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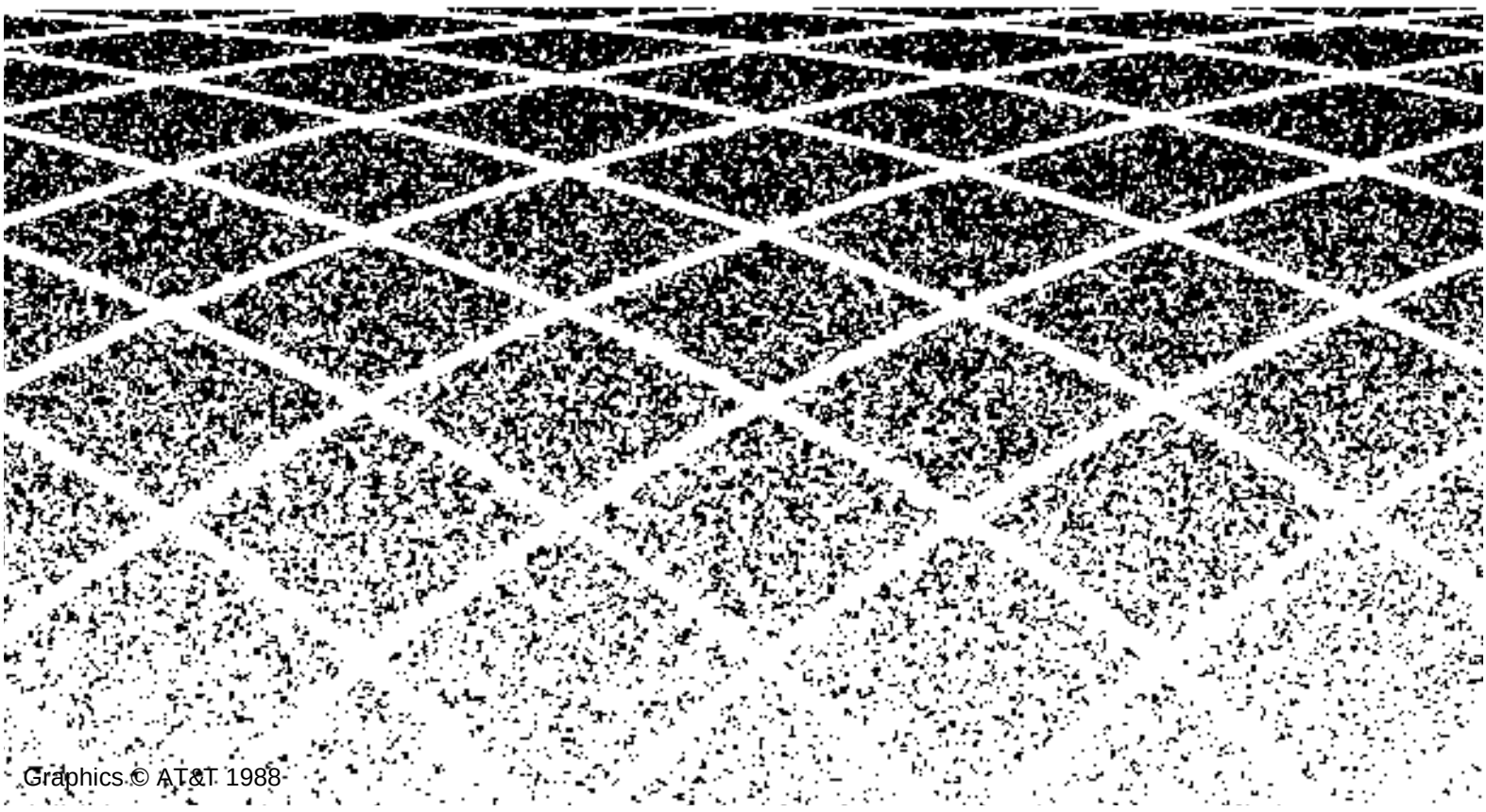
DEFINITY
Communications System Generic 3

Basic Call Management System Operations



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Introduction

1

Overview

This document provides a comprehensive description of the Basic Call Management System (BCMS) feature, which is available with the DEFINITY. Communications System Generic 3 (G3). This document also describes the Report Scheduler feature, which is often used with BCMS.

Although intended primarily for the BCMS administrator, this document may prove useful to the system administrator, the Automatic Call Distribution (ACD) split supervisor, the ACD administrator, and ACD agents.

Organization

This guide is divided into the following chapters and appendices:

- **Chapter 1. "Introduction"** is an introduction to this document.
- **Chapter 2. "BCMS Description and Applications"** provides a brief overview of the BCMS feature and lists the reports, feature capacity limits, relevant hardware considerations, and typical applications of the BCMS feature.
- **Chapter 3. "System Access"** provides procedures on how to log in and log off BCMS. This chapter also provides the procedures for changing the BCMS password.
- **Chapter 4. "BCMS Report Generation"** describes the BCMS commands that are available to the BCMS administrator followed by a display and a description of the various reports that the commands produce.

