created
11	12	Number of reply messages created
12	12	Number of forwarded messages created
13	6	Longest message length in seconds
14	6	Shortest message length in seconds
15	6	Average message length in seconds
16	6	Longest session time in seconds
17	6	Shortest session time in seconds
18	6	Average session time in seconds
19	12	Number of deleted messages

MTA.PRN

Each record of the MTA.PRN file contains a detailed set of local message delivery totals for a particular OM interval. The record format for the MTA.PRN file is presented in Table 5-14.

Table 5-14
MTA.PRN File record format (Detail local message delivery traffic)

Field No.	Width	Field description
1	8	Start date of reporting interval ("YY.MM.DD")
2	8	Start time of reporting interval ("HH:MM:SS")
3	8	End date of reporting interval ("YY.MM.DD")
4	8	End time of reporting interval ("HH:MM:SS")
The following fields are for message traffic within the system:		
5	12	Total messages received
6	12	Total bad/corrupt/lost messages
7	12	Number of standard messages delivered
8	12	Number of economy messages delivered
9	12	Number of urgent messages delivered
10	12	Number of acknowledgements delivered
11	12	Number of nondelivery notifications (NDNs) caused by corruption
12	12	Number of NDNs caused by system error
13	12	Number of NDNs caused by user error
14	12	Shortest delivered message in Kbytes
15	12	Longest delivered message in Kbytes
16	12	Average length of delivered message in Kbytes
17	12	Least no. of recipients of a delivered message
18	12	Highest no. of recipients of a delivered message
19	12	Average no. of recipients of a delivered message

Field No.	Width	Field description
20	6	Shortest delivery time in seconds
21	6	Shortest delivery time in minutes
22	6	Shortest delivery time in hours
23	12	Shortest delivery time in days
24	6	Longest delivery time in seconds
25	6	Longest delivery time in minutes
26	6	Longest delivery time in hours
27	12	Longest delivery time in days
28	6	Average delivery time in seconds
29	6	Average delivery time in minutes
30	6	Average delivery time in hours
31	12	Average delivery time in days
32	12	Number of messages submitted for network delivery
33	12	Lowest number of network sites in the destinations for a single message
34	12	Highest number of network sites
35	12	Average number of network sites
The following fields are for message traffic to or from the telephone network. For a system without networking, the fields will contain zeros.		
36	12	Total messages received
37	12	Total bad/corrupt/lost messages
38	12	Number of standard messages delivered
39	12	Number of economy messages delivered
40	12	Number of urgent messages delivered
41	12	Number of acknowledgements delivered
42	12	Number of nondelivery notifications (NDNs) caused by corruption

Field No.	Width	Field description
43	12	Number of NDNs caused by system error
44	12	Number of NDNs caused by user error
45	12	Min. length of delivered message in Kbytes
46	12	Max. length of delivered message in Kbytes
47	12	Average length of delivered message in Kbytes
48	12	Least no. of recipients of a delivered message
49	12	Most no. of recipients of a delivered message
50	12	Average no. of recipients of a delivered message
51	6	Shortest delivery time in seconds
52	6	Shortest delivery time in minutes
53	6	Shortest delivery time in hours
54	12	Shortest delivery time in days
55	6	Longest delivery time in seconds
56	6	Longest delivery time in minutes
57	6	Longest delivery time in hours
58	12	Longest delivery time in days
59	6	Average delivery time in seconds
60	6	Average delivery time in minutes
61	6	Average delivery time in hours
62	12	Average delivery time in days
63	12	Number on network delivery queue
64	12	Number on network delayed delivery queue

NMTA.PRN

Each record of the NMTA.PRN file contains a detailed set of network message delivery totals for a particular OM interval. The record format for the NMTA.PRN file is presented in Table 5-15.

Table 5-15
NMTA.PRN File record format (Detail network message delivery traffic)

Field No.	Width	Field description
1	8	Start date of reporting interval ("YY.MM.DD")
2	8	Start time of reporting interval ("HH:MM:SS")
3	8	End date of reporting interval ("YY.MM.DD")
4	8	End time of reporting interval ("HH:MM:SS")
5	6	Remote site ID
6	12	Number of delivered urgent messages
7	12	Number of delivered standard messages
8	12	Number of delivered economy messages
9	12	Number of delivered ACK messages
10	12	Number of delivered NDN messages
11	12	Number of received urgent messages
12	12	Number of received standard messages
13	12	Number of received economy messages
14	12	Number of received ACK messages
15	12	Number of received NDN messages
16	12	Stale counts for urgent messages
17	12	Stale counts for standard messages
18	12	Stale counts for economy messages
19	6	Highest number of active connections
20	6	Lowest number of active connections
21	3	Average line utilization
22	6	Active connection time in seconds
23	6	Active connection time in minutes
24	6	Active connection time in hours

Field No.	Width	Field description
25	12	Active connection time in days
26	6	Number of remote sites that could not be reached
27	6	Number of failures due to unavailability
28	6	Number of connections attempted
29	6	Number of times call completed

AMIS.PRN

Each record of the AMIS.PRN file contains a detailed set of AMIS message delivery totals for a particular OM interval. The record format for the AMIS.PRN file is presented in Table 5-16.

