585-221-501

DEFINITY® Monitor I
Operations Guide
for Generic 3, Version 2

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6 Designing Custom Reports

7 System Administration

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About this Guide

What´s in this Guide

- How to use Monitor I to plan and implement traffic studies.
- How to interpret the traffic measurements that Monitor I gathers from your AT&T Communications System,

The following table includes all the AT&T Communications Systems that support Monitor I:

Communication System	Releases	Comments
DEFINITY® Generic 3	G3rV2 G3iV2 G3rV1 G3iV1	
	G3vs † G3s †	G3i is entered as product type for this switch. G3i is entered as product type for this switch.
DEFINITY Generic 2	2.2 2.1	See Note See Note
DEFINITY Generic 1	1.1	See Note
System 85	R2V4 R2V3 R2V2	See Note See Note See Note
System 75	R1V3 R1V2 R1V1 *	See Note See Note See Note
DIMENSION® FP8	3.8 1.16	See Note See Note

Note: This manual only presents the reports and menus that pertain to the DEFINITY G3 switch releases. For information on the all other switches, please refer to the *DEFINITY Monitor I Operations Guide*, (2.1 release of the Monitor I software), 585-221-703, Issue 2, December, 1992, release date.

† To obtain traffic measurements for these switch versions, AT&T Services technicians must have previously administered the traffic feature in the switch.

* System 75 R1V1 is supported only if it has an **asynchronous** communications board.

Intended Users of this Guide

Refer to Table 1-1 for a list of Monitor I users and the recommended training. For information on AT&T courses, see your AT&T Account Team representative.

TABLE 1-1
Recommended Courses

Type of User	Responsibility	Recommended Courses
Data Entry Personnel	Generate the Monitor I standard reports	■ *Introduction to INFORMIX®-SQL* ■ *Introduction to the UNIX® System*
Traffic Managers	Analyze traffic for your communications system	■ *Traffic Management Overview* ■ *DEFINITY Monitor I Administration and Analysis* ■ *Introduction to INFORMIX-SQL*
System Administrators	Back up and recover system files	*UNIX System V Release 3*

Documentation

In addition to this guide, you may want to reference the following manuals for the operation of Monitor I.

DEFINITY Monitor I Operations Guide for Generic 3	585-221-501
DEFINITY Monitor I Installation Manual	585-221-101
DEFINITY Monitor I Planning Manual	585-221-610
DEFINITY Communications System Generic 3 V2 Traffic Reports	555-230-511
DEFINITY Communications System Generic 1 and Generic 3i System Reports	555-204-510
DEFINITY Communications System Generic 3r System Reports	555-230-510
DEFINITY Communications System and System 75 and System 85 Traffic Tables	555-104-503
DEFINITY Communications System and System 75 and System 85 Traffic Theory	555-104-504
DEFINITY Communications System Generic 3 Wideband Technical Reference	555-230-230
AT&T 3B2 Computer UNIX System V System Administrator's Guide	305-569
AT&T 3B2 Computer UNIX System V System Administrator's Reference Manual	305-570
AT&T System V/386 Release 3.2.2 User's and System Administration Reference Manual	305-646
INFORMIX-SQL Relational Database Management System User's Guide	
INFORMIX-SQL Relational Database Management System Reference Manual	

All of the manuals listed in this section (with the exception of the INFORMIX-SQL documents) may be ordered from the Customer Information Center. In addition, the *Business Communications Systems Publications Catalog*, 555-000-010, provides information about switching systems, application processors, terminals, telephones, and related products. This catalog is free and can be ordered by calling:

1 800 432-6600

(between 7:30 and 6:30 p.m. EST)

1 800 255-1242

(from Canada)

or write:

AT&T Customer Information Center
2855 North Franklin Road
P.O. Box 19901
Indianapolis, IN 46219

Using this Guide

The *Monitor I Operations Guide* is divided into two parts. The first part provides basic information about Monitor I, procedures to get you started and to enable you to produce various kinds of reports, and some administrative information. The second part, entitled **Reference**, comprises more detailed information such as packet and traffic data, how to interpret the reports, and equations used in the Monitor I report calculations. The following lists the contents of each chapter of this guide:

1. About This Guide

This chapter lists:

- The various types of Monitor I users and the training each should have
- Conventions used throughout the manual

2. Introduction to Monitor I

Chapter 2 provides:

- An overview of the Monitor I system
- Flowcharts showing switch-specific menu structure
- A procedure for moving around in Monitor I
- Escape commands and some useful information on INFORMIX-SQL

3. Implementing Monitor I

Using this chapter, you will be able to:

- Create a switch database
- Initialize the switch
- Activate the polling mechanism
- Schedule polling

4. Producing Reports

Chapter 4 tells you:

- Some general information about the Monitor I reports
- How to produce the reports

5. Overview of the Monitor I Reports

This chapter presents general information about:

- Graphable Reports
- Switch Performance Reports

Also included are tables that tell you which reports you can generate on your particular switch.

6. Designing Custom Reports

Chapter 6 describes the Monitor I database schema. It also gives procedures for producing Customized Data Dump Reports, Formatted Customized Reports, and On-Line Queries.

7. System Administration

Procedures for System Administration are included in this chapter:

- Making a Monitor I backup
- Recovering software and files
- Running Monitor I utilities
- Rotating Monitor I switches

A. Interpreting Monitor I Reports

This is the first appendix in the Reference part of this guide and provides samples of each report available on Monitor I arranged alphabetically, with associated field definitions.

B. Monitor I Equations

The calculations used for many of the report fields are listed here. These are arranged alphabetically, by report title.

C. Mail and Error Messages

This chapter provides:

- Samples of the various mail messages that you will receive from the Monitor I system
- An alphabetical listing of Monitor I error messages, with interpretations and instructions for further action

D. Daily Concatenation Tables

This chapter includes tables showing daily concatenation data.

E. Information About Alarming

Details on choosing the alarm parameters and where to have alarms sent are provided in this chapter.

Conventions Used in this Guide

TABLE 1-2
Table of Conventions

Convention	Meaning
Enter destination **Unable to connect** **Trending completed**	This typeface indicates system messages or responses.
mtmadm *sysadm restore* *ulimit 99999*	This typeface indicates a response or entry the user must type.
Exit from **switch_dct** Set the **carrier usage** field	The bold typeface applies to files, directories, options, and software references.
RETURN ESC	Rounded corners on a key indicate a key on your standard keyboard.
This command ***overwrites*** existing data.	A bold, italicized typeface indicates emphasized information.
Load <filename>	Substitute your filename for the file or software identified in brackets.

Additional Conventions

Stepping through Menus

This **step** convention shows how to access hierarchical menu selections:

Administrative Menu
└→ *Access Alarm Administration Menu*
└→ *Administer Alarm Destinations*

Introduction to Monitor I

Overview

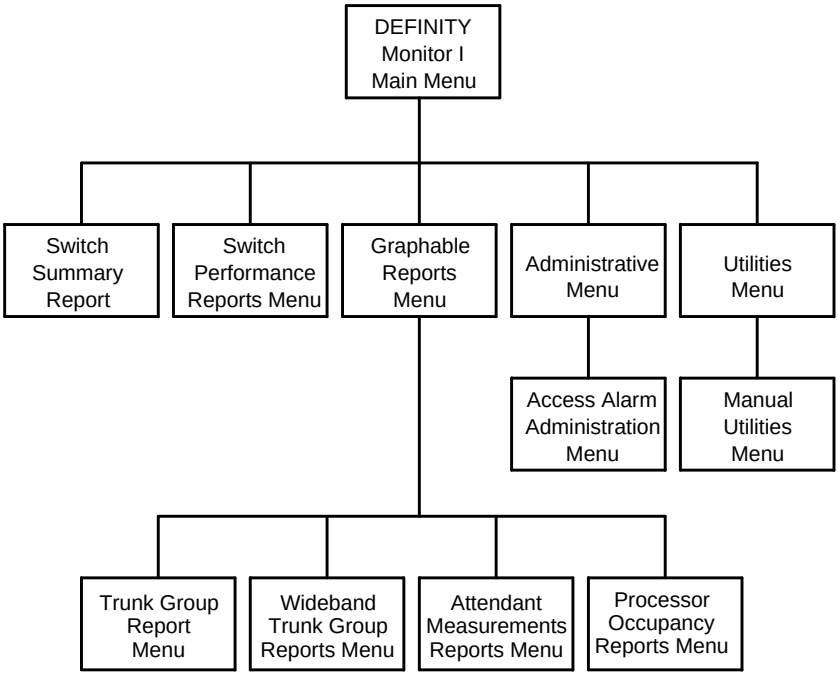
DEFINITY Monitor I is a system for gathering and analyzing voice and data traffic information on your telecommunications network. It lets you do the following:

- Keep close watch on the elements in your switch, including
  - Trunks
  - Call management and attendant services
  - Security measurements
  - Switch efficiency
- Produce traffic information reports that
  - Can be run hourly, daily or weekly
  - Show traffic trends over periods of time
- Design your own reports by
  - Using INFORMIX tools
  - Transferring files to a PC to create custom graphic displays
- Administer studies and run utilities, such as
  - Define trunk group include lists
  - Cut-through to the switch
  - Purge the Monitor I database

Monitor I also has a feature that allows you to rotate switch studies if you have more switches in your network than Monitor I can support. This option, configured when you purchase Monitor I, allows you to create databases for all the switches in your network and poll a subset of those switches at one time. You can deactivate the switch subset then activate another set. The maximum number of switches that can be polled is determined in your Monitor I configuration.

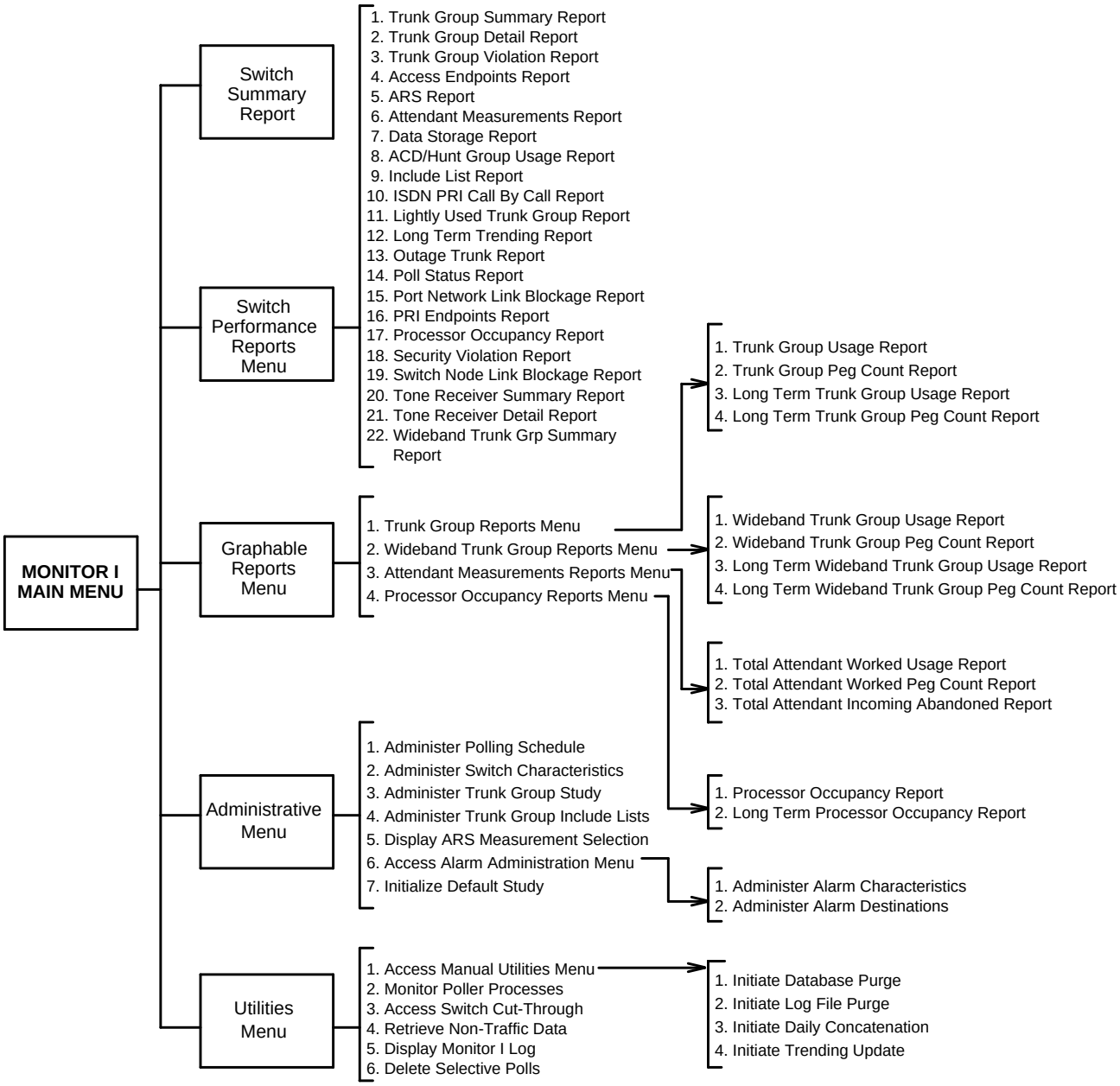
Monitor I Menu Structure

You select the report or option you want from a series of Monitor I menus. The G3V2 menus are organized as follows:

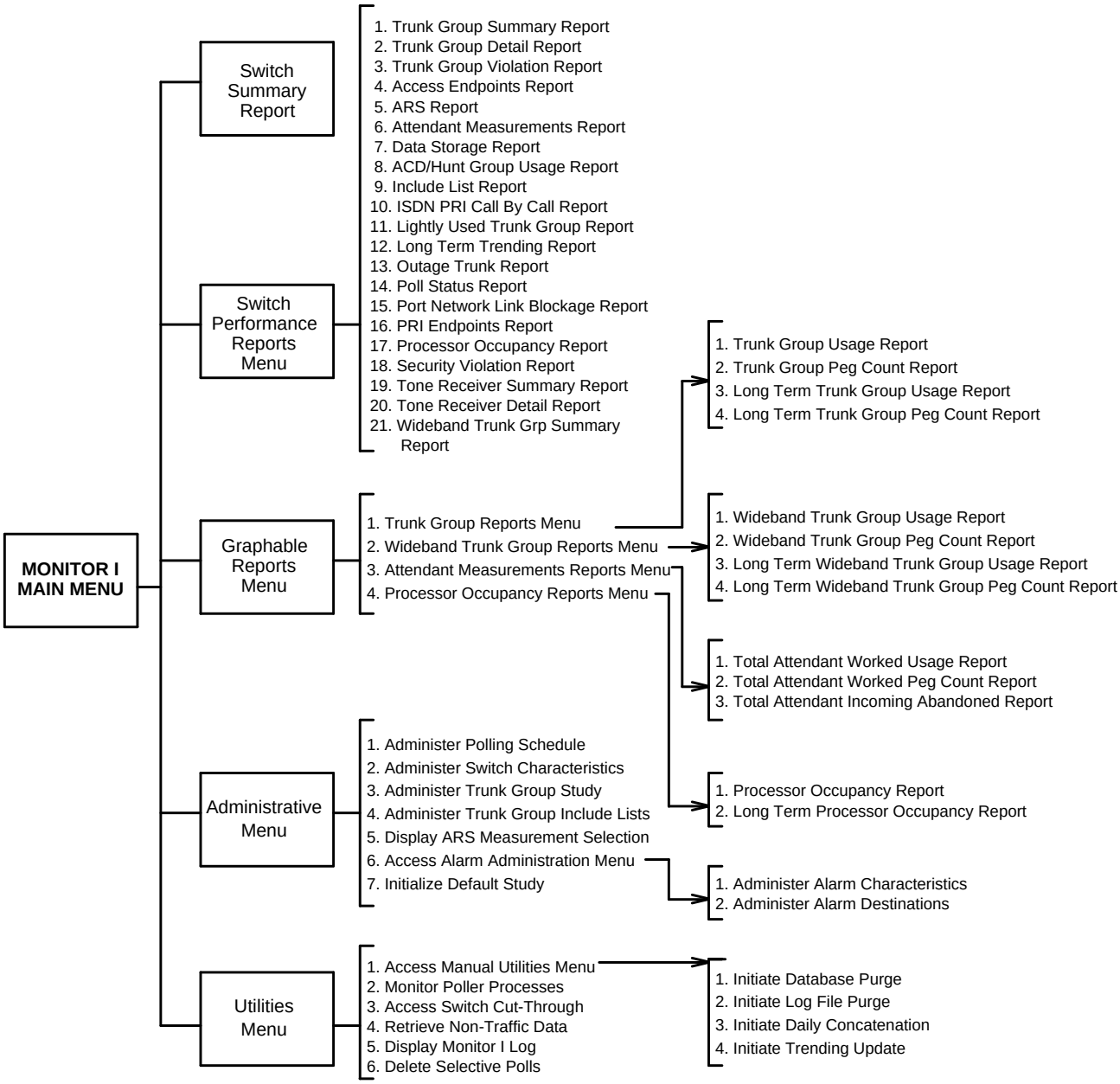


The following pages show an overview of the Monitor I menus and reports available for the current releases of G3V2 as well as the previous releases for G3V1.

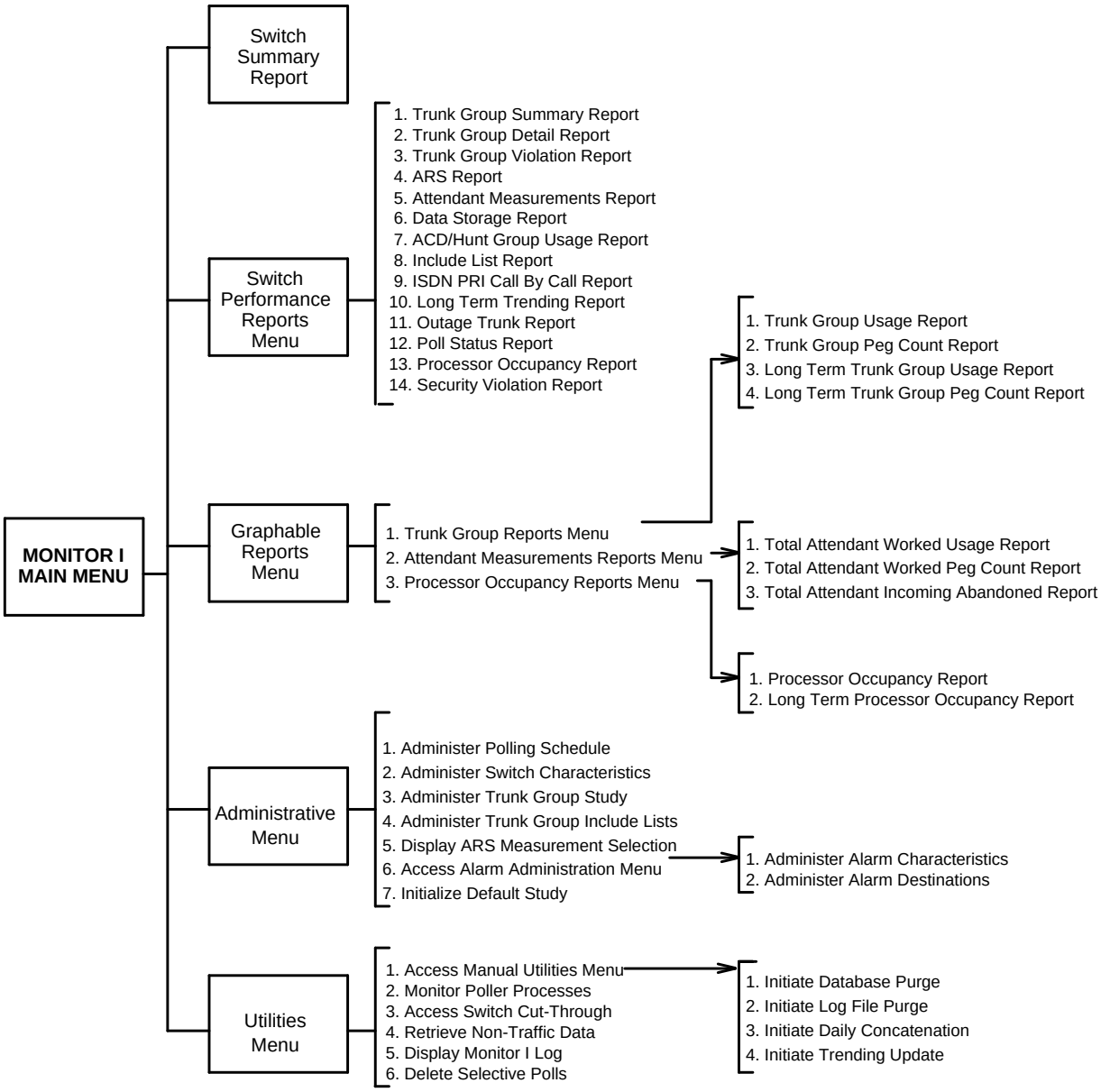
Monitor I Menu Structure for G3rV2



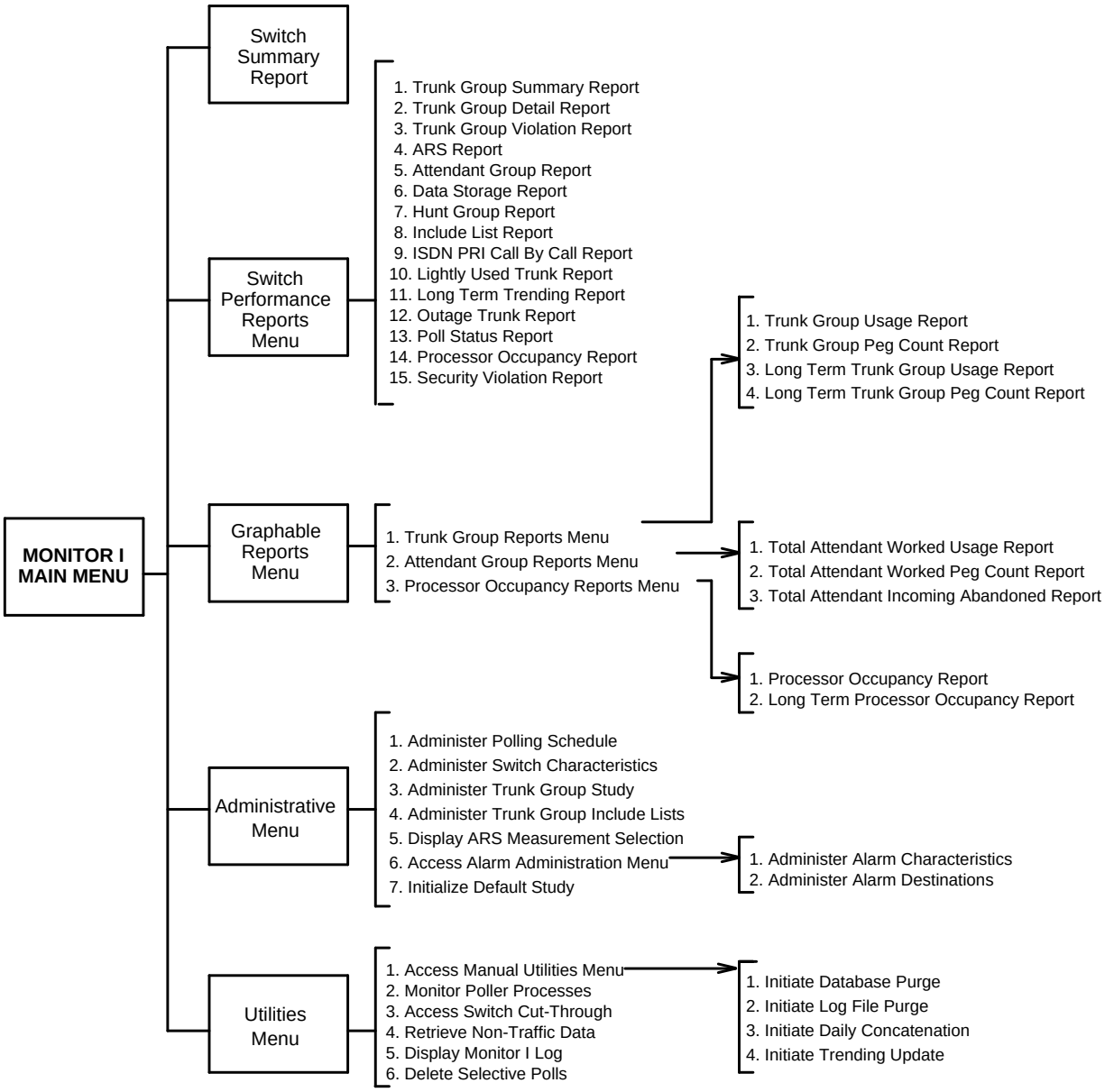
Monitor I Menu Structure for G3iV2



Monitor I Menu Structure for G3rV1



Monitor I Menu Structure for G3iV1



Accessing the Menus

Procedure

1 Log on to your Monitor I computer console or terminal using the standard UNIX procedure.*

2 Type *mtm* (Monitor I Traffic Management) at the system prompt (usually a **$**) and press RETURN.

3 Enter the name of your target switch and press RETURN.

- For further on-line information, type *h* for help, or *l* to see a list of entries if you are not sure what to enter.

4 Follow the instructions on the screen to select a menu option from the main menu or from any submenus that appear.

5 To return to the main menu, type *e* (for exit). This takes you back one menu level at a time until you see the main menu.

6 To exit from Monitor I, type *e* at the **Main Menu**, then type *e* again at the line prompting you to enter your target switch. When the **$** prompt is displayed, you are in the UNIX shell.

---

* If you are using the Coresident Applications Front End (CAFE), choose MONITOR I from the **CAFE Menu**. Refer to the *CAFE User's Guide* for further information about CAFE.

Escape (Shell) Commands

Table 2-1 lists some examples of commonly used commands that allow you to perform UNIX shell functions without having to log out of the Monitor I application. You can type these commands from any of the Monitor I menus or INFORMIX-SQL screens.

TABLE 2-1
Some Shell Commands

Function	Purpose	Command
1. Access the UNIX shell	Perform UNIX commands (for example, system administration, backups)	**!sh**
2. Read UNIX mail	Check messages sent by Monitor I to notify the administrator of problems or changes in the switch that affect traffic polling	**!mail**
3. See error messages	Read error messages stored in the mtmlog	**!tail $TMLOG/mtmlog**
4. Access INFORMIX-SQL	Access an INFORMIX-SQL screen	**!isql**
5. Display the switch name	Remind you which switch you are accessing while running reports or procedures	**!switch**

Notes

To return to Monitor I from the shell invoked by function 1 type *exit* at the UNIX prompt, then press RETURN and follow the instructions.

Function 4 allows you to access INFORMIX directly, and you must type *e* to exit INFORMIX, press RETURN, and follow the remaining instructions.

Function 5 keeps you in Monitor I, so you are not actually in the UNIX shell.

The INFORMIX PERFORM Screens

You use INFORMIX-SQL PERFORM screens for entering, reviewing, changing, and deleting Monitor I data about traffic studies. The first line, or header, of the PERFORM screen contains a list of the INFORMIX-SQL commands available, including **Query, Next, Previous, Add, Update, Remove, Table, Screen** and **Exit**. This is an example of a PERFORM screen header:

```
PERFORM: Next Previous Add Update Remove Table Screen ...
Searches the active database table.        ** 1: tmprod table**
```

The second line of the screen header describes the function of each command. In the example above, choosing **Query** has caused the system to search the active database table **tmprod**. (The database schema is described in Chapter 7, "Customized Reports.")

To select an INFORMIX-SQL command:

- Use the arrow keys (on certain terminals) or SPACEBAR to move across the command line. You can also use BACKSPACE to move backwards along the command line. As you move through the command options, a short help message explaining the purpose of the highlighted command is displayed under the command line. When the command you want is highlighted, press RETURN to execute it.
- If the command you want is **not** highlighted, enter the command name or the first unique character that represents the command name (for example, enter *e* for **Exit** or *q* for **Query**).

After you select a command under these selection options, the command is executed. If you are using the **Add** command, press ESC after entering data to save the information in the DEFINITY Monitor I database. If you are using the **Query** command, you must also press ESC to begin the query. If you want to cancel the command, press DEL to abort it.

PERFORM Commands

A brief description of some of the PERFORM screen commands is included in Table 2-2, but you should refer to the INFORMIX-SQL documentation that came with your system for more information about the commands.

TABLE 2-2
INFORMIX-SQL Commands

Use This:	To:
CTRL-C	Interrupt or cancel an option
CTRL-D	Delete everything you have entered from the current cursor position to the end of the field
CTRL-K	Move backward through the fields
CTRL-W	See a brief list of available query options
CTRL-X	Delete the character beneath the cursor
ESC Key	Execute the option you choose
Query	Search the active database table
Next	Display the next row in the database after a query
Previous	Display the previous row in the database table after a query
Add	Add new information to the active database table
Update	Change existing database rows
Remove	Delete a row from the active database table
Table	Move back and forth between tables (files) on a split-screen
Screen	Go to the next page of a multi-page PERFORM screen (up to 20 pages)
Exit	Leave the screen and return to the menu where you entered the task
DEL	Abort a command (that is, stops the query or update)

Next, Previous, Update and **Remove** can only be used after a successful query.

Implementing Monitor I

Overview

To collect traffic data on your switches, you must first complete these four steps:

1 Create a switch database for each switch that Monitor I supports.

Note: To complete this step, contact the AT&T Technical Support Center (TSC) at 1 800 548-8861.

2 Initialize the switch databases.

3 Enable the polling process mechanism.

4 Schedule (and activate) Monitor I polling for each switch.

To use these procedures, you need to log in as **mtmadm**, which is a Monitor I administrator login, so be sure you have the appropriate password. You should be familiar with INFORMIX-SQL PERFORM screens. Some commonly used INFORMIX-SQL commands are listed in Chapter 2, "Introduction to Monitor I."

After you have completed these four steps, you can begin using Monitor I's default polling schedule and reports.

Note: All the steps in this chapter are necessary for basic operation of the Monitor I system, however, the following additional poller administration tasks are available for a system currently in operation:

- Deactivating the polling process when the Monitor I system needs to be brought down
- Deleting selected polls
- Terminating the polling for a specific switch
- Monitoring polling processes

See Chapter 7, "System Administration" in this guide for details and procedures.

Step 1 — Create the Switch Database

Overview

Why?

Monitor I keeps a database for each switch. Traffic data for the switch is kept in this database.

When?

After Monitor I has been installed or when a switch is being added to an already functioning system.

What?

Adds a switch and creates an empty database for the specified switch.

Prerequisites

- You should be familiar with the INFORMIX-SQL PERFORM screens to perform this procedure.
- Check that traffic data can be invoked on the SAT screens; if traffic cannot be invoked, then you will not be able to collect data for traffic measurements. Call the TSC at 1 800 548-8861 for assistance.
- To populate the database with the trunk group names, follow the instructions for Retrieve Non-Traffic Data in Chapter 7, "System Administration."

Notes

- The number of switches that Monitor I can support depends on your hardware configuration and the database storage option you chose when you purchased Monitor I (Extended, Standard or Daily, and Limited). The system asks you for the following information when you are creating a new switch database:
  - Type of switch
  - Switch Release

  If storage space is not available, that is, if not enough space was included for the switch you specified in the original configuration, you will receive a message telling you so, and you will be returned to the UNIX prompt.
- If you accidentally enter the wrong information and need to remove the switch database, refer to the procedure "Removing the Switch Database" in Chapter 7, "System Administration."

Procedure

1 Log in to Monitor I using the standard UNIX procedure.*

2 Enter *mtm* (for Monitor I Traffic Management) at the prompt (usually a **$**).

3 Press *l* to see a list of current databases.

Note: If your system is configured so that you can rotate Monitor I switch studies the system prompts you to enter *a* to list your current active switches or *i* to list your current inactive switches. Answer the prompt and continue with Step 4 of this procedure.

If the switch you are trying to access is currently inactive, a system message notifies you to use **switch_act** before you can access this switch.

For more information on this feature, refer to the "Rotate Monitor I Switches" procedure in Chapter 7, "System Administration."

4 Enter the name of the new switch database you are creating. This name should be different from any that appear in the list of current databases. The name should begin with a letter and should be no longer than ten characters. It may contain numbers and the underscore. INFORMIX does not differentiate between uppercase and lowercase letters, so do not use uppercase.

5 Answer the series of questions on the screen. Press *h* for help if you do not know how to answer the first prompt.

6 Monitor I begins creating the switch database. This could take up to five minutes, after which the **Administer Switch Characteristics** screen is displayed.

If, for some reason, Monitor I cannot create the switch database, an error In error message is displayed and you are prompted to: message is displayed and you are prompted to:

Press any key to exit

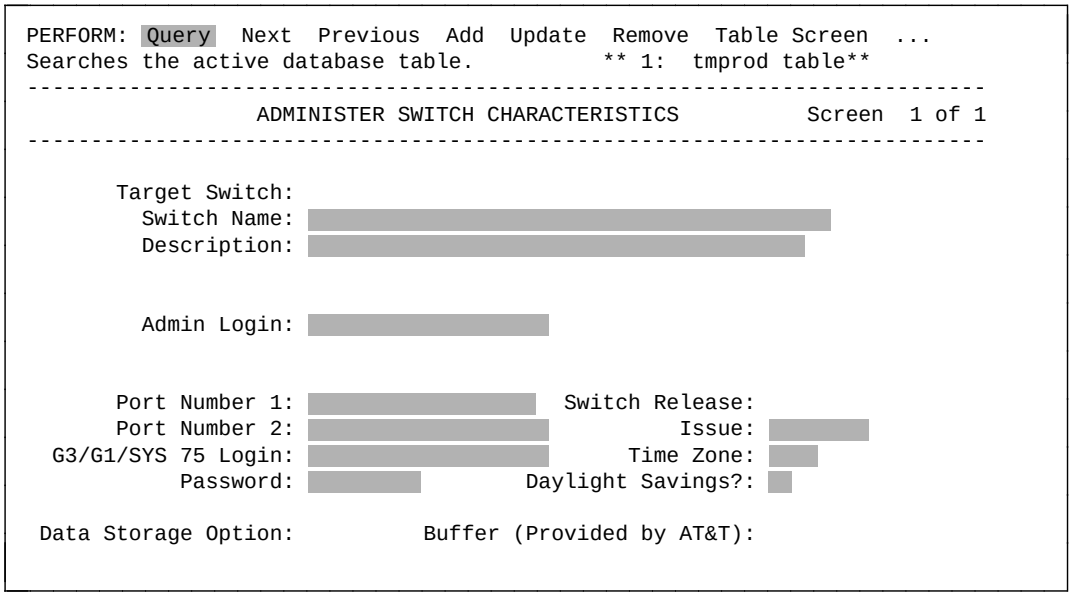
If Monitor I is a coresident application and you originally accessed it using CAFE, you are returned to the **CAFE Menu**. Otherwise, you are returned to the UNIX shell prompt.

7 Press *q* (for query) then ESC to populate the fields for the Target Switch, Switch Release, and Data Storage Option.

8 Press *u* (for update) to enter the appropriate information in each field. The screen that is displayed is shown in Screen 3-1. The field definitions are listed after the sample screen.

---

* If you are using the Coresident Applications Front End (CAFE), choose Monitor I from the **CAFE Menu**. Refer to the *CAFE User's Guide* for more information about CAFE.



SCREEN 3-1
Administer Switch Characteristics Screen

Switch Name — Enter the full name of the switch. You may exceed the 10-character limit imposed on the Target Switch field.

Description — Enter any information that you feel helps describe your switch.

Admin Login — Enter the UNIX mail address of the person monitoring the switch polling (this could be either your Traffic Engineer or System Administrator). You can enter just the login (for example, *wps*). This is a required field.

Port Number 1 — Enter the phone number of the switch. Enter this number in the same manner as you would for the UNIX **cu** command. (Refer to Chapter 1 of the *UNIX User's Reference Manual* for further information on the **cu** command.)

Port Number 2 — Enter the phone number of the second switch port if applicable.

G3/G1/SYS 75 Login — Enter the switch logins.

Note: Do ***not*** use the craft login.

Password — Enter the passwords associated with the logins.

Switch Release — This field is automatically filled in with the appropriate switch release when you do your initial query.

Issue — This is an optional field, that is, you can choose not to populate it. Enter the release number of the DEFINITY tape (for example, Release 1).

Time Zone	Time zone of your switch (not necessarily the same as ***your*** time zone).
Daylight Savings	Enter *y* if daylight savings time is active; *n* if not.
Data Storage Option	Automatically populated when you create the switch. This field is for display only.
Buffer	This information is entered by the TSC. Display only; you cannot enter data here.