- **Chapter 5. "System Printer and Report Scheduler"** describes the optional Report Scheduler feature. Also included in this chapter is a description of the report scheduler commands and a display of the reports.
- **Chapter 6. "Use of BCMS Reports for ACD Planning"** describes desirable objectives and how the BCMS reports can be used to plan, engineer, and optimize ACD splits and trunk groups.
- **Appendix A, "Error Messages"** contains a list of possible error messages that may be encountered if a command is entered incorrectly.
- **Appendix B, "Data Module and Printer Options"** lists the required switch settings for the 7400A Data Module, the AT&T 572 serial printer, the AT&T 475 serial printer, and the 615 Data Terminal Equipment (DTE).
- **Appendix C, "References"** lists other documents that may be used for reference
- **Appendix D, "BMCS/CMS Report Heading Comparison"** compares reports and report headings between BCMS and CMS
- **"Abbreviations"** contains definitions for abbreviations and acronyms used throughout the DEFINITY documentation.
- **"Glossary"** contains a list of frequently used terms and their definitions.
- ''Index'' contains a cross-referenced index.

Conventions Used in This Document

This manual uses the following conventions:

- The names of commands are shown in the following typeface:

  change system-parameters feature

- Information you type is shown in the following typeface: **EIA**
- Information displayed on the screen is shown in the following typeface: `login:`
- Keyboard keys are shown as follows: RETURN
- Function keys are shown as follows: CANCEL

BCMS Description and Applications

2

Overview

In order to monitor the operations of an ACD application, which automatically` distributes incoming calls to one or more groups of agents, AT&T offers the Call Management System (CMS) software. The CMS collects data regarding the calls on the switch and organizes the data into reports that help you manage ACD facilities and personnel. These reports may be displayed on a video display terminal in real time, printed immediately, or scheduled for printing at a later time.

AT&T offers two types of CMS: External CMS and BCMS. Although both of these options perform the same tasks, they are configured differently and have different capacities. This chapter presents the capacities for BCMS G3vs, BCMS G3s, BCMS G3i, and BCMS G3r.

In the External CMS arrangement, the CMS software resides in a computer (usually referred to as an ''adjunct'') that is connected to the system via a data link. In the BCMS arrangement, the CMS software resides within the system. A third arrangement exists in which both BCMS and External CMS report on a hunt group. For R2 CMS, if external CMS or ''BOTH'' is requested, measured hunt groups must begin with hunt group 1 and be consecutively assigned.

BCMS Reports

The BCMS feature provides the following reports:

1. Monitor Reports, which are real-time reports that present data on:
    - All splits, on a system basis, that have been administered for internal measurements

- Individual splits that have been administered for internal or both measurements
- VDNs that are being measured by BCMS.

2. List Reports, which provide historical information and can be printed immediately or scheduled for subsequent printing. These reports present data on:
   - Individual agents or a group of agents, based on the time of day
   - Individual agents or a group of agents, based on the day of the week
   - Individual splits or a group of splits, based on the time of day
   - Individual splits or a group of splits, based on the day of the week
   - Individual trunk groups or a group of trunk groups, based on the time of day
   - Individual trunk groups or a group of trunk groups, based on the day of the week
   - Individual Vector Directory Numbers (VDNs) based on the time of day
   - Individual VDNs based on the day of the week

The examples of reports throughout this manual illustrate BCMS reports as they appear in G3V4. If you have an earlier version of the switch, your reports may differ from the examples.

NOTE:
Agents can be measured by their physical extension (that is, the phone extension they use), or they can be measured by their Login IDs when either EAS or BCMS/VuStats Login IDs is optioned.

Feature Capacity Limits (Maximums)

The BCMS feature is designed to support ACD applications with requirements that do not exceed the capacity limits contained in Table 2-1.

Table 2-1. BCMS capacities for V3 and V4

Item	G3vs/s V3	G3i V3	G3r V3	G3vs/s V4	G3i V4	G3r V4
Measured Agents or Login IDs	75	200	600	75	400	2,000
Measured Splits	12/24*	99	99	12/24*	99	255
Measured Trunk Groups	16/32*	32	32	16/32*	32	32
Measured VDNs	NA/24	99	512	NA/24	99	512
Historical Data Storage						
Time Intervals	25	25	25	25	25	25
Daily Summaries	7	7	7	7	7	7
Historical (List) Reports	16	16	16	16	16	16
Real-Time Reports	3	3	3	3	3	3
* Stands for PBP/ABP capacities.						

NOTE:
In G3V3 and later releases, an agent can log into a maximum of four measured splits at any one time.

The important point regarding these capacity limits is that the system will only make internal measurements for parameters that are within these limits. If you want to measure one or more ACD parameters that exceed the BCMS capacity limits, you must use External CMS.

BCMS reports may be accessed from a G3 Management Terminal or on a dial-up basis. When dial-up access is used, two constraints can affect the number of terminals that can access BCMS data simultaneously:

- The number of dial-up (Netcon) channels. The system provides four Netcon channels.
- The number of Terminal User IDs (TUIs). A TUI is a switch resource used by:
  - AT&T Technical Service Center (TSC) when logged in

— The G3 Management Terminal when powered up

— A remote Management Terminal when logged in

— A BCMS terminal when logged in

— The system printer while printing

NOTE:
BCMS data is stored in volatile switch memory; it cannot be saved to or retrieved from tape. The switch preserves historical data if a Reset System 1, Reset System 2, or Reset System Interchange (in a duplicated system) occurs. Real-time data is preserved if a Reset System 1 or Reset System Interchange occurs.