Table 5-16
AMIS.PRN File record format (Detail AMIS message delivery traffic)

Field No.	Width	Field description
1	8	Start date of reporting interval ("YY.MM.DD")
2	8	Start time of reporting interval ("HH:MM:SS")
3	8	End date of reporting interval ("YY.MM.DD")
4	8	End time of reporting interval ("HH:MM:SS")
5	6	Remote site ID (always 501 for AMIS)
6	12	Number of delivered urgent messages
7	12	Number of delivered standard messages
8	12	Number of delivered economy messages
9	12	Number of delivered ACK messages
10	12	Number of delivered NDN messages
11	12	Number of received urgent messages
12	12	Number of received standard messages
13	12	Number of received economy messages
14	12	Number of received ACK messages
15	12	Number of received NDN messages
16	12	Stale counts for urgent messages

Field No.	Width	Field description
17	12	Stale counts for standard messages
18	12	Stale counts for economy messages
19	6	Highest number of active connections
20	6	Lowest number of active connections
21	3	Average line utilization
22	6	Active connection time in seconds
23	6	Active connection time in minutes
24	6	Active connection time in hours
25	12	Active connection time in days
26	6	Number of remote sites that could not be reached
27	6	Number of failures due to unavailability
28	6	Number of connections attempted
29	6	Number of times call completed

PCACCESS.PRN

Each record of the PCACCESS.PRN file contains a detailed set of ACCESS message delivery totals for a particular OM interval. The record format for the PCACCESS.PRN file is presented in Table 5-17. This file format is not currently used, but it is included here for future consideration.

Table 5-17
PCACCESS.PRN File record format (Detail ACCESS message delivery traffic)

Field No.	Width	Field description
1	8	Start date of reporting interval ("YY.MM.DD")
2	8	Start time of reporting interval ("HH:MM:SS")
3	8	End date of reporting interval ("YY.MM.DD").
4	8	End time of reporting interval ("HH:MM:SS")
5	12	Number of call answering sessions
6	12	Number of logon sessions
7	12	Number of internal calls

Field No.	Width	Field description
8	12	Number of external calls
9	12	Number of composed messages created
10	12	Number of call answering messages created
11	12	Number of reply messages created
12	12	Number of forwarded messages created
13	6	Longest message length in seconds
14	6	Shortest message length in seconds
15	6	Average message length in seconds
16	6	Longest session time in seconds
17	6	Shortest session time in seconds
18	6	Average session time in seconds
19	12	Number of deleted messages

OUTCALL.PRN

Each record of the OUTCALL.PRN file contains a detailed set of Outcalling message delivery totals for a particular OM interval. The record format for the OUTCALL.PRN file is presented in Table 5-18.

Table 5-18
OUTCALL.PRN File record format (Detail outcalling message delivery traffic)

Field No.	Width	Field description
1	8	Start date of reporting interval ("YY.MM.DD")
2	8	Start time of reporting interval ("HH:MM:SS")
3	8	End date of reporting interval ("YY.MM.DD")
4	8	End time of reporting interval ("HH:MM:SS")
5	12	Number of OCA blockings
6	6	Maximum number of active VSS
7	6	Shortest wait time for a VSS in seconds
8	6	Shortest wait time for a VSS in minutes
9	6	Shortest wait time for a VSS in hours
10	12	Shortest wait time for a VSS in days
11	6	Longest wait time for a VSS in seconds

Field No.	Width	Field description
12	6	Longest wait time for a VSS in minutes
13	6	Longest wait time for a VSS in hours
14	12	Longest wait time for a VSS in days
15	6	Average wait time for a VSS in seconds
16	6	Average wait time for a VSS in minutes
17	6	Average wait time for a VSS in hours
18	12	Average wait time for a VSS in days
19	6	Total wait time for a VSS in seconds
20	6	Total wait time for a VSS in minutes
21	6	Total wait time for a VSS in hours
22	12	Total wait time for a VSS in days
23	12	Number of times waiting for a VSS
24	12	Number of RN requests which have arrived
25	12	Number of call attempts on new RN requests
26	12	Number of call attempts on retry RN requests
27	12	Number of successful RN deliveries
28	12	Number of RN requests cancelled by retry limits
29	12	Number of RN requests cancelled by other limits
30	12	Number of DNU requests which have arrived
31	12	Number of call attempts on new DNU requests
32	12	Number of call attempts on retry DNU requests
33	12	Number of successful DNU deliveries
34	12	Number of DNU requests cancelled by retry limits
35	12	Number of DNU requests cancelled by other limits

FAXBACK.PRN

Each record of the FAXBACK.PRN file contains a detailed set of fax delivery totals for a particular OM interval. The record format for the FAXBACK.PRN file is presented in Table 5-19.