9 Press ESC to submit this screen.

10 Type *e* to exit this INFORMIX screen and return to the **shell**.

11 Contact the TSC (1 800 548-8861) to enter the fields required to complete the process of adding the switch to the database. This ***MUST*** be completed before you can gain access to the switch.

End of procedure

Step 2 — Initialize the Switch Database

Overview

Purpose: To populate the Monitor I database with trunk group data as well as non-traffic data that is gathered from the switch.

Details:

- The first phase of initialization populates Monitor I's database with trunk group information from the switch's **List Measurement Trunk-Group** screen. This data includes the number, size and type of trunk groups you have.
- The second phase of initialization collects non-traffic data, including:
  - the trunk group names and trunk group access codes (tac)
  - the route patterns under study
  - G3V2: access and PRI endpoint data

When?

- Before you poll for traffic measurements the very first time.
- Whenever extensive changes are made to the telecommunications facilities, such as adding or removing a number of trunk groups.

Prerequisites Before beginning initialization, make sure the switch is available for connection and that all users have logged off.

Notes

- The time required for this procedure varies with the size of the switch, however it normally takes a half hour or less.
- During initialization, the system prompts for the following information:

  CLEAR the existing customized service objectives .

  Answer *no* if you have previously entered service objectives, traffic table, severity or customized check flags manually (using the trunk group study editor) and wish to save them. See the "Administer Trunk Group Study" procedure in Chapter 7, "System Administration."
- During initialization, the system also asks:

  CLEAR the existing customized studies .

  Answer *no* if you have previously entered customized studies such as trunk group combinations or ARS patterns and wish to save them.
- Monitor I does not assign Grade of Service (GOS) or traffic model to wideband trunk groups during initialization. Both these fields should show "NA" for not applicable. The reason is that the underlying Erlang B and Retrial algorithms are not valid for wideband trunk groups, as they do not account for seizures of several channels or trunks per call.

Caution ***Do not*** attempt to bring up the poller ***or*** change the polling schedules before you have received mail informing you that initialization is complete.

Procedure

1 Enter the following menu selections from Monitor I's **Main Menu**:

Administrative Menu
└→ *Initialize Default Study*

2 Answer the series of questions on the screen.

- When the switch procedures have been sent to the switch, you will receive mail informing you that initialization is complete.

End of procedure

Step 3 — Activate the Polling Control Mechanism

Overview

Purpose: To enable polling of all switches supported by Monitor I.

When? When you begin using Monitor I.

Notes The Polling Control Mechanism is known internally as the **mtmguard**. This term may appear again as you continue working with Monitor I.

See: Chapter 7, "System Administration" for details on deactivating the polling control mechanism.

Procedure

1 Log in as *mtmadm.*

2 From the UNIX shell prompt, enter *pollstart* and press RETURN.

End of procedure

Step 4 — Schedule Monitor I Polling

Overview

Purpose: The polling schedule allows you to tell Monitor I how often to poll your switches, which reports you want to include in the poll, and which computer ports to use to gain access to switch data.

When?

- When you first set up Monitor I.
- Whenever you want to change the polling schedule.

Prerequisites

- Make sure that initialization has been completed and that the Polling Control Mechanism has been activated. To check, type the following at the prompt:

  ps -ef | grep mtmguard

- Be aware of any coresidency requirements (such as sharing dial-up ports) if Monitor I shares a computer with other applications.

Notes

- The amount of polling data retained by Monitor I is based on the disk storage option your company initially selected. Your option choice (extended, standard, or daily and limited polling) is permanently set up by AT&T services at installation time. Refer to "Table 2-1, Definity Monitor I Polling Options," in the *DEFINITY Monitor I Planning Manual* for further information about these storage options.
- Monitor I allows you to create as many databases as you have configured. With the Switch Rotation feature, you can activate a subset of your switches for polling and then deactivate them when polling completes. In this manner polling can be performed on all your switches. See the "Rotating Monitor I Switches" section in Chapter 7, "System Administration" for further details on the switch database and polling capacities of Monitor I.
- The default polling schedule provides for hourly collection of traffic data between 9:00 a.m and 5:00 p.m., Monday through Friday, for all switch releases.
- See Chapter 7, "System Administration" if you want to modify the default polling schedule.
- See Chapter 7, "System Administration" for details on assigning access to dial-up ports (see Screen 3-3 in this chapter for this screen).
- See Chapter 6, "Designing Custom Reports" if you want to customize the standard Monitor I reports.
- Run **Retrieve Non-Traffic Data** from the **Utilities Menu** if you want to populate the database with trunk group names, as well as routing patterns and names.
- If your Monitor I system is scheduled for hourly polling, enter a *D* next to the report selection to produce a daily equivalent from the hourly data.

Procedure

1 Enter the following menu selections from Monitor I's **Main Menu**:

Administrative Menu
└→ *Administer Polling Schedule*

System Response: The **Administrative Polling Schedule** screen appears.

2 Type *q* (for query) and then press ESC to populate the screen with the Monitor I default values. Screen 3-2 shows the default values filled in.

```
PERFORM: Query  Next  Previous  Add  Update  Remove  Table  Screen  ...
Searches the active database table.          ** 1:  tmpollsch table**
------------------------------------------------------------------------
                        ADMINISTER POLLING SCHEDULE          Screen  1 of 2

                        Polling Activated ?  Y
                     Database Initialized ?  Y

Polling Frequency
                               Polling Days:  MF
                    Daily Or Hourly Polling:  H
                            Poll Start Hour:  9
                              Poll End Hour:  17

Report Selection
                Trunk Group: D        ARS Patterns: N
         Trunk Lightly Used: N      PN/SN Blockage: D
       Wideband Trunk Group: N       Tone Receiver: N
               Trunk Outage: D   ISDN Call by Call: N
          Attendants Group: D  Security Violation: D
        Attendants Position: D   Occupancy Summary: D
                  Hunt Group: N    Occupancy Detail: N
```

SCREEN 3-2
Administer Polling Schedule, Screen 1

3 Type *u* to update the default values.

4 Change or retain these default values as needed based on the following field information:

Polling Activated? Enter *Y* to activate polling or *N* to deactivate polling.

Database Initialized? This field is automatically populated with a **Y** to indicate database initialization is in effect.

Polling Frequency?

- **Polling Days?**
  Enter *MF* for Monday to Friday and *SS* for Saturday and Sunday.

- **Daily or Hourly Polling?**
  Enter type of polling. *H* =hourly and *D* =daily.
- **Poll Start Hour:**
  Enter the 1st hour of the poll, from 1 through 23.
- **Poll End Hour:**
  Enter the last hour of the poll, from 2 through 24. (This value should be greater than or equal to the start hour.)

Reports Enter one of the following selections for each report listed:

- *Y* to include the report
- *N* to exclude the report
- *D* to produce a daily poll equivalent.

5 Press ESC to record any changes you made to the first screen of the polling schedule.

6 Press *s* to access the second **Administer Polling Schedule** screen. Screen 3-3 is a sample of this second screen.

Note: Specific instructions for changing the schedule (and selecting additional packets for polling) are included in the procedure, "Administer Polling Schedule" in Chapter 7, "System Administration."

```
PERFORM:  Query  Next  Previous  Add  Update  Remove  Table Screen  ...
Searches the next page of the form.            ** 1:  tmpollsch table**
------------------------------------------------------------------------
                       ADMINISTER POLLING SCHEDULE          Screen  2 of 2
------------------------------------------------------------------------


Port Selection

                         Port 1:
                              2:
                              3:
                              4:
                              5:
                              6:
```

SCREEN 3-3
Administer Polling Schedule, Screen 2

Port Selection Enter the device names of the computer ports you are using to connect to the switch. Up to six ports can be connected.

See: "Share Dial-Up Ports" section in Chapter 7, "System Administration" for further details on ports.

7 Press ESC to store any changes you made to the schedule.

8 To exit this screen, type *e*.

See: "Administer Polling Schedule" in Chapter 7, "System Administration" for instructions on changing the polling schedule.

End of procedure

How to Stop Polling

Overview

Why? If you accidentally start an incorrect poll.

Notes If a poll is actually in progress when this command is entered, polling of the switch does not cease until that particular poll has been completed. This may take up to 10 minutes.

Procedure

1 Enter the following menu selections from the main menu:

Administrative Menu
└→ *Administer Polling Schedule*

System Response: The **Administrative Polling Schedule** screen appears.

2 At the PERFORM screen, change the **Y** in the **Polling Activated?** field to *N*.

3 Press ESC to store your change.

4 To exit this screen, type *e*.

End of procedure

Producing Reports

Overview

- Reports provide an overview of the number and type of calls on your switch.
- Reports can be scheduled to run automatically on a regular basis, for example, hourly, daily, weekly, or even once a year.
- Reports can also be:
  - Displayed on your workstation/terminal screen
  - Sent to an adjunct or remote printer
  - Stored as files
  - Produced in graph form when transferred to a personal computer (PC)
- You can create additional, customized reports with Monitor I. The procedures in this section of the Guide, however, do not pertain to customized reports. For more information on customizing your own reports, refer to Chapter 6, "Designing Custom Reports."
- Reports can be scheduled to run overnight, during the weekend, or any other time when the system is not being heavily used. You can also schedule reports to run at the same time every week.

  Note: You need to use the UNIX **at** command to set up a single report entry in the short-term queue. Your System Administrator must use the UNIX **cron** command to set up a periodic report entry. Refer to Chapter 7, "System Administration" for further information on the UNIX **cron** utility.

Report Format

There are three types of reports, as listed in Table 4-1.

TABLE 4-1
Types of Reports

Format:	Contains:
All	All of the data collected for the specified time frame
Peak	Only peak measurements and their related time-coincident figures for the specified time frame
Total	An aggregate figure, or sum, for the specified date range

Output Units

Traffic usage on the reports can be expressed in two types of measurement, as shown in Table 4-2:

TABLE 4-2
Usage Measurements

Usage Measurement:	Equals:
Hundred Call Seconds (CCS)	100 seconds of usage
Erlangs	3,600 seconds or an hour of usage 1 Erlang equals 36 CCS

See Appendix A, "Interpreting Monitor I Reports" for more detailed information about usage measurements.

Ordering DEFINITY Monitor I Reports

Overview

Why? To study data collected from the switch by Monitor I.

When? To check for particular problems or trouble spots with your switch.

Notes

- The **Trunk Group Summary Report** is used as an example in the procedure below, but the steps for ordering all of the Monitor I Reports are very similar.
- To exit a report, type *e* when you see the following prompt: **Enter Destination** and then pressing RETURN. You can also exit the report at any time by hitting DEL.

Procedure

1 Log in to DEFINITY Monitor I and enter the name of the switch you wish to study.

2 At the **Main Menu** select:

- **Switch Summary Report** if you want an overview of your switch.
- **Switch Performance Reports Menu** if you want to generate one of the more specific Monitor I reports.
- **Graphable Reports Menu** if you want to produce a report that you can download and graph.

A screen is displayed similar to the one shown below. (Remember, the **Trunk Group Summary Report**, accessed from the Switch Performance Reports Menu, is used here only as an example.)

```
                    TRUNK GROUP SUMMARY REPORT

                      Output Destination Choices

          t(erminal):  Send the report to the TERMINAL
          p(rinter):   Send the report to the PRINTER
             f(ile):   Send the report to a FILE
  s(hort-term Queue):  Set up a schedule file for one time execution
   l(ong-term Queue):  Set up a schedule file for periodic execution
     DEL key or e(xit): Exit from the report

Enter Destination:
```

3 Enter the appropriate responses to the prompts as they appear and press RETURN after each entry. If you enter an invalid response, the system displays a help message. Each system prompt is described below.

```
Enter Destination:
```

For the destination of the report output, enter your choice from the following list of valid choices.

- **t(erminal):** Enter *t* and press RETURN to send the report to your terminal. To page through reports displayed on your terminal, press RETURN at the colon (:). When you see the **(EOF):** , press RETURN twice to return to the main menu.
- **p(rinter):** Enter *p* to send the report to a printer. Use the UNIX **lp** command designation for the printer, or press RETURN to use the default printer.
- **f(ile):** Enter *f* to send the report to a file. Use a standard UNIX path name with the file name at the end, for example, */usr/local/myreport*, where *myreport* is the file name, and */usr/local* are its parent directories. If you specify only a file name, and not a path, the file is placed in your current directory. If you want, you can specify an environment variable name, for example, *$HOME/myreport*. Monitor I does the translation for you. The file name can be up to 14 characters for a UNIX file and 8 characters for a graphable report.
- **s(hort-term Queue):** Enter *s* to set up a short-term queue that holds the report to be executed later. To use this option, you need to use the UNIX command **at**. The system displays more information as you go through the procedure.
- **l(ong-term Queue):** Enter *l* to set up a long-term queue. Your System Administrator must set up a schedule in the UNIX **cron** utility if you want to use the long-term queue.

```
Enter Start Date (mm/dd/yy):
```

Enter the starting date for report, using the **mm/dd/yy** format, for example, *10/01/91.*

```
Enter End Date (mm/dd/yy):
```

Enter the ending date for the report, using the **mm/dd/yy** format.

```
Enter Start Hour (1-24 or <return> for daily):
```

Enter the starting hour for which you want data, or press RETURN to get data that is concatenated to produce a daily total or that gives you the peak measurement for the entire day.* Monitor I's first Start Hour is 1 a.m., so use *1* if you want data collected between midnight and 1 a.m. To see data for 9 a.m. to 5 p.m., enter *10* as your start hour and *17* as your end hour.

```
Enter End Hour (1-24):
```

If you specified a starting hour, you must specify an ending hour, following the example above. However, if you chose *daily*, this prompt is not displayed.

```
Enter Units (Erlangs or <return> for CCS):
```

To see the report measurements expressed in Erlangs, type *erlangs* at this prompt. Press RETURN for CCS units.

```
Enter (all or <return> for peak):
```

This prompt enables you to request a report showing either peak data only with related time-coincident information or all the data available for the specified time frame. Some reports, such as the **Outage Trunk Report**, can be ordered to show total data (that is, aggregate figures) for the specified time frame.

4 Depending on the report you are ordering, you may be asked for other information, such as a trunk group name, trunk group include list, trunk group number or attendant number. Enter the appropriate responses to these prompts. Your responses will depend on the type of information you want presented on your report.

If you ordered a report to be set up in the short- or long-term queue, you will receive additional information from the system here.

5 When the report is completed, follow the instructions on your screen to go back to your original menu.

End of procedure

* For more information on daily concatenation, see Chapter 7, "System Administration."

Overview of the Monitor I Reports

This section contains overviews of all of the Monitor I reports. It is divided into two parts:

- Graphable Reports: this overview lists all the reports that can graphically represented with Monitor I and also provides a brief description of each report.
- Switch Performance Reports, including the Switch Summary Report: an overview is provided for each switch performance report supported by Monitor I.

Note: Not all reports are available for all releases and variations of G3; see Table 5-2 in this chapter for a matrix of reports and switches offered by Monitor I.

See:

- For samples of the reports and the associated field definitions, refer to Appendix A, "Interpreting Monitor I Reports" in this guide.
- *DEFINITY Communications System Generic 3 V2 Traffic Reports*, 555-230-511, for further details on reports including suggested actions for improving service.

Graphable Reports Overview

General

The Monitor I graphable reports are designed so that you can download their output to a Personal Computer (PC) spreadsheet program and display or print the data in graph form.* You can also view or print this data at your workstation. Once plotted in graph form, they offer traffic management and administration an actual picture of the network's traffic trends for a specified period of time.

Graphable reports provide an historical summary of different aspects of your traffic network. Your summary can specify time periods ranging from days of hourly polls to six weeks of daily polls for the short-term queue or up to two years, in some cases, for the long-term queue. All of the graphs that you create plot the report values versus time.

Sending Data to a File

Monitor I formats each graphable report sent to a file in two ways, as discussed below.

WK1 Extension

The first format has a .WK1 extension after the file name (for example, *filename.WK1*). It is written in binary code and is compatible with LOTUS 1-2-3®. The .WK1 file is formatted in Monitor I so that each field of data adjusts to an individual cell in the spreadsheet program. This enables you to more easily plot graphs using the spreadsheet program's menus. If you want to develop your own macro package for these reports, consult the documentation for the spreadsheet program you are using.

CSV Extension

Monitor I gives the second format a .CSV extension and produces an ASCII file, which can be used with any LOTUS-compatible or noncompatible spreadsheet program. Transfer the Monitor I data to your PC using a communications package such as the Corporate Microsystems, Inc. MLINK© Data Communications System Terminal Emulator program, or the Communications Research Group BLAST® program. MLINK will run on a 3B2/600 and BLAST will run on both the 3B2 and the 6386. Ask your Customer Service Representative for more information regarding the purchase of MLINK, BLAST, or other UNIX-to-PC file transfer packages.

---

* You can then create graphs by either using the spreadsheet program's menus or by developing specific macros to plot the data.

After you transfer the .CSV file to your PC you have to import it into your spreadsheet program since, unlike the .WK1 file, it is not automatically generated in a spreadsheet format. To create a graph from this .CSV file you have to separate the data fields into individual cells. Then, format the file appropriately for the particular kind of graph you want to create, either through menus or with macros. Because of the number of steps involved, the .CSV file is useful if you do not have a LOTUS-compatible spreadsheet package or if you want to send it to a printer.

Types of Graphable Reports

The Graphable Reports Menu allows you to access four report submenus. Up to 13 different graphable reports are available on the G3V2 switch. The four graphable submenus are:

- **Trunk Group Reports**

  The Trunk Group Reports allow you to graph usage and peg count data for the specified period of time. The Long Term reports will give you data for up to two years.

  — Trunk Group Usage Report

  — Trunk Group Peg Count Report

  — Long Term Trunk Group Usage Report

  — Long Term Trunk Group Peg Count Report

- **Wideband Trunk Group Reports**

  The Wideband Trunk Group Reports allow you to graph usage and peg count data for the specified period of time. The Long Term reports will give you data for up to two years.

  — Wideband Trunk Group Usage Report

  — Wideband Trunk Group Peg Count Report

  — Long Term Wideband Trunk Group Usage Report

  — Long Term Wideband Trunk Group Peg Count Report

- **Attendant Measurements Reports**

  There are three attendant reports that can be generated on a demand or scheduled basis.

  — Total Attendant Worked Usage Report
  provides the the CCS or Erlang measurement for all active attendant consoles

  — Total Attendant Worked Peg Count
  shows the number of times attendants at all consoles depressed the loop key

  — Total Attendant Incoming Abandoned Report
  shows the total number of calls in the attendant's group that were abandoned (caller disconnected) before being answered by an attendant

- **Processor Occupancy Reports**

  — Processor Occupancy Report
  measures how much processor time is being used during the specified period. The graph you create with this report shows the call processor occupancy plotted against this specified time frame.

  — Long Term Processor Occupancy Report
  gives you peak processor occupancy per day for up to two years

TABLE 5-1
Graphable Reports

Reports	Switch Type	
	G3rV2 G3iV2	G3rV1 G3iV1
Long Term Processor Occupancy	●	●
Long Term Trunk Group Usage	●	●
Long Term Trunk Group Peg Count	●	●
Long Term Wideband Trunk Group Usage	●	
Long Term Wideband Trunk Group Peg Count	●	
Processor Occupancy	●	●
Total Attendant Incoming Abandoned	●	●
Total Attendant Worked Peg Count	●	●
Total Attendant Worked Usage	●	●
Trunk Group Peg Count	●	●
Trunk Group Usage	●	●
Wideband Trunk Group Usage	●	
Wideband Trunk Group Peg Count	●	

Switch Performance Reports Overviews

General

The remainder of the reports covered in this section provide data on the following:

- Trunk group activity

  Note: Information on trunk groups is a concern of traffic managers and those responsible for the smooth flow of calls through an Automatic Call Distribution (ACD)/Hunt Group system.

- Attendants
- Processor occupancy
- Facilities

For Peak Field details, specific report samples and explanations of report fields, see Appendix A, "Interpreting Monitor I Reports."

Table 5-2 shows which performance reports are available for each switch type.

Switch Performance Reports

TABLE 5-2
Switch Performance Reports

Reports	Switch Type	
	G3rV2 G3iV2	G3rV1 G3iV1
Access Endpoints	●	
ACD/Hunt Group	●	●
ARS	●	●
Attendant Measurement	●	●
Data Storage	●	●
Include List	●	●
ISDN PRI Call-by-Call	●	●
Lightly Used Trunk	●	●†
Long Term Trending	●	●
Outage Trunk	●	●
Poll Status	●	●
Port Network Link Blockage	●	
PRI Endpoints	●	
Processor Occupancy	●	●
Security Violation	●	●
Switch Node Link Blockage	● ‡	
Switch Summary	●	●
Tone Receiver Detail	●	
Tone Receiver Summary	●	
Trunk Group Detail	●	●
Trunk Group Summary	●	●
Trunk Group Violation	●	●
Wideband Trunk Group Summary	●	

† Available only for G3i version.

‡ Available only for G3r version.

Access Endpoints Report (G3V2)

Purpose: This report lists the identifying attributes for each wideband access endpoint defined in the switch.

Definition: An access endpoint is either the origination or destination point for a wideband call.

Background: Wideband access endpoints have no signaling capability with the switch: they merely transmit and receive wideband data and are either in-service, out of service or idle. The DS0s that comprise a wideband access endpoint support one wideband call at a time.

Report Profile:

TABLE 5-3
Access Endpoints Report Profile

Data Source:	list access-endpoint
File Accessed:	TCaccessend
Output Units:	none
Format:	Only one available. (This report does not prompt for data and time.)
Peak Field:	none

See:

- *DEFINITY Communications System Generic 3 V2 Wideband Technical Reference*, 555-230-230, for detailed background information.
- Appendix A, "Interpreting Monitor I Reports" in this manual for a sample **Access Endpoints Report** and field definitions.

ACD/Hunt Group

Purpose: To determine how effectively incoming calls are handled that terminate to a preassigned group of terminals or data ports. Use this report to monitor Direct Department Calling (DDC) and Uniform Call Distribution (UCD).

Background: A Hunt Group is a set of links that provides a common resource and which are assigned a single hunt group designation. Calls that are directed to the hunt group are connected to the first idle member of the group.

When? You need to check the efficiency of how a hunt group or ACD group is working.

Report Profile:

TABLE 5-4
Hunt Group Report Profile

Data Source:	list measurements hunt-group (last hour/yesterday)
File Accessed:	TPhuntgrp
Output Units:	CCS or Erlangs
Format:	all and peak
Peak Field:	Total Usage (if a peak report)

See:

- Appendix A, "Interpreting Monitor I Reports" in this guide for a sample **Hunt Group Report** and field definitions.
- Chapter 3, "Traffic Data Analysis" in *DEFINITY Communications System Generic 3 V2 Traffic Reports*. This chapter contains an in-depth discussion of this report including suggested actions for improving service.

ARS (Automatic Route Selection) Report

Purpose: To provide data that informs you if your cost-saving routing plans are functioning as intended.

Background: Automatic Route Selection (ARS) patterns ensure that calls from the private network are routed to the public network in the most cost-efficient way. Each ARS pattern lists trunk groups in order of preferred use, based on the cost of the calls carried in that preference. The switch routes the call over the first available, least expensive preselected trunk facility using a specified sequence of routes. The first preference is always the least expensive route between two points, and the next preference is the next least expensive route, etc. Use of the more costly routes is restricted by the network or Switch Administrator through Facility Restriction Levels (FRLs). FRLs are route restriction levels based on users' work-related needs to place certain types of calls. Lowering the FRL on one pattern can sometimes result in more efficient use of your system.

Capabilities: The ARS Report for these switches provides traffic data for ARS patterns as a whole as well as details on how traffic is distributed among individual trunk groups in each pattern. Up to 254 patterns can be supported by Monitor I, with each pattern containing a maximum of six trunk groups.

G3V2: Up to 25 patterns can be measured at a time.
G3V1: Up to 20 patterns can be measured at a time.

Report Profile:

TABLE 5-5
ARS Report Profile

Data Source:	list measurements route-pattern pat-no (last hour/yesterday)
Files Accessed:	TPrtpdtl TPrtpsum
Output Units:	call count
Format:	peak, all
Peak Field:	Calls Offrd (***if*** a peak report)

See:

- Appendix A, "Interpreting Monitor I Reports" for sample **ARS Reports** and field definitions.
- Chapter 3, "Traffic Data Analysis" in *DEFINITY Communications System Generic 3 V2 Traffic Reports* for an in-depth discussion of the ARS/AAR/UDP Routing Pattern Measurements Report including suggested actions for improving service.

Attendant Measurement Report

Purpose:

To obtain more information on attendant console activity than is offered in the daily Switch Summary Report. This report gives you information that helps manage the attendant group(s) efficiently. It also helps you to answer the following questions about each attendant's performance.

- Are incoming calls receiving prompt attention?

  Average Delay, or Average Speed of Answer, provides the information in the Switch Summary Report when that question is asked. If the Average Delay exceeds 15 seconds, you probably want to know the reason. The Attendant Measurement Report tells you how many attendants were available at the time and what call load they handled.

- How long do incoming calls wait in queue to reach the attendant?

  In the Switch Summary Report, that measurement is referred to as the Average Delay of Delayed Calls. Are callers hanging up before the attendants reach them? Here, again, the Attendant Measurement Report can point to reasons why callers are being kept waiting.

- How much time do attendants spend in handling a call? Do you need more attendants at certain periods?

The Attendant Measurement Report shows you alternative staffing requirements, that is, what the average waiting period would be if you added or subtracted attendants from your staff.

When?

On demand or on a scheduled basis. Some traffic managers run weekly Attendant Measurement Reports as part of their normal routine. Others run the report less frequently but on a regular basis. Still others run it only when they are aware of problems concerning attendant service. They can learn of problems by monitoring the Switch Summary Report or directly from users.

Report Contents

- **Summary**

  A summary on traffic coming to your attendants that includes:
  - Total amount of time in Centum Call Seconds (CCS) that a console was available (attended usage)
  - Average time spent on each call
  - Number of calls placed in queue
  - Number of incoming calls abandoned in queue by callers
  - CCS for all calls entering the attendants' queue
  - Number of calls handled
  - Usage for all active consoles (worked usage)

- **Force Management Alternatives**
  Provides automatic calculations on the average call delays and queue waiting periods. This data is expressed in seconds. It also gives you the percentages of delayed calls with your present staffing level and what you would experience with reduced staffing and with augmented staffing.
- **Attendant Statistics**
  Provides data on individual attendant consoles including:
  - time each attendant was available to handle calls
  - time each attendant actually spent on calls
  - number of calls handled
  - average number of seconds spent in handling each call

Report Profile:

TABLE 5-6
Attendant Report Profile

Data Source:	list measurement attendant group
Files Accessed:	TPattgrp TPattpos
Output Units:	CCS, Erlangs, Seconds
Format:	peak, all
Peak Field:	Time Talk (***if*** a peak report)

Graph Reports: In addition to the switch performance report described here, you can also view traffic data for this report in graph format. The following graphable reports are offered by Monitor I:

- Total Attendant Worked Usage Report
- Total Attendant Worked Peg Count
- Total Attendant Incoming Abandoned Report

See:

- Appendix A, "Interpreting Monitor I Reports" in this guide for sample **Attendant Measurement Reports** and field definitions.
- Chapter 3, "Traffic Data Analysis" in *DEFINITY Communications System Generic 3 V2 Traffic Reports*. This chapter contains an in-depth discussion of Attendant traffic reports including suggested actions for improving service.

Data Storage Report

Purpose: This report provides the names of the switch based reports that are to be polled by Monitor I. Reports are selected by the user when the Polling Schedule is administered.

When? Use this report to check which switch reports you have set up for polling.

Details: Two versions of this report are available, one for G3r, and the other for G3i. See Appendix A, for samples.

Report Profile:

TABLE 5-7
Data Storage Report Profile

Data Source: (File Accessed)	TPdatastor file
Output Units:	none *
Format:	Matrix of reports polled
Peak Field:	Not applicable

See: Appendix A, "Interpreting Monitor I Reports" for sample **Data Storage Reports** and field definitions.

* An "x" indicates that the report has been polled, while a " —" means the report has not been polled.

Include List Report

Purpose: To find out what predefined include lists exist in the Monitor I database. These include lists are used in the Trunk Group Summary and Trunk Group Detail Reports, the Lightly Used Trunk Report and Outage Trunk Report.

When? When you want to determine which include lists have been predefined in the Monitor I database.

Report Profile:

TABLE 5-8
Include List Report Profile

Data Source: (File Accessed)	TMinclude file
Output Units:	N/A
Format:	N/A
Peak Field:	N/A

See: Appendix A, "Interpreting Monitor I Reports" in this guide for a sample **Include List Report** and field definitions.

ISDN PRI Call by Call Report

Purpose: To check the traffic on your ISDN Primary Rate Interface (PRI) trunk groups that have Call by Call (CBC) service selection.

Details:

- The ISDN PRI CBC Report provides basic last-hour traffic measurements for the trunk group that has Usage Allocation Plan (UAP) administered for the measurement hour.
- The Call by Call selection allows a single trunk group to handle calls for a variety of services and facilities. The traffic measurement provides the data to determine sizing for CBC trunk groups and partitioning of the trunk group for the service and features.

Contents: This report contains two sections: traffic measurements on the ISDN PRI trunk group itself and traffic measurements on the service, feature, or facility selected by the trunk group.

Report Profile:

TABLE 5-9
ISDN Call by Call Report Profile

Data Source:	list measurements cbc-trunk group (last hour)
File Accessed:	TPcbcsum TPcbcdtl TCtrkgp
Output Units:	CCS or Erlangs
Format:	peak, all
Peak Field:	Total Usage if peak format

See:

- Appendix A, "Interpreting Monitor I Reports" in this guide for a sample **ISDN Call by Call Report** and field definitions.
- Chapter 3, "Traffic Data Analysis" in *DEFINITY Communications System Generic 3 V2 Traffic Reports*. This chapter contains an in-depth discussion of this report including suggested actions for improving service.

Lightly Used Trunk Group Report

Purpose: To list the trunk members (up to five) within each trunk group that have carried the lowest number of calls.

Details: This report contains the total number of occurrences of a trunk group being lightly used and the total number of calls carried for each lightly used trunk in the trunk group.

G3V1: This report is only available with G3i.

Report Profile:

TABLE 5-10
Lightly Used Trunk Report Profile

Data Source:	list measurements lightly-used-trunk (yesterday or last hour)
File Accessed:	TPtrklite TCtrkgp
Output Units:	peg count
Format:	total
Peak Field:	Not applicable

See: Appendix A, "Interpreting Monitor I Reports" in this guide for a sample of the G3V2 **Lightly Used Trunk Report** and field definitions.

Chapter 3, "Traffic Data Analysis" in *DEFINITY Communications System Generic 3 V2 Traffic Reports*. This chapter contains an in-depth discussion of this report including suggested actions for improving service.

Long Term Trending Report

Purpose: To determine how well your trunks are handling the load during periods of heaviest traffic.

Operation: Once a week, the Monitor I trending utility extracts trending data from the polling files and stores this information.

Details: The Long Term Trending Report provides the following kinds of information about trunk groups based on data gathered for as long as two years.

- Peak and average usage during the period specified for the study.
- Amount of time during the peak period that trunks were out of service.
- Busiest hour, on average, for the trunk group during the study period. This is known as the Average Bouncing Busy Hour (ABBH). The ABBH is based on daily polling or daily concatenation of hourly polling. See Appendix C, "Monitor I Equations" for a list of equations used by Monitor I in making calculations.
- Number of trunks recommended for this trunk group based on the following conditions:
  - the designated level or grade of service
  - when the system was designed
  - the peak usage during the specified period

Remember that these are only ***recommendations***.

Considerations: Monitor I saves data on the peak busy hour and the ABBH each week for as long as two years. For example, if your system has been gathering traffic data for six months, 26 weeks of data is reflected in the report. You can choose to see only the **peaks of peaks**, that is, the busiest times stored for the long-term data, or you can ask for all the data available. The peak option provides recommendations on the number of trunks required to handle worst case situations. The **all** option lets you see the periods, or seasons, when your switch is the busiest. Plan to order the Long Term Trending Report at a time when Monitor I is not busy, after business hours during the week or over the weekend. Depending on the amount of data involved, it can take as long as an hour to generate this report.

Report Profile:

TABLE 5-11
Long Term Trending Report Profile

Data Source:	Mon I Trending Utility
Files Accessed:	TMtrendsum TMtrendtrk TCtrkgp TPpollstat
Output Units:	CCS, Erlangs
Format:	peak, all
Peak Field:	Peak Call Count for Switch Summary section, Peak Usage for Trunk Detail section.

See: Appendix A, "Interpreting Monitor I Reports" in this guide for a sample **Long Term Trending Report** and field definitions.

Outage Trunk Report

Purpose: To list the trunks (up to five) in each trunk group that had the greatest outages (out of service counts) during the measurement interval.

When? When you need to know which trunks were out of service for the specified time frame.

Details:

- A maximum of five trunks in each trunk group can be listed with this report.
- This report tells you which trunks were out of service when sampled as well as the number of times the trunk was out of service.

Report Profile:

Data Source:	list measurements outage-trunk (last hour/yesterday)
Files Accessed:	TPtrkout TCtrkgp
Output Units:	none
Format:	all, total
Peak Field:	Not applicable

See:

- Appendix A, "Interpreting Monitor I Reports" in this guide for a sample of the G3V2 **Outage Trunk Report** and field definitions.
- Chapter 3, "Traffic Data Analysis" in *DEFINITY Communications System Generic 3 V2 Traffic Reports*. This chapter contains an in-depth discussion of this report including suggested actions for improving service.

Poll Status Report

Purpose:

- To show you how the polling is progressing.
- To provide feedback about impediments at the switch that may hinder the polling process.
- To show whether polls are succeeding, failing, or not polling.
- To provide clues about the reliability of the data you are gathering.

When?

- You want a listing of all hourly polls or only successful hourly polls.
- You want a listing of all daily polls or only successful daily polls.

Notes: The data collected for this report may be affected by major alarms. (See Chapter 7, "System Administration" and Appendix F, "Information about Alarming.")

Report Profile:

TABLE 5-12
Poll Status Report Profile

Data Source: (File Accessed)	TPpollstat
Output Units:	none
Format:	Indicates status of each poll
Peak Field:	Not applicable

See: Appendix A, "Interpreting Monitor I Reports" in this guide for a sample **Poll Status Report** and field definitions.

Port Network Link Blockage Report (G3V2)

Purpose: This report provides usage and blockage data for each port network and port network link.

Background: A port network link is the hardware that provides a bridge between two port networks in a direct-connect configuration, or between a port network and a switch node in a center stage configuration.

When? Use this report whenever you suspect congestion is occurring within the switching system, or, on a regular basis to monitor load balancing. Report data provides clues that enable you to adjust your ports to maximize service.

Report Profile:

TABLE 5-13
Port Network Link Blockage Report Profile

Data Source:	list measurements blockage pn (last hour and yesterday)
File Accessed:	TPpnblkg
Output Units:	CCS or Erlangs
Format:	peak and all for hourly or daily
Peak Field:	TDM Usage

See:

- Appendix A, "Interpreting Monitor I Reports" for a sample **Port Network Link Blockage Report** and field definitions.
- Chapter 3, "Traffic Data Analysis" in *DEFINITY Communications System Generic 3 V2 Traffic Reports*. This chapter contains an in-depth discussion of this report including suggested actions for improving service.

PRI Endpoints Report (G3V2)

Purpose: This report lists the identifying attributes for each PRI-endpoint defined in the switch.

Background:

- A PRI-endpoint consists of one or more contiguous DS0s (B-channels) on a T1 or E1 facility that has been assigned an extension number.
- PRI-endpoints can support calls of lower bandwidth as well as calls on non-adjacent DS0s.
- At any given time a PRI endpoint is either active for a single call, idle, or out of service.

Report Profile:

TABLE 5-14
PRI Endpoints Report Profile

Data Source:	list pri-endpoint
File Accessed:	TCpriend
Output Units:	none
Format:	Only one format available. No data or time range prompting for this report
Peak Field:	none

See:

- Appendix A, "Interpreting Monitor I Reports" in this guide for a sample **PRI Endpoints Report** and field definitions.
- *DEFINITY Communications System Generic 3 V2 Wideband Technical Reference*, 555-230-230, for more details.

Processor Occupancy Reports

Purpose: Provides data on the percentage of system capacity that is being used.

Definition: Processor Occupancy is the term used to describe the work load being carried by your switch's main processor. It is always expressed as a percentage of the time during an hour that the processor is busy, either handling calls or performing system management functions.

When? You need processor occupancy rates to show:

- The rate that the system is occupied in call processing tasks.
- The rate the system is involved in system management tasks.
- The rate the system is idle.