The switch loses all data (historical and real-time) during software upgrades.

Hardware Configuration

The BCMS reports may be displayed via the G3 Management Terminal or printed on its associated printer. As a result, the BCMS feature does not require any new or additional hardware. As an option, the BCMS reports may be scheduled via the Report Scheduler and directed to its associated printer. The Report Scheduler option is preferred over the Management Terminal and its associated slave printer. Scheduled reports cannot be sent to a CRT or associated slave printer. Figure 2-1 shows a sample ACD/BCMS equipment configuration, including arrangements for connecting the optional printer(s).

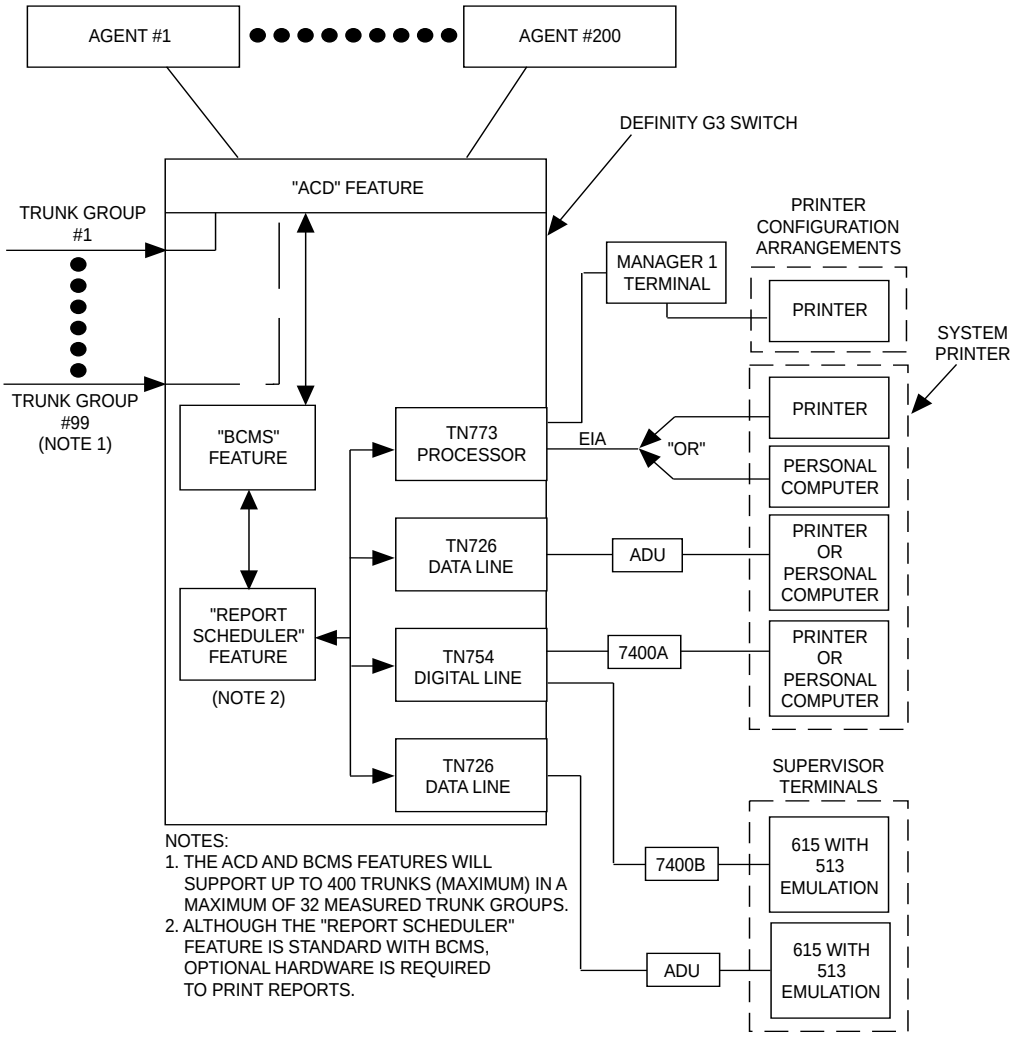

Figure 2-1. BCMS Sample Configuration

The Report Scheduler is enabled on the System-Parameters Customer-Options form. Only an authorized AT&T representative can access and make changes to the System-Parameters Customer-Options form. The parameters of the system printer, which are used by the Report Scheduler feature, are administered on the Feature-Related System Parameters form. If the parameters for the system printer are not administered, scheduled reports cannot be printed. The system administrator login may access this screen by entering the **change system-parameters features** command. This command and the requirements

for using the Feature-Related System Parameters for to set up the Report Scheduler are covered in Chapter 5, "System Printer and Report Scheduler".

The Report Scheduler should not be confused with and does not replace the journal, Call Detail Records (CDR), or Property Management System (PMS) dedicated printers. Consisting of virtually any asynchronous printer, the Report Scheduler is intended to print all DEFINITY Generic 3 reports and the output of virtually all **list**, **display**, and **test** commands. As an option, a personal computer (PC) or host computer may be used to store the reports and provide additional data manipulation capabilities. AT&T does not provide PC software for this application.