Table 5-19
FAXBACK.PRN File record format (Detail fax delivery traffic)

Field No.	Width	Field description
1	8	Start date of reporting interval ("YY.MM.DD")
2	8	Start time of reporting interval ("HH:MM:SS")
3	8	End date of reporting interval ("YY.MM.DD")
4	8	End time of reporting interval ("HH:MM:SS")
5	12	Number of OCA blockings
6	6	Maximum number of active VSS
7	6	Shortest wait time for a VSS in seconds
8	6	Shortest wait time for a VSS in minutes
9	6	Shortest wait time for a VSS in hours
10	12	Shortest wait time for a VSS in days
11	6	Longest wait time for a VSS in seconds
12	6	Longest wait time for a VSS in minutes
13	6	Longest wait time for a VSS in hours
14	12	Longest wait time for a VSS in days
15	6	Average wait time for a VSS in seconds
16	6	Average wait time for a VSS in minutes
17	6	Average wait time for a VSS in hours
18	12	Average wait time for a VSS in days
19	6	Total wait time for a VSS in seconds
20	6	Total wait time for a VSS in minutes
21	6	Total wait time for a VSS in hours
22	12	Total wait time for a VSS in days
23	12	Number of times waiting for a VSS

Field No.	Width	Field description
24	12	Number of fax requests which have arrived
25	12	Number of call attempts on new fax requests
26	12	Number of call attempts on retry fax requests
27	12	Number of successful fax deliveries
28	12	Number of fax requests cancelled by retry limits
29	12	Number of fax requests cancelled by other limits

T1LHTRAF.PRN

Each record of the T1LHTRAF.PRN file contains traffic information and error counts for an interval for one T1 link configured on the system. The record is repeated for each available (in service) link. The record format for the T1LHTRAF.PRN file is presented in Table 5-20.

Table 5-20
T1LHTRAF.PRN File record format (T1 link handler statistics)

Field No.	Width	Field description
1	8	Start date of reporting interval ("YY.MM.DD")
2	8	Start time of reporting interval ("HH:MM:SS")
3	8	End date of reporting interval ("YY.MM.DD")
4	8	End time of reporting interval ("HH:MM:SS")
5	2	T1 link location (node number)
6	2	T1 link location-part 1
7	2	T1 link location—part 2
8	6	Number of bipolar violations
9	6	Number of out-of-frame errors
10	6	Number of extended SF errors
11	6	Backward slip count
12	6	Forward slip count

SMDITRAF.PRN

Each record of the SMDITRAF.PRN file contains traffic information and SMDI message statistics for an interval for the SMDI links on the system. The record is repeated for each available (in service) link. The record format for the SMDITRAF.PRN file is presented in Table 5-21.

Table 5-21
SMDITRAF.PRN File record format (SMDI link handler statistics)

Field No.	Width	Field description
1	8	Start date of reporting interval ("YY.MM.DD")
2	8	Start time of reporting interval ("HH:MM:SS")
3	8	End date of reporting interval ("YY.MM.DD")
4	8	End time of reporting interval ("HH:MM:SS")
5	6	Messages sent from switch
6	6	Messages sent from application
7	6	Errors sending call info
8	6	MWI requests for invalid DN
9	6	MWI acknowledgements blocked
10	6	MWI negative acknowledgements
11	6	MWI ON requests
12	6	MWI OFF requests
13	6	Application logins
14	6	Application logouts
15	6	Link outages
16	6	Requests made while link down
17	6	Invalid PCI messages received
18	6	Bad packets/formats detected

VPORT.PRN

Each record of the VPORT.PRN file contains traffic information for a voice or multimedia port (channel) during a particular OM interval. The record is repeated for each configured channel on the system in ascending channel number order. The record format for the VPORT.PRN file is presented in Table 5-22.

Table 5-22
VPORT.PRN File record format (Voice port traffic)

Field No.	Width	Field description
1	8	Start date of reporting interval ("YY.HH.DD")
2	8	Start time of reporting interval ("HH:MM:SS")
3	8	End date of reporting interval ("YY.MM.DD").
4	8	End time of reporting interval ("HH:MM:SS")
5	6	Number of incoming calls
6	6	Number of outgoing calls
7	6	Average time spent handling incoming calls in seconds
8	6	Average time spent handling outgoing calls in seconds

VSD.PRN

Each record of the VSD.PRN file contains traffic information for a disk volume during a particular OM interval. The record is repeated for each configured disk volume on the system in ascending volume ID number order. The record format for the VSD.PRN file is presented in Table 5-23.

Table 5-23
VSD.PRN File record format (Disk volume traffic)

Field No.	Width	Field description
1	8	Start date of reporting interval ("YY.MM.DD")
2	8	Start time of reporting interval ("HH:MM:SS")
3	8	End date of reporting interval ("YY.MM.DD")
4	8	End time of reporting interval ("HH:MM:SS")

Field No.	Width	Field description
5	6	Volume ID
6	12	Volume size in Kbytes
7	12	Least space available in Kbytes
8	12	Most space available in Kbytes
9	12	Space available at the end of the reporting interval
10	12	Number of blocked accesses in thousands
*11	12	Pre-audit capacity in Kbytes
*12	12	Post-audit capacity in Kbytes
*13	8	Audit date ("YY.MM.DD")
*14	8	Audit time ("HH:MM:SS")

* These fields refer to the most recent audit.

Menu statistics files

This section describes the files that report the number of accesses for voice menus, announcements, and fax items.

Files generated using MSTATS.TPL

The template MSTATS.TPL generates the MSTATS.PRN and PEGDATA.PRN output files. These files are very similar to files generated using the TRAFFIC.TPL template as they maintain totals for a particular voice service on a per interval basis.

MSTATS.PRN

Each record in the MSTATS.PRN file lists the date and time interval for a particular PEGDATA.PRN record. The record format for the MSTATS.PRN file is presented in Table 5-24.