Recommendations: The maximum occupancy capacity is 75 percent for G3V2 and 70 percent for G3V1. This rate is determined by adding the total call processing occupancy rate to the system management occupancy. The remaining margin (25 percent for G3V2, 30 percent for G3V1) allows for the smooth functioning of system tasks as well as processing needed for unexpected bursts of calls. An occasional reading that exceeds the threshold is no cause for alarm, however, consistent violations should be avoided as the optimal functioning of the system may be compromised. If the maximum rate is consistently exceeded there are a variety of methods you can used to lower your total rate depending on your system configuration.

Report Profile

TABLE 5-15
Processor Occupancy Report Profile

Data Source:	list measurements occupancy-summary
File Accessed:	TPswoccsum
Output Units:	Occupancy in percentage, calls in peg counts
Format:	all
Peak Field:	Call Processing (CP) Occupancy

Graph Reports: In addition to the switch performance report described here, you can also view data for this report in graph format. The following graphable reports are offered by Monitor I:

— Processor Occupancy Report

— Long Term Processor Occupancy Report

See:

- Appendix A, "Interpreting Monitor I Reports" in this guide for sample **Processor Occupancy Reports** and field definitions.
- Chapter 4, "Processor Occupancy Reports" in *DEFINITY Communications System Generic 3 V2 Traffic Reports* for further details on this report.

Security Violation Report

Purpose: To determine if any invalid attempts were made to access the system.

Details: This report provides the following data:

- The number of invalid login attempts.
- The number of invalid barrier codes attempted when accessing the Remote Access feature.
- The time the security violations measurements were last cleared from the system.

Notes: The report monitors the following ports for invalid login attempts:

- System administration terminal connected within 50 feet of the system cabinet.
- Ports used by the customer service organization.
- Dial-up ports that connect to the switch.
- Expansion port networks (EPNs) maintenance ports. These ports are used as local connections by services to conduct on-site maintenance tasks.

Report Profile:

TABLE 5-16
Security Violation Report Profile

Data Source:	list measurements security-violations summary
Files Accessed:	TPsecvio TPsecdtl TPsecsum
Output Units:	peg Count
Format:	all
Peak Field:	not applicable

See:

- Appendix A, "Interpreting Monitor I Reports" in this guide for a sample **Security Violation Report** and field definitions.
- Chapter 5, "Security Violations Reports" in *DEFINITY Communications System Generic 3 V2 Traffic Reports* for further details.

Switch Node Link Blockage Report (G3rV2)

Purpose: To identify where congestion is occurring within the switching system and to also provide clues on how the load can be adjusted to achieve optimum service.

This report provides information on usage and blockage for each switch node pair and each switch node link.

Definition: A switch network link is the hardware that provides a bridge between two switch nodes.

When? Use this report whenever you suspect congestion is occurring within the switching system or, on a regular basis to monitor load balance. Report data provides clues that enable you to adjust the load so that service is maximized.

Report Profile:

TABLE 5-17
Switch Node Link Blockage Report Profile

Data Source:	list measurements blockage sn (last hour and yesterday)
File Accessed:	TPsnblkg
Output Units:	CCS or Erlangs
Format:	peak and all for hourly or daily
Peak Field:	SNL Usage

See:

- Appendix A, "Interpreting Monitor I Reports" in this guide for a sample **Switch Node Link Blockage Report** and field definitions.
- Chapter 3, "Traffic Data Analysis" in *DEFINITY Communications System Generic 3 V2 Traffic Reports*. This chapter contains an in-depth discussion of this report including suggested actions for improving service.

Tone Receiver Detail Report (G3V2)

Purpose: To provide tone receiver activity for Dual Tone Multifrequency (DTMF) receivers, General Purpose Tone Detectors (GPTDs), and Call Classifiers (CCs).

Use this report to determine if additional Tone Detector or Tone Detector/Generator circuit packs are needed.

Background Tone Receivers are required to support the ARS, Terminal Dialing, Abbreviated Dialing, LND and Call Prompting features.

Details:

- DTMF receivers detect touch tones
- GPTD detect call progress tones
- CCs can function as Call Progress Tone Receivers (CPTRs), Touch Tone Receivers (TTRs), or Multi-Frequency Compelled Receivers (MFCRs).

Report Profile:

TABLE 5-18
Tone Receiver Detail Report

Data Source:	list measurements tone-receiver detail (last hour and yesterday)
Files Accessed:	TPtondedtl TPtonesum
Output Units:	counts
Format:	peak* and all for hourly or daily
Peak Field:	Peak Req

See

- Appendix A, "Interpreting Monitor I Reports" in this guide for a sample **Tone Receiver Detail Report** and field definitions.
- Chapter 3, "Traffic Data Analysis" in *DEFINITY Communications System Generic 3 V2 Traffic Reports*. This chapter contains an in-depth discussion of this report including suggested actions for improving service.

* Peak values are obtained by finding the time coincident values at the hour with the highest peak request measurement from TPtonesum file for DTMF, GPTD and CC (CC is defined as the total of CC-TTR, CC-CPTR and CC-MFCR.)

Tone Receiver Summary Report (G3V2)

Purpose: To provide traffic data for Dual Tone Multifrequency (DTMF) receivers, General Purpose Tone Detectors (GPTDs), and Call Classifiers (CCs).

Use this report to determine if additional Tone Detector or Tone Detector/Generator circuit packs are needed.

Background: Tone Receivers are required to support the ARS, Terminal Dialing, Abbreviated Dialing, LND and Call Prompting features.

Details:

- DTMF receivers detect touch tones
- GPTD detect call progress tones
- CCs can function as Call Progress Tone Receivers (CPTRs), Touch Tone Receivers (TTRs), or Multi-Frequency Compelled Receivers (MFCRs).

Report Profile:

TABLE 5-19
Tone Receiver Summary Report

Data Source:	list measurements tone-receiver summary (last hour and yesterday)
File Accessed:	TPtonesum
Output Units:	counts
Format:	peak* and all for hourly or daily
Peak Field:	Peak Req

See:

- Appendix A, "Interpreting Monitor I Reports" for a sample **Tone Receiver Summary Report** and field definitions.
- Chapter 3, "Traffic Data Analysis" in *DEFINITY Communications System Generic 3 V2 Traffic Reports*. This chapter contains an in-depth discussion of this report including suggested actions for improving service.

* Peak values are obtained by finding the time coincident values at the hour with the highest peak request measurement from TPtonesum file for DTMF, GPTD and CC (CC is defined as the total of CC-TTR, CC-CPTR and CC-MFCR.)

Trunk Group Detail Report

Purpose: To see more in-depth information about potential problem areas noted in the Switch Summary Report. To answer questions such as:

- How much of the traffic is voice-related and how much involves data?
- How much demand does each type of call make on your trunks?
- If you want to improve service, how many trunks should you add to this trunk group?

When? You can get more valuable information from this report if you have entered additional data through the **Trunk Group Editor** screen described in Chapter 7, "System Administration." One area of interest to traffic engineers is Grade of Service (GOS). Your company, perhaps working in conjunction with a traffic engineer, has chosen various Grades of Service for its telecommunications network. That is, it has decided on levels of service that seem the most cost-effective for its business. You can set the GOS for various kinds of trunks, and there are three traffic tables to aid you in interpreting the data (Retrial, Erlang B and Erlang C).

Report Profile:

TABLE 5-20
Trunk Group Detail Report Profile

Data Source:	list measurements trunk-group summary (last hour)
Files Accessed:	TPtrkgp TPwband TCtrkgp
Output Units:	CCS, Erlangs
Format:	peak, all for hourly, daily
Peak Field:	Total Usage

Graph Reports: In addition to the switch performance report described here, you can also view traffic data for this report in graph format. The following graphable reports are offered by Monitor I:

- Trunk Group Usage Report
- Trunk Group Peg Count Report
- Long Term Trunk Group Usage Report
- Long Term Trunk Group Peg Count Report

See:

- Appendix A, "Interpreting Monitor I Reports" in this guide for a sample **Trunk Group Detail Report** and field definitions.
- Chapter 3, "Traffic Data Analysis" in *DEFINITY Communications System Generic 3 V2 Traffic Reports*. This chapter contains an in-depth discussion of the trunk reports including suggested actions for improving service.

Trunk Group Summary Report

Purpose:

- To give the traffic manager an overall picture of how all the trunk groups are functioning in relation to each other.
- To let you know if some groups are carrying more of the switch traffic load than was intended, and if so, is it because other trunks have maintenance problems?

When? You need to examine the overall health of the traffic on all trunk groups that terminate in the switch.

Report Profile:

TABLE 5-21
Trunk Group Summary Report Profile

Data Source:	List Measurements Trunk-Group Summary (Last hour)
Files Accessed:	TPtrkgrp TCtrkgrp
Output Units:	CCS, Erlangs
Format:	peak, all for hourly, daily
Peak Field:	Total Usage

Graph Reports: In addition to the switch performance report described here, you can also view traffic data for this report in graph format. The following graphable reports are offered by Monitor I:

- Trunk Group Usage Report
- Trunk Group Peg Count Report
- Long Term Trunk Group Usage Report
- Long Term Trunk Group Peg Count Report

See:

- Appendix A, "Interpreting Monitor I Reports" for a sample **Trunk Group Summary Report** and field definitions.
- Chapter 3, "Traffic Data Analysis" in *DEFINITY Communications System Generic 3 V2 Traffic Reports*. This chapter contains an in-depth discussion of this report including suggested actions for improving service.

Trunk Group Violation Report

Purpose: To determine what trunk groups have violated their designed Grade of Service (GOS).

This report tells you the current number of trunks in each trunk group that has violated the designed GOS for the specified period. To achieve the designed GOS, it also includes a recommendation for the minimum number of trunks in each trunk group that has reported violations.

When? If you have received mail informing you that some of your trunks have violated their GOS.

Report Profile:

TABLE 5-22
Trunk Group Violation Report Profile

Data Source:	list measurements trunk group (yesterday or last hour)
File Accessed:	TPtrkvio
Output Units:	CCS, Erlangs
Format:	All
Peak Field:	Not applicable

See: Appendix A, "Interpreting Monitor I Reports" for a sample **Trunk Group Violation Report** and field definitions.

Wideband Trunk Group Summary Report (G3V2)

Purpose: To provide traffic measurements for all trunk groups that support wideband switching.

Details: This summary report determines the total wideband usage (in CCS), wideband calls, and other measurements related to wideband trunk groups.

Report Profile:

TABLE 5-23
Wideband Trunk Group Summary Report Profile

Data Source:	list measurements wideband-trunk-group summary (last hour or yesterday)
File Accessed:	TPwband
Output Units:	CCS or Erlangs
Format:	peak and all for hourly or daily
Peak Field:	Total Usage

Graph Reports: In addition to the switch performance report described here, you can also view traffic data for this report in graph format. The following graphable reports are offered by Monitor I:

- Wideband Trunk Group Usage Report
- Wideband Trunk Group Peg Count Report
- Long Term Wideband Trunk Group Usage Report
- Long Term Wideband Trunk Group Peg Count Report

See:

- Appendix A, "Interpreting Monitor I Reports" for a sample **Wideband Trunk Group Summary Report** and field definitions.
- Chapter 3, "Traffic Data Analysis" in *DEFINITY Communications System Generic 3 V2 Traffic Reports*. This chapter contains an in-depth discussion of this report including suggested actions for improving service.

Designing Custom Reports

Overview

Monitor I provides a selection of report types and formats that covers the detailed traffic analysis requirements of most traffic engineers. Monitor I provides default study and polling parameters for many of these reports, but you can change studies to produce reports that better suit your situation. For example, you can set up additional studies and order different polling schedules.

Monitor I also allows you to:

- Design your own reports, based on your unique needs and your preferred way of studying traffic.
- Draw on the complete set of traffic measurements collected from the switch for these reports or concentrate on a particular area of interest to you.

This section deals with producing reports that contain data not included in the Monitor I standard reports or that present data in a way different from the standard reports. It describes:

- The Monitor I database schema
- How to produce various types of custom reports

There are three methods for creating customized reports with Monitor I. An example of each is presented in this section. They are presented in order of increasing difficulty.

1. **Data Dump Reports**. These can be executed easily by most Monitor I users.
2. **Formatted Reports**. You may want to have your UNIX operating system and INFORMIX-SQL database manager user's manuals handy when you execute these reports.
3. **On-line Queries**. These require knowledge of INFORMIX-SQL. Refer to your *INFORMIX-SQL User Guide* and the *INFORMIX-SQL Reference Manual*.

Most of the information for traffic reports comes from the switch. The remainder of the data is drawn from information you have entered through INFORMIX-SQL screens and traffic studies.

The Monitor I Database Schema

Overview

There is a unique database schema provided for each switch release used with Monitor I. Instructions for accessing the entire schema for all the switch releases or just a single schema table for a particular switch release are contained in the next section of this chapter, "Accessing the Monitor I Schema."

Note: The schema may change with new releases of Monitor I software, so AT&T cannot guarantee that your customized reports will still run if you upgrade to a future release.

Schema Description

The Monitor I database stores the following types of information:

- Current study data
- Miscellaneous data, including polling schedules
- Poll data gathered from the switch.

Each of these types of information is stored in a different kind of file or table.* You can determine the type of INFORMIX-SQL table by the prefix of the table name. The prefixes used by Monitor I are shown in Table 6-1.

TABLE 6-1
Prefixes for Monitor I Tables

Table Type	Prefix	Example
Current Study Tables	tc	tcrtpttrn
Miscellaneous Tables	tm	tmtrendsum
Poll Tables	tp	tptrkgp

Most of your customized reports are drawn from the TP (poll) tables since they contain the data gathered directly from the switch. The field labels in these tables should match the measurement labels found in the *DEFINITY Communications System Generic 3 V2 Traffic Reports* for the G3V2 switch or *DEFINITY Communications System Generic 3 V1 System Reports* for the G3V1 switch. These documents are recommended for Monitor I users, especially those designing their own reports.

* INFORMIX-SQL uses the term ***table*** in describing what UNIX calls ***file***.

Accessing the Monitor I Schema

Prerequisite: The next procedures assume the following:

- You have logged onto the system
- Accessed **MTM**
- Selected a target switch
- Accessed the UNIX shell

  (type: *!sh*)

Note: The Monitor I schema is a read-only file, that is, you will not be able to make changes to it using UNIX **vi** or **ed**.

Viewing the Entire Schema

1 At the system prompt, type:

pg $PROG/mtm.sql*

System Response:

The first page of the schema for the target switch appears on your terminal screen.

2 Press RETURN each time the **:** prompt appears to move to the next page of the schema.

3 If you wish to return to the shell without viewing the entire schema, press DEL or *q* .

End of procedure

Viewing a Particular Schema Table

To view one particular table within the schema, use the following procedure:

1 At the system prompt, type:

isql $TMTARGET <<!

2 At the **>** prompt, type:

info columns for <table>

(Where <**table**>is the schema file you wish to view.)

3 Press RETURN then type *!* .

System Response:

The table for the selected file appears in column format.

Example:

The following shows the top portion of the **TPtrkgp** table as it would appear on your terminal screen:

```
Column Name            Type            Nulls

tg_pdate               date            yes
tg_ptime               integer         yes
tg_trkgp               integer         yes
tg_qty                 integer         yes
tg_qqty                integer         yes
tg_fac                 char (8)        yes
  .                       .             .
  .                       .             .
```

End of procedure

Searching for a Schema Table

If you are not sure which table in the schema you wish to view (for example, you may not recollect the spelling of a table), use this procedure.

1 At the system prompt, type *isql*

System Response:

The **INFORMIX-SQL** screen appears.

2 Select *Table*

3 Next, select *DATABASE*

4 Select *Info*

System Response:

A list of schema tables appear that correspond to the target switch and release you selected when you accessed **mtm**.

5 Select the table from this list that you want to view.

6 Select *Columns*

System Response:

The contents of the table you selected is displayed in a column format on your terminal screen.

End of procedure

Schema Contents

All of the examples used in this section show traffic data for switch occupancy. In setting up a report, look for tables relating to switch occupancy in the chart contained in the Schema Assignment files. There are two tables for switch occupancy. Look at the detailed schema for each table to find the measurements you want in your report. Some tips on how to interpret the schema given below.

Header Information

Each table has a header and database fields. The header provides the following information:

Code Identification	The first two fields identify the table for Monitor I developers
Table Name	Name of the table, such as **TPswoccdtl**
Description	Brief description of data in the table
Switch Release	Valid switch releases for the table
Prefix	Common prefix for each field in the table
Number of Fields	Number of fields in the table
User	Additional information may be included here about the table; this miscellaneous information may also be provided if the traffic command is used.

Database Fields

The first two fields in the TP tables are always **pdate** and **ptime**. These field names are preceded by two variable characters identifying the table, such as in **sw_pdate**, which indicates this is a **Switch Occupancy** table. The **pdate** field contains the date on which the data was polled, and the **ptime** shows the hour that the poll was conducted. The **ptime** field can range from 1 to 25. The first hour is from 1 a.m to 2 a.m.; the 24th hour is from midnight to 1 a.m. Hour 25 indicates that data is from a daily poll or was created by the daily concatenation utility. (Tables on daily concatenation are in Appendix D, "Daily Concatenation Tables.") Change the value of the **ptime** field when you want to produce a customized report for a specific time period. Here is an example of the TPswoccdtl database table:

```
{
**File: TPswoccdtl
**Desc: List Measurements Occupancy Last-hour.
**Swch: Sys75 R1V5.
**Pref: sw
**Flds: 13
**User: Data collected from Last-Hour Occupancy Measurements.
**       File to collect the optional last hour Occupancy Measurement,
**       which ouput Occupancy in details of 3 min intervals.
}

create table TPswoccdtl(
 sw_pdate        date,
 sw_ptime        integer,
 sw_measmin      char(5), { Minutes of the hr when measurement was taken}
 sw_stocc        integer, { Static occupancy:background work by system}
 sw_cpocc        integer, { Call processing occupancy}
 sw_smocc        integer, { System management occupancy}
 sw_idlocc       integer, { Available occupancy:amt of time system idles}
 sw_totcall      integer, { Total num of calls completed}
 sw_totatm       integer, { Total number of attempts }
 sw_intatm       integer, { Number of intercom attempts }
 sw_incatm       integer, { Number of incoming attempts }
 sw_outatm       integer, { Number of outgoing attempts }
 sw_pnetatm      integer          { Num of inc and og trk seizures on a network}
);
create index sw_idt on TPswoccdtl (sw_pdate, sw_ptime);
```

SCREEN 6-1
Sample: Database Schema Tables

Customized Data Dump Reports

Overview

Why? To pull data from the database to use to create a ***new*** report, that is, a report that is not already a standard Monitor I report.

Notes:

- Additional information can be found in the *INFORMIX-SQL User Guide* in the chapter entitled "Creating and Printing Reports."
- In generating a Data Dump Report, two UNIX files are created in your present directory: a source file, which is the report name with the suffix **.ace**, and an executable file, which is the report name with the suffix **.arc**. These report files should be removed from your directory after they have been executed to conserve disk space.
- Data Dump Reports can be displayed on your terminal screen or sent to a printer.

Procedure

To dump data from an INFORMIX-SQL table:

1 Find the name of the database table you want to dump by looking through the Monitor I schema.

2 Type *!isql* at any Monitor I menu to access INFORMIX-SQL.

- The INFORMIX-SQL main menu appears, after some INFORMIX-SQL release information.

3 Enter *r* for report.

4 Enter *g* for generate.

5 At the **Select Database** prompt, enter the target switch id or follow the screen prompt.

6 At the **Generate Report** prompt, enter the name of report.

- Example: *swocc*
- The name of the example source file is *swocc.ace*; the name of the executable file is **swocc.arc**.
- The **Choose Table** prompt appears and a list of INFORMIX-SQL table names is displayed.

7 Enter the name of the INFORMIX-SQL table you selected in Step 1 of this procedure.

- Example: *tpswoccdtl*
- Note that the tp prefix ***must*** be lowercase.

8 Press RETURN.

- The INFORMIX-SQL report submenu appears.

9 Enter *r* to run the report.

10 At the **Run Report** prompt, enter the name of report or follow the prompt.

- Example: *swoccdtl*

11 Press RETURN.

- System messages appear, telling you which steps have been started and the ones that have been completed.

12 When the entire report has been displayed, press RETURN.

- To stop displaying the report, press the BREAK or DEL key.

13 After viewing the report on your terminal screen, exit INFORMIX-SQL by typing *e* twice.

14 Press RETURN to return to the DEFINITY Monitor I Menu.

End of procedure

Printing a Data Dump Report

For a hard copy of a Data Dump Report:

1 Access the UNIX System shell by typing the command *!sh* if within the Monitor I program.

2 At the system shell prompt, enter

sacego -q -d <switch_target_name> <report_name> | lp

- Example: *sacego -q -d target1 swocc | lp*

Where <**target1**> is the target switch name and <**swocc**> is the report name.

End of procedure

Removing a Data Dump Report

To remove a Data Dump Report from your directory, enter the following at the UNIX shell prompt:

rm report_name.arc report_name.ace

Sample Data Dump Report

Screen 6-2 shows a portion of a Data Dump Report named **swocc**:

```
sw_pdate    06/13/1993
sw_ptime    14
sw_measmin  13:36
sw_stocc    1
sw_cpocc    1
sw_smocc    4
sw_idlocc   94
sw_totcall  0
sw_totatm   0
sw_intatm   0
sw_incatm   0
sw_outatm   0
sw_pnetatm  0

sw_pdate    06/13/1993
sw_ptime    14
sw_measmin  13:33
sw_stocc    1
```

SCREEN 6-2
Sample: Data Dump Report

Formatted Customized Reports

Overview

Why?

- To create reports that are easier to read and understand than Data Dump reports, since they can be designed with simple, understandable words for field titles and logical ways of expressing the data.

  For example, instead of a header such as, **sw_ptime** and a reading of **15**, you can create the header **Time** and under it the more familiar **15:00** for 3 p.m.

Who?

- Any user familiar with a UNIX text editor such as **vi** (Visual Editor) or **ed** (line editor) can format reports. These editors are described briefly in the *UNIX System V User's Reference Manual* under Commands.

Notes:

- You can write explanatory comments, as programmers do, when you construct a formatted report. Then, when you or another user looks at the file at a later date, these comments will jog your memory.
- The example used here builds on the Data Dump default report. The comments used in this example explain what each section contains and how it performs.

Example

- The syntax conventions shown in the following procedure are recommended.
- The best way to begin writing a formatted report is to use the steps outlined in this chapter for creating a data dump default report.

Here is a sample of the default report created for the switch occupancy example used in the data dump example:

```
select
        sw_pdate,
        sw_ptime,
        sw_measmin,
        sw_stocc,
        sw_cpocc,
        sw_smocc,
        sw_idlocc,
        sw_totcall,
        sw_totatm,
        sw_intatm,
        sw_incatm,
        sw_outatm,
        sw_pnetatm
from tpswoccdtl end

format every row end
```

SCREEN 6-3
Sample: Data Dump Default Report

After the default report is created, you can modify it using the UNIX vi or ed text editors. As described in the Data Dump procedure, a file called **report_name.ace** is placed in your present working directory when you create a default report. Make sure you modify only the file with the prefix **.ace**, the source file. After you have done this, you have a choice: you can use the INFORMIX-SQL **isql** to compile and execute it* or you can compile and execute at the UNIX shell.

Procedure

If you choose to use INFORMIX-SQL, see your *INFORMIX-SQL User's Guide*.

If you choose to use the UNIX shell, follow these steps:

1 Compile the report by typing: *saceprep report_name*

- If errors occur during compilation, the error numbers are contained in a file called **report_name.err**.
- You can print the file at your terminal using the UNIX **cat** command or you can edit it to find the error numbers.
- Locate the error message number in the INFORMIX-SQL manual and correct it.

* This method is described in the INFORMIX-SQL documentation.

2 Execute the report by typing:

sacego -q -d database_name report_name

An example of a formatted report for the switch occupancy example is shown in Screens 6-4 and 6-5.

```
{
 *              Switch Occupancy Detail Report Example
 *
 *USAGE         sacego -q -d fg_r1v5 start_date end_date
 *              start_hour end_hour
 *
}

{* The database name is the target or switch you use to acess mtm *}
DATABASE fg_r1v5 END

{* This section defines parameters and variables *}
DEFINE
        param[1] start_date    date
        param[2] end_date      date
        param[3] start_hour    integer
        param[4] end_hour      integer
        variable data_avail    smallint
END

{* This section defines the margin for the report *}
OUTPUT
        left   margin 0
END

{* This is the query section of the report. The selection is done on
 * the date and time parameters, and the query orders by date and time *}
SELECT
        sw_pdate, sw_ptime, sw_measmin, sw_stocc, sw_cpocc, sw_smocc,
        sw_idlocc, sw_totcall, sw_totatm
        from tpswoccdtl
        where
        sw_pdate between $start_date and $end_date
        and sw_ptime between $start_hour and $end_hour
        order by sw_pdate, sw_ptime
END
```

SCREEN 6-4
Sample: Formatted Report, Page One

```
FORMAT
PAGE HEADER
        {* This section prints out the headings and formatted label
         * for each field on the report
         *}
        print column 69, PAGENO using "Page ###"
        skip 1 lines
        if start_hour < 25 then
              print column 8, "Start:   ",date(start_date) using "mm/dd/yy ",
                start_hour using "#&",":00";
        else
              print column 8, "Start:   ",date(start_date) using "mm/dd/yy"," Daily";
        if end_hour < 25 then
              print column 57, "End:   ",date(end_date) using "mm/dd/yy ",
                end_hour using "#&",":00"
        else
              print column 57, "End:   ",date(end_date) using "mm/dd/yy"," Daily"

        skip 2 lines
        print column    30, "SWITCH OCCUPANCY DETAIL REPORT"
        skip 2 lines
        print column 20,"Static",
              column 29, "Call Proc.", column 41, "Sys.Mgmt.",
              column 53, "Avail.", column 62, "Total", column 69,"Total"

        print column  4,"Date",  column 13,"Time",
              column 20,"Occ.(%)",                column 29,"Occ.(%)",
              column 41,"Occ.(%)",                column 53,"Occ.(%)",
              column 62,"Calls",  column 69,"Attempts"

        print column  4,"-----",  column 13,"-----",
              column 20,"-------",        column 29,"----------",
              column 41,"---------",      column 53,"-------",
              column 62,"-----",  column 69,"--------"

ON EVERY ROW
        {* This section prints actual data from the database *}
        let data_avail = 1
        print column  4,sw_pdate          using "mm/dd",
              column   13,sw_measmin,
              column   20+2,sw_stocc using "##&",
              column   29+2,sw_cpocc using "##&",
              column   41+3,sw_smocc using "##&",
              column   53+3,sw_idlocc using "##&",
              column 62-2, sw_totcall using "####&",
              column 69-2, sw_totatm using "####&"
ON LAST ROW
        {* This section prints report completed or no data on the last line *}
        if (data_avail != 1) then
        begin
                skip 2 lines
                print column 30, "No Data Available"
        end

        skip 2 lines
        print column 30, "Report Completed"
END
```

SCREEN 6-5
Sample: Formatted Report, Page Two (continued)

Screen 6-6 shows a sample of the output of a formatted report. Compare it to the output of the sample data dump report shown earlier.

Page 1

Start: 06/13/93 12:00 End: 06/13/93 12:00

SWITCH OCCUPANCY DETAIL REPORT

Date	Time	Static Occ.(%)	Call Proc. Occ.(%)	Sys.Mgmt. Occ.(%)	Avail. Occ.(%)	Total Calls	Total Attempts
06/13	11:12	1	0	4	95	0	0
06/13	11:09	1	0	5	94	0	0
06/13	11:06	3	0	8	89	0	0
06/13	11:03	2	1	4	93	0	0
06/13	11:00	1	1	6	92	0	0
06/13	10:57	3	0	4	93	0	0
06/13	10:54	1	0	3	96	0	0
06/13	10:51	1	0	6	93	0	0
06/13	10:48	1	1	6	92	0	0
06/13	10:45	1	1	3	95	0	0
06/13	10:42	1	0	4	95	0	0
06/13	10:39	3	0	5	92	0	0
06/13	10:36	4	0	9	87	0	0
06/13	10:33	1	0	7	92	0	0
06/13	10:30	1	0	7	92	0	0
06/13	10:27	1	0	3	96	0	0
06/13	10:24	3	0	8	89	0	0
06/13	10:21	3	0	5	92	0	0
06/13	10:18	1	0	3	96	0	0
06/13	10:15	1	0	6	93	0	0

Report Completed

SCREEN 6-6
Sample: Output for a Formatted Report

System Administration

Overview

The Monitor I System Administrator is responsible for maintaining the Monitor I system. System administrative tasks and Monitor I utilities are described in this chapter.

- Administration tasks may vary according to your system's configuration.
- The *DEFINITY Monitor I Planning Manual* and the *DEFINITY Monitor I Installation Manual* provide information about the Monitor I configurations and storage capacity options.
- Some administrative tasks must be performed from the System Administration login.

Table 7-1 lists Monitor I administrative tasks as well as the Monitor I utilities. This table also provides a brief description of when and why you should perform each task and where to go in this manual for further information.

TABLE 7-1
Administrative Tasks

Task:	Why:	When:	See:
Alarming			
Activate Alarm Manager	To have Monitor I notify either Trouble Tracker, INADS, or you (through e-mail) immediately if something goes wrong with your switch or Monitor I operations.	This must be activated once for alarming to begin **or** in the event of a system reboot.	"Activating the Alarm Manager" in this chapter.
Deactivate Alarm Manager	To stop alarming.	Alarming may be disabled for a system reboot or maintenance.	"Deactivating the Alarm Manager" in this chapter.
Define Alarm Characteristics	To specify the conditions for which an alarm can be raised.	Enter this information at startup time, or any time you want to change alarm characteristics.	"Defining Alarm Characteristics" in this chapter.

TABLE 7-1 (Continued)
Administrative Tasks

Task:	Why:	When:	See:
Alarming (cont'd)			
Define Alarm Destinations	To specify where the alarm is to be sent.	Enter this information at startup time, or any time you want to change alarm destinations.	"Specifying Alarm Destinations" in this chapter.
Backup and Recovery			
Back Up Monitor I	To make a complete backup copy of Monitor I software, databases, and other file systems in your system.	Weekly.	"Backing Up Monitor I" in this chapter.
Recover software and files	To recover backup copies of files in case of system failure.	System failure, hardware problems.	"Recovering Software and Files" in this chapter.
Concatenation			
Run daily concatenation	To combine hourly totals to produce daily totals if automatic concatenation fails (for example, if an unexpected change was made to the poll schedule).	If the Poll Type field on the Poll Status Report does ***not*** say **DCT**.	"Initiating Daily Concatenation" in this chapter.
Database			
Purge database	To purge the database of polling and trending data.	When scheduled automatic purge fails **or** when the database grows beyond expected limits.	"Initiate Database Purge" in this chapter.
Remove the switch database	If a database was built with errors. It is also possible to temporarily remove a switch that is being upgraded or if a switch is being completely deleted.	This procedure should be used with utmost discretion and should only be performed by the system administrator.	"Removing the Switch Database" in this chapter.

TABLE 7-1 (Continued)
Administrative Tasks

Task:	Why:	When:	See:
Log Tasks			
Check **mtmlog**	To check for errors in system operation.	Daily.	"Reading System Logs" and "Display Monitor I Log" in this chapter.
Purge log file	To purge stored messages from the switch to Monitor I.	When the log file contents approach 1 megabyte.	"Initiate Log File Purge" in this chapter.
Read System Logs	To check **mtmlog** for messages pertaining to system operations.	Daily.	"Reading System Logs" and "Display Monitor I Log" in this chapter.
Mail			
Read mail	To check messages sent by the switch that inform Monitor I users of errors or of changes that affect traffic polling.	Daily.	"Reading Mail" in this chapter.
Permissions			
Set permissions for scheduling reports	To add logins to the at.allow and cron.allow files so that Monitor I users can access the UNIX **cron** and **at** commands to schedule reports.	Whenever there are new Monitor I users.	"Report Scheduling" in this chapter.
Polling			
Activate polling mechanism	To initiate polling of the switches.	This must be activated once for any polls to be brought up **or** in the event of a system reboot.	"Step 3. Activate the Polling Control Mechanism," in Chapter 3, "Implementing Monitor I".
Deactivate polling mechanism	To stop polling before the computer system is to be brought down.	As necessary.	"Deactivate the Polling Control Mechanism" in this chapter.
Monitor poller processes	To get a summary of which switches are being polled.	Before you begin a new series of traffic studies.	"Monitor Poller Processes" in this chapter.

TABLE 7-1 (Continued)
Administrative Tasks

Task:	Why:	When:	See:
Polling (cont'd)			
Schedule polling	To schedule your traffic studies.	When a new switch is added.	"Step 4. Schedule Monitor I Polling," in Chapter 3, "Implementing Monitor I".
Ports			
Assign access to ports	To enable users who are to monitor traffic on the switch accessibility to dial-up ports.	Whenever a new port is added or a change in accessibility is made to an existing port.	"Assigning Access to Dial-up Ports" in this chapter. Also, "Step 4 — Schedule Monitor I Polling" in Chapter 3, "Implementing Monitor I" in this guide.
Routing			
Display ARS Measurement Selection	To view which ARS patterns have been selected for polling traffic data.	As necessary.	"Displaying ARS Pattern Selections" in this chapter.
Switch tasks			
Initialize switch	To populate the switch database with trunk group data and non-traffic data from the switch.	When a new switch is added **or** if extensive changes have been made to an existing switch.	"Step 2. Initialize the Switch Database," in Chapter 3, "Implementing Monitor I".
Cut-through to the switch	To communicate with the switch.	When you need to access the switch without exiting Monitor I.	"Access Switch Cut-Through" on the Monitor I **Utilities Menu**.
Rotate Monitor I switches	To poll an alternate set of switches for networks that have more switches than can be supported by Monitor I.	When you want to poll switches not currently polled by Monitor I.	"Rotating Monitor I Switches" in this chapter including "Deactivating Switches" and Activating Switches."

TABLE 7-1 (Continued)
Administrative Tasks

Task:	Why:	When:	See:
Switch Tasks (cont'd)			
Remove the switch database	If a database was built with errors. It is also possible to temporarily remove a switch that is being upgraded, and lastly, if a switch is being completely deleted then the switch's database would also be deleted.	This procedure should be used with utmost discretion and should only be performed by the system administrator.	"Removing the Switch Database" in this chapter.
Trending			
Update trending	To update the trending information used in the Trending Reports (Long Term).	If trending update is not automatically executed at noon on Sunday.	"Initiating the Trending Update Utility" in this chapter.
Trunk Groups			
Administer trunk group include lists	To pool trunk groups together.	To study trunk groups in user-defined sets on the Trunk Group Summary and Trunk Group Detail Reports.	"Administering Trunk Group Include Lists" in this chapter.
Administer trunk group editor	To change or remove trunk groups.	Any time trunks or trunk groups have been changed.	"Trunk Group Administration" in this chapter.
Users			
Add users	So new logins are recognized by Monitor I.	Whenever new Monitor I users need to be added.	"Adding Users to Monitor I" in this chapter.

The Administrator´s Training

If your System Administrator has not attended the following training, contact your AT&T Sales Representative for more information.

- DEFINITY Monitor I
- UNIX System Administration
- INFORMIX-SQL

Alarm Administration

Activating the Alarm Manager

Purpose: To begin the alarming mechanism.

When? Whenever the system is brought up.

Who? The person responsible for bringing up the Monitor I system.

Notes: Refer to the "Defining Alarm Characteristics" and "Specifying Alarm Destinations" procedures in this chapter for related information.

Procedure

1 Log in as *mtmadm* .

2 At the UNIX shell prompt, enter *alarmstart* .

End of procedure

Deactivating the Alarm Manager

Purpose: To stop the alarming mechanism.

When? When necessary.

Who? System Administrator.

Procedure

1 Log in as *mtmadm* .

2 At the UNIX shell prompt, enter *alarmend* . The following message appears:

```
Alarm Manager is being brought down. Please wait . . .
```

End of procedure

Defining Alarm Characteristics

Purpose: To determine the severity level for each alarm condition and which destinations should be notified when a particular alarm condition is received.

When? Whenever the alarm characteristics change.

Who? System Administrator.

Notes: For further details on administering alarm characteristics, see the "Administering Alarm Parameters" and "Choosing Alarm Destinations" sections in Appendix E, "Information About Alarming."