NOTE:
The BCMS software resides completely on the switch and does not include any special software or unique communications protocol for the PC/host computer application. Although AT&T does propose the use of a PC to collect, store, and print the reports, AT&T does not recommend an applications software package for the PC. Since AT&T does not install, administer, or control the PC application, AT&T does not guarantee correct operation of this arrangement. Customers using a PC to collect report data will need the following report output information for each report:

1. Begin with one-half page of line feeds.
2. Print a four-line banner containing the following information:
   - Print job ID
   - Command
   - Time of day
   - User
3. Provide a form feed.
4. Begin report data using 80 characters per line. Use spaces where there are no data, and a newline character at the end of each line.
5. Provide a form feed after each page of data. (The page length is defined in system parameters.)
6. Provide a form feed when the report is finished printing.

BCMS Applications

You can use the BCMS feature to support those service applications that use the ACD feature. The primary service applications that use the ACD feature are calls and customer service centers.

Determining the proper size for the ACD trunk groups and the number of agents that should be assigned to each split requires knowledge of the incoming call volume with respect to the following factors:

- Each type of service provided
- Time of day
- Day of the week
- Skill level of the agent

Generally, ACD applications are not preplanned because the types of traffic information that would be required are unavailable. Initially, ACD applications are engineered based on an estimated calling volume. Subsequently, the BCMS reports allow you to manage the hourly and/or daily operations of the ACD by:

- Monitoring trunk group usage
- Monitoring the calling volume for each split
- Monitoring VDNs
- Monitoring the work load of each agent
- Comparing agents' performances

Chapter 4, "BCMS Report Generation" describes each BCMS report in detail while Chapter 6, "Use of BCMS Reports for ACD Planning" describes how to plan and maintain an ACD based on the information provided by these reports.

NOTE:
Most BCMS measurement data is collected at the end of a call, whereas hunt group measurements count calls as soon as they begin. Therefore, calls spanning across a time interval boundary will be counted differently by the two. If comparing the measurements from BCMS with those from the hunt groups, there may be slight differences. However, both hunt group and BCMS measurements should indicate the same trends.

Interactions With External CMS

From the administration perspective, the ACD parameters associated with trunks groups, hunt groups, and VDNs are any of the following:

- Not measured
- Internally measured by BCMS
- Externally measured by External CMS
- Measured both internally and externally

Note that using BCMS in conjunction with External CMS increases the maximum number of agents and trunk groups that can be measured for a particular ACD

application. In other words, the capacities shown for BCMS are additive to those of External CMS.

NOTE:
If both BCMS and External CMS are used simultaneously, switch performance may be degraded.

Interactions with VuStats

G3V3 and later releases provide the VuStats feature, which enables agents and supervisors with display terminal to view data about agents, splits, and VDNs. Much of this information is the same as that provided by BCMS and external CMS. Refer to the VuStats section in the *DEFINITY Communications System Generic 3 Version 4 Implementation* manual, 555-230-655, for a comparison of Vustats data items and BCMS report columns.

System Access

3

Logging In and Logging Off

BCMS provides one login ID and supports a maximum of five G3 Management Terminals logged in simultaneously. (A BCMS terminal is considered to be a remote Management Terminal. You can access BCMS reports either from a Management Terminal (local) or on a dial-up (remote) basis. When dial-up access is used, the following two constraints affect the number of terminals that can access BCMS data simultaneously:

- The number of dial-up (Netcon) channels. The system provides four Netcon channels.
- The number of Terminal User IDs (TUIs). A TUI is a switch resource used by:
  - TSC when logged in
  - the Management Terminal when powered up
  - a remote Management Terminal when logged in
  - a BCMS terminal when logged in
  - the system printer while printing

When the switch is configured with more than one Management Terminal, you may use one of the following terminals to access the BCMS feature:

- 4410
- 4425
- 513
- 610
- 615

- 715 BCT

Typically, one terminal is dedicated to the administration and/or maintenance tasks, while the others are used for the ACD/BCMS features.

BCMS Login

The switch provides several different categories of login names. The login name identifies the user and his or her permitted capabilities to the system. Generally, each category permits unique capabilities (and restrictions). The BCMS login allows you to display, print, and schedule BCMS reports. The BCMS login is simply **bcms**, and the password is **bcmspw**. Since more than one user will typically log into the system with this same login, all the users must know the password.

NOTE:
A BCMS terminal is considered to be a remote Management Terminal.

Logging In

There are two types of terminal configurations for logging into BCMS: a remote terminal and a local terminal. Although both configurations use the same types of terminals, the remote terminal requires a data module for dialing up the system.

Logging In from a Local Terminal

To log into BCMS from a local terminal, perform the following steps:

1. Turn on the terminal (if required) and press BREAK (if no prompt is displayed).
   — The screen displays the following prompt:

   ```
   Login:
   ```

2. Enter **bcms** and press RETURN.
   — The screen displays the following prompt:

   ```
   Password:
   ```

3. Enter your password and press RETURN. The default password is **bcmspw**.

   For security reasons, the password is not displayed as you type it. The system verifies that the login and password you entered are valid.

   — If you entered an invalid login or password, the system displays the following message and prompt:

   ```
   INCORRECT LOGIN

   Login:
   ```

   Repeat Steps 2 and 3.

— If you entered the correct login and associated password, the screen displays the following prompt:

```
Terminal Type (Enter 513, 4410, 4425): [513]
```

Proceed to Step 4.