Table 5-24
MSTATS.PRN File record format (headers for PEGDATA.PRN records)

Field No.	Width	Field description
1	3	Record version (internal)
2	3	Record type
3	8	Start date of reporting interval ("YY.MM.DD")
4	8	Start time of reporting interval ("HH:MM:SS")

Field No.	Width	Field description
5	8	End date of reporting interval ("YY.MM.DD")
6	8	End time of reporting internal ("HH:MM:SS")

PEGDATA.PRN

Each record of the PEGDATA.PRN file contains a detailed set of voice menu, announcement, or fax item totals for a particular OM interval. The last field in the record is used to distinguish between voice menu, announcement, and fax item traffic records. The record format for the PEGDATA.PRN file is presented in Table 5-25.

Table 5-25
PEGDATA.PRN File record format (Detail voice menu, announcement, and fax item traffic)

Field No.	Width	Field description
1	8	Start date of reporting interval ("YY.MM.DD")
2	8	Start time of reporting interval ("HH:MM:SS")
3	8	End date of reporting interval ("YY.MM.DD")
4	8	End time of reporting interval ("HH:MM:SS")
5	8	Service ID of menu, announcement, or fax item (string)
6	6	Number of accesses
7-18	6	Number of times each key is used (fields 7-18 correspond to keys 1,2,3...9,0,*,#, respectively)
19	4	Customer number
20	1	Call type 0 = Announcement 1 = Menu 2 = Fax Item

In each interval, the voice menus, announcements, and fax items which were accessed will appear sorted by voice service ID. If there are multiple customers using the same voice service ID, these items will appear sorted by customer number within each voice service.

The number of key presses tallied in fields 7-18 may not correspond to the number of accesses recorded in field number 6. If the total number of key

presses is less than the number of accesses, this indicates that callers are abandoning voice menu sessions without pressing any keys. If the total number of key presses is greater than the number of accesses, this indicates that callers are making multiple selections within the voice menus.

If a user presses the zero key to go back to the revert DN while in a voice menu, an announcement, or fax item which is part of a menu, the zero-key-press access will appear in field 16 of the PEGDATA.PRN record. If a user presses the zero key to revert to the revert DN while in a stand alone announcement or fax item, the zero-key-press access will appear in field 16 for the announcement or fax item.

Error log file

This section describes the error log output file. The intended purpose of this file is to provide a log for all system error and event reports (SEERs). For more information on SEER format, see *Meridian Mail Maintenance Messages (SEERs)* (NTP 555-7001-510).

File generated using SEER.TPL

SEER.PRN

The SEER.PRN output file is generated using the template SEER.TPL. Each record contains information pertaining to a single SEER logged by the system. The record format of the SEER.PRN file is presented in Table 5-26.

Table 5-26
SEER.PRN File record format (System error and event report information)

Field No.	Width	Field description
1	8	Date generated ("YY.MM.DD")
2	8	Time generated ("HH.MM.SS")
3	6	Sequence number (internal)
4	6	Error action number
5	6	Action qualifier
6	6	Node number
7	6	Error number and class
8	130	Error string

Field No.	Width	Field description
9	6	Error severity 1 = Critical 2 = Major 3 = Minor 4 = Error information 11= Administration, critical 12= Administration, major 13 = Administration, minor 14 = Administration, information 24 = System information 34 = Debug information
10	3	TN (part I)
11	3	TN (part II)
12	6	Customer number

Note: When an error is not specific to a particular customer group, the system inserts a negative number in the *Customer number* field of the SEER record to indicate that the error is not customer-specific. Valid customer numbers are always positive.

Chapter 6: Troubleshooting

This troubleshooting chapter addresses some easy-to-remedy problems the administrator may come across, and provides the most likely solutions to these problems.

The following problems are of a nature such that the software, itself, does not display an error message. Specific error messages and their solutions are discussed in the latter part of this chapter.

The administration main menu screen does not respond and seems "frozen".

1 Check the AdminPlus Status screen by selecting item 2 from the AdminPlus Functions menu. The AdminPlus Status screen tells you the status of the LINK; the SEER list may give an indication of the problem.

2 Press [Change Link Mode].

3 Reboot the AdminPlus PC.

Unable to download a file

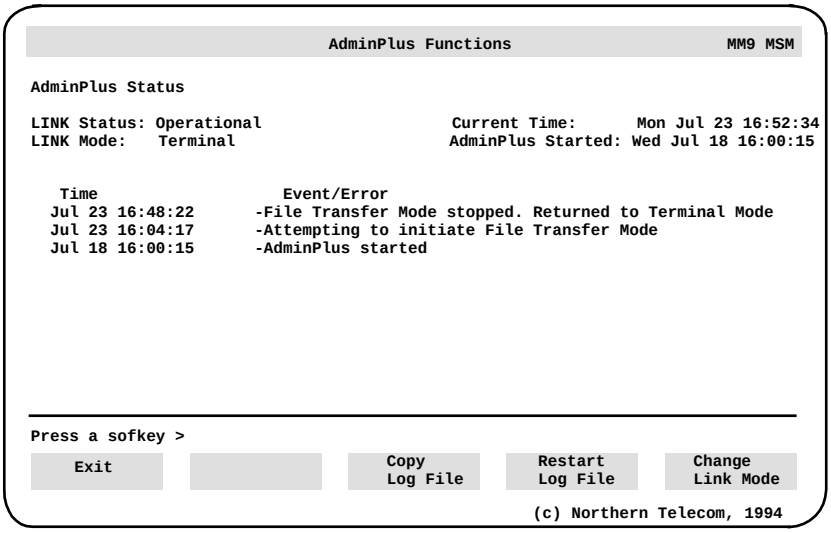
- Check the AdminPlus Status screen and verify that the LINK status is operational and the Link mode is File Transfer. File download will only work under these conditions.