Procedure

1 Enter the following menu selections from the **Main Menu**:

Administrative Menu
→ *Access Alarm Administration Menu*
→ *Administer Alarm Characteristics*

System Response:

The **Administer Alarm Characteristics** screen is displayed. Screen 7-1 shows this screen updated with the Monitor I defaults.

```
PERFORM: Query  Next  Previous  Add  Update  Remove  Table Screen  ...
Searches the active database table.            ** 1:  tmalrminfo table**

--------------------------------------------------------------------------------
                      ADMINISTER ALARM CHARACTERISTICS          Screen  1 of 1
--------------------------------------------------------------------------------
                                                    Destination
                                                    Trouble
Alarm Condition                      Severity  INADS  Tracker  E-mail
Monitor I Polling System Failure     MAJ       YES    NO       YES
Purge Failure                        MAJ       NO     NO       YES
Trunk Group Threshold Violation              NO     NO       YES
PBX CPU Congestion                           NO     NO       YES

CPU Congestion Threshold             75
```

SCREEN 7-1
Administer Alarm Characteristics Screen

2 Type *q* to display the default values.

3 Type *u* to update the current values.

- **Severity** — enter *MAJ* for major alarms, *MIN* for minor alarms, or *WRN* for warnings.
- **INADS, Trouble Tracker, or E-mail** — enter *YES* to send the alarm information to the destination or *NO* to shut off the alarm.
- **CPU Congestion Threshold** — enter *1-100* to specify the percentage of congestion threshold for the processor.

4 Press ESC to save the new values, and type *e* to exit this screen and return to the **Access Alarm Administrative Menu**.

End of procedure

Specifying Alarm Destinations

Purpose: To specify the destination names and phone numbers for Trouble Tracker so that alarms can be sent automatically.

When? Whenever the alarm destination information changes.

Who? System Administrator.

Notes: Refer to the "Defining Alarm Characteristics" and "Activating the Alarm Manager" sections in this chapter for related information.

Procedure

1 Enter the following menu selections from the **Main Menu**:

Administrative Menu
→ *Access Alarm Administration Menu*
→ *Administer Alarm Destinations*

System Response:

The **Administer Alarms Destinations** screen is displayed.

```
PERFORM: Query  Next  Previous  Add  Update  Remove  Table Screen  ...
Searches the active database table.            ** 1:  tmalrminfo table**

--------------------------------------------------------------------------------
                       ADMINISTER ALARM DESTINATIONS          Screen  1 of 1
--------------------------------------------------------------------------------
    MONITOR I Alarm ID:

Switch Target Alarm ID:
Destination       Destination Name        Destination Phone Number
```

SCREEN 7-2
Administer Alarm Destinations Screen

2 Type *q* then ESC to display the default values.

3 Type *u* update the current values.

- Monitor I Alarm ID — the ID of this Monitor I system used by Trouble Tracker and INADS. Contact your Trouble Tracker System Administrator for details. The ID consists of 10 digits, beginning with the number 8.
- Switch Target Alarm ID — the 10-digit serial number of the PBX.
- Destination Type — TT (Trouble Tracker).
- Destination Name — up to 20 unique characters that describe the destination.

- Destination Phone Number — the phone number or access number of the Trouble Tracker system to which the alarms are to be sent. Contact the TSC to obtain this number and to also have alarms sent to INADS.

4 When all the fields have a valid entry, press ESC to save the new values, and type *e* to exit to the Alarm Administration menu.

End of procedure

ARS Measurements

Displaying ARS Measurement Selections

Purpose: To view which patterns have been selected for polling traffic data.

Who? System Administrator or any Monitor I user.

Notes: This screen is for display only.

Procedure

1 Enter the following selections from the Main menu:

Administrative Menu
└→ *Display ARS Measurement Selection*

System Response:

The **Display ARS Measurement Selection** screen appears as shown in the following sample screen:

```
                    DISPLAY ARS MEASUREMENT SELECTION

Pattern Numbers:
            1                   10                  18
            2                   11                  19
            3                   12                  20
            4                   13                  21
            5                   14                  22
            6                   15                 101
            7                   16                 102
            8                   17                 335
            9
```

2 Press RETURN to go back to the **Administrative Menu**.

End of procedure

Backups

Backing Up Monitor I (3B2/600, 6386E/33, 6386SX/EL)

Purpose: To make a complete backup copy of the Monitor I software and the databases and any other file systems you have in your system. Files can then be restored in the event of a system failure.

When?

- At least once a week for the database(s) and once a month for the entire system.
- Suggested backup time: Saturday between 9:00 a.m. and 12:00 noon. Do not perform a backup between 12:00 midnight and 6:00 a.m., when the **mtmadm1** is running **cron** jobs.

Who? System Administrator.

Prerequisites:

- At least one standard DC6320 data cartridge tape, with a capacity of 60 megabytes, or 117,300 blocks, of data. Keep a few tapes on hand so you can change them as requested by the system.
- All Monitor I users must log off and all Monitor I processes, including polling, must be stopped.

Notes:

- It takes approximately 20 minutes to fill each tape.
- System prompts allow you to make decisions regarding the extent of the backup.
- To back up all the Monitor I databases, print the file under **<directory>/mtm/tools/dbmap**, where **<directory>** is the directory under which you installed Monitor I. Keep this printout in a safe place for your reference.
- If you are backing up only one <**dbname**>.dbs directory, back up the corresponding <**dbname**>.frm directory also. For example, **/usr/mtm/db1/earth.dbs** and **/usr/mtm/db1/earth.frm**.
- For further information:
  - **3B2/600 Processor**:
    for UNIX **sysadm** procedures, see the *AT&T UNIX System Administrator's Guide*, Chapter 5, "File System Administration."
  - **6386E/33 and 6386SX/EL Processors**:
    for UNIX backup procedures, see the *AT&T UNIX System V/386 Release 3.2.3 FACE User´s/Administrator´s Guide*.

Procedure: 3B2/600 Backup

1 Log in as *root* on the system console.

2 Enter *<directory>/mtm/tools/monitor I stop* to bring down the Monitor I pollers and alarm processes.

Where: <**directory**> is the directory under which Monitor I is installed.

3 Enter *sysadm backup* (or *sysadm store* to back up a single directory). The system displays all the file systems on your machine.

4 Answer the remaining questions and follow the instructions.

Note: If you are using a high capacity tape you will see an additional prompt for **xtape** .

5 At the UNIX prompt, enter *<directory>/mtm/tools/monitor I start* to bring up the Monitor I pollers and alarm processes.

Where: <**directory**> is the directory under which Monitor I is installed.

End of procedure

Procedure: 6386E/33 and 6386SX/EL Backup

1 Log in as *root* on the system console.

2 Enter *<directory>/mtm/tools/monitor I stop* to bring down the Monitor I pollers and alarm processes.

Where: <**directory**> is the directory under which Monitor I is installed.

3 Enter *face* .

4 Make the following choices at the **FACE** menus:

- Select *System Administration*
- Select *Backup to Removable Media*
- Select *System Backup*
- Select *Selective System Backup*
- Select *Cartridge Tape*

Note: If there is an x-Tape™ (in other words, a high capacity tape drive) in the system, do the following:

— Select the x-Tape cartridge.
— Press **Choices** (F2 key) for the tape drive.
— Press **Save** (F3 key) for the Selected tape device.

- For a complete system backup, enter name of all the file systems you have in your machine ***except*** **/tmp**. Separate the names of the file systems with spaces, for example, **/ /usr /usr2** . For database backup only, enter all the directories listed in the **dbmap** file.
- Press F3 to save the information you entered above.
- The system calculates the number of tapes needed to do the backup. Be ready with the required number of tapes. Insert the tape(s) as instructed by the system. Press RETURN when prompted by the system. Wait for the backup to complete.
- Use the appropriate function keys to exit from **FACE** and return to the UNIX prompt.

5 At the UNIX prompt, enter *<directory>/mtm/tools/monitor I start* to bring up the Monitor I pollers and alarm processes.

Where: <**directory**> is the directory under which Monitor I is installed.

End of procedure

Concatenation

Initiating Daily Concatenation

Purpose: To begin daily concatenation of data.

When? No more than once daily and only when automatic daily concatenation did not concatenate hourly data into daily totals for the previous day's data. For example, in cases where the system was down during the polling time range (12:00 midnight to 4:00 a.m.).

Who? System Administrator.

Notes:

- Refer to the **Poll Status Report** for related information.
- Running this utility when daily concatenation is already running during the current day produces duplicate data and might cause reports and long-term trending to be adversely affected.
- This utility runs in the ***background*** and does not affect other activities. Check the **mtmlog** to determine when the task is complete for each switch.
- The data created by the manual daily concatenation utility approximates data for System 75 because of that system's unique way of getting information using a "yesterday" type of poll.
- See Appendix D, "Daily Concatenation Tables" for a chart showing where daily concatenation data is stored in the DEFINITY Monitor I database.

Procedure

1 Enter the following menu selections from the **Main Menu**:

Utilities Menu
└→ *Access Manual Utilities Menu*
└→ *Initiate Daily Concatenation*

- The system displays a warning that this utility executes in the background and prompts you to press *y* to continue.

2 Enter the **Concatenation Date** and **Target Switch** as prompted.

- If daily concatenation is already running for the selected switch, this utility will be blocked and a message is displayed in the **mtmlog**.

3 Remember to check the **mtmlog** to see if daily concatenation has completed for each target switch.

End of procedure

Dial-up Ports

Assigning Access to Dial-up Ports

Purpose: To assign users access to dial-up ports.

Capacity Up to three G3 switches can be supported on one dial-up port.

Details Users can be given access to all ports or restricted to specified ports.

Who? System Administrator.

Notes:

- Monitor I allows the System Administrator to specify up to six dial-up (remote) ports on the computer for traffic purposes. It is ***not*** a recommended practice for most installations, but it can be useful for some.
- Free access to all available ports works well in most installations. However, some companies with coresident applications may choose to restrict use to specified ports.
- In setting aside ports for Monitor I use, you are restricting system access to the switch. That is, Monitor I will be unable to make a connection if all specified ports are busy, even if other, unspecified ports are free. Moreover, other network applications residing on the computer with Monitor I may not follow the same standards; they may, for example, be able to use Monitor I-specified ports.

See: Chapter 3, "Implementing Monitor I" for complete details on scheduling the poller. This section contains a display of the second screen that allows you to specify port access for users.

Procedure

1 Enter the following menu selections from the **Main Menu**:

Administrative Menu
└→ *Administer Polling Schedule*

System Response:

The **Administer Polling Schedule** screen appears.

2 Enter *s* to access the second screen of the polling schedule.

3 Enter the name you are assigning to the port; for example, *tty31* . It is important to enter the correct name for each device to be used. If a name differs by a character or a digit, polling cannot take place because Monitor I will not be able to find the port.

Note: Up to six ports can be assigned on this screen.

End of procedure

File Recovery

Recovering Software and Files (3B2/600)

Purpose: To restore Monitor I data that was previously saved on your backup cartridge tapes.

When? In case of a system failure.

Who? System Administrator.

Prerequisites To bring the system down to single-user state, all users must log off and all processes, including **cron** processes, must be stopped. Make sure that no user **cron** files are currently running.

Notes:

- It takes 15 minutes for the system to read a single tape and copy the information during a recovery.
- Insert the tapes in the same order used during your system backup.

Procedure

1 Log in as *root* on the system console.

2 Enter *<directory>/mtm/tools/monitorI stop* to bring down the Monitor I poller and alarm processes.

Where: <**directory**> is the directory under which you installed Monitor I.

3 Enter *sh /etc/init.d/cron stop* .

4 Enter *ps -fumtmadm,mtmadm1* to determine if any other Monitor I process is running. If any processes are displayed, wait until they have completed before you continue with this procedure.

5 Enter *shutdown -is* at the prompt to bring the system down to single-user state.

6 Enter *ulimit 99999* to change the ulimit.

7 Enter *sysadm restore* at the prompt.

8 Enter the appropriate information in response to each of the prompts.

9 **Note:** If you are using a high capacity tape drive (in other words, x-Tape), an additional prompt is displayed for the x-Tape.

When recovery is completed, enter *q* to quit and return to the shell.

10 Enter *init 2* at the prompt to bring the system back to multiuser state.

11 The missing mtmadm1 **cron** jobs, if any, have to be run manually for the day.

12 Inform all users that they can now resubmit their **cron** files.

End of procedure

Recovering Software and Files (6386E/33 Model S, 6386SX/EL)

Purpose: To restore Monitor I data that was previously saved on your backup cartridge tapes.

When? In case of a system failure.

Who? System Administrator.

Prerequisites To bring the system down to single-user state, all users must log off and all processes, including **cron** processes, must be stopped. Make sure that no user **cron** files are currently running.

Notes:

- It takes 15 minutes for the system to read a single tape and copy the information during a recovery.
- Insert the tapes in the same order used during your system backup.

Procedure

1. Log in as *root* on the system console.
2. Enter */<directory>/mtm/tools/monitor I stop* to bring down the Monitor I poller and alarm processes:

   Where: <**directory**> is the directory under which you installed Monitor I.
3. Enter *sh /etc/init.d/cron stop* .
   - The system displays a message telling you that the cron has been aborted.
4. Press RETURN .
5. Enter *ps -fumtmadm,mtmadm1* and press RETURN to determine if any other Monitor I process is running. If any processes are displayed, wait until they have completed before you continue with this procedure.
6. Enter *shutdown -is* at the prompt to bring the system down to single-user state.
   - Enter the root password to get into single-user mode.
7. Enter *PATH=:/etc:/bin:/usr/bin:/usr/vmsys/bin:$PATH; export PATH*
8. Enter *HOME=/; export HOME*
9. Enter *LOGNAME=root; export LOGNAME*
10. Enter *TERM=AT386-M; export TERM*
11. Enter */etc/mountall* to mount all the file systems.
12. Enter *ulimit 99999* to change the ulimit.
13. Enter *face* at the prompt.

14 Make the following choices at the **FACE** menus:

- Select *System Administration*
- Select *Restore from Removable Media*
- Select *System Restore*
  - To restore all files from the tape, select *Restore System*
  - To restore ***selected*** files and directories from the tape, choose *Selective System Restore*
- Select *Cartridge Tape*

  Note: If there is an x-Tape (in other words, a high capacity tape drive) in the system, do the following:

  - Select the x-Tape cartridge.
  - Press *Choices* (F2 key) for the tape drive.
  - Press *Save* (F3 key) for the Selected tape device.

  - The system displays the following message:

Overwrite files that have been modified since last backup?

- Answer *no* and press Save.
- Press RETURN when prompted by the system.
- Wait for the restore to complete. Press RETURN when prompted by the system.
- Use the appropriate function keys to exit from **FACE** and return to the UNIX prompt.

15 Enter *init 2* at the prompt to bring the system back to multiuser state.

16 The missing mtmadm1 **cron** jobs, if any, have to be run manually for the day.

17 Inform all users that they can now resubmit their **cron** files.

End of procedure

Logs

Displaying the Monitor I Log

Purpose: To view Monitor I log data for specific targets, processes and dates.

When? When you are searching for specific information from the Monitor I log and do not want to search through the entire file.

Who? System Administrator or any Monitor I user.

Notes: Refer to the "Reading System Logs" section in this chapter for more information on the Monitor I log.

Procedure

1 Enter the following menu selections from the **Main Menu**:

Utilities Menu
└→ *Display Monitor I Log*

- The system displays a start date and end date from the log files.

  You can either choose to view a single day's data or you can press RETURN to view data for all the dates shown.

2 If you choose to view data for all the dates shown, you are then asked to choose a **Search Option** from the following list:

- **t(arget): Search by target name**
- **p(rocess): Search by process name**
- **b(oth): Search by both target and process name**

Enter the appropriate letter and press RETURN.

Note: If you choose a single date, you can then select all targets, or all processes, or all targets ***and*** all processes for that single date.

3 Enter the target switch name and/or the process name.

Press l (lowercase, letter l) to list the available target names or the Monitor I process names if you are unsure of what to enter.

4 Specify whether data should be sent to the terminal, a file, or a printer. Use the same conventions for files and printers as you do when ordering Monitor I reports.

5 Press RETURN to return to the **Utilities Menu**.

End of procedure

Purging Log Files

Purpose: To clean out the log files.

When? When necessary.

Who? System Administrator.

Notes:

- The **mtmlog** file is created to collect the new data and normally collects data for 14 days before it is moved to the ***old file***, named **omtmlog**. **omtmlog** is created to hold the **mtmlog** information for 14 days. When **mtmlog** is moved to **omtmlog**, the original contents of **omtmlog** are purged from the system.
- The automatic purge occurs on the 14th and 28th day of the month at 3:00 a.m.

Procedure

1 Enter the following menu selections from the **Main Menu**:

Utilities
→ *Access Manual Utilities Menu*
→ *Initiate Log File Purge*

System Response: The system informs you when the task is completed.

2 Press RETURN to return to the **Manual Utilities Menu**.

End of procedure

Reading System Logs

Purpose: To check **mtmlog** for messages pertaining to system operations.

When? Daily.

Notes:

- Messages on **mtmlog*** are stored for up to 28 days before they are automatically purged by the system. A manual purge can be requested by running **Initiate Log File Purge** from the **Manual Utilities Menu**.
- You can read this file using the UNIX command **pg** to page through it, or you can **vi** the file if it is not too large.
- Monitor I features a utility that enables you to read system logs with specified targets and date ranges. Refer to the "Displaying Monitor I Log" procedure in this chapter.

Procedure

1 If you are at the UNIX shell prompt, type *tail $MTMDIR/log/mtmlog* to read the last few lines of the file.

2 If you are at a Monitor I menu or screen, type *!tail $TMLOG/mtmlog* to read the last few lines of the file.

End of procedure

* The contents of this file are actually divided into two files; half of which is purged every 14 days. The purge occurs on the 14th and 28th of each month at 3 a.m. Monitor I also purges its database automatically; the schedule for this depends in part on the amount of storage space your company has selected for Monitor I data.

Mail

Reading Mail Messages

Purpose:

- To check messages sent by the switch informing you of errors or changes that affect traffic polling.
- To read mail from users.

When?

- At the beginning of each day.
- If the **Mail** prompt appears when you log on to the system, indicating that there are messages waiting.
- Periodically throughout the day or whenever the **Mail** prompt appears.

Who? The System Administrator or any Monitor I user.

Notes: If a Monitor I error occurs, the "mailbox" contains a formatted mail message advising the user or administrator of the problem. The message lists the target switch, the transaction where the problem occurred, a description of the problem, and the action necessary to correct the problem. See Appendix C, "Mail and Error Messages" for sample mail messages.

Procedure

1 Enter *mail* at the UNIX shell prompt.

2 At the mail prompt type *?* to see a list of options.

End of procedure

Non-Traffic Data

Retrieving Trunk Group Data

Purpose: To retrieve trunk group information stored by the switch that is needed for reports of ARS patterns. The information also includes the full names of your trunk groups, which may make your Monitor I trunk group reports easier to understand and analyze.

When?
- Before running reports so that the trunk group name fields are populated.
- After that, when trunk groups are added or removed or when routing preferences are changed.

Who? System Administrator.

Notes:
- This procedure requires switch connection and prevents you from working on other tasks at your station. Use it when the switch is not busy, if possible.
- The procedure takes five to ten minutes after the connection to the switch has been made.

Options:
- the trunk group names and trunk access codes (tac)
- the route patterns under study
- [**G3V2**]: the PRI and access endpoints
- information if the ISDN trunk group is a call-by-call (cbc) type trunk and the allocation plan in effect
- both route patterns under study and if the ISDN trunk is a cbc type
- all the above options.

Caution: This procedure overwrites existing non-traffic data in the Monitor I database. That is, it replaces earlier information and, more importantly, it overwrites data you have entered through the Trunk Group Editor. However, if no trunk group name is stored in the switch then there is no danger of overwriting data. If you have stored trunk group names in Monitor I that are more complete than the names stored in the switch, you will lose that information when this command is executed. See the procedure in this chapter for details on using the Trunk Group editor.

Procedure

1 Enter the following menu selections from the **Main Menu**:

Utilities Menu
└→ *Retrieve Non-Traffic Data*

System Response: The system informs you that you have selected the non-traffic data option, and prompts you to either continue or exit.

2 Press *y* to continue.

End of procedure

Poller Administration

Deactivating the Polling Control Mechanism

Purpose: To stop the polling process (known internally as the **mtmguard**) for ***all*** switches.

When? Before the system or Monitor I is brought down.

Who? System Administrator.

Notes:

- When **mtmguard** has been deactivated, scheduled polling on all switches stops, and no requests for polling additional switches are accepted.
- If a shutdown procedure is executed during the transfer of traffic data between a switch and the Monitor I database, the shutdown is delayed until the transfer is complete. This prevents database corruption.
- Under normal conditions, polling of a specific switch will not be stopped unless a user requests it through the Administer Polling Schedule screen, as described in Chapter 3, "Implementing Monitor I." When polling is halted in this way, the Polling Control Mechanism attempts to update the Poll Schedule Record to indicate that polling is no longer taking place at that switch.
- If polling stops due to system failure, the Polling Control Mechanism sends an e-mail message to the System Administrator's login. Further information on the problem can also be found in the error log, **mtmlog**.

See: Chapter 3, "Implementing Monitor I" for details on activating the polling process mechanism.

Procedure

To deactivate the Monitor I Polling Control Mechanism:

1. Log in as *mtmadm* .
2. From the UNIX shell prompt, enter *pollend.*
   - The procedure takes one to ten minutes depending on the delay caused by the possible transfer of traffic data from a polled switch to Monitor I.
   - The system displays a message when the pollers have successfully been brought down.

End of procedure

Deleting Selective Polls

Purpose: To delete polls between specified dates.

When? When you want to delete polls that may distort your trending data. For example, you may not want polls included in your trending reports for days when the load is exceptionally light, such as snow days.

Who? System Administrator.

Notes:

- This utility runs in the background and does not affect other activities. You will receive mail when the specified polls have been deleted.
- Because this utility can slow down your system, it should be run when the system load is light.
- Run this utility ***before*** weekly trending takes place on Sundays so that distorted polls do not have any impact on trending.
- You can recover the polls you delete ***only*** by performing a backup.
- You must be the owner of the database or **mtmadm** to perform this utility.

Procedure

1 Enter the following menu selections from the **Main Menu**:

Utilities Menu
└→ *Delete Selective Polls*

2 Enter the **Start Date** and **End Date** , as prompted.

3 Enter the **Poll Type:**

- Enter *d* to delete only daily records.
- Enter *h* to delete an hourly range. The default is 1 through 24.
- Enter *b* to delete both daily records and the hourly range of 1 through 24.

Note: The system asks you for the name of a specific table to be purged. It also gives you the option of purging all **tp** tables.

4 When you have answered all the prompts, press RETURN to return to the **Utilities Menu**.

End of procedure

Stop Polling of a Specific Switch

Purpose: To stop polling immediately.

When? Whenever necessary.

Who? System Administrator.

Notes: If a poll is in progress when this command is entered, polling of the switch will not cease until that particular poll has been completed. This may take up to ten minutes. The system will not complete the entire previously entered schedule.

See: Chapter 3, "Implementing Monitor I" for compete details on scheduling your switches for polling.

Procedure

1 Enter the following menu selections from the **Main Menu**:

Administrative Menu
→ *Administer Polling Schedule*

System Response:

The **Administer Polling Schedule** screen appears.

2 Change the **y** in the Polling Activated field to *n*.

3 Press RETURN.

4 Press ESC to store the change.

End of procedure

Monitor Poller Processes

Purpose: To see at a glance which switches are being polled.

When? Any time you want to check on polling during its scheduled time.

Who? System Administrator.

Note: Avoid changing from hourly to daily polling mid-week. Mid-week changes result in hourly data for half the week and daily data for the other half. Such a set-up will make it difficult to interpret the data collected for that week. Aim to change your schedule at the beginning of the week.

Procedure

1 Enter the following menu selections from the **Main Menu**:

Utilities Menu
└→ *Monitor Poller Processes*

- A message is displayed on your screen telling you whether Monitor I is polling and for which targets it is currently active if polling is taking place.

End of procedure

Report Scheduling

Setting Up Permissions

Purpose: To set permissions so that Monitor I users can schedule long-term and short-term reports using the UNIX **cron** and **at** commands.

Who? The system administrator sets the permissions for users to access these UNIX commands.

How? By adding user logins to the **cron.allow** and **at.allow** files.

When? Whenever there is a new Monitor I user who needs to schedule reports. The system administrator may also need to edit these files to delete users who no longer work on Monitor I.

Procedure

1. Login as root.
2. Change directories by entering the following at the root prompt:

   cd /usr/lib/cron
3. At the prompt, enter:

   vi cron.allow
4. Add your new login IDs to the end of this file.
5. Save this file and exit **vi** by entering either *ZZ* or *:wq* at the prompt.
6. Next, access the **at.allow** file by entering:

   vi at.allow
7. Again, add the new login IDs to the end of this file.
8. Save this file and exit **vi** by entering either *ZZ* or *:wq*

End of procedure

Purging the Database

Purpose: When automatic cleanups fail or when the size of the database exceeds the expected limits.

When? Whenever necessary.

Who? System Administrator.

Notes:

- This utility runs in the ***background*** and does not affect other activities. Check the **tmlog** to determine when the task is complete for each switch.
- Connection to the switch is not required to perform this utility.
- Automatic purging of poll data is every 24 hours at 6:00 p.m. and cleanup of trending data is every Sunday at 2:30 a.m.

Procedure

1 Enter the following menu selections from the **Main Menu**:

Utilities
└→ *Access Manual Utilities Menu*
└→ *Initiate Database Purge*

System Response: The system displays a warning that this utility executes in the background, and prompts you to press *y* to continue.

2 Remember to check the **mtmlog** to determine when the task is completed for each switch.

End of procedure

Removing the Switch Database

Purpose: To remove the entire switch database.

When?
- If an error is made while creating the switch database.
- When a switch is physically being removed from an already functioning system.
- When a switch is being upgraded and the TSC has instructed the user to run the procedure.

Who? System Administrator.

Cautions:
- Only the owner of the switch or the System Administrator (**mtmadm** login) should perform this procedure.
- Make sure no one is accessing the switch that is being removed at the time you begin this procedure.

Procedure

1 From the UNIX System shell, enter: *switch_rmv*.

2 Enter the name of the target switch you want to remove. Press *l* if you want to see a list of target switches.

Note: If you are using the switch rotation feature, Monitor I displays both active ***and*** inactive switches.

3 Check the screen to see that the name you entered is correct. If it is, type *y* to continue the remove operation; if not, type *n* to abort and start over.

4 Press RETURN.

- If you abort this procedure you are immediately returned to the UNIX System shell.
- Otherwise, system messages will be displayed as the target you requested is removed, and then you will be returned to the UNIX System shell.

End of procedure

Rotating Monitor I Switches

Purpose: Some Monitor I customers have more switches in their network than the Monitor I system can actively poll at one time. At installation time you can create databases for all the switches in your network and at the same time, specify the maximum number of switch types that can be polled simultaneously. You can then select those switch databases from your entire set of databases that you wish to poll.

What? Switch rotation activates polling by "rotating in" the inactive switches you wish to poll. The total number of switches for each switch type that can be polled simultaneously is defined by you at installation time. If you have reached polling capacity, you can deactivate one of the activated switches and then activate an inactive switch of the same type for polling.

Who? System Administrator.

Notes: Procedures to activate and deactivate switches are given below. A switch can be activated or deactivated only by the **mtmadm** login.

Procedure: Deactivating Switches

1 Log in as *mtmadm*

2 At the UNIX prompt, enter *switch_dct*

System Response:

The system prompts you to name the active target switch that you want to deactivate.

Note: ***If*** the poller is still running, the system prompts you to deactivate it first.

3 Enter the name of the target switch.

- To view a list of active switches, press *l* (lowercase letter l).

4 Enter the name of the switch you wish to deactivate.

System Response:

The system may inform you that there is no trending record for the target switch, or the date of the last trending record may be displayed. You may be prompted to run trending manually before you deactivate the switch. Exit from **switch_dct** and run the trending utility by selecting *Initiate Trending Update* from the **Manual Utilities Menu** before you continue with this procedure.

Note: If trending for the last week has completed, you may ignore the prompt to run trending manually before deactivating the switch.

5 Press *d* to deactivate the switch.

- The deactivation can take over one half hour, so use this procedure when the switch is not busy. When the deactivation is complete, a message appears telling you your target switch has been deactivated. The system creates a database placeholder for the deactivated switch.

  The procedure is complete when the UNIX prompt appears.

End of procedure

Procedure: Activating Switches

1 Log in as *mtmadm*

2 At the UNIX prompt, enter *switch_act*

System Response: The system prompts you for the inactive target switch that you want to activate.

3 Press *l* (lowercase letter l) if you want to see a list of switches that are currently inactive.

4 Enter the name of the target switch.

- You might want to verify that the switch you have chosen is actually the one you want to activate.
- At this point, you can view the **Switch Characteristics Screen** for the selected switch by typing *v*. Query the screen to see the current data for the switch, and press *e* to exit.

  You are again prompted to activate the switch.

5 Enter *a* to activate the switch.

- The system displays the current polling option and asks if you want to change it. Valid options are **E** for Extended, **S** for Standard, or **L** for Daily and Limited polling.

  If no placeholders are currently available for the switch you want to activate, an error message is displayed followed by the UNIX prompt. At this point you can deactivate or remove a switch with the same polling option and the same switch type * as the one you want to activate, and then repeat this procedure. If you want to activate a G3r or G3i and there are no placeholders, you must first ***remove*** or deactivate a corresponding G3r or G3i switch. If a placeholder is available for this switch, the system tells you that your switch has been activated and you can now access it through Monitor I.

End of procedure

* G3r, G3i extended G3r, G3i standard G3r, G3i, limited or daily

Trending Update

Initiating the Trending Update Utility

Purpose: To save peak trunk group and processor occupancy polling data in the Monitor I database. This utility saves a single peak record for processor occupancy data and a singe peak record for each trunk group for the switch(es) and time frame selected.

When? When necessary.

Who? System Administrator.

Notes:

- Refer to Long Term Trending Report for related information.
- This utility is run automatically on Sunday at 12:00 noon.
- When this utility is run, it collects data from the previous Sunday (00:00 a.m.) through Saturday (12:00 midnight). When you initiate this utility manually, however, you can specify a different time frame.
- Check the **MTMDIR/log/mtmlog**. If the time frame in question is listed with a **Trending Completed** status, ***do not*** run this utility.
- This utility runs in the ***background*** and does not affect other activities. Check the **mtmlog** to determine when the task is complete for each switch.

Prerequisite If the time frame in question is listed with a **Trending Completed** status, ***do not*** run this utility.

Procedure

1 Enter the following menu selections from the **Main Menu**:

Utilities Menu
└→ *Access Manual Utilities Menu*
└→ *Initiate Trending Update*

- The system displays a warning that this utility executes in the background and prompts you to press *y* to continue.

2 Enter a start date or press RETURN if you want data for the previous week (Sunday through Saturday, as described in the Overview for this utility).

If you enter a start date, the system also prompts for an end date.

3 Enter a target switch or press RETURN for all targets.

4 Remember to check the **mtmlog** to determine when this utility is complete for each switch.

End of procedure

Trunk Group Administration

Purpose: To name a trunk group, to modify the description of a trunk group, or to add or remove trunk groups.

When? Any time you make minor adjustments to your trunk groups that do not require reinitialization, including adding or removing a trunk or trunk group or adding trunks to an existing trunk group. (After significant changes, you should reinitialize Monitor I. Refer to Chapter 3, "Implementing Monitor I.")

Who? Switch Administrator

Notes:

- If you wish to identify a trunk group in a particular way (for example, by location, function, or name):
  - Run the *Retrieve Non-Traffic Data* utility from the **Utilities Menu**.
  - Query the **PERFORM** screen using the trunk group number and update the trunk group name field.
- This traffic study is also called the **Trunk Group Editor**. Use the Trunk Group Editor procedure:
  - To add or remove a trunk group from the Monitor I database as trunk groups are added to or removed from the switch. (Do this only if your change is minor and does not require you to reinitialize the database.)
  - To change the **Service Objective, Traffic Table, Check**, or **Severity** fields.

Procedure

1 Enter the following menu selections from Monitor I's **Main Menu**:

Administrative Menu
└→ *Administer Trunk Group Study*

System Response: The **Administer Trunk Group Study** screen is displayed as shown in Screen 7-3.

2 Type *q* (for query) and then press ESC to populate the screen.

Note: If you want to see information for a particular trunk group, select *Query*, enter the number of the trunk group you want to work with in the **Trunk Group To Be Added/Removed** field, and press ESC.

3 To make changes to the values for a trunk group, select *Update* from the **INFORMIX** menu. Use the field definitions given below and the directions from the dynamic Help messages on your screen to assist you in entering information.

Press ESC to save your data when you have finished entering information.

```
PERFORM: Query  Next  Previous  Add  Update  Remove  Table Screen  ...
Searches the active database table.          ** 1:  tctrkgp table**
-------------------------------------------------------------------------------
                        ADMINISTER TRUNK GROUP STUDY            Screen  1 of 1
-------------------------------------------------------------------------------

                   Trunk Group To Be Added/Removed: 52

  Trunk Group Name:   ISDN wideband
     Facility Type:   isdn
         Direction:   two
Wideband Trk. Grp.:   Y
 Trunk Access Code:   170
          ISDN PRI:
          Que Info:   0
             Table:   NA
 Service Objective:   NA
             Check:
          Severity:
Default values:   Table=          Serv Obj=          Check=   Sev=
```

SCREEN 7-3
Administer Trunk Group Study Screen

Trunk Group Name Enter a name for the trunk group number. Up to 30 characters are allowed.)

Facility Type Description of the trunk type, for example, DID or WATS. This value cannot be updated or changed.

Enter one of the following facility types:

- **access** - for trunks that are used to access the switch
- **aplt** - Advanced Private Line Termination
- **co** - Central office
- **cpe** - customer provided equipment
- **did** - direct inward dialing
- **dmi** - digital multiplexed interface
- **fx** - foreign exchange
- **isdn** - Integrated services digital network
- **rlt** - Release-link trunks
- **tandem** - provide direct or alternate routing when direct trunks are occupied

- **tie** - dedicated circuit that links two switches
- **wats** - Wide area telecommunications service

Direction Identifies whether the trunk is incoming, outgoing or 2-way. This value cannot be updated or changed. Select one:

- **inc** - incoming
- **out** - outgoing
- **two** - two-way
- ***** - not applicable

Wideband Trk. Grp. Enter *Y* if the trunk group is for wideband switching. If not, enter *N*.

Note: If a *Y* is entered in this field, then **Table** (Traffic Model), and **Service Objective** will show **NA** in their fields; in addition, **Que Info** will show **0** (zero).

Trunk Access code This TAC is associated with the trunk group. Enter a number ranging from **0** to **999**.

ISDN PRI (Primary rate interface). Enter *cbc* for **call-by-call** or CR for other.

Que Info Enter a number ranging from **0-100** for queuing.

This field is automatically populated with 0 (zero) for Wideband trunk groups.

Table (Traffic model to be used. The default is Erlang) There are four possible entries for this field:

- ERLANGB
- ERLANGC
- RETRIAL
- NA (not applicable)

This field is automatically populated with 0 (zero) for Wideband trunk groups.

Service Objective The service objective can be set ranging from 1/1000 blockage to 70/100. This is useful for "what-if" testing.

- For Retrial or ErlangB, enter **P**[**001-70**].
- For ErlangC, enter one: **D1S, D12S, Q032, Q102**, or NA.

Where:

D12S is used with the ERLANGC tables to determine the number of servers needed in a queuing situation. The 12 of D12S is interpreted as 12 seconds of Average Time Queued (also known as Average Call Delay or d bar.) The 12-second d bar is divided by the Average Holding Time (AHT); for Monitor I, the AHT is 24 seconds, thereby resulting in an Average Delay in Multiples of an AHT of .500. Given a Grade of Service of D12S and a Carried CCS of 998, the recommended number of servers would be 30.

D1S is used with "threshold states" to determine the upper limits for the amount of traffic a server group can handle without having to add new members to the group. The blocking level used is .05. Given a blocking level of .05 and carried ccs of 998, the recommended number of servers would be 34.

Q032 is used with Heuristic ERLANGC tables. The 2 in Q032 is interpreted as .02, which is the blocking probability, and the 3 is interpreted as .3, which is the average delay. Given a grade of service of Q032, and a carried ccs of 744, the recommended number of trunks would be 15.

Q102 is used with the Heuristic ERLANGC tables. The 2 in Q102 is interpreted as .02, which is the blocking probability, and the 10 is interpreted as 1.0, which is the average delay. Given a grade of service of Q102, and a carried ccs of 744, the recommended number of trunks would be 22.

Note: This field is automatically populated with **N/A** (not/applicable) for Wideband trunk groups.

Check Enter one:

- **a** - alarm
- **m** - mail
- **b** - alarm and mail
- **off** - for no checking action
- **N/A** — not applicable

Severity Enter the alarming severity:

- **WRN** - warning
- **MIN** - minor
- **MAJ** - major

System Recommended default values for the **Table, Service Objective, Check**, and **Severity** fields are shown at the bottom of the screen for all trunk groups except those used for wideband switching.

Default values These fields are populated when you update or add trunk groups (except wideband.) The fields show the Monitor I recommended values for the **Table, Service Objective, Check**, and **Severity** fields for the particular trunk group.