4. Enter the appropriate terminal type:
   - If you are using a 4410 terminal, enter **4410** and press RETURN.
   - If you are using a 4425 terminal, enter **4425** and press RETURN.
   - If you are using a 513 terminal, just press RETURN. 513 (which is displayed in brackets on the screen) is the default.
   - If you are using a 610 or 615 MT terminal that has a 513 emulation cartridge, just press RETURN.
   - If you are using a 610 or 615 MT that does not have the 513 emulation cartridge, enter **4410** and press RETURN.
   - If you are using a 715 BCT terminal, just press RETURN.

   After you enter the appropriate terminal type, the system displays the following prompt:

   ```
   enter command:
   ```

   The system is now ready for you to enter a command to generate a BCMS report.

Logging In from a Remote Terminal

To log into BCMS from a remote terminal, perform the following steps:

1. Turn on the terminal (if required) and press BREAK (if no prompt is displayed).

   — The screen displays the following prompt:

   ```
   Dial:
   ```

2. Enter the hunt group extension number for the Netcon channels and press RETURN.

   — The screen displays the following prompt:

   ```
   Login:
   ```

3. Enter **bcms** and press RETURN.

   — The screen displays the following prompt:

   ```
   Password:
   ```

4. Enter your password and press RETURN. The default password is **bcmspw**.

   For security reasons, the password is not displayed as you type it. The system verifies that the login and password you entered are valid.

— If you entered an invalid login or password, the system displays the following message and prompt:

```
INCORRECT LOGIN

 "Login:
```

Repeat Steps 3 and 4.

— If you entered the correct login and associated password, the screen displays the following prompt:

```
Terminal Type (Enter 513, 4410, 4425): [513]
```

Proceed to Step 5.

5. Enter the appropriate terminal type:
   - If you are using a 4410 terminal, enter **4410** and press RETURN.
   - If you are using a 4425 terminal, enter **4425** and press RETURN.
   - If you are using a 513 terminal, just press RETURN. 513 (which is displayed in brackets on the screen) is the default.
   - If you are using a 610 or 615 MT terminal that has a 513 emulation cartridge, just press RETURN.
   - If you are using a 610 or 615 MT that does not have the 513 emulation cartridge, enter **4410** and press RETURN.
   - If you are using a 715 BCT, just press RETURN.

   After you enter the appropriate terminal type, the system displays the following prompt:

   ```
   enter command:
   ```

   The system is now ready for you to enter a command to generate a BCMS report.

Logging Off

Whenever you are not using the terminal, log off the system. To log off the system, perform the following steps:

1. Type `logoff`.
2. Press RETURN.

The switch automatically disconnects the terminal.

How to Change the BCMS Password

To maintain the security of the system, the System Manager (or any user with special privileges) can change the password associated with the BCMS login. The BCMS login cannot be administered and does not change. Only the password for the BCMS login can change.

NOTE:
The BCMS login does not have the privilege to change the BCMS password.

The password should be changed:

- When the system is installed (change the password from the default **bcmspw**)
- Each time a new person takes over the associated login name
- If an unauthorized person has discovered the password

Once the password is assigned, keep the following things in mind:

- Do not give the password to anyone
- Keep the written password in a locked place

To change a password, perform the following steps:

1. At the `enter command:` prompt, enter **change password bcms** and press RETURN.

   — The system displays the Password Change screen (Screen 3-1). The cursor is positioned on the `Your Current Password:` field.

```
change password bcms                                  Page 1 of 1
                          PASSWORD CHANGE
             Change Password For Login Name: bcms
                      Your Current Password: _______
                 New Password For Login Name: _______
                  New Password (enter again): _______
```

Screen 3-1. Password Change Screen

2. Enter your current password and press RETURN.

   — The cursor is positioned on the `New Password For Login Name:` field.

3. Enter your new password and press RETURN.

   NOTE:
   Valid passwords contain four to seven alphabetic or numeric characters, or a combination of alphabetic and numeric characters.

   — The cursor is positioned on the `New Password (enter again):` field.

4. Re-enter your new password and press RETURN.

   — The system displays the following prompt:

   ```
   command completed successfully

   enter command:
   ```

BCMS Report Generation

4

Overview

This chapter helps you understand the Acceptable Service Level and the Percent Within Service Level, and it provides information on generating BCMS reports. It also provides descriptions of each of the reports.

Acceptable Service Level

Before using BCMS, you must understand the concept of Acceptable Service Level and then set the acceptable service level field on various forms.

Acceptable Service Level is the desired time to answer for a given VDN or hunt group. Timing for a call begins when the call encounters a VDN or enters a hunt group queue. If the number of seconds to answer the call is equal to or less than the administered acceptable service level for the VDN or hunt group, the call is recorded as acceptable.

Percent within Service Level

A service level can be administered for each hunt group or VDN, if the customer option has been set to *y* and if the hunt group or VDN is administered by BCMS. The service level is the amount of time (number of seconds) allowed the switch to answer calls.

To calculate the percentage of calls within the acceptable service level, BCMS divides the number of acceptable calls by the calls offered.