The PC does not start-up at all or encounters an error during startup.

- Follow the problem determination and diagnostic procedures in your PC manual.

Event/Error display

Figure 6-1
AdminPlus status screen



The following fields are displayed on this screen:

- ***LINK Status*** The LINK Status field should read "Operational". A status of "Faulty" (the only other status possible) indicates that some problem has occurred with the connection between AdminPlus and the MSM. A faulty link can disable the administration screens.
- ***LINK Mode*** The LINK mode can be either "File Transfer" or "Terminal".
- ***Current Time*** This is the current date and time according to the internal PC clock. To change the time, exit AdminPlus and use the DOS date or time command.
- ***AdminPlus Started*** This is the date and time that AdminPlus was started.
- ***Time*** This is the date and time the Event/Error occurred.

- ***Event/Error*** Any significant AdminPlus problem or occurrence is listed in the Event/Error column. Events are displayed and stored so that any problem relating to AdminPlus can be traced and resolved. The Event/Error column shows the most recent 12 events only. All events occurring since the most recent start of AdminPlus are stored in a text file on the PC, ‘mconsole.log’. The events occurring from the previous time that AdminPlus was run are stored in the text file ‘mcon_old.log’. Though normally not necessary, these files can be accessed by using the [Copy Log File] softkey.

Specific errors

The following errors are indicated in the Event/Error column on the AdminPlus Status screen. The end of the error message will have a code, between parentheses, which should be noted if the error is to be reported to your system support organization. For example, *"Error: link port not installed (EDC0B)*".

- ***Link port not installed*** The port assigned to the link is not installed, is faulty, or is installed incorrectly.
  - Check that there is a port installed.
  - Check that the port was installed correctly, with all jumpers and DIP switches set properly. Refer to the manual supplied with the serial port.
  - Confirm that the addresses and interrupt selected for the port do not conflict with any other device (like the other port or the LAN card).
- ***LINK retry limit exceeded*** After several attempts, the PC was unable to send data to the MSM and the data was lost.
  - This may occur occasionally if the MSM is overloaded. If the problem occurs frequently, some reconfiguration or capacity upgrade may be necessary.
- ***Serial port not responding*** The physical connection to the serial port has been broken or is incorrect.
  - Check the cable between the PC and the MSM.

- ***Incompatible link versions*** The version of software in the MSM is incompatible with the version of the AdminPlus software you are running.
  - Contact your support organization.
- ***Lost link synchronization*** The LINK is no longer synchronized, and some data may have been lost.
  - Use [Change LINK Mode] in the AdminPlus Status screen.
- ***Host restarted*** The MSM has restarted.
  - No action is necessary on the AdminPlus PC, but you may wish to determine why the MSM restarted.
- ***Network receive (or send) queue full*** Data to or from AdminPlus is delayed but not lost.
- ***Lost file transfer packet*** Part of the data in a file transfer was lost and the file transfer was aborted. Its status indicates *Timeout*.
  - Restart the file transfer.
- ***Unknown data link error*** An untraceable error has occurred in the AdminPlus software.
  - If the error is repeated, contact your support organization.

Troubleshooting guide

This section presents a flowchart which can be used to assist the user in isolating and identifying software problems or the hardware component that may need replacement.