End of procedure

Trunk Group Include Lists

Administering Trunk Group Include Lists

Purpose: To group trunk groups together in user-defined combinations so they can be studied in the Trunk Group Summary and Trunk Group Detail Reports and the System 75 Lightly Used Trunk Report and Outage Trunk Report.

When? Whenever you want to order the reports specified above in a particular trunk group list.

Who? The System Administrator or any Monitor I user.

Notes:

- Monitor I does an internal check to ensure that each trunk group you add to an include list actually exists.
- The Trunk Group Include List Report, accessible from the **Switch Performance Reports Menu**, shows you all the include lists created and their associated trunk groups.

Procedure

1 Enter the following menu selections from the **Main Menu**:

Administrative Menu
↳ *Administer Trunk Group Include Lists*

System Response:

The **Administer Trunk Group Include Lists** screen is displayed.

```
PERFORM: Query  Next  Previous  Add  Update  Remove  Table Screen  ...
Searches the active database table.           ** 1:  tminclude table**

------------------------------------------------------------------------------
                  ADMINISTER TRUNK GROUP INCLUDE LIST          Screen  1 of 1
------------------------------------------------------------------------------
                         Listname
                      Trunk Group
```

SCREEN 7-4
Administer Trunk Group Include Lists Screen

2 Select *Add* then enter information for the following prompted fields:

- **Listname**

  Enter a name for the list of trunk groups you are grouping together.

- **Trunk Group**

  Enter the trunk group number to include in the trunk group list. Valid entries range from 1 to 99.

- Press ESC to save this information in the database.
- If you have another trunk group to add to your list, select *Add* then press Ctrl p. This returns the list name you previously typed at the **Listname** prompt. Then, just enter the next trunk group number you want included and press ESC. Repeat this step for each additional trunk group you are adding to the list. until all trunk groups have been added to the include list.

End of procedure

Users

Adding Users to Monitor I

Purpose: To allow a new user to log in to the DEFINITY Monitor I system.

When? When necessary.

Who? System Administrator.

Procedure

1. See the *AT&T 3B2 Computer UNIX System B Release 3.2.3 Administrator´s Guide*, Part I, in the section titled "Procedure 2.1: Add Users or Groups."
2. Log in as *root*.
3. Using **vi** or **ed**, edit the file called **/usr/lib/cron/at.allow**. Add the login id for the new user to the ***end*** of the file.
4. Save your changes and exit the file.

End of procedure

Interpreting Monitor I Reports

Overview

This chapter contains samples of all available reports that are provided by Monitor I. After each sample, a table is shown that contains report field descriptions. Some report descriptions include a list of other reports that may be consulted for similar data.

Monitor I is supported by two versions of the G3 switch - one for the RISC (Reduced Instruction Set Code) Processor and the other for Intel. All reports available for G3V2 are included in this chapter. In a few cases, the reports may be substantially different due to the processor version selected. For example, the Data Storage Report is sufficiently different for the two processor versions, G3iV2 and G3rV2, that both reports are included. In addition, some reports only apply to one processor version. The Switch Node Blockage Report is a G3rV2 report only. The following table provides a matrix of report availability for both G3 releases (G3V1 and G3V2). Consult this table to determine which reports are available for the two releases as well as the processor variations of the G3 switch.

This chapter contains the following information:

- A matrix table of switch performance Monitor I reports for supported switches.
- A matrix table of graphable Monitor I reports for supported switches.
- A table that shows the peak fields for each Monitor I report that can report on peak measurements
- Sample reports † and accompanying field information for each report.

Notice

For in-depth information on the report fields described in this appendix, see *DEFINITY Communications System Generic 3 V2 Traffic Reports*. This guide also contains analytical discussions on ways to improve traffic management.

† The sample reports that appear in this appendix are approximations of the actual reports. Due to the size limitations of the physical page in this manual, it is not possible to replicate the reports exactly. If you wish to see the exact format for a report, you must run a report on Monitor I, sending the output to your terminal or to a file. ee Chapter 4, "Geerating DEFINITY Monitor I Reports" for instructions on running and viewing reports.

Switch Performance Reports

TABLE A-1
Switch Performance Reports

Reports	Switch Type	
	G3rV2 G3iV2	G3rV1 G3iV1
Access Endpoints	●	
ACD/Hunt Group	●	●
ARS	●	●
Attendant Measurement	●	●
Data Storage	●	●
Include List	●	●
ISDN PRI Call-by-Call	●	●
Lightly Used Trunk	●	●†
Long Term Trending	●	●
Outage Trunk	●	●
Poll Status	●	●
Port Network Link Blockage	●	
PRI Endpoints	●	
Processor Occupancy	●	●
Security Violation	●	●
Switch Node Link Blockage	● ‡	
Switch Summary	●	●
Tone Receiver Detail	●	
Tone Receiver Summary	●	
Trunk Group Detail	●	●
Trunk Group Summary	●	●
Trunk Group Violation	●	●
Wideband Trunk Group Summary	●	

† Available only for G3i version.

‡ Available only for G3r version.

Graphable Reports Listed By Switch Type

For more specific information about the trending reports, refer to Chapter 5, "Overview of the Monitor I Reports."

TABLE A-2
Graphable Reports

Reports	Switch Type	
	G3rV2 G3iV2	G3rV1 G3iV1
Long Term Processor Occupancy	●	●
Long Term Trunk Group Usage	●	●
Long Term Trunk Group Peg Count	●	●
Long Term Wideband Trunk Group Usage	●	
Long Term Wideband Trunk Group Peg Count	●	
Processor Occupancy	●	●
Total Attendant Incoming Abandoned	●	●
Total Attendant Worked Peg Count	●	●
Total Attendant Worked Usage	●	●
Trunk Group Peg Count	●	●
Trunk Group Usage	●	●
Wideband Trunk Group Usage	●	
Wideband Trunk Group Peg Count	●	

Peak Fields for Monitor I Reports

TABLE A-3
Monitor I Peak Fields for Reports

Report	Section	Peaks Off This Field:
ACD/Hunt	N/A	**Total Usage** — if a peak report
ARS	N/A	**Calls Offered** (peak format)
Attendant	N/A	**Time Talk**
ISDN Call-by-Call	N/A	**Total Usage** — if a peak report
Long Term Trending	Switch Summary Trunk Detail	**Peak Call Count** **Peak Usage**
Port Network Link Blockage	N/A	**TDM Usage**
Processor Occupancy	N/A	**Call Processing Occupancy**
Security Violation	N/A	N/A
Switch Node Link Blockage	N/A	**SNL Usage**
Tone Receiver Detail	N/A	**Peak Req** (The number of requests for tone receivers within the port network during the measured hour.)
Tone Receiver Summary	N/A	**Peak Req** (The system-wide peak number of simultaneous requests for tone receivers that occurred at any one time during the measured hours.)
Trunk Group Detail	N/A	**Total Usage (Total Voice + Data)** — Carried by the trunk group

TABLE A-3 (Continued)
Monitor I Peak Fields for Reports

Report	Section	Peaks Off This Field:
Trunk Group Summary	N/A	**Total Usage** — Carried by the trunk group
Wideband Trunk Group Summary	N/A	**Total Usage** — Total wideband call usage for all trunks in the trunk group.

Usage Measurements

Overview

Many reports offer you a choice of output units. That is, you can decide if you want your traffic usage expressed in CCS (Centum Call Seconds) or in Erlangs. Where one CCS unit is equal to 100 seconds of usage, one Erlang is equal to 3600 seconds or an hour. Thus, one Erlang equals 36 CCS. To convert from CCS to Erlangs, divide the CCS by 36.

The reports generally use Erlangs in the form of xxx.x (rounded to the nearest tenth decimal place). If there is less than 1 CCS on a facility, the Erlangs are output as zero (0), since 1 divided by 36 equals 0.02777, which rounded to the nearest tenth decimal place is zero.

In addition to these measurements, some usage in the Attendant Measurement Report can be expressed in seconds.

Access Endpoints Report (G3V2)

```
      Today:   Thu Apr 15 1993   14:01:33                                  Page   1
Switch Name:   tst_d92r


                                  ACCESS ENDPOINTS REPORT

                                Communication
Ext      Port       Name        Type                Width     COR     COS     ITC
-----    -------    ----------  ----------------    -----     ---     ---     ----------
75683    02D0603    Test-set 1  voice-grade-data        1       1       1    restricted
75686    02D0604    Test-set 2  voice-grade-data        1       1       1    restricted


                                     Report Completed
```

SCREEN A-1
Sample Report: Access Endpoints (G3V2)

Field Definitions for the Access Endpoints Report

TABLE A-4
Access Endpoints Report Field Definitions

Field	Definitions
Ext (Extension)	The extension number assigned to the endpoint. Field range is from one to five digits.
Port	The starting port number of the (wideband) access endpoint.
Name	The name that was assigned to the endpoint.
Communication Type	A valid voice and data communication type that can support access endpoints.
Width †	The number of contiguous/adjacent DS0 ports. This field begins with the staring port specified in **Port** field that comprises the wideband access endpoint. A width of six defines a 384-kbps wideband access endpoint which is the default. Values may range from 2 to 31 in this field.
COR † (Class of Restriction)	Specifies calling and called party privileges. The default is 1, however 0 to 95 are valid values.
COS † (Class of Service)	This field specifies the features that can be activated by or for the endpoint. The default is 1 with valid values ranging from 0 to 15.
ITC † (Information Transfer Capability)	The field specifies the transfer capability of the originating endpoint which is either restricted or unrestricted. This capability determines if a call is to be routed to a restricted on unrestricted facility.

† See Chapter 3, "Wideband Installation and Administration" in the *DEFINITY Communication System Generic 3 V2 Wideband Technical Reference, 555-230-230, for more details on these fields.*

ACD/Hunt Group Report

```
       Today:   Wed Apr 25 1993  10:43:11                                  Page   1
 Switch Name:   tst_d92i                                  Start:   03/01/1993 Daily
Output Units:   ccs/peak                                  End:     03/08/1993 Daily
  Peak Field:   Total Usage


                            HUNT GROUP USAGE REPORT



Hunt Group:     1        Type:  ucd       Group Name:     SAP
                                                                  Avg
                                                                  Hold              Speed
       Begin   Grp    Total   Que    Que    ------   Calls   ------   Time     Time    Ans
Date   Time    Size   Usage   Size   Ovf    Ans      Aband   Qued     (secs)   Avail   (sec)
-----  -----   ----   -----   ----   ----    -----    -----    -----    -----   -----   -----
08/30   Dly       8     38      0      0        7       0        0      542     250      0

                              Report Completed
```

SCREEN A-2
Sample Report: ACD/Hunt Group

Field Definitions for the ACD/Hunt Group Report

TABLE A-5
ACD/Hunt Group Report Field Definitions

Field	Definition
Hunt Group	Identifies each hunt group (1 through 99).
Type	The type of hunt group, for example: DDC (Direct Department Calling) UCD (Uniform Call Distribution)
Grp Name (Group Name)	Name assigned to the hunt group.
Date	Date of poll
Begin Time	For the hourly poll and the "all" data option, this field is for the hour the poll measurement began. This field shows **dly** if daily polling is in effect. For the "all" peak option, this column shows the hour when the peak occurred.
Grp Size (Group Size)	The number of extensions in the hunt group.
Total Usage	The total time (in CCS) that all members of the hunt group are talking.
Que Size (Queue Size)	The length of the queue assigned to the hunt group.
Que Ovf † (Queue Overflow)	The calls that arrive when all slots in the hunt group queue are occupied.
Calls Ans (Calls Answered)	The total number of all hunt group calls answered by the hunt group; this number also includes calls answered at coverage points (including call pick-up).
Calls Aband (Calls Abandoned)	The total calls that are abandoned before being answered including calls that ring as well as calls that hang up while in the hunt group queue.
Calls Qued (Calls Queued)	The number of calls that are placed in the hunt group queue because all members of the hunt group are busy.
Avg Hold Time (sec) (Average Holding Time)	The average length of time it takes for the hunt group to answer a call.

† This field applies to G3V2 and G3rV1 only.

TABLE A-5 (Continued)
ACD/Hunt Group Report Field Definitions

Field	Definitions
Time Avail (Time Available)	The total time that hunt group members are not busy but available to receive calls during the polling interval.
Speed Ans (Speed of Answer)	The average interval (in seconds) between the time a call reaches the hunt group and the call is answered.

ARS (Automatic Route Selection) Report

```
       Today:   Mon Apr  8 1993  13:43:11                                  Page   1
 Switch Name:   tst_d92r                                  Start:   03/28/1993 Daily
Output Units:   call count/peak                           End:     03/29/1993 Daily
  Peak Field:   Calls Offrd

                              AUTOMATIC ROUTE SELECTION REPORT


Pattern Number: 2

                  ------ Pattern Information ------            --  Trunk Group Measurements  --
       Begin   Que  Calls  Calls  Call  %     Call  Que  Grp  Grp    Grp   Grp   %      Calls
Date   Time    Siz  Offrd  Carrd  Blk   Blk   Que   Ovf  No   Type   Size  Dir   Calls  Carrd
-----  -----   ---  -----  -----  ----  ----  ----  ---  ---  -----  ----  ----  -----  -----
03/30   Dly     0     15      0     0     0     0    0
                                                     33  isdn     23  two     100     15
                                                     32  isdn     23  two       0      0
                                                      3  co        6  two       0      0
                                                      2  tie       8  two       0      0   W
                                                      1  co       10  two       0      0

                            Report Completed
```

SCREEN A-3
Sample report: ARS

Field Definitions for the ARS Report

TABLE A-6
ARS Report Field Definitions

Field	Definitions
Pattern Number	The number of the routing pattern being measured. G3V2: Up to 25 patterns can be studied at a time; G3V1: up to 20 patterns can be studied at a time.
Begin Time	The time when the measurement starts. For the daily poll and data options, this field shows "dly" (daily); for peak options, this field shows the hour when the peak occurred.
Que Siz (queue size)	The size (length) of the queue for the first trunk group in the routing pattern. A queue is an ordered sequence of calls that are waiting to be processed.
Calls Offrd (calls offered)	The total calls offered to the routing pattern.
Calls Carrd (calls carried)	The total calls seized for all the trunk groups in the routing pattern.
Calls Blk (calls blocked)	The number of calls that cannot be handled because all the trunk groups in the pattern were busy. Calls that are blocked are also placed in queue. The following reasons account for a call being blocked: **1** A call arrives but no resources are immediately available **2** A call arrives and is placed in queue **3** A call arrives but the queue is full **4** he call arrives and cannot be placed in queue because the queue counter is set to zero **5** The call cannot queue because the Automatic Callback (ACB) button is busy **6** The call cannot queue because there is no ACB button.
% Blk (percent blocked)	The percentage of blocked calls.
Calls Que (Call Queued)	The number of calls entered into the routing pattern queue because all the trunk groups in the pattern were busy. These calls also increment the **Calls Blocked** measurement.

TABLE A-6 (Continued)
ARS Report Field Definitions

Field	Definitions
Que Ovf (Queue Overflow)	The number of calls that cannot be handled by the first trunk group in the ARS queue because the trunk group is operating at full capacity. These calls also increment the Blocked Calls counter. In addition, calls that encounter an overflow queue also receive a reorder signal.
Grp No (Trunk Group Number)	The identification number of the trunk group that is handling the carried calls for the pattern. The order for the trunk group numbering are listed is the same order as they were assigned for the routing pattern.
Grp Type (Trunk Group Type)	The following types can be accessed through the routing pattern: ■ Access (access) ■ Advanced Private Line Termination (aplt) ■ Local Central Office (co) ■ Direct Inward/Outward Dialing (diod) ■ Integrated Services Digital Network -Primary Rate Interface (isdn-pri) ■ Tandem (tandem) ■ Tie Trunk (tie) ■ Wide Area Telecommunications Service (wats)
Grp Siz (Trunk Group Size)	The number of trunks in the trunk group.
Grp Dir (Trunk Group Direction)	Identifies if the trunk group is outgoing (out) or 2-way (two). Incoming trunks are not included in routing patterns.
% Calls (Percent of all Calls Carried)	The percent of total calls carried over the routing pattern that were carried by each trunk group.
Calls Carrd (Calls Carried)	The total calls carried by the routing pattern for each trunk group. This measurement is a cumulative number - there are no peak measurements for routing pattern reports.
W †	A "W" appears next to any trunk group that is administered to support wideband (n x DS0) switching.

† This field only applies to G3V2.

Attendant Measurement Report

```
       Today:   Mon Apr  19 1993  17:07:11                                  Page   1
 Switch Name:   tst_d92r                                  Start:   03/28/1993 Daily
Output Units:   ccs/peak                                  End:     03/29/1993 Daily
  Peak Field:   Time Talk

                          ATTENDANT GROUP REPORT

Available Attendants:     2

SUMMARY
                                                  Avg
                                                  Hold                          Time   Speed
       Begin   Grp    ---------   Calls   ---------   Time   -----   Time   ------  Abnd   Ans
Date   Time    Siz    Ans   Abnd  Qued  H-Abd  Held  (sec)  Avail    Talk    Held  (sec)  (sec)
-----  -----   ----   ----  ----  ----  -----  ----  -----  -----    ----    ----  -----  -----
03/30   Dly       4    10     1     0      0     0     60       66       6     1      1      5
```

SCREEN A-4
Sample Report: Attendant Measurement - Summary (Page 1)

Attendant Measurement Report (continued)

```
      Today:   Mon Apr  19 1993  17:07:11                          Page   1
 Switch Name:   tst_d92r                              Start:   03/28/1993 Daily
Output Units:   ccs/peak                              End:     03/29/1993 Daily
  Peak Field:   Time Talk
                            ATTENDANT MEASUREMENT REPORT

FORCE MANAGEMENT ALTERNATIVES


Alternative    Average       Average Delay of      Percent
Staff Levels   Delay (sec)   Delayed Calls (sec)   Delayed
------------   -----------   -------------------   -------
     1            12.00             72.00          16.67
     2             0.42             32.73           1.28
     3             0.01             21.18           0.07
```

SCREEN A-5
Sample Report: Attendant Measurement - Force Management Alternatives (Page 2)

```
      Today:   Mon Apr  19 1993  17:07:11                          Page   1
 Switch Name:   tst_d92r                              Start:   03/28/1993 Daily
Output Units:   ccs/peak                              End:     03/29/1993 Daily
  Peak Field:   Time Talk

                            ATTENDANT MEASUREMENT REPORT

ATTENDANT STATISTICS

                                                                  Avg
                                                                  Hold
        Begin    Attd     Calls    --------   Time   --------   Time
Date    Time     ID       Ans       Avail     Talk     Held     (sec)
-----   -----    -----    -----     -----     -----    -----    -----
 09/10   11:00        1        5        32         4        1      80
 09/10   11:00        2        5        34         2        1      40
 09/10   11:00        3        0         0         0        0       -
 09/10   11:00        4        0         0         0        0       -

                           Report Completed
```

SCREEN A-6
Sample Report: Attendant Measurement - Attendant Statistics (Page 3)

Note: This section of the report (page 3) does not apply to G3iV1.

Field Definitions for the Attendant Measurement Report

Peak Hour Summary - Peak Format
Hourly Summaries - All Format

TABLE A-7
Attendant Measurement Report Field Definitions for Peak and Hourly Summaries

Field	Definition
Begin Time	Beginning of the poll hour which is generated by the time of day clock in the switch.
Grp Size (Group Size)	The number of attendant consoles administered in the group.
Calls Ans (Calls answered)	The total calls answered by all working attendants during the polling interval.
Calls Abnd (Calls Abandoned)	Number of calls in the attendant group's queue that were abandoned by callers before being answered by an attendant. This includes calls that ring as well as calls that are in queue.
Calls Qued (Calls Queued)	Number of calls that are placed in the attendant queue because all working attendants are busy. Calls remain in the queue until: ▪ They are answered by an attendant in the group. ▪ They are abandoned by the caller. ▪ The call is directed to another point in the coverage path.
Calls H-Abd (Calls Held Abandoned)	Number of held calls in the attendant group that were abandoned by callers.
Calls Held	Number of calls that were answered by an attendant group and then placed on hold.
Avg Hold (Average Holding Time)	Average time in seconds that each attendant spent on a call.
Time Avail (Time Available)	The time (in CCS) that the attendants are available to handle calls during the measurement hour.
Time Talk	The active time (in CCS) that all attendants in the attendant group spent on active calls.

TABLE A-7 (Continued)
Attendant Measurement Report Field Definitions for Peak and Hourly Summaries

Field	Definition
Time Held	The active time (in CCS) that the attendants have calls on hold.
Time Abdn (Time Abandoned)	The average time (in seconds) that a caller waited in the attendant queue and/or was ringing at the attendant console before hanging up.
Speed Ans (Speed of Answer)	The average interval (in seconds) between the time a call terminates at the attendant group and the time the call is answered by an attendant.

Peak Hour Force Management Alternatives - Peak Format

Monitor I uses the Erlang C Infinite Queue traffic model to calculate delays in answering calls. This calculation is based on the total number of attendants with attended usage greater than zero and the worked usage.

TABLE A-8
Attendant Measurements Report Field Definitions for Force Management Alternatives

Field	Definition
Date (All format only)	Date of poll.
Begin Time (All format only)	Beginning of the poll hour which is generated by the time of day clock.
Alternative Staff Levels	Number of attendants required for up to five alternatives in staffing. If the staff level is zero, no data is available.
Average Delay (sec)	Average delay of calls directed to the attendant group during the time covered by this report.
Average Delay of Delayed Calls (sec)	Average delay of calls placed in the attendant group's queue.
Percent Delayed	Percentage of calls directed to the attendant group that are delayed.

Attendant Statistics

TABLE A-9
Attendant Measurement Report Field Definitions for Attendant Statistics

Field	Definition
Date (All format only)	Date of poll.
Begin Time (All format only)	Beginning of the poll hour which is generated by the time of day clock.
Attd ID (attendant ID)	A number between one and the maximum number of attendants that identifies data displayed for a particular attendant. The attendant ID number is selected by the system administrator.
Calls Ans (Calls Answered)	The number of calls answered by the attendant.
Time Avail (Time Available)	The total time the identified attendant is ready to receive calls.
Time Talk	The time the attendant is actively on calls. Time Talk is measured from the time the attendant activates an attendant loop until the loop is released. If more than one loop is activated on an attendant console at a single time, the talking usage is counted only once.
Time Held	The total time the attendant's calls were placed on hold.
Avg Hold Time (Average holding time)	The average amount of time that a held call was waiting.

Note: The Attendant Statistics portion of the Attendant's Report does not apply to G3iV1.

Data Storage Report

```
      Today:   Thu Apr  15 1993  14:01:33                                  Page   1
Switch Name:   tst_d92r                                      Start:  03/28/1993 daily
                                                               End:  03/30/1993 daily

                                   DATA STORAGE REPORT

              Trk   Trk   Trk   Att   Att   Hnt   ARS   CBC   Sec   Occ   Occ   Ton   Ton   Blk   Blk   Wide
 Date   Time  Grp   Out   Lit   Grp   Pos   Grp   Ptn   Trk   Vio   Sum   Dtl   Dtl   Sum   PN    SN    Trk
-----  -----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----  ----
03/28    dly  x     x     x     x     x     -     -     x     x     x     x     x     x     x     x     x
03/28    dly  x     x     x     x     x     -     -     x     x     x     x     x     x     x     x     x
03/28    dly  x     x     x     x     x     -     -     x     x     x     x     x     x     x     x     x
03/28    dly  x     x     x     x     x     -     -     x     x     x     x     x     x     x     x     x
03/30    dly  x     x     x     x     x     -     -     x     x     x     x     x     x     x     x     x
03/30    dly  x     x     x     x     x     -     -     x     x     x     x     x     x     x     x     x
03/31    dly  x     x     x     x     x     -     -     x     x     x     x     x     x     x     x     x
03/31    dly  x     x     x     x     x     -     -     x     x     x     x     x     x     x     x     x


                                    Report Completed
```

SCREEN A-7
Sample Report: Data Storage (G3V2)

```
      Today:   Thu Apr  15 1993  14:01:33                          Page   1
Switch Name:   fg_r3v1                                 Start:   03/28/1993 daily
                                                         End:   03/30/1993 daily

                                  DATA STORAGE REPORT

              Trk   Trk   Att   Att   Hnt   ARS   CBC   Sec   Occ   Occ
 Date   Time  Grp   Out   Grp   Pos   Grp   Ptn   Trk   Vio   Sum   Det
 ----   ----  ---   ---   ---   ---   ---   ---   ---   ---   ---   ---

03/28   dly    x     x     x     x     x     -     -     x     x     x
03/28   dly    x     x     x     x     x     -     -     x     x     x
03/28   dly    x     x     x     x     x     -     -     x     x     x
03/28   dly    x     x     x     x     x     -     -     x     x     x
08/30   dly    x     x     x     x     x     -     -     x     x     x
03/30   dly    x     x     x     x     x     -     -     x     x     x
03/31   dly    x     x     x     x     x     -     -     x     x     x
03/31   dly    x     x     x     x     x     -     -     x     x     x



                                   Report Completed
```

SCREEN A-8
Sample Report: Data Storage (G3rV1)

```
      Today:   Thu Apr  15 1993  14:01:33                          Page   1
Switch Name:   fg_r1v5                                 Start:   03/28/1993 dly
                                                         End:   03/30/1993 dly

                                  DATA STORAGE REPORT

       Begin   Trk   Trk    Trk   Attn   Hunt   ARS    ISDN   Sec    Occ   Occ
Date   Time    Grp   Lite   Out   Grp    Grp    Ptrn   CBC    Viol   Sum   Det
----   -----   ---   ----   ---   ----   ----   ----   ----   ----   ---   ---

03/28   dly    x     x      x     x      x      -      -      x      x     x
03/28   dly    x     x      x     x      x      -      -      x      x     x
03/28   dly    x     x      x     x      x      -      -      x      x     x
03/28   dly    x     x      x     x      x      -      -      x      x     x
03/30   dly    x     x      x     x      x      -      -      x      x     x
03/30   dly    x     x      x     x      x      -      -      x      x     x
03/31   dly    x     x      x     x      x      -      -      x      x     x
03/31   dly    x     x      x     x      x      -      -      x      x     x



                                   Report Completed
```

SCREEN A-9
Sample Report: Data Storage (G3iV1)

Field Definitions for the Data Storage Report (G3V2)

TABLE A-10
Data Storage Report Field Definitions (G3V2)

Field	Definition
Date	Date of poll.
Time	Shows **dly** if daily polling was selected or the hour if polling is hourly.
Trk Grp (Trunk Group)	Indicates whether Monitor I has stored data from Trunk Group Measurement reports for Trunk Group Summary, Trunk Group Detail, Trunk Group Violations, and Long Term Trending Reports.
Trk Out (Trunk Outage)	Shows if data has been stored from the Trunk Outage Measurements Report.
Trk Lite (Lightly used trunk)	Shows if data has been stored from the Lightly Used Trunk Report.
Attn Grp (Attendant Group)	Shows if data has been stored from the Attendant Group Measurement Report.
Attn Pos (Attendant Position)	Shows if data has been stored from attendant position measurements.
Hunt Grp	Shows if data has been stored from the Hunt Group Measurement Report.
ARS Ptrn (ARS Pattern)	Shows if data has been stored from the Automatic Route Selection Pattern Measurement Report.
CBC Trk (CBC trunk)	Shows if data has been stored from the ISDN-PRI Call-by-Call Measurement Report.
Sec Viol (Security Violation)	Shows if data has been stored from the Security Violation Measurement Report.
Occ Sum (Occupancy Summary)	Shows if data has been stored from the Occupancy Summary Report.
Occ Dtl (Occupancy Detail)	Shows if data has been stored from the Last Hour Occupancy Report (20 time intervals).

TABLE A-10 (Continued)
Data Storage Report Field Definitions (G3V2)

Field	Definition
Ton Dtl (Tone Detail	Shows if data has been stored from the Tone Receiver Detail Report.
Ton Sum (Tone Summary)	Shows if data has been stored from the Tone Receiver Summary Report.
BLK PN (Port Network Link Blockage)	Shows if data has been stored from the PNL Blockage Report.
BLK SN † (Switch node Link Blockage)	Shows if data has been stored from the SNL Blockage Report.
Wide Trk (Wideband Trunk)	Shows if data has been stored from the Wideband Trunk Group Summary Report.

† This field (report) only applies to G3rV2.

Field Definitions for the Data Storage Report (G3V1)

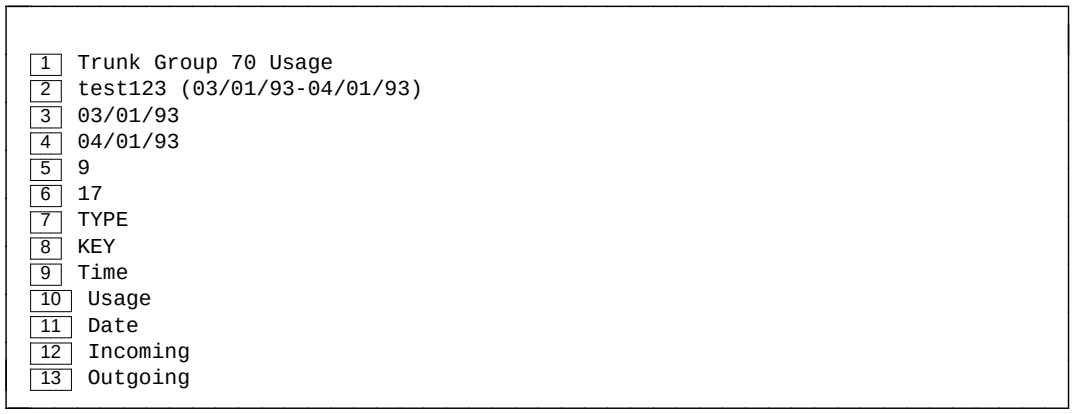
TABLE A-11
Data Storage Report (G3V1) Field Definitions

Field	Definition	Notes
Date	Date of poll.	
Begin Time	This field shows **dly** if daily polling is in effect and the hour if hourly polling has been ordered.	
Trk Grp (Trunk Group)	Indicates whether Monitor I has stored data from Trunk Group Measurement reports for Trunk Group Summary, Trunk Group Detail, Trunk Group Violations, and Long Term Trending Reports.	
Trk Lite (Lightly used trunk)	Indicates whether the Lightly Used Trunk Report data has been stored.	G3iV1 only
Trk Out (Trunk outage)	Indicates if the switch report, Trunk Outage Measurements Report data has been stored.	
Attn Grp (Attendant Group)	Indicates whether the switch report, Attendant Group Measurement Report data has been stored.	
Attn Pos (Attendant Position)	Indicates whether the switch report, Attendant Group Measurement Report data has been stored.	G3rV1 only
Hunt Grp (Hunt Group)	Indicates whether the switch report, Hunt Group Measurement Report data has been stored.	
ARS Ptn (ARS Pattern)	Indicates whether the switch report, Automatic Route Selection Pattern Measurement Report data has been stored.	
ISDN CBC	Indicates whether the switch report, ISDN-PRI Call-by-Call Measurement Report data has been stored.	
Sec Viol (Security Violation)	Indicates whether the switch report, Security Violation Measurement Report data has been stored.	
Occ Sum (Occupancy Summary)	Indicates whether the switch report, Occupancy Summary Report data has been stored.	
Occ Dtl (Occupancy Detail)	Indicates whether the switch report, Last Hour Occupancy Report data has been stored (20 time intervals).	

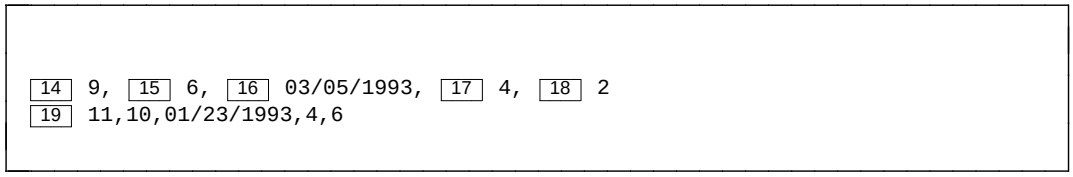
Graphable Reports

A sample trending report is shown below. (This is a sample of the report with the .CSV extension, before it is downloaded to the PC. For more information, refer to Chapter 5, "Overview of the Monitor I Reports.") The numbers enclosed in boxes are for identification purposes and will not appear on your report.

Some of the report fields vary, according to the report ordered and whether it is a daily or hourly report. These are noted below the sample.



SCREEN A-10
Graphable Report, Sample



Field Definitions for the Graphable Reports

The boxed numbers below correspond to those in the sample report shown on the previous page.

1 Title of the report. If the report is to measure a particular attendant, module, or trunk group, its number is printed in the title, for example, **Trunk Group 70 Usage**

2 Switch name and requested time frame for polling

3 Report start date

4 Report end date

5 Start hour (this field may be blank if the report is a **trending** report)

6 End hour (this field may be blank if the report is **Daily** or if the report is a **trending** report)

7 Reserved

8 Reserved

9 Legend for X-Axis. This field can vary according to the report ordered and whether the report is hourly or daily. For the Long Term Trending Report and all Daily reports, this field shows the **date**. For Hourly reports, this field shows the **time**.

10 Legend for Y-Axis. This field can vary depending on the report you run. The data for this field will either be usage, peg count, or blockage information.

11 Reference field. This field can vary according to the report ordered and whether the report is hourly or daily. For the Long Term Trending Report, this field is blank. Daily reports show the **time** in this field. Hourly reports show the **date** in this field.

12 Additional legend for Y-Axis (incoming usage is only given for two-way or incoming trunk groups)

13 Additional legend for Y-Axis (outgoing usage is only given for two-way or outgoing trunk groups)

14 Time of the poll

15 This is the total usage †

16 Date of the poll

17 Incoming usage

† The actual report data will always begin on line 20 of the report.

18 Outgoing usage. The incoming usage added to the outgoing usage is equal to the total usage shown in the first column of the report.

19 This line is shown here to depict how the information will actually look on your report. Items 17 and 18 will appear only on those trunk group reports that give incoming usage or peg and outgoing usage or peg data.

Include List Report

```
      Today:   Mon Apr  8 1993  13:43:11                  Page   1
Switch Name:   tst_d92i

                          TRUNK GROUP INCLUDE LIST REPORT


 List Name                          Trunk Group Number
----------   ------------------------------------------------------------------

trunklist       15        16        17        18        19        20     21
                26        27        29        30        32


                                  Report Completed
```

SCREEN A-11
Sample Report: Include List

Field Definitions for the Include List Report

TABLE A-12
Include List Report Field Definitions

Field	Definition
List Name	The name you are defining for your set of trunk groups. Refer to "Administering Trunk Group Include Lists" in Chapter 7, "System Administration."
Trunk Group Number	A number assigned to the trunk group(s) that is associated with the list name.

ISDN-PRI Call by Call Report

```
       Today:  Tues Apr  16 1993  13:44:11                              Page   1
 Switch Name:  tst_d92i                                 Start:  03/28/1993 Daily
Output Units:  ccs/peak                                 End:    03/29/1993 Daily
  Peak Field:  Total Usage

                          ISDN-PRI CALL BY CALL REPORT

TRUNK GROUP INFORMATION


       Begin  Trunk  Queue  Calls   Queue  Queue  Out   ----  UAP   ----
Date   Time   Group  Size   Queued  Ovfl   Aband  Serv  Number  Duration
-----  -----  -----  -----  ------  -----  -----  ----  ------  --------
04/20  10:00     60      0       0      0      0     0       1        10   W
04/20  10:00     60      0       0      0      0     0       2        13
04/20  10:00     60      0       0      0      0     0       4        20
04/20  11:00     60      0       0      0      0     0       2        15
-----
W = Wideband Trunk Group
```

SCREEN A-12
Sample Report: ISDN-PRI CBC - Trunk Group Information (Page 1)

```
       Today:  Mon Apr  12 1993  13:44:11                                Page   2
 Switch Name:  tst_d92r                                 Start:  03/28/1993 01:00
Output Units:  ccs/all                                  End:    03/29/1993 05:00

                              ISDN-PRI CALL BY CALL REPORT

SERVICE/FEATURE MEASUREMENTS

       Begin  Trk  Service     Min  Max  Total  Total  Inc.   Ovf   Ovf   Ovf   %    %    %
Date   Time   Grp  Feature     Ch   Ch   Usage  Seize  Seize  TG    S/F   Max   TBM  ATB  BLK
-----  -----  ---  ----------  ---  ---  -----  -----  -----  ----  ----  ----  ---  ---  ---

05/15  10:00  23   mega800       5   10      0      0      0     0     0     0  100    0    0
                   sdn           8   16      0      0      0     0     0     0  100    0    0
                   other         7   10      0      0      0     0     0     0  100    0    0
05/15  10:00  23   mega800       5   10      0      0      0     0     0     0  100    0    0
                   sdn           8   16     17     19      8     0     0     0  100    0    0
                   other         7   10     32     24      0     0     0     0  100    0    0

                         Report Completed
```

SCREEN A-13
Sample Report: ISDN-PRI CBC - Service/Feature Measurements (Page 2)

Field Definitions for the ISDN-PRI Call-by-Call Report

TABLE A-13
ISDN-PRI CBC Report Field Definitions for Trunk Group Information

Field	Definition
Date	Date of poll.
Begin Time	Beginning of the poll hour based on the time of day clock.
Trk Grp	The ISDN call-by-call trunk group number under study.
Queue Size	Size of the ISDN-PRI CBC trunk group queue.
Calls Queued	Number of calls entered into the ISDN CBC trunk group queue.
Queue Ovfl (Queue overflow)	The number of calls that cannot be accommodated by the queue because all trunk group queue slots are occupied.
Queue Aband (Queue abandoned)	The number of calls that are removed from the queue by either the system or the user.
Out Serv (Out of Service)	The number of trunks in the ISDN-PRI CBC trunk group that are out of service at polling time.
UAP Number (Usage Allocation Plan Number)	The most recent UAP numbers that were in effect. (Maximum of six UAP numbers.)
UAP Duration Usage Allocation Plan Duration	The list of the most recent UAP numbers that were in effect during the measurement interval as well as the amount of time (in minutes) each UAP was in effect. The corresponding amount of times of each effective UAP.
W † (Wideband)	A "W" indicates that the trunk group is used for wideband switching.