For hunt groups, BCMS calculates the Percent Within Service Level as follows:

$$\%\ IN\ SERV\ LEVL\ =\ \frac{accepted\ *\ 100}{ACDcalls\ +\ abandons\ +\ outflows\ +\ dequeued}$$

where

accepted — Is the number of calls answered for which the queue time was less than or equal to the administered service level for the split

dequeued — Is the number of calls that encountered the split's queue, but were NOT answered, abandoned, or outflowed. This occurs with multiple split queuing.

For VDNs, BCMS calculates the Percent Within Service Level as follows:

$$\%\ IN\ SERV\ LEVL\ =\ \frac{accepted\ *\ 100}{calls\ offered}$$

where

accepted — Is the number of answered calls (*num ans*) for which the answer time was less than or equal to the administered service level for the VDN. *num ans* here refers to the data item on the form of the same name.

calls offered — Is the total number of ended calls that accessed the VDN during the current interval.

Acceptable Service Level Administration

The *Acceptable Service Level* field is administered on the System-Parameters Customer-Options, VDN, and Hunt Group forms. On the System-Parameters Customer-Options form (only changeable by an AT&T technician) set the field BCMS Service Level to y to activate BCMS.

On the **Hunt Group Form** (user changeable) set the field BCMS Acceptable Service Level to a number between 0 and 9999. Set the Measured field to either `internal` or `both`.

On the **Vector Directory Number** form set the field BCMS Acceptable Service Level to a number between 0 and 9999. Set the Measured field to either `internal` or `both`

NOTE:
The column **% IN SERV LEVL** may be blank for one or more of the following reasons:

- The BCMS Service Level field on the Customer Options form is set to **n**.

- No service level is defined for the split or VDN (it cannot be set if BCMS Service Level is set to **n**).
- No call ended in the interval.

BCMS Commands

After you log into BCMS, the system prompts you to enter a command. BCMS commands consist of the following three components:

1. The **ACTION** to be taken
2. The **OBJECT** for the specified action
3. The **QUALIFIER(S)** for the specified object

Table 4-1 lists all of the commands you can perform with the BCMS login.

Table 4-1. Permitted BCMS Administration Commands

BCMS Administration Commands

Action	Object	Qualifiers
monitor	bcms split	split number [print] (Note 1)
	bcms system	[split number] [print] (Note 2)
	bcms vdn	extension [print] (Note 2)
list	bcms agent	ext.|loginID [time] [start time] [stop time] [print|schedule] (Notes 2, 3, 4)
	bcms agent	ext.|loginID [day] [start day] [stop day] [print|schedule] (Notes 2, 4)
	bcms summary agent	ext.|loginID [time] [start time] [stop time] [print|schedule] (Notes 2, 4)
	bcms summary agent	ext.|loginID [day] [start day] [stop day] [print|schedule] (Notes 2,4)
	bcms split	split number [time] [start time] [stop time] [print|schedule]
	bcms split	split number [day] [start day] [stop day] [print|schedule]
	bcms summary split	split number [time] [start time] [print|schedule] (Note 2)
	bcms summary split	split number [day] [start day] [print|schedule] (Note 2)
	bcms trunk	group number [time] [start time] [stop time] [print|schedule]
	bcms trunk	group number [day] [start day] [stop day] [print|schedule]
	bcms summary trunk	group number [time] [start time] [stop time] [print|schedule] (Note 2)
	bcms summary trunk	group number [day] [start day] [stop day] [print|schedule] (Note 2)
	bcms vdn	extension [time] [start time] [stop time] [print|schedule]
	bcms vdn	extension [day] [start day] [stop day] [print|schedule]
	bcms summary vdn	extension [time] [start time] [stop time] [print|schedule] (Note 2)
	bcms summary vdn	extension [day] [start day] [stop day] [print|schedule] (Note 2)

NOTES

1. Items depicted within brackets, such as [print], are optional.
2. You may enter a single number, a list of numbers, or a range of numbers (for example 100-200).

3. Whenever the command line qualifier [schedule] is initially executed, the system defaults the report for immediate printing (unless a day/time of day is scheduled) and generates a Job Id. The Job Id is required by the Report Scheduler feature for updating and deleting the schedule of reports. The Report Scheduler (described in Chapter 6, "Use of BCMS Reports for ACD Planning") is used to administer a time/day schedule for each desired report.
4. If "BCMS/VuStats Login IDs" is enabled on the System-Parameters Customer-Options form, then you must enter an agent's login ID or a range of login IDs in place of the physical extension or range of extensions.

Online Help

If you are unsure of a command, press HELP to obtain the list of permissible commands. For example, suppose, you wanted to generate a BCMS Split Report. The command to generate this report is **monitor bcms split #**. However, you only know the beginning of the command (in this case, `monitor bcms`). To find out the rest of the command, you would perform the following steps:

1. At the command prompt, enter `monitor bcms`
2. Press HELP.
   — The system displays the following list of secondary commands for the monitor command:

   split

   system

   vdn

Real-Time Reports

BCMS provides three real-time reports:

- **BCMS Split Status Report**
- **BCMS System Status Report**
- **BCMS VDN Status Report**

The BCMS Split Status Report provides the current (real-time) status and cumulative measurement data for those agents assigned to the split you specify. The BCMS System Status Report provides current (real-time) status information for either all BCMS splits or selected splits. The BCMS VDN Status Report provides the current (real-time) status and cumulative measurement data for VDNs monitored by BCMS.

You may generate these reports using the monitor command, which is discussed below.