Figure 6-2
Troubleshooting the MSM setup

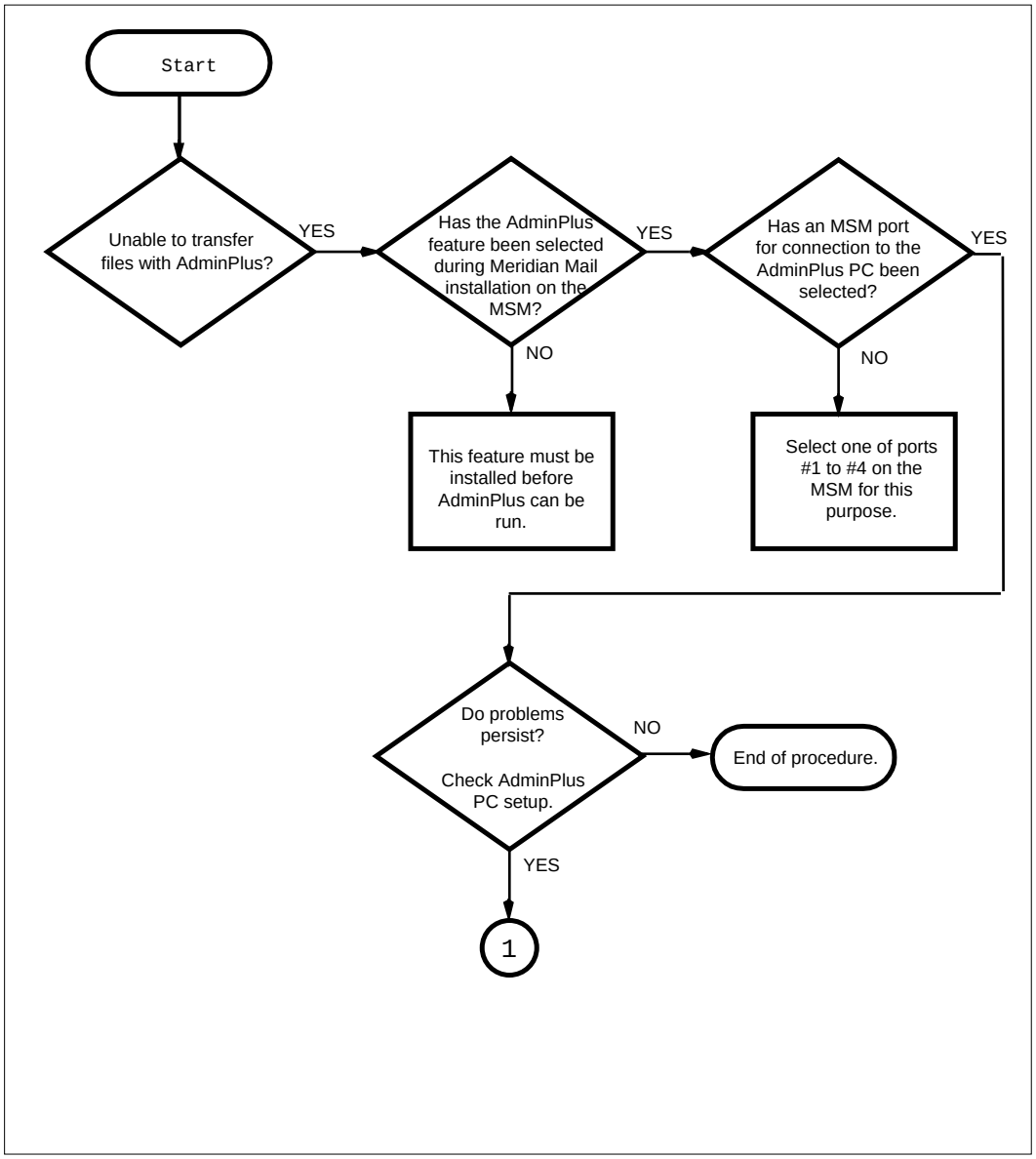


Figure 6-3
Troubleshooting the AdminPlus setup

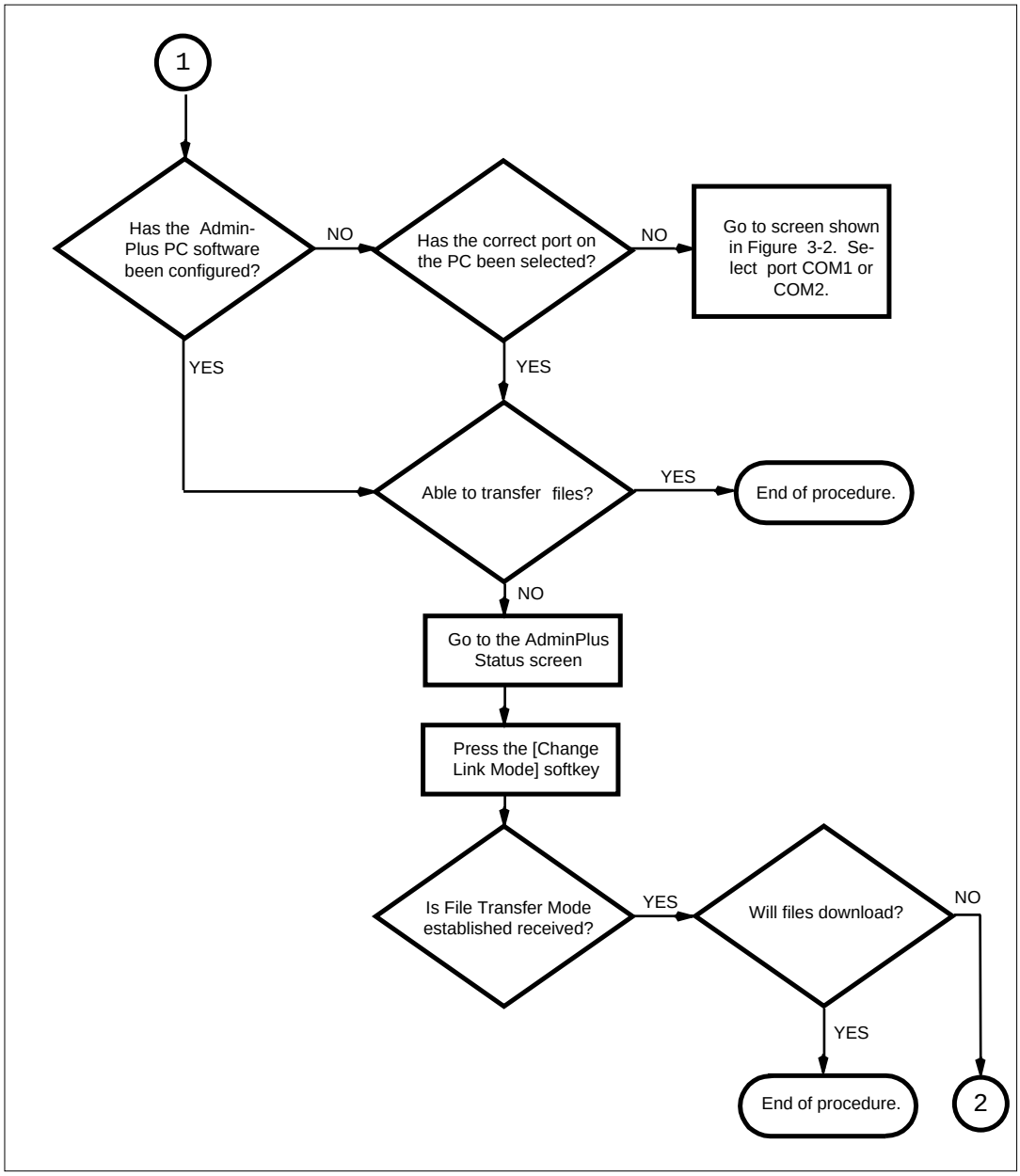