† Wideband applies to G3V2 only.

TABLE A-14
ISDN-PRI CBC Report Field Definitions for Services/Features

Field	Definition
Date	Date of poll.
Begin Time	Beginning of the poll hour based on the time of day clock.
Trk Grp	ISDN-PRI call-by-call trunk group under study.
Service/Feature	The names of the service or feature being measured. (Up to 10 services and/or features can be measured by this report.) In addition, the special identifier "other" for which measurements are being reported.
Min Ch (Minimum number of channels)	The minimum number of channels in the ISDN-PRI CBC trunk group assigned to the specified service or feature at polling time.
Max Ch (Maximum number of channels)	The maximum number of channels in the ISDN-PRI CBC trunk group assigned to the specified service or feature at polling time.
Total Usage	The sum of time (collected in CCS) for all channels that were used by the specified feature or service during the polling interval.
Calls Seized	The total amount of calls that requested the specified feature or service through the ISDN-PRI CBC trunk group.
Inc Seize (Incoming Seized)	The total amount of incoming calls that requested the specified feature or service through the ISDN-PRI CBC trunk group.
Ovf TG (Overflow Trunk Group)	The number of outgoing calls that requested the specified feature or service and were not carried on ISDN-PRI CBC trunk group because the call arrived when: ■ All trunks in the trunk group were busy, or ■ No physical trunks in the group were available for service
Ovf S/F (Overflow Services/Features)	The number of outgoing calls that requested the specified feature or service and were not carried on ISDN-PRI CBC trunk group because the calls arrived when: ■ The specified service or feature was at or above its minimum channel allocation, and ■ There were idle channels available in the trunk group, but they had been reserved to meet the minimum channel allocation for other features or services.

TABLE A-14 (Continued)
ISDN-PRI CBC Report Field Definitions for Services/Features

Field	Definition
Ovf Max (Overflow Maximum)	The number of outgoing calls that requested the specified feature or service and were not carried on the ISDN-PRI CBC trunk group because the calls arrived when the maximum number of channels for the requested feature or service were busy.
% TBM (Percent of Trunks below Minimum)	The percentage of time during the polling interval that the number of channels in use by the specified feature or service is below the specified minimum.
% ATB (Percent All Channels Busy)	The percentage of time during the polling interval that the specified feature or service could not access a channel.
% BLK (Percent Outgoing Blocking)	The ratio of outgoing calls not carried for a specified feature or service to the outgoing calls offered by the service or feature.

Lightly Used Trunk Report

```
       Today:   Fri Apr 10 1993  09:48:11                                  Page   1
 Switch Name:   tst_d92r                                  Start:   03/28/1993 Daily
Output Units:   peg/total                                 End:     03/29/1993 Daily
  Peak Field:   Calls Offrd

                                LIGHTLY USED TRUNK REPORT


                                          Total Calls  Total Calls  % Calls
Trunk                            Total    Carried      Carried By   Carried
Group   Type  Dir  Size  Member  Occur    By Member    Trunk Group  By Member
------  ----  ---  ----  ------  -----    ---------    -----------  ---------

33      aplt  two    10       2      1           24         1128       2:13  W
33      aplt  two    10       3      1            4          248       1.61  W
33      aplt  two    10       4      4           28         1376       2.03  W

---------
W = Wideband Trunk Group

                                    Report Completed
```

SCREEN A-14
Sample Report: Lightly Used Trunk

Field Definitions for the Lightly Used Trunk Report

TABLE A-15
Lightly Used Trunk Report Field Definitions

Field	Definitions
Trunk Group Include List Name (Optional)	Name of the Trunk Group Include List as defined by the user. Refer to the procedure to Administer Trunk Group Include Lists in Chapter 7, "System Administration".
Trunk Group	Number identifying the trunk group.
Type	Type of trunk associated with the accumulated data (for example, CO, FX, WATS, TIE, APLT, DID).
Dir	Identifies whether the trunk groups are incoming, outgoing, or 2-way.
Size	The number of trunks in the trunk group.
Member	The number of the trunk that was lightly used.
Total Occur	Total number of times the specified trunk was lightly used for the report period.
Total Calls Carried By Member	Total number of calls carried by the specified trunk in the trunk group when that trunk was lightly used for the report period.
Total Calls Carried By Trunk Group	Total number of calls carried by the trunk group when the specified trunk was lightly used for the report period. Refer to Appendix C, "Monitor I Equations" for this calculation.
% Calls Carried By Member	Total calls carried by the member divided by the total calls carried by the trunk group.
Name (Optional)	Name of the trunk group. This field is displayed only when selected by the user.
W †	Indicates the trunk group is used for wideband switching.

† Wideband applies to G3V2 only.

Long Term Trending Report

```
       Today:  Mon Apr 19 1993  10:38:11                      Page   1
 Switch Name:  tst_d92r                             Start:  03/28/1993
Output Units:  ccs/peak                             End:    03/29/1993
  Peak Field:  Peak Call Count


                              LONG TERM TRENDING REPORT

SWITCH SUMMARY

                                 Peak      Peak
              Num       Num      Call      Proc
 Week of     Polls     Trkgp     Count     Occ %
-------      -----     -----     -----     -----
04/10/93       80        12      13359         7
```

SCREEN A-15
Sample Report: Long Term Trending - Switch Summary (Page 1)

```
       Today:  Mon Apr 19 1993  13:43:11                       Page   2
 Switch Name:  tst_d92r                          Start:  03/28/1993
Output Units:  ccs/peak                          End:    03/29/1993
  Peak Field:  Peak Usage

                                LONG TERM TRENDING REPORT


TRUNK DETAIL

                                          Maint  Avg                      Num     Num    Num
Trunk              Begin  Num       Peak  Busy   Usg/                     Trk At  Trk    Trk
Group    Date      Time   Poll Model Usage (Peg)  Trunk   ABBH   GOS   Poll    Today  Rec
-----  ---------  -----  ----  -----  -----  -----  ------  -----  ----  ------  -----  ----
   33  04/01/93   11:00    80  NA      1019      0   22.74    787  NA        46     46     —  W
   40  04/01/93   13:00    80  RET     1046      0   22.74    787  P03       46     46    38
   41  04/01/93   15:00    98  RET     1156      0   25.13    854  P03       46     46    41
   42  04/03/93   09:00    69  RET     1477      0   35.17    999  P03       42     42    64  †
   45  04/03/93   12:00    56  RET      533      0    1.25      2  P03        4      4     2
   51  04/06/93   14:00    80  RET      446      0   27.88    286  P01        2      2     3
------
W = Wideband Trunk Group.

† Based on the peak usage for the trunk group, the number of trunks
  in the trunk group could be increased.
```

SCREEN A-16
Sample Report: Long Term Trending - Trunk Detail (Page 2)

Field Definitions for the Long Term Trending Report

Switch Summary Information

TABLE A-16
Long Term Trending Report Field Definitions for Switch Summary

Field	Definition
Week of	This is the date of the Sunday for the week that the trending data was captured.
Num Polls (Number of polls)	Number of successful polls, including hourly and daily polls if both types occurred for the week.
Num Trkgp (Trunk group number)	Number of trunk groups polls, including including hourly and daily polls if both types of polling occurred for the week.
Peak Call Count	Total number of calls completed.
Peak Proc Occ % (Peak processor occupancy rate)	Peak processor occupancy due to call processing.

Trunk Detail

TABLE A-17
Long Term Trending Report Field Definitions for Trunk Detail

Field	Definition
Trunk Group	Number of the trunk group under study.
Date	Date of peak usage.
Begin Time	Time of peak usage
Num Poll	Number of successful polls during week. If this number is low, data may be distorted because there are not enough samples to make a valid conclusion.
Model	Traffic model used currently for trunk group analysis.
Peak Usage	Peak usage, in CCS or Erlangs, found for the date range.
Maint Busy Peg	Number of trunks out of service in the group.
Average Usg/Trunk	Average usage of each trunk in the trunk group.
ABBH (Average Bouncing Busy Hour)	The ABBH is determined by adding peak usage for each successful day of polling and dividing by the number of days that had successful polling during the week.
GOS (Grade of service)	The GOS currently used to analyze the trunk group.
Num Trk At Poll (number of trunks at poll)	Number of trunks in the trunk group for the peak poll over all days and all hours of the week.
Num Trk Today (Current number of trunks)	Number of trunks in the trunk group now.
Num Trk Rec (Recommended number of trunks.)	Number of trunks recommended by Monitor I for this trunk group. An asterisk (*****) is printed after this number if the trunk group violates its GOS. No recommendation is given and **NR **** prints with a footnote saying that the traffic model used to study the trunk group may not apply when average trunk usage is over 98.5 percent. If there is usage overflow, **UO ##** prints with a footnote recommending that you audit the switch and database.
W † (Wideband)	Indicates the trunk group is used for wideband switching.

† Wideband applies to G3V2 only.

Outage Trunk Report

```
      Today:   Thu Apr 15 1993  14:01:33                    Page   1
Switch Name:   tst_d92r                          Start:   03/05/93 11:00
Output Units   None/total                           End   03/14/93 24:00


                                OUTAGE TRUNK REPORT

                                                                 Total No.
             Trunk                                               of Sampled
             Group     Type     Dir     Size     Member          Outages
             -----     ----     ---     ----     ------          --------
                40     isdn     two       46          1               2     W
                40     isdn     two       46          3               1     W
                40     isdn     two       46          7               1     W
                40     isdn     two       46          8               2     W
                40     isdn     two       46         12               1     W
                40     isdn     two       46         17               1     W
                40     isdn     two       46         18               1     W
                40     isdn     two       46         20               2     W
                40     isdn     two       46         24               1     W
                40     isdn     two       46         26               1     W
                40     isdn     two       46         27               1     W
                40     isdn     two       46         28               2     W

------
W = Wideband Trunk Group


                                  Report Completed
```

SCREEN A-17
Sample Report: Outage

Field Definitions for the Outage Trunk Report

TABLE A-18
Outage Trunk Report Field Definitions

Field	Definitions
Trunk Group Include List Name (Optional)	The name the user defines to include a set of trunk groups. Refer "Administering Trunk Group Include Lists" in Chapter 7, "System Administration.
Trunk Group	The number that identifies the trunk group.
Type	The type of trunk associated with the accumulated data. For example, FX, CO, WATS, Tie, APLT or DID.
Dir	Identifies the direction of the trunk groups: incoming, outgoing or 2-way.
Size	This is the number of trunks in the trunk group.
Date	date of the poll. This field does not appear in the **Total** format.
Begin Time	Time of the poll. This field does not appear in the **Total** format.
Member	At polling time, this is the number of any trunk that is out of service.
Number of Sampled Outages	The number of times the trunk was out of service when polled. In the **Total** format, this field is shown as **Total Number of Sampled Outages** instead.
W † (Wideband)	"W" indicates that the trunk group is designated for wideband switching.

† Wideband applies to G3V2 only.

Poll Status Report

```
       Today:  Fri June 21 1993  13:43:11                           Page   1
 Switch Name:  tst_d92r                                  Start:  06/07/1993 11:00
Output Units:  None                                        End:  06/11/1993 17:00


                                POLL STATUS REPORT


                           Poll                Poll
                 Date      Type      Hour      Status
                 ----      ----      ----      -------
                 06/07     DCT          —      SUCCESS
                 06/08     DCT          —      SUCCESS
                 06/10     DCT          —      RETRY


                                Report Completed
```

SCREEN A-18
Sample Report: Poll Status

Field Definitions for the Poll Status Report

The presence of data is indicated by an **x** in six of the Poll Status Report fields; the remainder of the fields use characters or digits. Absence of data is shown by a dash. If all the fields contain dashes and the poll was successful, then the switch collected the data without encountering any difficulty. If the poll was a failure it implies that Monitor I was unable to collect the data from the switch.

TABLE A-19
Poll Status Field Definitions

Field	Definition
Date	Date of poll.
Poll Type	DCT indicates daily concatenation.
Hour	Poll time. If a dash (—) is shown, then a daily poll is indicated.
Poll Status	States whether the poll succeeded, failed, or a retry is indicated.

Port Network Link Blockage Report (G3V2)

```
       Today:   Mon June  21 1993  14:01:33                        Page   1
 Switch Name:   tst_d92r                            Start:   06/07/1993 Daily
Output Units:   ccs/peak                              End:   06/11/1993 Daily


                          PORT NETWORK LINK BLOCKAGE REPORT


                  Time Division Multiplexed (TDM)          Port Network (PN) Link
                  -------------------------------  ----------------------------------------
            Begin                                      Time
PN   Date    Time     Usage     Peg     Peak    Blkg   Slots     Usage     Peg      Peak   Blkg
--   -----   -----     -----    -----   ------   ----   -----     -----    ------     ----   ----
 1   06/09   09:00      5524     1803      180      0     728      4859      1301      162      0
 2   06/10   11:00      7448     2753      229      0     760      6556      1583      203      0
 3   06/10   12:00      8684     4026      295      6     758      6729      2397      224      0


                                      Report Completed
```

SCREEN A-19
Sample Report: Port Network Link Blockage (G3V2)

Field Definitions for the Port Network Link Blockage Report (G3V2)

TABLE A-20
Port Network Link Blockage Report (G3V2)
Field Definitions

Field	Definition
PN (Port Network)	The **port network** that has been measured.
Date	Date of the poll.
Begin Time	The time when the measurement starts. For the daily poll, this column indicates the hour when the peak occurred for that day.
TDM Usage (Time-Division Multiplexed Usage)	The total **time-division multiplexed (TDM) usage** of time slots for the port network being measured, during the measured hour. (The maximum TDM Usage is 17,338 CCS.)
TDM Peg (Time-Division Multiplexed Peg)	The total count of circuit switch TDM time-slot seizure attempts for the port network during the measured hour. Requests for maintenance processes are not included in this count.
TDM Peak (Time-Division Multiplexed Peak)	The maximum number of time slots allocated at any one time during the measured hour.
TDM Blkg (Time-Division Multiplexed Blockage)	The total count of **TDM Blockages**, which is the total number of times a TDM time-slot request is denied for the PN during the measured hour.
PNL Time Slots (Port Network Link Time slots)	The number of **port network link time slots** available between port networks or between port networks and switch nodes.
PNL Usage (Port Network Link Usage)	The total circuit switch usage of the available PN Link(s) connecting the PN to the SN or to other PNs. For directly connected PNs in three PN systems, this is the sum of the usage fo both links. (Maximum PNL Usage is 25,576 CCS.)
PNL Peg (Port Network Link Peg)	The total count of circuit switched time-slot seizure attempts for the link(s) during the measurement hour.
PNL Peak (Port Network Link Peak)	The maximum number of time slots allocated at any one time on the PNL.

TABLE A-20 (Continued)
Port Network Link Blockage Report (G3V2)
Field Definitions

Field	Definition
PNL Blkg (Port Network Link Blockage)	The total count of circuit switched **port network blockages**, which is the total number of times a PNL time-slot is denied during the measurement hour. This count includes calls originating or terminating on this PN. (This field should be zero for configurations that don't use T1 remoting and are smaller than 16 PNs. The center stage in such configurations is non-blocking.)

PRI Endpoints Report (G3V2)

```
      Today:  Mon June  21 1993  13:43:11              Page   1
Switch Name:  tst_d92r


                                PRI ENDPOINTS REPORT


                            Start            Auto   Sig             Maint
           Ext.   Name      Port      Width  Rest   Grp  COR  COS   Tests
           -----  ---------- -------  -----  -----  ---  ---  ---   -----
           87990  wideband   02B1701     23  n        8    1    1   y

                                 Report Completed
```

SCREEN A-20
Sample Report: PRI Endpoints (G3V2)

Field Definitions for the PRI Endpoints Report (G3V2)

TABLE A-21
PRI Endpoints Report (G3V2) Field Definitions

Field	Definition
Ext (Extension)	The **extension** number assigned to the PRI-endpoint. Field range is from one to five digits.
Name	The name that was assigned to the endpoint.
Start Port	The starting port number that associates a physical location with the extension for the PRI-endpoint.
Width †	The number of contiguous/adjacent B channels (DS0 ports) beginning with the specified starting port (within the DS1/PRI that defines the PRI-endpoint.) The width of six defines a 384-kbps PRI-endpoint.
Auto Rest (Originating Auto Restoration)	This field determines if calls originating from this endpoint should be restored if the network fails. Valid entries are **y**(es) or **n**(o) and the default is no.
Sig Grp (Signaling Group)	specifies the D-channel or D-channel pair that are to provide signaling for the B-channels defined within the PRI-endpoint. Valid entries are: ▪ 1 to 4 for small configurations ▪ 1 to 166 for large configurations ▪ 1 to 8 for medium configurations
COR † (Class of Restriction)	Specifies calling and called party privileges. The default is 1, however 0 to 95 are valid values.
COS † (Class of Service)	Specifies the features that can be activated by or for the PRI-endpoint.
Maint Tests (Maintenance Tests)	determine if hourly maintenance tests are to be run or suppressed for this PRI-endpoint.

† See Chapter 3, "Wideband Installation and Administration" in the *DEFINITY Communication System Generic 3 V2 Wideband Technical Reference, 555-230-230, for more details on these fields.*

Processor Occupancy Report

```
       Today:   Mon June 21 1993  13:43:11                              Page   1
 Switch Name:   tst_d92r                                 Start:   06/07/1993 Daily
Output Units:   counts/peak                                End:   06/11/1993 Daily
  Peak Field:   CP Occ

                                PROCESSOR OCCUPANCY REPORT


               ------- Percentage --------   ------------------- Call Counts -------------------
       Begin   Stat   CP    SM    Idle   Mgnl    Total   Total   Int     Inc     Out     Pnet    %
Date   Time    Occ    Occ   Occ   Occ    Cpcty   Calls   Atmpt   Atmpt   Atmpt   Atmpt   Atmpt   Aban
----   -----   ----   ---   ---   ----   -----   -----   -----   -----   -----   -----   -----   -----
06/10  10:00      2     4    24     70      64    2436    3861    1341      82      71    2376    36.9

                           Report Completed
```

SCREEN A-21
Sample Report: Processor Occupancy

Field Definitions for the Processor Occupancy Report

TABLE A-22
Processor Occupancy Report Field Definitions

Field	Definition
Date	Date of poll. For the peak report, the date of the occurrence of peak processor occupancy.
Begin Time	Beginning of the poll hour based on the time of day clock. For the peak report, the time of the occurrence of peak call processor occupancy.
Stat Occ (Static Occupancy)	The percentage of time needed to handle high priority background processes in support of call processing, maintenance, and administration functions.
CP Occ (Call Processing Occupancy)	The percentage of time used for call processing level processes. The majority of time is call related, but a fractional amount of time is due to the running of administrative commands and background maintenance tests.
SM Occ (System Management Occupancy)	The percentage of time taken by lower priority activities such as administration and maintenance command processing, maintenance activity, error logging and LED audits.
Idle Occ (Idle Occupancy)	The amount of time that the processor is idle.
Mgnl cpcty (Marginal Capacity)	The amount of processor capacity that remains after subtracting static occupancy and call processing occupancy from the recommended maximum average processor occupancy rate †. For G3V2, 75 percent is considered the maximum level rate for the processor to handle call processing and static occupancy and still insure that other system functions are adequately performed; the maximum level for G3V1 is 70 percent.

† Based on extensive testing and studies, AT&T recommends a maximum average processor occupancy rate. This rate varies for different switches. (For example, the permissible occupancy rate is 75 percent on the G3V2 switch, while on the G3V1 switch the rate is 70 percent This recommended rate, as well as the Marginal Capacity reported by Monitor I, should be used as a general guideline while analyzing the switch performance. One must exercise caution before reconfiguring the switch to add more complex features such as ISDN Gateways, ASAI, AUDIX used as auto attendants, etc., that require more CPU. It is suggested that the customers contact their AT&T account representative before reconfiguring the switch or adding major features.

Field Definitions for the Processor Occupancy Report (continued)

TABLE A-23
Processor Occupancy Report Field Definitions (cont´d)

Field	Definition
Total Calls	The total number of calls completed during the measurement interval. (A completed call is one that is answered at the destination and a voice path is cut-through.)
Total Attempt	The total number of call attempts made during the measurement interval. This amount also includes maintenance activities and attempts that did not complete because the caller ended the call prematurely (and not because of inadequate switch resources).
Int Attempt (Intercom Attempts)	The sum of two call types. The first is a extension-to-extension call on the same switch. The second is a partial call where a local station goes off-hook and then hangs up before the call is completed. This includes busy and no-answer calls.
Inc Attempt (Incoming Attempts)	A count of the incoming trunk seizures on the public network. It does not include incoming seizures from other switches in a private network.
Out Atmpt (Outgoing Attempts)	A count of outgoing trunk seizures made over the public network. It does not include outgoing seizures made to other switches in a private network.
Pnet Atmpt (Private Network Call Attempts)	A count of the number of incoming and outgoing trunk seizures made on trunks connecting the switch with other switches in a private network.
% Aban (Percent Abandoned)	The percentage of calls abandonded.

Security Violation Report (G3V2, G3rV1)

```
       Today:   Mon June  21 1993  13:43:11                              Page   1
 Switch Name:   tst_d92r                                  Start:  06/07/1993 Daily
Output Units:   counts                                      End:  06/11/1993 Daily


                                SECURITY VIOLATIONS REPORT

BARRIER AND AUTHORIZATION CODES


       Begin  ----- Barrier Codes ------    ----Authorization Codes ----
Date   Time   Valid   Invalid   Sec Viol   Originator    Valid   Invalid
-----  -----  ------- -------   --------   ----------    ------- -------
06/08  dly          0       0          0   Station             0       0
                                           Trunk               0       0
                                           Remote Acc          0       0
                                           Attendant           0       0
                                           Total               0       0

   Counted Since:   system initialization


06/10 dly           0       0          0   Station             0       0
                                           Trunk               0       0
                                           Remote Acc          0       0
                                           Attendant           0       0
                                           Total               0       0

  Counted Since:   system initialization
```

SCREEN A-22
Sample Report: Security Violation (G3V2, G3rV1) - Barrier and Authorization Codes (page 1)

Security Violation Report (G3V2, G3rV1) (continued)

```
       Today:  Mon June  21 1993  13:43:11                              Page   2
 Switch Name:  tst_d92r                                  Start:  06/07/1993 Daily
Output Units:  counts                                      End:  06/11/1993 Daily


                              SECURITY VIOLATIONS REPORT


LOGIN MEASUREMENTS


       Begin              Success   Invalid    Invalid   Forced   Sec    Trivial
Date   Time    Port Type   Logins    Attempts   IDs       Discon   Viol   Attempts
-----  -----   ---------   -------   --------   -------   ------   ----   --------
06/08    dly   SYSAM-LCL         5         15         6        5      0          0
               SYSAM-RMT        16          0         0        0      0          0
               MAINT             0          0         0        0      0          0
               SYS-PORT        254         15         4        1      0          8
               Total           275         30        10        6      0          8


     Counted Since: system initialization
```

SCREEN A-23
Sample Report: Security Violation - Login Measurements (Page 2)

Field Definitions for the Security Violation Report (G3V2, G3rV1)

Barrier and Authorization Codes

TABLE A-24
Security Violation Report (G3V2, G3rV1) field Definitions for Barrier and Authorization Codes

Field	Definitions
Date	Date of poll.
Begin Time	The time of the poll.
Valid Barrier Codes	The total number of times a user submitted a valid remote access barrier code. (Barrier codes are used with remote access trunks.) If an unusual amount of valid barrier codes are recorded, it might mean that the barrier code has been compromised.
Invalid Barrier Codes	The total number of times a user submitted an invalid remote access barrier code. (Barrier codes are used with remote access trunks.) An increase in the number of invalid barrier codes may mean that someone is attempting to break into the system.
Barrier Security Violations	The total count of remote access attempts that have produced a security violation because too many invalid barrier codes were submitted within a given period of time.
Authorization codes: • Originator	The type of resource originating the calls that generates measurements of valid or invalid authorization codes. These types are: — Station — Trunk (except remote access trunks) — Remote Access Trunks — Attendant — Total (for all originators)
• Valid	The total number of valid authorization codes originating from the specified originator type (see previous list for type).
• Invalid:	The total number of invalid authorization codes originating from the specified originator type (see previous list for type).
Counted Since	The time when the report counters were last cleared and new measurements began accumulating. **Note:** At system initialization time, the counters are cleared automatically and new measurement counting begins.

Login Measurements Fields for Security Violations Report

TABLE A-25
Security Violations Report Field Definitions for Login Measurements

Field	Definitions
Date	Date of poll.
Begin Time	The time of the poll.
Port Type	The type of port used by the measured login process. Port types are: • SYSAM-LCL: The SYSAM local ports on the SYSAM board are typically used as a local connection to the G3-MAT. • SYSAM-RMT: The SYSAM remote ports are dial-up ports on the SYSAM board are typically used by services for remote maintenance and are also used by the switch to elicit alarm information. • MAINT: The **Expansion Port Networks maintenance boards** are typically used as local connections for on-site maintenance performed by services. • SYS-PORT: **System Ports** are accessed by dialing up through a traffic data module (TDM) bus. • Total: The measurements totaled for all the above port types.
	The following types apply to G3iV2 and G3sV2: • MGR1: The dedicated system administration terminal connection • NET: the network controller dial-up ports • EPN: The EPN maintenance EIA port. • INADS: The initialization and Administration System port.
Successful Logins	The total count of successful logins into SM (in other words, the submitted login and password are valid) for the given port type.
Invalid Attempts	Total count of login attempts where the attempting party submitted an invalid login ID or password while accessing a given port type.
Invalid IDs	Total count of unsuccessful login attempts where the attempting party submitted an invalid login ID while accessing the given port type.
Forced Discon (Forced Disconnects)	Total count of login processes that were disconnected automatically by the switch because the threshold for consecutive invalid login attempts had been exceeded for the given port type.
Sec Viol (Security Violations)	Total login security violations for the given port type.

TABLE A-25 (Continued)
Security Violations Report Field Definitions for Login Measurements

Field	Definitions
Trivial Attempts	Total number of times a user attempts to connect to the system without entering the login sequence before the system disconnects.
Counted Since	The time when the report counters were last cleared and new measurements began accumulating. **Note:** At system initialization time, the counters are cleared automatically and new measurement counting begins.

Security Violation Report (G3iV1)

```
       Today:  Mon March  15 1993  13:43:11                              Page   1
 Switch Name:  fg_r1v5                                  Start:  03/07/1993 09:00
Output Units:  counts                                     End:  03/11/1993 17:00


                            SECURITY VIOLATIONS REPORT




                                        --Invalid Login Attempt--      Invalid
       Begin                            EIA     Dial    Netcon          Barrier
Date   Time         Counted Since        Port    Up      Dialup  Total   Codes
-----  -----  -------------------------  -----   -----   ------  -----   ------

03/10  10:00  5:00 pm Tues Jan 15, 1993      2       0       2       3       3




                                  Report Completed
```

SCREEN A-24
Sample Report: Security Violation (G3iV1)

Note: This report only lists those hours when new violations occurred.

Field Definitions for the Security Violation Report (G3iV1)

TABLE A-26
Security Violation Report (G3iV1) Field Definitions

Field	Definitions
Date	Date of poll.
Time	The time of the poll.
Counted Since	Indicates when the security violation was cleared prior to the polling time.
Invalid Login Attempts EIA Port	The number of invalid attempts recorded on the maintenance board EIA port.
Invalid Login Attempts Dial Up	Number of invalid attempts on the maintenance dial-up port.
Invalid Login Attempts Netcon Dial-up	The number of invalid attempts recorded on the network control dial-up ports.
Invalid Login Attempts Total	The total number of invalid login attempts.
Invalid Barrier Codes	Identifies the number of invalid barrier codes dialed when the Remote Access system feature is being used.

Switch Node Link Blockage Report (G3rV2)

```
      Today:  Mon June  21 1993  14:01:33                          Page   1
Switch Name:  tst_d92r                              Start:  06/07/1993 Daily
Output Units  ccs/peak                                End:  06/11/1993 Daily
 Peak Field:  SNL Usage


                        SWITCH NODE LINK BLOCKAGE REPORT


           SN           Begin  Time
           Pair  Date    Time  Slots  Usage   Peg    Blockage  Overflow
           ----  ----   -----  -----  -----  ------   ------   -------
           1/2   6/10   1600     766   9800   49267         0         0
           1/3   6/11   1600     453   3200   15637         0         0
           2/3   6/12   1100     411   1612    9263         0         0


                               Report Completed
```

SCREEN A-25
Sample Report: Switch Node Link Blockage (G3rV2)

Field Definitions for Switch Node Link Blockage Report (G3rV2)

TABLE A-27
Switch Node Link Blockage Report (G3rV2)
Field Definitions

Field	Definitions
SN Pair (Switch node pair)	Identifiers for the two switch nodes connected by the switch node link being measured.
Date	Date of poll.
Begin Time	The time when the measurement starts. For the daily poll, this column indicates the hour when the peak occurred for that day.
Time Slots	The number of switch node link time slots available between switch nodes. The Switch Node Link time slot maximum value is 766; it is 94 for T1 remoting.
Usage	The total circuit switch usage of the Switch Node Link connecting two switch nodes. This is total usage on interconnecting fibers.
Peg	The total count of circuit switched Switch Node Link time-slot seizure attempts between the two measured switch nodes during the measurement hour. This is total peg count on all interconnecting fibers.
Blockage	The total count of circuit switched Switch Node Link blockages during the measurement hour. (An Switch Node Link blockage is the total number of times a call is blocked because no time-slots are available through the most direct route or through any alternate route.)
Overflow	The total number of times a call had to be routed over an alternate route. The counter is incremented when a call is routed over an alternate path because it could not be accommodated by the direct route.

Switch Summary Report (G3V2 version)

```
       Today:  Mon June  21 1993  13:43:11                              Page   1
 Switch Name:  tst_d92r                                 Start:  06/08/1993 08:00
Output Units:  ccs/peak                                 End:    06/11/1993 17:00

                                SWITCH SUMMARY REPORT

PEAK PROCESSOR INFORMATION

                                      Peak      Peak Call Proc
                                   Call Count     Occupancy
                                   ----------   --------------
                        Date (tc):      06/08          06/08
                        Time (tc):      10:00          11:00
                      Call Count:         2593           2593
       Total Processor Occupancy:          30%            30%
                 Static Occupancy:           2%             2%
       Call Processing Occupancy:           4%             4%
                System Management:          24%            24%
                   Idle Occupancy:          70%            70%
  Marginal Capacity For Processor:          64%            64%

                   Total Attempts:        3945           3945
                Intercom Attempts:        1459           1459
                Incoming Attempts:          85             85
                Outgoing Attempts:          98             98
         Private Network Attempts:        2303           2303
                % Calls Abandoned:      34.27%         34.27%

PEAK BLOCKAGE INFORMATION
                              Date:   06/07
                              Time:   12:00
                    Total Blockage:      0%
                       PN Blockage:      0%
                   PNL/SNL Blockage:     0%

PEAK ATTENDANT INFORMATION
                            Date:   09/03
                            Time:   12:00
              Available Attendants:       3
                    Calls Answered:      17
                  Calls Abandoned:        4
                   % Calls Queued:        0
                    Average Delay:    0.06
   Average Delay of Delayed Calls:   21.31
                     % Occupancy:    0.00

SECURITY VIOLATIONS

                        Security Violation Changes Detected

ARS PATTERNS CURRENTLY SET UP:    1    2    3    4     5     6     7    8    9
                                 10   11   12   13    14    15    16   17   18
                                 19   20   21   22   101   102   335
```

SCREEN A-26
Sample Report: Switch Summary (G3V2) - Page 1

Switch Summary Report (G3rV1 version)

```
       Today:   Mon June  21 1993  13:43:11                              Page   1
 Switch Name:   tst_d92i                                  Start:   06/08/1993 08:00
Output Units:   ccs/peak                                  End:     06/11/1993 17:00


                                SWITCH SUMMARY REPORT

PEAK PROCESSOR INFORMATION

                                      Peak       Peak Call Proc
                                   Call Count      Occupancy
                                   ----------    --------------
                        Date (tc):      06/08           06/08
                        Time (tc):      10:00           11:00
                      Call Count:         2593            2593
       Total Processor Occupancy:          30%             30%
                Static Occupancy:           2%              2%
       Call Processing Occupancy:           4%              4%
                System Management:          24%             24%
                   Idle Occupancy:          70%             70%
  Marginal Capacity For Processor:          64%             64%

                   Total Attempts:        3945            3945
                Intercom Attempts:        1459            1459
                Incoming Attempts:          85              85
                Outgoing Attempts:          98              98
         Private Network Attempts:        2313            2313
                % Calls Abandoned:       34.27%          34.27%

PEAK ATTENDANT INFORMATION
                             Date:   09/03
                             Time:   12:00
            Available Attendants:       3
                  Calls Answered:      17
                 Calls Abandoned:       4
                  % Calls Queued:       0
                   Average Delay:    0.06
  Average Delay of Delayed Calls:   21.31
                     % Occupancy:    0.00


SECURITY VIOLATIONS

                         Security Violation Changes Detected

ARS PATTERNS CURRENTLY SET UP:    1    2    3    4     5     6     7    8    9
                                 10   11   12   13    14    15    16   17   18
                                 19   20   21   22   101   102   335
```

SCREEN A-27
Sample Report: Switch Summary (G3rV1) - Page 1

Switch Summary Report (G3iV1 version)

```
       Today:  Mon Apr  8 1993  13:43:11                              Page   1
 Switch Name:  fg_r1v5                                Start:  03/28/1993 01:00
Output Units:  ccs/peak                               End:    03/29/1993 17:00

                          SWITCH SUMMARY REPORT

PEAK PROCESSOR INFORMATION
                                     Peak      Peak Call Proc
                                  Call Count     Occupancy
                                  ----------   --------------
                      Date (tc):      03/29          03/29
                      Time (tc):      10:00          11:00
                    Call Count:         745            712
       Total Processor Occupancy:      50.00%         52.00%
                Static Occupancy:       7.00%          8.00%
       Call Processing Occupancy:       7.00%          7.00%
               System Management:      36.00%         37.00%
                  Idle Occupancy:      50.00%         48.00%
  Marginal Capacity For Processor:      56.00%         55.00%
                  Total Attempts:       1144           1075
               Intercom Attempts:         246            248
               Incoming Attempts:         213            146
               Outgoing Attempts:         207            235
        Private Network Attempts:         478            446
               % Calls Abandoned:      35.00%         34.00%

PEAK ATTENDANT INFORMATION
                                            Date:  09/03
                                            Time:  12:00
                                Available Attendants:      2
                                      Calls Answered:     16
                                    Calls Abandoned:       6
                                     % Calls Queued:       0
                                      Average Delay:    0.26
                    Average Delay of Delayed Calls:   20.18
                                       % Occupancy:   13.13

SECURITY VIOLATIONS
Counted Since:     system initialization
                         Invalid Login
                           Attempts     Poll
                             (Max)      Date
  Maint. Board EIA Port:               -    -
    Maint. Dial-up Port:               -    -
Ntwk Ctrl Dial-up Ports:               -    -

  Invalid Barrier Codes:               -    -

ARS PATTERNS CURRENTLY SET UP:    1,   2,   3,   4,   5,   6,   7,   8,   9
                                 10,  11,  12,  13,  14,  25,  26,  27,  28
                                 29,  30
```

SCREEN A-28
Sample Report: Switch Summary (G3iV1) - Page 1

Switch Summary Report (Total Poll Information) (continued)

Note: Page 2 of the Switch Summary Report is the same for both G3V2 and G3V1.

```
       Today:  Mon June  8 1993  13:43:11                              Page   2
 Switch Name:  tst_d92r                              Start:  06/07/1993 01:00
Output Units:  ccs/peak                              End:    06/11/1993 17:00
                          SWITCH SUMMARY REPORT


TOTAL POLL INFORMATION

                              Poll Days: Monday Thru Friday
                             Poll Hours: 09:00 To 17:00
             Number Of Successful Polls:    30



PEAK TRUNK GROUP THRESHOLD VIOLATIONS
Trunk                                Design   Table          Current   Recommended
Group  Type  Dir   Date   Time      GOS     Used    Usage  # Trunks    # Trunks
-----  ----  ---  -----  -----    ------  -------  -----  --------  -----------
   40  isdn  two  06/10  10:00    P03     RETRIAL   1452        46          170
   41  isdn  two  06/11  12:00    P03     RETRIAL   1429        46          171
   50  isdn  two  06/12  16:00    P03     RETRIAL    679        23          172
  121  co    inc  06/12  17:00    P01     RETRIAL     18         2            4
```

SCREEN A-29
Sample Report: Switch Summary (Toll Poll Information) - Page 2

† No recommendation. The traffic model used to study this trunk group may not apply when average trunk usage is over 98.5 percent.