Monitor Command

The **monitor** command is used to display real-time status reports for splits and split agents. These reports display data accrued since the last interval boundary. The time intervals may be in one-hour or half-hour increments. (To select the desired increment, access the Feature-Related System Parameters screen and enter `hour` or `half-hour` in the Measurement Interval field. Consult Chapter 6, "Use of BCMS Reports for ACD Planning" for more information.)

There are three monitor commands, one to print each real-time report:

- **bcms split**
- **bcms system**
- **bcms vdn**

The **bcms split** command generates the BCMS Split Status Report. The **bcms system** command generates the BCMS System Status Report. The **bcms vdn** command generates the BCMS VDN Status Report.

Whenever a status report is displayed on the G3 Management Terminal, it is updated automatically approximately every 30 seconds. You can immediately update the on-screen status report by pressing UPDATE. To cancel the **monitor** command and return to the command prompt, press CANCEL. If the status report consists of more than one page, press NEXTPAGE to display any subsequent pages and PREVPAGE to display any previous pages.

If you incorrectly enter the command, or if the qualifier is not applicable or cannot be measured, a descriptive error message appears on the message line, located on the bottom of the screen. Usually, the error message descriptions provide enough information about the problem so that you will not need to research it. However, if you require more information about the error message, press HELP. Some examples of error messages are listed below:

- *?? invalid report type for specified time or day*
- ?? number of BCMS measured agents exceeds maximum
- Split not measured by BCMS

Appendix A lists all possible BCMS error messages.

BCMS Split Status Report

The BCMS Split Status Report provides the current (real-time) status and cumulative measurement data for those agents assigned to the split you specify. This report displays data accrued since the last interval boundary. For example, if the interval is set for hourly, and you issue the command to display the BCMS Split Status Report at 11:10 a.m., the report displays the data accrued since 11:00 a.m. Although this report is updated approximately every 30 seconds, you

can immediately update the information on the screen by pressing UPDATE. At the beginning of the next interval, the report resets. Screen 4-1 shows the BCMS Split Status Report.

```
monitor bcms split 30
                        BCMS SPLIT (AGENT) STATUS

        Split: 30                              Date: 12:13 pm MON MAY 15, 1995
   Split Name: headquarters
Calls Waiting:    5                       Acceptable Service Level: xxx
  Oldest Call:  1:39                        % Within Service Level: xxx

Staffed: 7   Avail: 1   ACD: 1   ACW: 1   AUX: 1   Extn Calls: 2   Other: 1

                                                      ACD    EXT IN  EXT OUT
AGENT NAME        LOGIN ID   EXT    STATE     TIME   CALLS  CALLS   CALLS

 Agent 1           32191     12345  Avail    12:00      0       0       0
 Agent 2           32192     12346  ACD      12:04      1       0       0
 Agent 3           32193     12347  ACW      12:12      3       0       0
 Agent 4           32194     12348  AUX      11:30      0       0       0
 Agent 5           32195     12349  Ext In   12:08      1       2       0
 Agent 6           32196     12350  Ext Out  12:10      0       0       1
 Agent 7           32197     12351  Other    11:58      0       0       0
 $                 32198     12352  INIT     00:00      0       0       0
```

Screen 4-1. BCMS Split Status Report Screen

* An asterisk precedes the *Call Waiting* field if any of the calls are Direct Agent calls.

& The *LOGIN ID* column is empty if the BCMS login system parameter is set to *no.*

$ If name is not administered, this column is blank for the agent.

Split is displayed as "Skill" when EAS is optioned.

Report Headers, Abbreviations, and Their Definitions

The header information at the top of each page includes the command entered to generate the report, the page number and the total number of pages in the report, the title of the report, and the time and date the report was generated. If there are more than nine agents in the split, the remaining agent information appears on subsequent pages.

Split — The split number specified with the command line.

NOTE:
With BCMS, splits do not have to be numbered from 1, and split numbers do not have to be consecutive.

Split Name — The administered name of the split. This name usually describes the purpose or service of the split (for example, sales, service, or help line). If no name exists, BCMS displays the split extension (for example, EXT 65222).

NOTE:
The split name is limited to a maximum of 11 characters. If you enter more than 11 characters, the additional characters are not printed on the System Printer.

Calls Waiting — The number of calls currently queued and calls ringing at an agent's phone. If any of the calls in the queue are Direct Agent calls, an asterisk appears before the value in this field. The Glossary describes the Direct Agent feature.

Oldest Call — The number of minutes and seconds that the oldest call in queue has been waiting to be answered. This includes calls ringing at an agent's phone.

Acceptable Service Level — The desired time to answer for a given hunt group or VDN. Timing for a call begins when the call enters the hunt group queue.

% Within Service Level — The percentage of calls answered within the administered service level. This field is blank if no calls have been recorded for this time interval or if there is no *Acceptable Service Level* administered on the Hunt Group form.

Staffed — The number of agents currently logged into the split.

Avail — The number of agents in this split currently available to receive an ACD call. In order to be counted as being available, agents must either be in the Auto-In or Manual-In work mode. Refer to the Glossary for a description of work modes. If the agent is on another split's call or is performing After Call Work for another split, the agent is not considered available and is not recorded here. If a call is ringing at the agent's phone or a call is on hold, the agent is not considered available unless Multiple Call Handling is active and the agent selects AI/MI with a call on hold.