Figure 6-4
Troubleshooting MSM and AdminPlus hardware

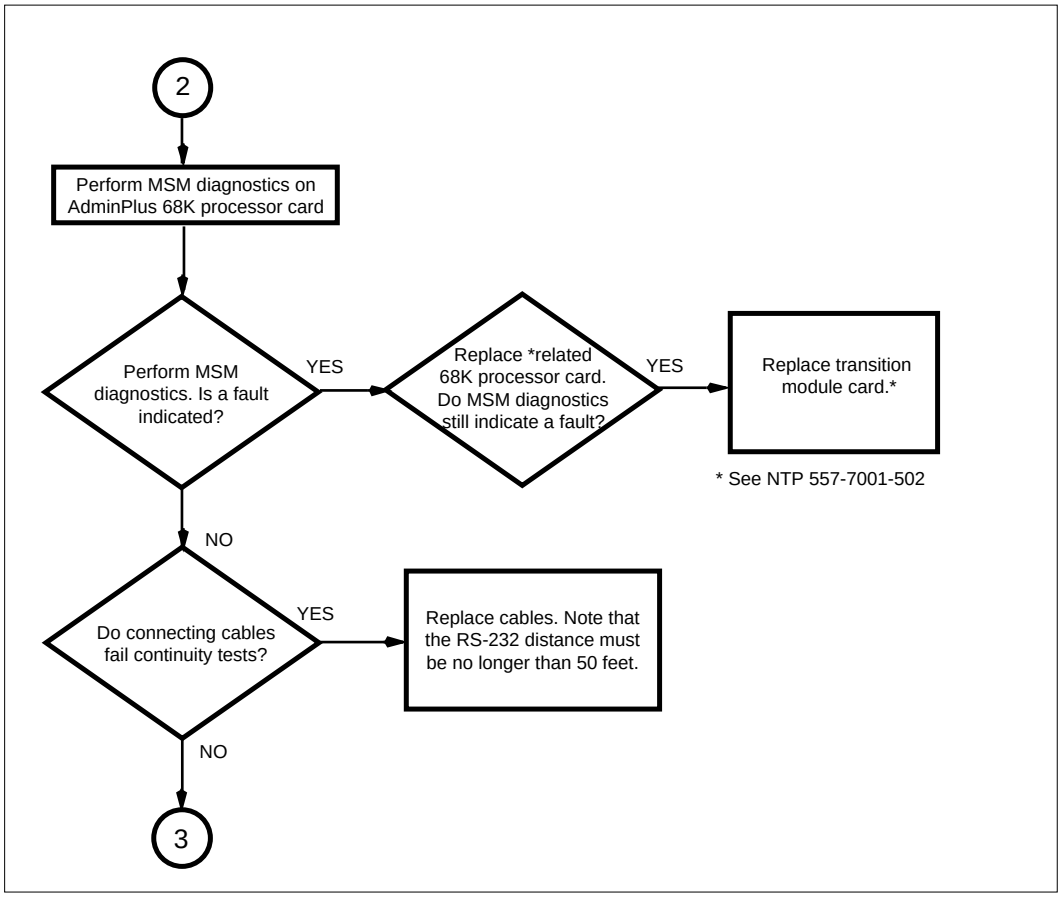
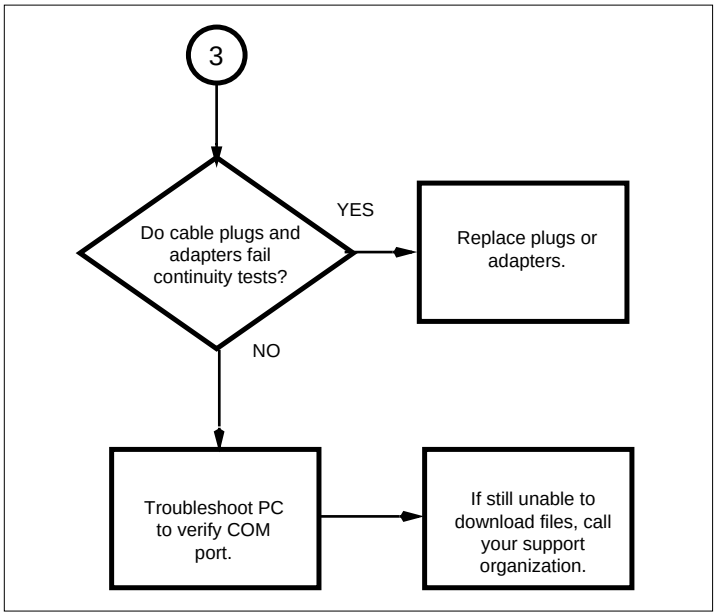