Field Definitions for the Switch Summary Report

The Switch Summary Report for the switch is a management report that provides a snapshot of the overall health of the system and also alerts you to any potential problems within the switch. This report summary is composed of the following seven sections:

- Peak Processor Information
- Peak Blockage Information (G3rV2)
- Peak Attendant Information
- Security Violations
- ARS Patterns
- Total Poll Information
- Peak Trunk Group Threshold Violations

Peak Processor Information

Peak Processor Information is provided from two points of view:

- Data gathered during the time of heaviest (peak) call count
- Data gathered during the time of heaviest (peak) processor occupancy

TABLE A-28
Switch Summary Report Field Definitions for Peak Processor

	Definitions	
Field	**Peak Call/ Connection Count**	**Peak Call Proc Occupancy**
Date (tc)	Date of peak call count.	Date of peak processor occupancy.
Time (tc)	Hour of peak call count.	Hour of peak processor occupancy.
Call Count	Peg count of completed calls during the peak call count time. (A call is considered as completed when the destination party answers and a voice path is cut through.)	Peg count of completed calls during peak processor occupancy.
Total Processor Occupancy	The total Occupancy rate at the time of peak call count. This rate is derived by adding the Total of Static Occupancy, Call Processor Occupancy and System Management Occupancy.	The total occupancy rate during peak processor occupancy. This rate is derived by adding the Total of Static Occupancy, Call Processor Occupancy and System Management Occupancy.
Static Occupancy †	This is the amount of time used for high priority background processes to support call processing, maintenance and administrative functions during the peak call count.	This is the amount of time used for high priority background processes to support call processing, maintenance and administrative functions during the time of peak processor occupancy.

† Static Occupancy, Call Processing Occupancy, System Management Occupancy and Idle Occupancy are percentages that must add up to 100.

TABLE A-28 (Continued)
Switch Summary Report Field Definitions for Peak Processor

Field	Definitions	
	Peak Call/ Connection Count	**Peak Call Proc Occupancy**
Call Processor Occupancy †	The percentage of CPU time used for priority level processes during the peak call count. These processes are mainly call processing events but may include CPU time used for maintenance and administration.	The percentage of CPU time used for priority level processes during peak processor occupancy. These processes are mainly call processing events but may include CPU time used for maintenance and administration.
System Management †	Percentage of time used by lower priority activities such as administration and maintenance command processing, maintenance activity, error logging and LED audits at the time of peak call count.	Percentage of time used by lower priority activities such as administration and maintenance command processing, maintenance activity, error logging and LED audits during peak processor occupancy.
Idle Occupancy †	The percentage of time the processor is idle during the peak call count.	The percentage of time the processor is idle during peak processor occupancy.
Marginal Capacity	The maximum percentage of processor occupancy that can support Call Processing and Static Occupancy and also insure that other system functions can be performed during the peak call count. 75 percent is considered the maximum rate for the G3 switch.‡	The maximum percentage of processor occupancy that can support Call Processing and Static Occupancy and also insure that other system functions can be performed during peak processor occupancy. 75 percent is considered the maximum rate for the G3 switch.‡

† Static Occupancy, Call Processing Occupancy, System Management Occupancy and Idle Occupancy are percentages that must add up to 100.

‡ Marginal capacity is calculated using the following formula:
Marginal Capacity=Occupancy Rate -(Call Processor Occupancy+Static Occupancy)

TABLE A-28 (Continued)
Switch Summary Report Field Definitions for Peak Processor

	Definitions	
Field	**Peak Call/ Connection Count**	**Peak Call Proc Occupancy**
Intercom Attempts	The sum of two call types during the peak call count: station-to-station calls on the same switch and partial calls where a local station goes off-hook and then hangs up before the call is answered.	The sum of two call types during the peak processor occupancy: station-to-station calls on the same switch and partial calls where a local station goes off-hook and then hangs up before the call is answered.
Incoming Attempts	A count of the incoming trunk seizures on the public network during the peak call count. This count does ***not*** include incoming trunk seizures from other switches in a private network.	A count of the incoming trunk seizures on the public network during peak processor occupancy. This count does ***not*** include incoming trunk seizures from other switches in a private network.
Outgoing Attempts	A count of the outgoing trunk seizures made on the public network during the peak call count. This count does ***not*** include outgoing trunk seizures made to other switches in a private network.	A count of the outgoing trunk seizures made on the public network during peak processor occupancy. This count does ***not*** include outgoing trunk seizures made to other switches in a private network.
Private Network Attempts	A count of the number of incoming and outgoing trunk seizures made on the trunks connecting the switch with other switches in a private network during the peak peg count.	A count of the number of incoming and outgoing trunk seizures made on the trunks connecting the switch with other switches in a private network during the peak processor occupancy.
% blkd	The percentage of calls blocked † during the peak call count.	The percentage of calls blocked † during peak processor occupancy.

† % blkd is calculated using the following formula:
%blkd=((total attempts -total calls)/total attempts))*100

Additional Sources of Information:

- Processor Occupancy Reports
- Long Term Processor Occupancy Report
- Trunk Group Summary Report
- Trunk Group Detail Report
- Chapter 3, "Traffic Data Analysis" in *Definity Communications System Generic 3 V2 Traffic Reports*

HIGH PROCESSOR OCCUPANCY

TABLE A-29
Processor Occupancy Problems

If Peak Occupancy Is	Then
High, in other words the rate is approaching 75 percent	Further investigation is necessary as to why this rate is so high; a marginal capacity of processor time must be maintained in order to ensure switch maintenance.
Consistently high over a period of 6 to 13 weeks	The problem is probably due to high traffic volume.
Generally low and there is a sudden surge	The high occupancy rate may be due to a maintenance problem or some extraordinary event that triggers heavy telephone traffic.

High processor occupancy can also occur:

- If there is a maintenance problem
- If trunks have been removed from service or busied out.
- If the work load is not balanced between the switch modules, causing module blockages

Remember that telecommunications management systems can add to processor occupancy if tasks are scheduled during busy business hours when call volume is high. Lengthy administrative procedures for applications like DEFINITY Manager III or Manager IV can keep your processor busy, depriving it of the time needed to process calls or perform maintenance tasks. Call counts and/or other measurements that are much higher than your system normally experiences can be an indication of a problem with the processor.

Peak Blockage Information

TABLE A-30
Switch Summary Report Field Definitions for Peak Blockage

Field	Definition
Date	Date of poll.
Begin Time	Hour of poll.
Total Blockage	The percent of total circuit switched time slot seizures that were blocked due to insufficient Time Division Multiplexed (TDM) or Center Stage Nodes (CSN) time slots.
PN Blockage (Port Network Blockage)	The percent of TDM time slot seizures that were blocked due to insufficient time slots for any PN (Port Network). This is time coincident with Peak Total Blocking.
PNL/SNL Blockage (Port Network Link/Switch Node Link Blockage)	The highest percent of Switch Node Link (SNL) and Port Network Link (PNL) seizures due to insufficient time slots. This measurement is meaningful for links between Center Stage Nodes (CSNs) or T1 remoted PNs. This is time coincident with Peak Total Blocking.

Additional Sources of Information:

- Port Network Link Blockage Report
- Switch Node Link Blockage Report
- Chapter 3, "Traffic Data Analysis" in *Definity Communications System Generic 3 V2 Traffic Reports*

Peak Attendant Information

TABLE A-31
Switch Summary Report Field Definitions for Peak Attendant Information

Field	Definition
Date	Date of poll.
Time	Hour of poll.
Available Attendants	Attendants with attended usage greater than zero.
Calls Answered	The total calls answered by all attendants during the polling interval.
Calls Abandoned	Number of calls in the attendant group's queue that were abandoned by callers before being answered by an attendant.
% Calls Queued	Percent of calls queued or delayed.
Average Delay (sec)	Based on the number of attendants and the peak worked usage, use Erlang C Infinite Table A to find D Bar. Multiply D Bar by the average holding time to get the average delay.
Average Delay of Delayed Calls (sec)	Based on the number of attendants and D Bar, use Erlang C Infinite Table C to find D Double Bar. Multiply D Double Bar by the average holding time to calculate the average delay of delayed calls.
% Occupancy	The Percent occupancy expressed as a function of the time the positions were plugged-in and attended. **NOTE:** The percent occupancy should not exceed 92 percent which is a human factors limitation.

Additional Sources of Information:

- Attendant Measurement Report
- Total Attendant Incoming Abandoned Report (Graph)
- Total Attendant Worked Peg Count Report (Graph)
- Total Attendant Worked Usage Report (Graph)

The acceptable maximum average wait for a call in an attendant's queue, according to AT&T guidelines, is a 15-second delay. However, acceptable average delays can depend on such factors as:

- Company policy
- The type of service your company provides
- The type of goods your firm manufactures

If the average delay shown in your Switch Summary Report exceeds your company standard, graph the Total Attendant Usage Trending Report for the past 6 to 13 weeks to determine if the peak average delay printed on the current report is a one-day surge or part of a pattern. If it is a one-day surge, it could mean that an attendant was ill or on vacation.

TABLE A-32
Average Delay Problems

If	Then:
The average delay has been consistently high or steadily increasing over time.	Examine the attendant usage † on the Attendant Measurement Report for the same date range.

† If a console is plugged in for an entire hour, it would have an attended usage of 33.12 CCS. Occupancy levels greater than 92 percent are not recommended for attendant positions, based on Human Factors considerations. (The theoretical maximum is 36 CCS so 92 percent of 36 CCS is 33.12.)

Security Violations (G3V2, G3rV1)

If any violations were detected, a statement will appear in the G3r version of the report.

Security Violations (G3iV1)

The following security violations measurements apply to G3iV1 only.

Field	Definition
Date	Date of poll.
Time	Hour of poll.
Counted Since	Indicates when the security violation measurement was cleared prior to polling time.
Maintenance Board EIA Port	The number of invalid attempts recorded on the maintenance board EIA port.
Maintenance Dial-Up Port	The number of invalid attempts recorded on the maintenance dial-up port.
Network Control Dial-Up Port	The number of invalid attempts recorded on the network control dial-up port.
Invalid Barrier Codes	The number of invalid barrier codes dialed when the Remote Access feature of the system is being used.

ARS Patterns Currently Set Up

This section of the Switch Summary Report lists all the ARS patterns currently being studied.

Total Poll Information

This section on Page 2 of the Switch Summary Report provides the total number of records for the date range and hours specified by the user.

Field	Definition
Poll Days	Days being polled (for example, Monday through Friday).
Poll Hours	Monitor I allows two types of polling: Daily and Hourly. "Daily Polling" appears on the report if Daily polling is selected; the hourly polling option prints the beginning and end hours on the report.
Number of Successful Polls	The amount of completed polls.

Source of Additional Information:

Poll Status Report

An accurate picture of switch performance is possible ***only*** after analyzing many successful polls over a period of time. This section of the Switch Summary Report provides some of the data you need to paint this picture. Traffic engineers differ on the extent of time and the number of polls required, but here are some general guidelines:

- Take traffic measurements for the 30 busiest days in the year for your business. Exclude recurring exceptional days from these measurements. For example, telephone companies count Christmas and Mother's Day as their busiest times, so they exclude these measurements from their busy-time studies, and analyze them separately.
  - Data must come from a period of successful polling. For example, if you run the report daily for a month and you have only a few successful polls during that period, you do not have a large enough sample space to make intelligent traffic management decisions. For a successful poll, Monitor I must connect to the switch and retrieve the packet data. Problems that may affect validity of the data gathered are discussed below.
- Identify the busiest hour in each day's measurements.
- Total the measurements for the busy hours and divide each measurement by 30.
  - This provides a picture of the load carried by your switch during busy times. You can use it to compare to similar data gathered in slow and average periods.

Peak Trunk Group Threshold Violations

This report provides information on all trunk groups that have violated their Grade Of Service, GOS.

Field	Definition
Trunk Group	The trunk group number that has violated the designed GOS.
Type	Trunk group type. This field is assigned during initialization.
Dir	Trunk Group Direction. This field is assigned during initialization.
Date	Date the peak usage occurred.
Begin Time	The hour the peak usage occurred.
Design GOS	The designed GOS for the trunk group. (In other words, Monitor I's recommended values for the trunk group.)
Table Used	Traffic Model table used for this trunk group.
Usage	Peak usage stored in CCS.
Current # of Trunks	Current number of trunks in the trunk group.
Recommended # of Trunks	The recommended number of trunks.†

† The Recommended number of trunks is calculated using the designed GOS, the peak hour carried usage, and the appropriate traffic formula.

Additional Sources of Information:

- Trunk Group Detail Report
- Trunk Group Usage Trending Report
- Chapter 3, "Traffic Data Analysis" in *Definity Communications System Generic 3 V2 Traffic Reports*

This section reports on trunks violating their designed Grade of Service (GOS). That is, trunks in these groups have blocked more than the acceptable percentage of calls. As stated in previous discussions on traffic analysis, you must determine if apparent problems stem from maintenance causes or heavy traffic. Try the following steps to determine the reason for service violations:

- Determine if the trunks are busied out for maintenance purposes.
- Consider changing the default traffic model used by Monitor I to evaluate threshold violations.
- Graph the trunk group's usage to see if it surges suddenly, or if it is consistently high.

The Trunk Group Detail Report also reveals if any trunks in this group were busied out for maintenance purposes. If there are maintenance busy trunks, work on getting them back into service.

Check the designed GOS and the traffic model normally used for the trunk group type. Monitor I sets the default Grade of Service with the assumption that each trunk group stands alone. However, if the trunk group is the first choice in a routing pattern, you may want to change the model in the DEFINITY Monitor I database to Erlang B through the Trunk Group Editor. You may also find the default grade of service on some trunk groups is not right for your company's needs. If so, adjust it.

Confirm that the number of trunks in the trunk group is correct because trunks may have been added by an Operating Support Systems (OSS) since you last initialized your switch.

The Trunk Group Usage Trending Report will reveal if high usage data indicates a one-time surge or if usage is consistently high. If the CCS or Erlangs readings are high over a period of time, study the routing patterns associated with this trunk group. Routing patterns may be linked to such threshold-related problems as:

- A system of network calling privileges, called Facilities Restriction Levels (FRLs), can shunt most users' calls to a limited number of trunk groups, while reserving other trunk groups for use by executives and sales personnel.
- Trunks in a certain preference order may be busied out, throwing still more calls into trunks with higher FRL ratings.
- Still other trunks may be experiencing excessively long or short holding times.

If routing patterns are functioning properly, if the designed GOS is correct, and the traffic is consistently heavy on the trunk group, then you may want to add more trunks to the trunk group, or you may consider having AT&T redesign your network.

Tone Receiver Detail Report (G3V2)

```
      Today:  Mon June 21 1993  14:01:33                          Page   1
Switch Name:  tst_d92r                              Start:  06/07/1993 Daily
Output Units  counts/all                              End:  06/11/1993 Daily


                          TONE RECEIVER DETAIL REPORT


           PN   Date   Begin Time    Type      PN Req   PN Alloc   Peak Alloc   Total Off-PN   Peak Off-PN
           --   -----  ------  -------  ---   -----   -----   ------   ------
            1   06/07  14:00   DTMF       8       8     200        0        0
            1   06/07  13:00   GPTD      12      12       3        0        0
            1   06/08  11:00   CC-TTR     0       0       0        0        0
            1   06/08  11:00   CC-CPTR    0       0       0        0        0
            1   06/08  11:00   CC-MFCR    0       0       0        0        0
            1   06/09  14:00   DTMF       8       8     200        0        0
            1   06/09  13:00   GPTD      12      12       3        0        0
            1   06/09  11:00   CC-TTR     0       0       0        0        0
            1   06/10  11:00   CC-CPTR    0       0       0        0        0
            1   06/11  11:00   CC-MFCR    0       0       0        0        0

            2   06/08  14:00   DTMF      19      19     200        0        5
            2   06/09  11:00   GPTD      12      12       3        0        0
            2   06/10  11:00   CC-TTR     0       0       0        0        0
            2   06/11  11:00   CC-CPTR    0       0       0        0        0
            2   06/11  11:00   CC-MFCR    0       0       0        0        0


                                Report Completed
```

SCREEN A-30
Sample Report: Tone Receiver Detail (G3V2)

Tone Receiver Detail Report (G3V2) Field Definitions

TABLE A-33
Tone Receiver Detail Report (G3V2)
Field Definitions

Field	Definitions
PN (**Port Network**)	The PN in which the circuit pack containing the type of tone receiver listed is physically located.
Date	Date of the poll.
Begin Time	The time when the measurement starts. For the daily poll this field indicates the hour when the peak occurred for that day. The time may be different for each tone receiver, depending on the hour when the peak occurred.
Type	The type of tone receiver being measured. The receiver types are: DTMF: Dual Tone Multifrequency receivers. Used for touch-tone reception. GPTD: General Purpose Tone Receivers. Used to detect call progress tones. CC: Call Classifiers. They can function as: ▪ CPTR: Call Progress Tone Receivers ▪ TTR: Touch Tone Receivers ▪ MFCR: Multifrequency Compelled Receivers.
PN Req (Port Network Requests)	The number of **port network requests** for the tone receivers within the port network during the measured hour.
PN Alloc (Port Network Allocation)	The total number of tone receivers located within the port network that were allocated for use during the measured hour.
Peak Alloc (Peak Allocation)	The peak number of tone receivers within the port network that were in use simultaneously during the measured hour.
Total Off-PN (Total Off Port Network)	For the measured hour and port network, this is the total number of tone receivers that were allocated on a different port network for requests originated on this port network.
Peak Off-PN (Peak Off Port Network)	For the measured hour and port network, this is the peak number of tone receivers that were allocated on a different port network for requests originated on this port network.

Tone Receiver Summary Report (G3V2)

```
      Today:  Thu June  21 1993  14:01:33                              Page   1
Switch Name:  tst_d92i                              Start:  06/07/1993    1:00
Output Units  ccs/peak                                End:  06/11/1993   24:00


                        TONE RECEIVER SUMMARY REPORT


       Begin            Total   Total  Peak  Total   Peak    Total   Peak
Date   Time   Type      Avail   Req    Req   Queued  Queued  Denied  Denied
-----  -----  ------    ------  -----  ----  ------  ------  ------  ------
06/07  10:00  DTMF          16    472     5       0       0       0       0
06/07  10:00  GPTD           8      1     1       —       —       0       0
06/07  11:00  CC             8      —     —       —       —       —       —
06/08  11:00  CC-TTR         —      0     0       0       0       0       0
06/08  11:00  CC-CPTR        —      0     0       —       —       0       0
06/08  11:00  CC-MFCR        —      0     0       —       —       0       0

                                   Report Completed
```

SCREEN A-31
Sample Report: Tone Receiver Summary (G3V2)

Tone Receiver Summary Report (G3V2) Field Definitions

TABLE A-34
Tone Receiver Summary Report (G3V2)
Field Definitions

Field	Definitions
Date	Date of the poll.
Begin Time	The time when the measurement starts. For the daily poll this field indicates the hour when the peak occurred for that day. The time may be different for each tone receiver, depending on the hour when the peak occurred.
Type	The type of tone receiver being measured. Tone receiver types are: **DTMF**: Dual Tone Multifrequency receivers. Used for touch-tone reception. **GPTD:** General Purpose Tone) receivers. Used to detect call progress tones. **CC:** Call Classifiers. They can function as: **CPTR:** Call Progress Tone Receivers **TTR:** Touch Tone Receivers **MFCR:** Multifrequency Compelled Receivers
Total Avail	(**Total Availability**) The total number of tone receivers that are available and not busied out for maintenance.
Total Req (Total Requests)	The total number of requests, by call processing for tone receivers during the measured hour.
Peak Req (Peak Requests)	The system wide peak number of simultaneous requests for tone receivers that occurred at any one time during the measured hour.
Total Queued	The system wide total number of requests that were queued during the measured hour.
Peak Queued	The system wide maximum number of call requests that were queued at any one time during the measured hour.
Total Denied	The system wide total number of requests that were denied because no receivers were available during the measured hour.
Peak Denied	The system wide peak number of requests that were denied because no receivers were available during the measured hour.

Trunk Group Detail Report (G3V2)

```
      Today:   Fri June  21 1993  13:43:11                              Page   1
 Switch Name:   tst_d92i                                Start:   06/07/1993 09:00
Output Units:   ccs/peak                                  End:   06/11/1993 17:00


                          TRUNK GROUP DETAIL REPORT

TRUNK GROUP INFORMATION

             Number: 25
               Name: MT#1 to MT#2
                TAC: 125
               Size: 33
               Type: isdn
          Direction: two
               Date: 06/09
         Begin Time: 13:00


USAGE AND PEG INFORMATION
                          Total                Wideband              Narrowband
                   ------------------   ------------------   ------------------
                   Usage  Calls  AHT    Usage  Calls  AHT    Usage  Calls  AHT
                   -----  -----  ---    -----  -----  ---    -----  -----  ---
Total Voice + Data   886    383    2        0      0    —      886    383    2
  Inc Voice + Data     —    270    —        —      0    —        —    270    0
  Out Voice + Data     —    113    —        —      0    —        —    113    —


QUEUING INFORMATION
            Size: 0
Calls Queued Peg: 0
        Overflow: 0
         Abandon: 0


BLOCKAGE INFORMATION
Maintenance Busy (Peg):  0
       Avg Trunk Usage:  26.85
     % All Trunks Busy:  0
   % Outgoing Blockage:  0
        Group Overflow:  1
```

SCREEN A-32
Sample Report: Trunk Group Detail (G3V2)

Trunk Group Detail Report (G3V2) (continued)

```
       Today:   Mon June 21 1993  13:43:11                          Page   2
 Switch Name:   tst_d92i                              Start:   06/08/1993 09:00
Output Units:   ccs/peak                                End:   06/11/1993 17:00


                              TRUNK GROUP DETAIL REPORT

GRADE OF SERVICE REQUIREMENTS

   Traffic Model: Not applicable
Designed For GOS: Not Applicable
                                   Report Completed
```

SCREEN A-33
Sample Report: Trunk Group Detail (G3V2) (continued)

Field Definitions, Trunk Group Detail Report (G3V2)

All of the information in the Trunk Group Detail Report concerns a single trunk group. After identifying the trunk group and polling schedule for the study, the report is divided into five sections.

Trunk Group Information

TABLE A-35
Trunk Group Detail Report Field Definitions for Trunk Group Information

Field	Definitions
Trunk Group Include List Name (Optional)	Name of the Trunk Group Include List as defined by the user. Refer to the procedure to Administer Trunk Group Include Lists in Chapter 7, "System Administration."
Number	Number that identifies trunk group.
Name	Name of trunk group as entered in the Monitor I database by user or retrieved from the switch the Non-Traffic Data Retrieve command on the Utilities Menu.
TAC (Trunk Access Code)	The code used by the Trunk Group Editor.
Size	Number of trunks in group.
Type	Type of trunks, such as CO or WATS.
Direction	Direction of trunks in this group, either incoming, outgoing or two-way.
Date	Date of poll.
Time	This is the period of heaviest traffic for this trunk group.
Begin Time	This is the beginning of the polling hour.

Usage and Peg Information

Each field in this section provides three kinds of data: usage, peg counts, and Average Holding Time (AHT) in seconds. The formula used to calculate AHT is in Appendix B, "Monitor I Equations."

TABLE A-36
Trunk Group Detail Report Field Definitions for Usage and Peg Information (Totals)

Total Fields	Definition
Total Voice + Data Usage	Total volume of traffic carried by the trunk group.
Total Voice + Data Calls	Total number of calls handled.
Total Voice + Data AHT	The average holding time in seconds for all the calls handled by the trunk group.
Inc Voice + Data Usage	Not available (a dash is shown in the report).
Inc Voice + Data Calls	The total number of incoming calls on a 2-way or incoming trunk group.
Inc Voice + Data AHT	Not available (a dash is shown in the report).
Out Voice + Data Usage	Not available (a dash is shown in the report).
Out Voice + Data Calls	The total number of outgoing calls.
Out Voice + Data AHT	Not available (a dash is shown in the report).

TABLE A-37
Trunk Group Detail Report Field Definitions for Usage and Peg Information (Wideband)

Wideband Fields	Definition
Total Voice + Data Usage	Total wideband call usage for all trunks in the trunk group.
Total Voice + Data Calls	Total number of wideband call attempts.
Total Voice + Data AHT	The average holding time in seconds for all the wideband calls handled by the trunk group.
Inc Voice + Data Usage	Not available (a dash is shown in the report).
Inc Voice + Data Calls	The total number of wideband incoming call attempts.
Inc Voice + Data AHT	Not available (a dash is shown in the report).
Out Voice + Data Usage	Not available (a dash is shown in the report).
Out Voice + Data Calls	The total number of outgoing wideband calls.
Out Voice + Data AHT	Not available (a dash is shown in the report).

TABLE A-38
Trunk Group Detail Report Field Definitions for Usage and Peg Information (Narrowband)

Narrowband Fields	Definition
Total Voice + Data Usage	Total narrowband call usage for all trunks in the trunk group.
Total Voice + Data Calls	Total number of narrowband call attempts handled by the trunk group.
Total Voice + Data AHT	The average holding time in seconds for the narrowband calls handled by the trunk group.
Inc Voice + Data Usage	Not available (a dash is shown in the report).
Inc Voice + Data Calls	The total number of narrowband incoming call attempts.
Inc Voice + Data AHT	Not available (a dash is shown in the report).
Out Voice + Data Usage	Not available (a dash is shown in the report).
Out Voice + Data Calls	The total number of outgoing narrowband calls.
Out Voice + Data AHT	Not available (a dash is shown in the report).

Queuing Information (G3V2)

TABLE A-39
Trunk Group Detail Report (G3V2) Field Definitions for Queuing Information

Field	Definitions
Size	Number of slots in queue.
Calls Queued Peg	Number of calls waiting in queue.
Overflow	Number of calls blocked because the queue was full.
Abandon	Number of queued calls that were abandoned.

Blockage Information (G3V2)

Field	Definition
Maintenance Busy Peg	Number of times trunks busied out due to maintenance condition in this group.
Avg. Trunk Usage	Average usage for the trunk in the group. This figure excludes usage on trunks that were busied out.
% All Trunks Busy	Percentage of time the trunks were busy handling calls.
% Outgoing Blockage	The ratio of outgoing calls not carried on a trunk group to the outgoing calls offered. For trunk groups with no queue, the calls not carried are those calls that find all trunks busy. For trunk groups with queues, the calls not carried are those calls that find all trunks busy and cannot be queued because the queue is full.
Group Overflow	Number of calls blocked because there were no available trunks in the group. If trunk group has outgoing queuing, calls in queue are counted in this measurement. Data calls are not included in this measurement.

Grade of Service Requirements

TABLE A-40
Trunk Group Detail Report Field Definitions for Grade of Service Requirements

Field	Definition
Traffic Model	Traffic model used; can be Retrial, Erlang B or Erlang C.
Designed for GOS	The grade of service for which the switch is designed.
Trunks Required for GOS	Number of trunks required for the designed GOS. Refer to the **Note**, below.

Note: If no recommendations are made for the **Trunks Required for GOS** field, then the following is displayed in the report: **NR ****. Where ****** points to a footnote that is also displayed in the report advising that the default traffic model (Erlang) used to study the trunk group may not apply when average trunk usage is over 98.5 percent. In addition, if there is usage overflow, the following is displayed in the report: **UO ##**. Similarly, **##** points to a footnote that is displayed in the report that advises you to check your switch.

Trunk Group Detail Report (G3V1)

```
       Today:   Mon June  21 1993  13:43:11                              Page   1
 Switch Name:   fg_r3v1                                 Start:   06/07/1993 11:00
Output Units:   ccs/peak                                End:     06/11/1993 17:00


                              TRUNK GROUP DETAIL REPORT


Trunk Group Include List Name:  trunklist

TRUNK GROUP INFORMATION
   Number:  45
     Name:  —
     Size:  —
      Tac:  4
     Type:  isdn
Direction:  two
     Date:  06/08
     Begin  Time: 13:00


USAGE AND PEG INFORMATION
                                  Usage  Peg  Avg Holding Time (Secs)
                                  -----  ---  -------------------------
             Total Voice + Data:      2    8              25
                    Total Voice:      —    8               —
                     Total Data:      —    0               —


QUEUING INFORMATION

            Size:
Calls Queued Peg:
        Overflow:
         Abandon:


BLOCKAGE INFORMATION

      Maintenance Busy (Peg):     0
             Avg Trunk Usage:  0.50
          % All Trunks Busy:     0
         % Outgoing Blockage:     0
              Group Overflow:     0
```

Trunk Group Detail Report (G3V1) (continued)

```
       Today:   Mon June  21 1993  13:43:11                              Page   2
 Switch Name:   fg_r3v1                                 Start:   06/07/1993 11:00
Output Units:   ccs/peak                                End:     06/11/1993 13:00


                              TRUNK GROUP DETAIL REPORT



GRADE OF SERVICE REQUIREMENTS

                  Traffic Model:   RETRIAL
               Designed For GOS:   P03
Trunks Required For P03    GOS:   2
Trunks Required For P001   GOS:   3
Trunks Required For P003   GOS:   3
Trunks Required For P01    GOS:   3
Trunks Required For P10    GOS:   2


                                   Report Completed
```

Field Definitions for the Trunk Group Detail Report (G3V1)

All of the information in the Trunk Group Detail Report concerns a single trunk group. After identifying the trunk group and polling schedule for the study, the report is divided into five sections.

Trunk Group Information

TABLE A-41
Trunk Group Detail Report (G3V1)
Field Definitions

Field	Definitions
Trunk Group Include List Name (Optional)	Name of the Trunk Group Include List as defined by the user. Refer to the procedure to Administer Trunk Group Include Lists in Chapter 7, "System Administration."
Number	Number that identifies trunk group.
Name	Name of trunk group as entered in the Monitor I database by user or retrieved from the switch the Non-Traffic Data Retrieve command on the Utilities Menu.
TAC (Trunk Access Code)	The code used by the Trunk Group Editor.
Size	Number of trunks in group.
Type	Type of trunks, such as CO or WATS.
Direction	Direction of trunks in this group, either incoming, outgoing or two-way.
Date	Date of poll.
Time	This is the period of heaviest traffic for this trunk group.
Begin Time	This is the beginning of the polling hour for G3iV1.

Usage and Peg Information (G3V1)

Each field in this section provides three kinds of data: usage, peg counts, and Average Holding Time (AHT) in seconds. The formula used to calculate AHT is in Appendix B, "Monitor I Equations."

TABLE A-42
Trunk Group Detail Report (G3V1) Field Definitons for Usage and Peg Information

	Definitions		
Field	**Usage**	**Peg**	**Average Holding Time**
Total Voice + Data	Total volume of traffic, expressed in CCS or Erlangs, carried by this trunk group.	Total number of voice and data calls handled.	AHT in seconds for voice and data calls handled.
Total Voice	Total volume of voice traffic, expressed in CCS or Erlangs, carried by this trunk group.	Number ov voice calls handled.	AHT for voice calls handled, in seconds.
Total Data	Total volume of data traffic, expressed in CCS or Erlangs, carried by this trunk group.	Number ov data calls handled.	AHT for data calls handled, in seconds.

Queuing Information (G3V1)

TABLE A-43
Trunk Group Detail Report (G3V1) Field Definitions for Queuing Information

Field	Definitions
Size	Number of slots in queue.
Calls Queued Peg	Number of calls waiting in queue.
Overflow	Number of calls blocked because the queue was full.
Abandon	Number of queued calls that were abandoned.

Blockage Information (G3V1)

TABLE A-44
Trunk Group Detail Report (G3V1) Field Definitions for Blockage Information

Field	Definition
Maintenance Busy Usage	Usage in CCS or Erlangs on trunks busied out due to maintenance condition in this group.
Avg. Trunk Usage	Average usage for the trunk in the group. This figure excludes usage on trunks that were busied out.
% All Trunks Busy	Percentage of time the trunks were busy handling calls.
% Outgoing Blockage	The ratio of outgoing calls not carried on a trunk group to the outgoing calls offered. For trunk groups with no queue, the calls not carried are those calls that find all trunks busy. For trunk groups with queues, the calls not carried are those calls that find all trunks busy and cannot be queued because the queue is full.
Group Overflow	Number of calls blocked because there were no available trunks in the group. If trunk group has outgoing queuing, calls in queue are counted in this measurement. Data calls are not included in this measurement.

Grade of Service Requirements

TABLE A-45
Trunk Group Detail Report (G3V1) Field Definitions for Grade of Service Requirements

Field	Definition
Traffic Model	Traffic model used; can be Retrial, Erlang B or Erlang C.
Designed for GOS	The grade of service for which the switch is designed.
Trunks Required for GOS	Number of trunks required for the designed GOS. Refer to the **Note**, below.
Trunks Required for P03	Number of trunks required for blockage of 3 out of 100 calls. This is an extra choice for Erlang B and Retrial and is not available for Erlang C. Refer to the **Note**, below.
Trunks Required for P003	Number of trunks required for blockage of 3 out of 1,000 calls. This is an extra choice for Erlang B and Retrial and is not available for Erlang C. Refer to the **Note**, below.
Trunks Required for P01	Number of trunks required for blockage of 1 out of 100 calls. This is an extra choice for Erlang B and Retrial and is not available for Erlang C. Refer to the **Note**, below.
Trunks Required for P10	Number of trunks required for blockage of 1 out of 10 calls. This is an extra choice for Erlang B and Retrial and is not available for Erlang C. Refer to the **Note**, below.

Note: If no recommendations are made for the **Trunks Required for GOS** field, then the following is displayed in the report: **NR ****. Where ****** points to a footnote that is also displayed in the report advising that the default traffic model (Erlang) used to study the trunk group may not apply when average trunk usage is over 98.5 percent. In addition, if there is usage overflow, the following is displayed in the report: **UO ##**. Similarly, **##** points to a footnote that is displayed in the report that advises you to check your switch.

Trunk Group Summary Report

```
       Today:  Mon June  21 1993  13:43:11                         Page   1
 Switch Name:  tst_d92r                                 Start:  06/13/1993 09:00
Output Units:  ccs/peak                                   End:  06/19/1993 17:00

                            TRUNK GROUP SUMMARY REPORT

Trunk Group Include List Name: trunklist
```

Trunk Group No.	Siz	Type	Dir	Date	Begin Time	Total Usage	Avg Trunk Usage	Total Calls (peg)	Inc Calls (peg)	Out Serv	% Out Blk	Grp Over Flow	% ATB	Avg Hold Time (secs)	
25	33	isdn	two	06/14	08:00	958	29.03	386	247	0	0	0	0	248	W
40	46	isdn	two	06/14	10:00	1452	31.57	849	847	0	0	0	5	171	
121	2	co	two	06/14	09:00	1	0.50	1	1	0	–	0	0	100	
172	4	tie	two	06/15	12:00	19	4.75	12	0	0	0	0	0	158	

W = Wideband Trunk Group

SCREEN A-34
Sample Report: Trunk Group Summary

Field Definitions for the Trunk Group Summary Report

TABLE A-46
Trunk Group Summary Report Field Definitions

Field	Definition
Trunk Group Include List Name (Optional)	Name of the Trunk Group Include List as defined by the user. Refer to the procedure to Administer Trunk Group Include Lists in Chapter 7, "System Administration."
Trunk Group No	Identification number assigned to this trunk group by the customer when the switch is installed.
Trunk Group Size	The number of trunks in the group identified in the first column.
Trunk Group Type	The trunk group type describes the intended purpose for the trunk group. For example, **WATS** or **CO** are trunk group types.
Trunk Group Dir	Identifies if the trunk group is incoming (inc), outgoing (out), or two-way (two).
Date	Date of the poll(s) summarized in the report.
Begin Time	Beginning of the poll hour.
Total Usage	Total time, expressed in CCS or Erlangs, spent by the trunk group in carrying calls.
Avg Trunk Usage	Average traffic activity in CCS or Erlangs for each trunk in the group, excluding Maintenance Busy trunks. A **0** in this field means that total usage is zero. The equation used to determine this can be found in Appendix B, "Monitor I Equations."
Total Calls (peg)	The number of calls carried by the trunk group during the period of the study.
Inc Calls (peg) (Incoming calls)	The number of incoming calls carried by this trunk group for the period of study.
Out Srv (Out of Service)	The number of trunks that were out of service for the study period.
% Out Blk	The ratio of outgoing calls not carried on a trunk group to the outgoing calls offered. For trunk groups with no queue, the calls not carried are those calls that find all trunks busy. For trunk groups with queues, the calls not carried are those calls that find all trunks busy and cannot be queued because the queue is full.

TABLE A-46 (Continued)
Trunk Group Summary Report Field Definitions

Field	Definition
Grp Overflow	Number of calls blocked because there were no available trunks in the group. If the trunk group has outgoing queuing, queued calls are measured. However, blocked data calls are not counted in this register.
% All Trunks Busy	The percentage of trunks in the group that were busy handling calls during the period of the study.
Avg Hold Time (secs)	The number of seconds spent on the average call in this group. If both total usage and peg are zero a dash (-) will print in this field. The equation used by DEFINITY Monitor I to determine this can be found in Appendix B, "Monitor I Equations." The national average for a voice call is 180 seconds.
W (Wideband) †	Indicates that the trunk group is used for wideband switching.

† G3V2 only.

Trunk Group Violation Report

```
       Today:   Thu June 10 1993  13:43:11                          Page   1
 Switch Name:   tst_d92r                              Start:   06/03/1993 Daily
Output Units:   ccs/all                               End:     06/05/1993 Daily

                      TRUNK GROUP VIOLATION REPORT


                                                                  Current   Recommended
   Trunk                        Begin  Design  Table                Number of Number of
   Group  Type  Dir  Date   Time   GOS     Used     Usage  Trunks    Trunks
   -----  ----  ---  -----  -----  ------  ------   -----  ------    -----------
       2  co    two  06/04  10:00  P01     RETRIAL    248       8        16
       2  co    two  06/05  10:00  P01     RETRIAL    163       8        11
       3  co    two  06/04  10:00  P01     RETRIAL    207       6        21
       3  co    two  06/05  09:00  P01     RETRIAL    201       6        17
      10  wats  two  06/04  11:00  P01     RETRIAL      1       1         2
      10  wats  two  06/05  10:00  P01     RETRIAL      2       1         2
      12  wats  two  06/04  15:00  P01     RETRIAL     11       1         3
      12  wats  two  06/05  15:00  P01     RETRIAL      1       1         2
      14  wats  two  06/04  16:00  P01     RETRIAL      1       1         2
      15  wats  two  06/04  09:00  P01     RETRIAL      1       1         2
      15  wats  two  06/05  15:00  P01     RETRIAL      1       1         2
      25  isdn  two  06/04  11:00  P03     RETRIAL     70       2        19
      25  isdn  two  06/05  15:00  P03     RETRIAL     60       2         7
      26  isdn  two  06/04  16:00  P03     RETRIAL    112       4         8
      26  isdn  two  06/05  15:00  P03     RETRIAL    102       4         8
      27  isdn  two  06/04  16:00  P03     RETRIAL     67       5         6
      29  isdn  two  06/04  16:00  P03     RETRIAL    136       7         8
      29  isdn  two  06/05  15:00  P03     RETRIAL    116       7         8


                              Report Completed
```

SCREEN A-35
Sample Report: Trunk Group Violation

Field Definitions for the Trunk Group Violation Report

TABLE A-47
Trunk Group Violations Report Field Definitions

Field	Definitions
Trunk Group	The number that identifies the trunk group that has violated its grade of service (GOS).
Type	The type of trunk associated with the accumulated data; for example, FX, WATS, DID, CO, APLT, or TIE.
Dir	Identifies the direction of the trunk group: incoming, outgoing, or 2-way.
Date	Date of the poll.
Begin Time	Time of the poll.
Design GOS	The designated grade of service or service objective for the trunk group.
Table Used	The model used for calculations: Retrial, Erlang B, Erlang C, or blank for none.
Usage	Usage for this trunk group at the time of the peak for the study period, expressed in CCS or Erlangs.
Current Number of Trunks	The number of trunks in the trunk group at the time of the poll.
Recommended Number of Trunks	The number of trunks that are needed in the trunk group so that the designated GOS is met. See **Note**, below.

Note: If no recommendations are made for the **Trunks Required for GOS** field, then the following is displayed in the report: **NR ****. Where ****** points to a footnote that is also displayed in the report advising that the default traffic model (Erlang) used to study the trunk group may not apply when average trunk usage is over 98.5 percent. In addition, if there is usage overflow, the following is displayed in the report: **UO ##**. Similarly, **##** points to a footnote that is displayed in the report that advises you to check your switch.

Wideband Trunk Group Summary Report (G3V2)

```
       Today:  Mon June  21 1993  13:43:11                          Page   1
 Switch Name:  tst_d92r                                 Start:  06/14/1993 09:00
Output Units:  ccs/peak                                   End:  06/17/1993 17:00


                        WIDEBAND TRUNK GROUP SUMMARY REPORT

                                                                           Avg
    Trunk Group                              Avg    Total  Inc         %   Grp         Hold
----------------------          Begin  Total  Trunk  Calls  Calls  Out  Out  Over   %   Time
No.  Size  Type  Dir  Date   Time   Usage  Usage  (peg)  (peg)  Serv  Blk  Flow  ATB  (secs)
---  ----  ----  ---  -----  -----  -----  -----  -----  -----  ----  ---  ----  ---  ------
 40    46  isdn  two  06/14  08:00    929  20.64    789    789     1  100     3    0     118
 41    46  isdn  two  06/14  10:00   1019  22.15    735      0     0    0     0    0     139
 42    42  isdn  two  06/14  09:00   1477  35.17     18     70     0   33     9   46    8206
 45     4  isdn  two  06/15  12:00      5   1.25      8      8     0    0     0    0      63
 47    23  isdn  two  06/15  13:00    436  18.96    157    108     1  100     3    0     278
 50    16  co    inc  06/16  14:00      1  27.25    123    123     0    —     0    2     354
 51    46  co    inc  06/16  16:00    203  33.83     55      0     0   82   254   72     369
144     8  did   inc  06/17  13:00     34   4.25      4      8     0    0     0    0     850


                              Report Completed
```

SCREEN A-36
Sample Report: Wideband Trunk Group Summary (G3V2)

Wideband Trunk Group Summary Summary Report (G3V2) Field Definitions

TABLE A-48
Wideband Trunk Group Summary Summary Report (G3V2) Field Definitions

Field	Definitions
Trunk Group No	The number that identifies each trunk group.
Trunk Group Size	The number of administered trunk in the trunk group.
Trunk Group Type	The administered Service type for the trunk group.
Trunk Group Dir	Identifies the direction of the trunk group: incoming, outgoing, or two-way.
Date	Date of the poll.
Begin Time	The time when the measurement starts. For the daily poll with the **all** data option, this field shows the hour when the peak occurred for that day.
Total Usage	Total wideband call usage for all trunks in the trunk group.
Avg Trunk Usage	Average usage per trunk in the trunk group.
	The total number of wideband call attempts.
Inc Calls (Peg) (Incoming Calls)	The total number of wideband incoming call attempts.
Out Serv (Out of Service)	The number of trunks in the trunk group that are out of service (listed as maintenance busy) during the measured hour.
% Out Blk	The percentage of offered wideband calls that are not carried on the trunk group. It does not include unauthorized wideband calls that are denied or call that do not successfully complete at the far end.
Grp Over Flow	The number of outgoing wideband calls that were attempted when the remaining trunk group was insufficient to accommodate the call or, when the trunk group's remaining bandwidth was in the wrong configuration.
% ATB (% All Trunks Busy)	The percentage of time that all trunks in the trunk group were busy for the measured hour.
Avg Hold Time	Average length of time of all calls carried by the trunk group.

Monitor I Equations

The equations listed below are used by DEFINITY Monitor I to calculate data for the Switch Performance Reports. They are listed by the report for which they are used.

ACD/Hunt Group

$$AHT = \frac{Total\ Usage}{Total\ Calls} * 100$$

Attendant Measurement Report (All and Peak Format)

Peak Hour Summary Information (Peak)

$$AHT\ (sec) = \frac{Worked\ Usage\ in\ CCS}{Worked\ Peg\ Count} * 100$$

Where: AHT is Average Holding Time

Hourly Delay Statistics (All)
Peak Hour Force Management Alternatives (Peak)

Given the current -2, current -1, current, current +1, current +2 number of attendants and the worked usage, use the Erlang C Infinite Tables to determine:

- Average Delay (sec) - Based on the number of attendants with attended usage and the peak worked usage, use Erlang C Infinite Table A to find D Bar/AHT Factor. Multiply D Bar by the average holding time to get the average delay.
- Average Delay of Delayed Calls (sec) - Based on the number of attendants with attended usage and D Bar/AHT Factor, use the Erlang C Infinite Table C to find D Double Bar/AHT. Multiply D Double Bar by the average holding time to calculate the average delay of delayed calls.
- Percent Delayed - Percent of calls that will experience any delay greater than 0 seconds. Based on the number of attendants with attended usage and D Bar/AHT Factor, use the Erlang C Infinite Table B to find percent of calls delayed.

Monitor I, however, performs internal calculations for these fields, and the difference between these calculations and the tables may be as much as 10 percent.

Lightly Used Trunk Report

*Total Calls Carried By Trunk Group = (Calls Carried by Trunk Group + Total Calls Carried by Member / 24 * Server Size) / 2 * 24*

The **Total Calls Carried by Member** field is accumulated for the daily poll. **Total Calls Carried by Trunk Group** is not available. To calculate (approximate) the total calls carried by the trunk group for the day, take the average peg of the day for the member, multiply it by the trunk group (server) size. Divide this number by the mean of the Peak and Lightly Used peg count. Multiply that total by 24 (24 hours in the day).

Long Term Trending Report

Long Term Trending Summary

$$Average\ Usage\ per\ Trunk = \frac{Peak\ Usage}{Trunk\ Group\ Size}$$

Recommended Number of Trunks - Given the measured carried load, Monitor I estimates the offered load for the Erlang B and Retrial models. It then calculates the recommended number of trunks using the offered load and the designed Grade of Service (GOS). These calculations are not used when the average trunk usage is over 98.5 percent.

Partial tables for Erlang C (both Infinite and Finite) are built into the Monitor I database. Monitor I uses the carried load and the designed GOS to calculate the number of trunks based on these internal tables. Overflow conditions may result when CCS usage exceeds the limitations of Monitor I's Erlang C tables.

Processor Occupancy Report

$$Marginal\ Occupancy = 70 - (Call\ Processor\ Occupancy + Static\ Occupancy)$$

$$Average\ Holding\ Time = \frac{Connection\ Usage}{Connection\ Count} * 100$$

$$\%\ Aban = \frac{(Total\ Attempts - Total\ Calls)}{Total\ Attempts} * 100$$

Switch Summary Report

Peak Processor Information

$$Marginal\ Capacity\ \text{for}\ Processor = 70 - (CP\ Occupancy + Static\ Occupancy)$$

$$Average\ Holding\ Time = \frac{Connection\ Usage}{Connection\ Count} * 100$$

$$Total\ Processor\ Occupancy = (Static\ Occupancy + CP\ Occupancy + SM\ occupancy)$$

$$\%\ Calls\ Abandoned = \frac{Total\ Attempts - Total\ Calls}{Total\ Attempts} * 100$$

Where:
CP = call processing
SM = system management

Peak Blockage Information

$$Total\ Blockage = \frac{TDM\ Blockage + PNL\ Blockage + SNL\ Blockage}{TDM\ Pegs + PNL\ Pegs + SNL\ Pegs} * 100$$

$$PN\ Blockage = \frac{TDM\ Blockage}{TDM\ Pegs} * 100$$

$$PNL/SNL\ Blockage = \frac{(PNL\ Blockage + SNL\ Blockage)}{(PNL\ Pegs + SNL\ Pegs)} * 100$$

Where:

TDM = Time Divisioned Multiplex

PNL = Port Network Link

SNL = Switch Node Link

Attendant Information

$$\%\ Calls\ Queued = \frac{Calls\ Queued}{(Calls\ Answered + Calls\ Abandoned)} * 100$$

Average Delay of Delayed Calls - To do this calculation you need to have some detailed traffic background and, more specifically, to have attended an AT&T Traffic Analysis course. Based on the number of attendants and D Bar, use the Erlang C Infinite Table to find D Double Bar. Multiply D Double Bar by the average holding time to calculate the average delay of delayed calls.

% Occupancy

$$\%\ Occupancy = \frac{Attendant\ Offered\ Load\ (AOL)}{Available\ Attendants * 36} * 100$$

Where:

$$AOL = (Calls\ Answered + Calls\ Abandoned) * Average\ Work\ Time\ (AWT)$$

and

$$AWT = \frac{(Time\ Talk + Time\ Held)}{Calls\ Answered}\ in\ CCS$$

Where:
AOL = Attendant Offered Load
AWT = Average Work Time

Note: The % Occupancy should not exceed 92 percent.

Peak Trunk Group Threshold Violations

Recommended Number of Trunks - Given the measured carried load, Monitor I estimates the offered load for the Erlang B and Retrial models. It then calculates the recommended number of trunks using the offered load and the designed Grade of Service (GOS). These calculations are not used when the average trunk usage is over 98.5 percent.

Partial tables for Erlang C (both Infinite and Finite) are built into the Monitor I database. Monitor I uses the carried load and the designed GOS to calculate the number of trunks based on these internal tables. Overflow conditions may result when CCS usage exceeds the limitations of Monitor I's Erlang C tables.

Trunk Group Detail Report

Usage and Peg Information

Average Holding Time for Category X, where Category X is the following:

- Total
- Total Wideband
- Total Narrowband

$$AHT \text{ for } Category\ X = \frac{Total\ Usage \text{ for } Category\ X}{Total\ Calls \text{ for } Category\ X} * 100$$

$$Average\ Trunk\ Usage = \frac{Total\ Usage}{Trunk\ Group\ Size}$$

$$Outgoing\ Calls = Total\ Calls - Incoming\ Calls$$

Where:
AHT = Averge Holding Time

Grade of Service Requirements

NUMBER OF TRUNKS REQUIRED FOR GOS

Given the measured carried load, Monitor I estimates the offered load for the Erlang B and Retrial models. It then calculates the recommended number of trunks using the offered load and the designed Grade of Service (GOS). These calculations are not used when the average trunk usage is over 98.5 percent

For Erlang C (both Infinite and Finite), Monitor I uses the carried load and the designed GOS to calculate the number of trunks based on the internal tables. Overflow conditions may result when CCS usage exceeds the limitations of Monitor I's Erlang C tables.

Trunk Group Summary Report

$$Average\ Trunk\ Usage = \frac{Total\ Usage}{Trunk\ Group\ Size}$$

$$Average\ Hold\ Time = \frac{Total\ Usage}{Total\ Calls} * 100$$

Wideband Trunk Group Summary Report

$$Average\ Trunk\ Usage = \frac{Total\ Usage}{Trunk\ Group\ Size}$$

Mail and Error Messages

Mail Messages

Mail is generated for the following DEFINITY Monitor I processes:

- Poller
- Initialization
- Polling System Failure
- Purge Failure
- Trunk Group Threshold Violations

Some of these transactions also generate **mtmlog** error messages. These are discussed in the latter part of this section.

Listed on the following pages are some examples of the mail messages you might receive for system problems. The format for these messages lists the target switch, the transaction where the problem occurred, the severity of the problem, what actually happened, and the steps you need to take to try and correct the situation.

```
     Target: gotham
Transaction: POLLER
  Poll Date: 01/10/1992
  Poll Time: 17:00
   Severity: See below.
    Message: Trunk groups have violated their thresholds.
     Action: Monitor the threshold mail looking for any trends in violations.
             Determine the causes of the violations. More trunks may be
             required to meet the desired grade of service or the grade
             of service should be changed.

THE FOLLOWING TRUNK GROUPS HAVE VIOLATED THEIR THRESHOLDS.
THE RECOMMENDED QUANTITY IS THE NUMBER OF TRUNKS REQUIRED
TO MEET THE GRADE OF SERVICE FOR THE CARRIED LOAD(CCS).

TRUNK  GRADE OF   TABLE           CURRENT   RECOM.
GROUP  SERVICE    USED    USAGE   NO. TRKS  NO. TRKS  SEVERITY
-----  --------  -------  ------  --------  --------  --------
  148    P05     RETRIAL    3382        96       101    WRN
  150    P03     RETRIAL     896        28        33    WRN
  171    P05     RETRIAL    2693        78        82    WRN
  175    P03     RETRIAL    1486        44        50    WRN
  179    P05     RETRIAL     268         8        12    WRN
```

SCREEN C-1
Sample Mail Message

Monitor I Error Messages

The error messages in the following table are for these Monitor I processes:

- Alarm System
- Daily Concatenation
- Initialization
- Parser
- Polling System
- Switch Communication
- Trending

You can find these messages in the **mtmlog**. Since a fairly high level of expertise is needed to decipher these messages, you will probably want your System Administrator to check them. The System Administrator should also be contacted to correct the problem where necessary.

The messages are listed below alphabetically so that you can easily locate them. The table lists the error message, a description of what it means, and the action you need to take. It also identifies the type of process with which the message is associated. The actual error message includes the date, time, process name, ID, and switch name.

TABLE C-1
Error Messages

Error Message	Description	Action	Type
Abnormal death of Poller [exit status: No.]	Poller was brought down abnormally	Contact System Administrator.Polling System	
Admin Mode held by agent ID xx on port yy	Some other process is administering the switch	Wait and try again when the switch or dial-out ports are available or contact the Switch Administrator.	Switch Communication
Admin Mode held by the MAAP panel	The MAAP panel is plugged in	Wait and try again when the switch or dial-out ports are available or contact the Switch Administrator.	Switch Communication
Alarm No.: x,Dialing to INADS Failed	Check the Modems or INADS telephone number	Alarm System	
Alarm No.: x, Error reading from INADS	Possible Transmission errors	Check INADS	Alarm System
Alarm No.: x, Error reading from Trouble Tracker	Possible Transmission errors	Check Trouble Tracker.	Alarm System
Alarm No.: x, Error writing to INADS	Possible Transmission errors	Check INADS	Alarm System
Alarm No.: x, Error writing to Trouble Tracker	Possible Transmission errors	Check Trouble Tracker.	Alarm System

TABLE C-1 (Continued)
Error Messages

Error Message	Description	Action	Type
Alarm No.: x, NAK received from INADS	INADS is not acknowledging	Check INADS	Alarm System
Alarm No.: x, NAK received from Trouble Tracker	Trouble Tracker is not responding	Check Trouble Tracker.	Alarm System
Alarm No.: x Unable to free port		Check the modems	Alarm System
Alarm No.: x, Unexpected response from INADS		Check INADS	Alarm System
Alarm No.: x, Unexpected response from Trouble Tracker		Check Trouble Tracker.	Alarm System
Bad fastmaap ACK ignored	Error during transmission/ communication with the switch	No action required.	Switch Communication
Bad fastmaap NAK	Error during transmission/ communication with the switch	No action required.	Switch Communication
Bad switch security code	Security code in product record is incorrect	Check with Administrator about correct security code for the switch and readminister with new code	Switch Communication
bad terminator: [xxx] [xxx]	Data set not terminated by expected terminator	If the problem persists, contact the Monitor I Administrator.	Parser
Call failed XXXXXXXXXXX (yyyy baud)	Indicate switch port busy or no dial-out ports available	Wait and try again when the switch or dial-out ports are available	Switch Communication
cannot malloc space for thresmap	Out of memory	Contact the System Administrator.	Parser
Cannot open clktmp file	Possible problem in /tmp	Rerun the transaction. If the problem recurs contact System Administrator.	Clock transaction
cannot open *fname*	Cannot open a flat file	Contact the System Administrator.	Parser
Can't open port for dialing Trouble Tracker	Either all ports are busy or Trouble Tracker is not responding	Check modems or Trouble Tracker	Alarm System
Cannot open proctab	The proc table is missing or unreadable	Investigate under $MTMDIR/tables	Initialization/transaction
cannot realloc space for thresmap	Out of memory	Contact the System Administrator.	Parser
Carried load is beyond table limits	Table cannot handle such a high number	No action	Parser

TABLE C-1 (Continued)
Error Messages

Error Message	Description	Action	Type
check tables	Parsing tables are missing	Contact the Monitor I Administrator.	Parser
Comm Ctrl Access Denied: check MAAP	Problem with the Communication Controller	Contact the Switch Administrator.	Switch Communication
Comm Ctrl DEAD	No response from the Communication Controller	Contact the Switch Administrator.	Switch Communication
cvttrad() failed	Conversion of universal ELL to traditional ELL failed	Investigate the failing ELL	Initialization/audit
cvtuniv() failed	Error converting traditional to universal ELL	Contact switch administrator or Field Support	Initialization/audit
DAILY CONCATENATION COMPLETED	For an initialized system, the daily concatenation program successfully completed	Information Message, No Action	Daily Concatenation
DAILY PURGE - successfully completed	Daily purge done	No action required.	Purge
DAILY PURGE - nothing to purge	Data not enough for purge	No action required.	Purge
Daily Record Already Exists	Either Daily Concatenation has already run or daily polling has produced a daily poll record	Information Message, No Action	Daily Concatenation
Date mm/dd/yy to mm/dd/yy No Data Available for trending	For Information Purpose only	No Action Required	Trending
Date mm/dd/yy to mm/dd/yy Trending Completed	For Information Purpose only	No Action Required	Trending
Dialing failed	Indicates switch port busy or no dial-out ports available	Wait and try again when the switch or dialout ports are available	Switch Communication
Error from pbxio()	Error indicating failure during switch administration	Rerun the transaction. If the problem recurs check the hardware (modems, lines, the switch, etc.).	Switch Communication
Error in setting up signal handling	Error return from signal()	Investigate and report to System administrator	Initialization
error on data [xxx] [xxx] [xxx]	Abnormal data sequence found	If the problem persists, contact the Monitor I Administrator.	Parser

TABLE C-1 (Continued)
Error Messages

Error Message	Description	Action	Type
error on input data [xxx]	Request for data not assigned in the switch	Run non-traffic data transaction. If the problem persists, contact the Monitor I Administrator.	Parser
Failed to get admin mode but don't know why	Could not get Administration Mode - reason unknown	Contact the Switch Administrator.	Switch Communication
Fastmaap Protocol Error - No DBLEND in response from switch	Fatal error indicating switch transmission/communication failure	Rerun the transaction. If the problem recurs check the hardware (modems, lines, the switch, etc.).	Switch Communication
Fatal error in setlimits() - purge not attempted	Unable to set purge boundaries	Correct product information and rerun command.	Purge
fetch of route patterns failed	The fetch of route patterns failed	Try again, or contact the Monitor I Administrator.	Non-traffic data or initialization
fetch of trunk group cbc attributes failed	The fetch of the trunk cbc attributes failed	Try again, or contact the Monitor I Administrator.	Non-traffic data or initialization
fetch of trunk group names and tac failed	The fetch of the trunk group names and tac failed.	Try again, or contact the Monitor I Administrator.	Non-traffic data or initialization
Fid [xxx] not possible	Parsing fid not found.	Contact the Monitor I Administrator.	Parser
Getting non-traffic data did not complete successfully	Failed retrieving one or more trunk groups or aar/ars patterns	Check logs, rerun command, contact Switch administrator if problem persists.	Non-switch Data
Got connection using ttyxx phone XXXXXXXXXXX	For information purpose only	No action required.	Switch Communication
Got xxxxxxxxx response to transparent mode request	For diagnostic purposes only	No action required.	Switch Communication
Initialization in progress Unable to initiate polling Try later.	Database is being Initialized	Try polling later.	Polling System
initialization of the trunk groups failed	The fetch of trunk group information failed	Try again, or contact the Monitor I System Administrator.	Parser
Initialization or non-traffic data error	Corrupted data found in data	Try again.	Non-traffic data or initialization

TABLE C-1 (Continued)
Error Messages

Error Message	Description	Action	Type
Invalid Service Objective/ Table Pair	Service Objective and Table are not compatible	Change with the trunk group editor.	Parser
Monitor I Alarming System exiting now - exit status No.	For diagnostics purpose only	If status is 1,contact System Administrator.	Alarm System
Monitor I Alarming System has been brought up	For information purpose only	No action required.	Alarm System
Monitor I Polling System exiting now - exit status: No.	For information purpose only	If status is 1,contact System Administrator.	Polling System
Monitor I Polling System has been brought up	For information purpose only	No action required.	Polling System
MTM admin login undefined - no mail sent	Administrator field in the Switch Characteristics screen is undefined	Check the Switch. Characteristics Screen	Polling System
No Data Stored From The Concatenation.	No new data was stored	Information message, no action.	Daily Concatenation
No Concatenation Took Place	Daily Concatenation was already in progress	Try again later.	Daily Concatenation
No more Peak numbers available	Assignment of pktc has exceeded the max number allowed	Manually remove some facilities and rerun.	Initialization
No Successful Polls	No successful polls for that day	Information message, no action.	Daily Concatenation
Number of tkgp>10 for msat [X] default to 10	Can only handle 10 trunk groups in main-satellite study	No action required.	Audit
Other messages	Caused by a code bug or by corruption from a curious/malicious user	Contact the Monitor I Administrator.	Daily Concatenation
Other messages	Caused by a code bug or by corruption from a curious/malicious user	Contact the Monitor I Administrator.	Parser
Outstanding message retransmitted after fastmaap reset	Error during transmission/ communication with the switch	No action required.	Switch Communication
PBX Hung up on us	Fatal error during transmission/ communication with the switch	Rerun the transaction. If the problem recurs check the hardware (modems, lines, the switch, etc.).	Switch Communication

TABLE C-1 (Continued)
Error Messages

Error Message	Description	Action	Type
PBX read error errno = xx	Fatal error during transmission/ communication with the switch	Rerun the transaction. If the problem recurs check the hardware (modems, lines, the switch, etc.).	Switch Communication
Poller exiting now exit status: No.	For information purpose only	If status is 1, contact System Administrator.	Polling System
processing couldn't find: [xxx] [xxx] [xxx]	Can't find expected data file	Contact the Monitor I Administrator.	Parser
Receiver buffer overflow: message lost	Error during transmission/ communication with the switch	No action required.	Switch Communication
Response to xxxxxxxxx of incorrect length from DP	Fatal error during transmission/ communication with the Diagnostic Processor	Rerun the transaction. If the problem recurs check the hardware (modems, lines, the switch, etc.).	Switch Communication
settypes() failed	wrong product or feature package	Rectify product information and rerun command.	Initialization
short data: [xxx]	Complete data set not found	If the problem persists, contact the Monitor I Administrator.	parser
sql errno xxx	Schema out of synch with code or system out of file space	See *INFORMIX-SQL Reference Manual*, contact the Monitor I Administrator.	Parser
[sqlerr: XXX]	error code from INFORMIX SQL	Consult *INFORMIX-SQL Reference Manual*.	Initialization
sqlerr: xxx	Schema out of synch with code or system out of file space	See *INFORMIX-SQL Reference Manual*, contact the Monitor I Administrator.	Parser
[sqlerr: XXX]	error code from INFORMIX SQL	Consult *INFORMIX-SQL Reference Manual*.	Daily Concatenation
Table=XXX SQLCODE = NNN	DB : SQLERRM = YYY BYE!	fatal error from INFORMIX SQL. Consult *INFORMIX-SQL Reference Manual*	Initialization
Tbl: tpqtrcar; Module XX is in tclbcar but not in tccarell	Configuration data not uploaded into tccarell	Run *Retrieve Configuration Data* for carrier usage.	Parser

TABLE C-1 (Continued)
Error Messages

Error Message	Description	Action	Type
Tbl: tpqtrcar; The 2nd module under study is not assigned in tclbcar but two modules are assigned in tccarell	Configuration data not uploaded into tccarell	Run *Retrieve Configuration Data* for carrier usage.	Parser
Tbl: tpqtrcar; The 1st module under study is not assigned in tclbcar	Configuration data not uploaded into tccarell	Run *Retrieve Configuration Data* for carrier usage.	Parser
Timed out during transmission with the Switch	Switch does not respond	Check the Switch.	Polling System
Timeout received while waiting for response	Trouble Tracker System or INADS not responding	Check Trouble Tracker or INADS.	Alarm System
too few SCCS header lines in proctab	Bad format in proc table	Contact Field Support	Initialization
Too many parity errors	Fatal error during transmission/ communication with the switch	Rerun the transaction. If the problem recurs check the hardware (modems, line, the switch, etc.).	Switch Communication
Transmission error detected	Error during transmission/ communication with the switch	No action required.	Switch Communication
TZ not set	Unable to determine time zone	UNIX environment variable not found.	Initialization
Unable to Close the Database	Possible INFORMIX error	Contact System Administrator.	Polling System
Unable to invoke poller process	Polling cannot be activated	Contact System Administrator.	Polling System
Unable to connect in three tries	Connect to switch failed	Wait and try again when the switch or dial-out ports are available.	Initialization
Unable to disconnect from the switch	Cannot disconnect from switch	Check the Modems. Contact System Administrator.	Polling System
Unable to Open the Database	Possible INFORMIX error	Contact System Administrator.	Polling System
Unable to send alarms to INADS	Possible transmission errors	Check INADS.	Alarm System
Unable to send alarms to Trouble Tracker	Possible transmission errors	Check Trouble Tracker.	Alarm System
Unexpected fastmaap NAK ignored	Error during transmission/ communication with the switch	No action required.	Switch Communication
Unknown fastmaap byte xx	Error during transmission/ communication with the switch	No action required.	Switch Communication

TABLE C-1 (Continued)
Error Messages

Error Message	Description	Action	Type
Unknown feature package	Feature Package not supported	Consult logs and enter correct feature package in product record.	Initialization
Unknown or unexpected response byte from PBX:xx	Fatal error during transmission/ communication with the switch	Rerun the transaction. If the problem recurs check the hardware (modem, lines, the switch, etc.).	Switch Communication
Unknown polldet type	Incorrect data storage option	Correct product information and rerun command.	Initialization
Unknown product type	Product type is not supported	Consult logs and enter correct product type in product record.	Initialization
WEEKLY PURGE - successfully completed	Weekly purge done	No action required.	Purge
You didn't retrieve configuration data after the carrier usage assignment	Configuration data not uploaded into tccarell	Run *Retrieve Configuration Data* for carrier usage.	Parser

Daily Concatenation Tables

The following tables list daily concatenation data for the G3 switches.

Note: If you need concatenation information for DEFINITY G2, G1, System 85, DIMENSION, or System 75 switches, see the previously released (December, 1992) issue of the *Operations Guide*:

DEFINITY Monitor I Operations Guide
Issue 2
Select Number 585-221-703

Daily Concatenation Data for G3

TABLE D-1
G3 Concatenation Table

Table	Screens	Comment	Switch
tpattgrp	measurements attendant-group	peaks on calls answered	G3V1, G3V2
tpattpos	list measurement attendant position	selects all hourly polls that correspond to the group record that has the highest time talked (if more than one hour exists with the same maximum time talked, the most recent hour will be selected)	G3V1, G3V2
tpdatastor	no screen	this table indicates if information is stored for any of the data tables	G3V1, G3V2
tphuntgrp	measurements hunt-group	peaks on usage	G3V1, G3V2

TABLE D-1 (Continued)
G3 Concatenation Table

Table	Screens	Comment	Switch
tppnblkg	measurements blockage port network	peaks on TDM usage	G3V1, G3V2
tprtpdtl	measurements route-pattern	selects all hourly polls and the total calls carried by the trunk group, calculates percentages of call carried by the group based on total calls for the day (note: due to floating point truncation the percentages may not total exactly 100 percent)	G3V1, G3V2
tprtpsum	measurements route-pattern	selects first trunk group in pattern with largest size, total the offered, carried, blocked, queued, and overflow calls	G3V1, G3V2
tpsecsum	list measurement security-violations summary	last (most recent) hourly poll	G3V1, G3V2
tpsecdtl	list measurement security-violations summary	selects all hourly polls that correspond to the poll selected above (most recent polls)	G3V1, G3V2
tpsecvio	measurements security-violations	last (most recent) hourly poll	G3iV1 *, G3V2

TABLE D-1 (Continued)
G3 Concatenation Table

Table	Screens	Comment	Switch
tpsnblkg	measurements blockage switch node	peaks on SNL usage	G3V2
tpswoccsum	measurements occupancy-summary	peaks on call processing occupancy	G3V2
tptonedtl	measurements tone detail	peak on peak req	G3V2
tptonesum	measurements tone summary	peak on peak req	G3V2
tptrkgp	measurements trunk-group	peak on usage	G3V2
tptrklite	measurements light-used-trunk	Five members of each trunk group with the most appearances during the day; if a tie exists among members, then pick the member with the least peg	G3iV1 *, G3V2
tptrkout	measurements outage-trunk	Eight members of each trunk group with the most appearances during the day; if a tie exists among members, then pick the member with the most sampling count	G3V1, G3V2
tpwband	measurements wide summary	peak on totalusage	G3V2

* This table is not applicable for G3rV1.

Information About Alarming

Administering Alarm Parameters

Monitor I's alarm feature notifies you immediately when something goes wrong with your Monitor I system, such as your switch database filling up beyond its capacity. This feature, accessed by choosing Access Alarm Administration Menu from the Administrative Menu, sends alarms to e-mail or other specified destinations for the conditions discussed below.

Reference: See the heading, "Administer Alarm Characteristics" in Chapter 7, "System Administration" for details on accessing this feature screen.

Monitor I Polling System Failure

The Monitor I Polling System (also called the **guardian** or **mtmguard**) is the system responsible for bringing up the pollers and monitoring them to ensure that they are working. It ***wakes up*** every hour and checks to see that polling is taking place. There are four conditions for which an alarm would be generated in connection with the polling system:

- If the polling system crashes
- If the polling system cannot bring up one of the pollers
- If the poller dies abnormally
- If the poller fails to connect to the PBX

Failure of the polling system to perform these functions is the most serious alarm condition and is also the most improbable. In the unlikely event of a polling system failure, check the **mtmlog** for more specific information, and then contact your System Administrator immediately.

Purge Failure

If Monitor I fails to purge data as scheduled, the database could run out of space, causing the pollers to fail. When this alarm occurs, look at the **mtmlog** for more specific information about the cause of the problem.

Trunk Group Threshold Violations

A trunk group threshold violation occurs when the amount of usage on a trunk group exceeds the maximum usage specified for the desired GOS. The maximum usage is specified by the service objective entered for each trunk group on the Administer Trunk Group Study screen (Trunk Group Editor). Refer to "Trunk Group Administration" in Chapter 7, "System Administration" in this guide for more details.

PBX CPU Congestion

When Monitor I detects that CPU occupancy usage is greater than or equal to (≥) a predefined CPU congestion threshold, an alarm is generated that can be transmitted to Trouble Tracker, e-mail, or both. The congestion threshold varies with each switch release/CPU type and the maximum threshold value is reflected in the system default. If you wish, you can change the processor congestion threshold (using the "Administer Alarm Characteristics" procedure in Chapter 7, "System Administration") and this change will be reflected at the time of the next poll.

Choosing Alarm Destinations

When you set up your alarm feature you can specify that alarms be sent to three locations:

1. The first location is the e-mail address specified on the Administer Switch Characteristics Screen, which is described in Chapter 4, "Producing Reports." To more efficiently monitor your system, you might want to send an alarm to e-mail for all the alarm conditions.
2. A second destination is Trouble Tracker. Trouble Tracker is an element management system that enables users to monitor the performance of premises switch-based networks from a central location. It manages alarm flow from a broad range of network equipment including switches and external equipment. If you don’t already have Trouble Tracker, you might want to speak to one of your account executives about purchasing it.
3. The third alarm destination is INADS, or the Initialization and Administration System, which is maintained by the AT&T Network Operations Group (NOG)/Services organization. AT&T technicians from this organization are responsible for the on-site support of Monitor I, and alarms for guardian failure are sent there since the guardian is responsible for monitoring the pollers. You do not need to notify INADS of purge failure or trunk group threshold violations, which are problems that can be handled by your System Administrator and should not require AT&T services.

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