Figure 6-4
Troubleshooting MSM and AdminPlus hardware (continued)



Appendix A : AdminPlus event and error reports

AdminPlus report formats

Reports generated by Meridian Mail AdminPlus have one of two formats:

- <time> - <message> which represents an event
- <time> - <message> (<id><code>) which represents an error

These event and error reports are displayed on the AdminPlus Status display of the MCONSOLE program, and are stored in the file MCONSOLE.LOG. The following are two examples of such messages:

- Feb 04 09:10:14 - file transfer started
- Feb 05 15:30:20 - lost remote OM FT (EQE09)

Event reports

The list of events which may occur on the AdminPlus Status screen are as follows:

Event report

- AdminPlus started
- AdminPlus stopped
- data link error cleared
- link started
- file transfer mode established
- link terminated

Error reports

Error reports have an <id> and <code> which provide details on the error. The <id> consists of three characters:

- <type><operation><area>

<type>

The possible types are

- E - error message
- S - status message

<operation>

The operations are

- D - data link send/receive
- F - file read/write
- I - information only
- Q - queueing data

<area>

The possible area values are

- A - address problem
- C - connecting data link
- D - data problem
- E - queueing packets
- L - log file
- N - network problem
- P - profile file
- S - startup/shutdown

The code field is a two-character hexadecimal number indicating the specific type of failure which has occurred.

The errors which may be reported are as follows:

Error	<id>	<code>
• host restarted	EDS	04

• incompatible link versions	EDD	03
• link port not installed	EDC	0B
• link retry limit exceeded	EDD	01
• link system error	EDD	06
• file transfer mode lost synchronization	EDD	04
• lost OM FT loopback packet	EQE	0A
• lost OM FT packet	EQE	08
• lost remote OM FT packet	EQE	09
• serial port not responding	EDD	02
• unknown data link error	EDD	<gen>

<code>

The <code> field of an error report may be either a constant (the codes listed above) or the general failure return code (<gen>).

The <gen> code refers to an internal system error within the gateway. It may have any value, and indicates a fatal error. Contact your support organization if this error occurs.

List of terms

ACCESS

ACCESS is an optional software package that allows customers to develop and maintain their own telephone-based voice applications. The most common application is an interactive voice response (IVR) system, which provides a caller with information or accepts a command from a caller.

AdminPlus

Applications software that runs on a PC to provide local or remote access to the Meridian Mail system. AdminPlus allows operational measurement data files to be downloaded from Meridian Mail to a PC for specialized processing, allowing integration of this data with other billing and reporting systems.

AMIS

Audio Messaging Interchange Specification

Audio Messaging Interchange Specification (AMIS)

An industry standard specification that allows users of different voice messaging products to exchange voice messages.

DCE

Data Communications Equipment

DN

Directory Number

Directory Number (DN)

The full complement of digits required to designate a subscriber's station-usually a three-digit central office code followed by a four-digit station number.

DOS

Disk Operating System

DTE

Data Terminal Equipment

FCV

File Conversion utility

File Conversion utility (FCV)

A software utility included with AdminPlus which converts files downloaded from Meridian Mail from binary format into ASCII.

LDM

Limited Distance Modem

MSM

Message Services Module

OM

Operational Measurement

SEER

System Error/Event Report

System Error/Event Report

A message printed by the system that reports on an event or error that has occurred in the system.

SMDI

Simplified Message Desk Interface

Simplified Message Desk Interface (SMDI)

An interface feature that allows a switch to communicate with a message desk. It provides the directory number of the called station, the calling station number (if available), and the reason for the call being forwarded to a message desk. It also provides the message desk with the ability to activate or deactivate the message waiting indication for any station able to forward calls to the desk.

VSDN

Voice Service Directory Number

VPORT

Voice Port Traffic

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Symbols

A

C

D

E

F

T

northern telecom

Reader's Response Form
for

AdminPlus on the MSM,
System Administration Guide, 557-7001-340
December 1994

Tell us about yourself:

Name: _____ **Date:** _____

Company: _____

Address: _____

_____

Occupation: _____ **Phone:** _____

1. What is your level of experience with this product?

   ❑ New user ❑ Intermediate ❑ Experienced ❑ Programmer

2. How do you use this book?

   ❑ Learning ❑ Procedural ❑ Problem solving ❑ Reference

3. Did this book meet all of your needs?

   ❑ Yes ❑ No

   If you answered **No** to this question, please answer the following questions.

4. What chapters, sections, or procedures did you find hard to understand?

   _____

   _____

   _____

5. What information (if any) was missing from this book?

   _____

   _____

   _____

6. How could we improve this book? (For example, books can also be evaluated in many other ways, including: ease of information retrieval, presentation, and use of reading aids, such as diagrams.)

   _____

   _____

   _____

Please return your comments by fax to (416) 597-7104, or mail your comments to: Customer Documentation Development, Toronto Lab, 522 University Ave., Toronto, Ontario, Canada. M5G 1W7.

Reader's Response Form

Meridian Mail

AdminPlus on the MSM

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