ACD — The number of agents who are currently on an ACD call for this split. This value also includes Direct Agent calls and those agents who are currently on ACD calls that flowed in from another split.

ACW — The number of agents in this split who are currently in ACW mode for this split. Refer to the Glossary for a description of After Call Work (ACW) mode. If an agent is in ACW mode for another split, the agent is included in the Other

state count for this split. Also, if an agent is on a call while in ACW mode, the agent appears in the Extn state count, and not in the ACW state.

AUX — The number of agents in this split who are currently in the AUX work mode for this split. If an agent is answering a call from another split or is in ACW work mode for another split, that agent is not considered in AUX work mode for this split and is not included in this number. The agent is included in the Other state count.

Extn — The number of agents in this split who are currently on non-ACD calls. These non-ACD calls may be either incoming (direct to the extension) or outgoing (direct from the extension). Those agents receiving or making extension calls while in Avail, ACW, or AUX work mode is recorded as being on extension calls.

Other — The number of agents in this split who:

- Are on a call from another split
- Are in ACW work mode for another split
- Have placed a call on HOLD and made no other state selections
- Have a call ringing at their voice terminals
- Are dialing a number (to place a call or activate a feature)

All of the agents in the Other state are unavailable for ACD calls.

AGENT NAME — The name of the agent. Generally, this is the agent's first or last name. However, if no name is administered on the station form, this field is left blank. When the field is blank, the data can be identified by the extension.

LOGIN ID — The BCMS login ID(s) (taken from the BCMS Login ID form or EAS Login form) for which you requested the report. This column does not appear if BCMS logins are not optioned.

EXT — The 2-, 3-, 4-, or 5-digit extension number for the agent.

STATE — The current work state for the agent. Possible work states are Avail, ACD, ACW, AUX, Extn, and Other. (The sum of the time the agent spends in the possible work states is the agent's *staffed* time.) Unstaffed agents do not appear on the report. When the system time is changed, agents are in the INIT state. Each agent remains in the INIT state until he or she takes a call or pushes a work button.

NOTE:
Refer to the Glossary for a description of the term *work state.*

TIME — The 24-hour clock time that the agent entered this work state.

ACD CALLS — The number of ACD calls that the agent has completed since the beginning of the current interval. This value includes any calls that flowed in from other splits. (Calls in process are not counted until they are completed.)

EXT IN CALLS — The number of non-ACD calls that the agent has received (incoming) since the beginning of the current interval. (Calls in process are not counted until they are completed.) The maximum value is 255.

EXT OUT CALLS — The number of non-ACD calls that the agent has made (outgoing) since the beginning of the current interval. (Calls in process are not counted until they are completed.) The maximum value is 255.

Displaying the BCMS Split Status Report

To display this report, perform the following steps:

1. Enter `monitor bcms split ##` (where ## is the number of an administered split that is measured by BCMS) and press RETURN. If the split number is only one digit (for example, split 5), just enter the single digit.

   — The BCMS Split Status Report appears on your screen.

2. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.
3. If you want to immediately update the report data, press UPDATE.
4. To exit the BCMS Split Status report, press CANCEL.

   — The enter command: prompt appears.

Printing the BCMS Split Status Report

To print the BCMS Split Status report, enter `monitor bcms split ## print` (where ## is the number of an administered split that is measured by BCMS) and press RETURN. If the split number is only one digit (for example, split 5), just enter the single digit.

— The report immediately prints on the printer attached to your terminal, and the system displays the enter command: prompt.

BCMS System Status Report

The BCMS System Status Report provides current (real-time) status information for either all BCMS splits or selected BCMS splits. This report displays data accrued since the last interval boundary. For example, if the interval is set to hour, and you issue the command to display the BCMS System Status Report at 11:10 a.m., the report displays the data accrued since 11:00 a.m. Although this report is updated approximately every 30 seconds, you can immediately update

the information on the screen by pressing UPDATE. This report is reset at the beginning of the time interval (for example, hour or half-hour). Screen 4-2 shows the BCMS System Status Report.

NOTE:
When analyzing this report, keep the following things in mind:

- All averages are for completed calls only.
- A completed call may span more than one time interval. ACD calls that are in process (have not terminated) are counted in the time interval in which they terminate. For example, if an ACD call begins in the 10:00 to 11:00 time interval, but terminates in the 11:00 to 12:00 time interval, the data for this call is counted in the 11:00 to 12:00 time interval.
- Asterisks indicate that the maximum for the associated field has been exceeded.

```
monitor bcms system
                          BCMS SYSTEM STATUS
                                        Date:  12:53 MON MAY 15, 1995

                        AVG                 AVG           AVG   AVG   % IN
             CALLS OLDEST SPEED AVAIL ABAND ABAND ACD     TALK  AFTER SERV
SPLIT NAME   WAIT  CALL   ANS   AGENT CALLS TIME  CALLS   TIME  CALL  LEVL

Service         3   1:03   :45     0     3   :30    20  2:30   1:25   85
EXT 4000        5    :33   :15     0    11   :45    36  1:32    :35   91
```

Screen 4-2. BCMS System Status Report Screen

& Split name is not administered (em default is EXT xxxx, where xxxx is the extension administered for the split.

SPLIT is displayed as "SKILL" when EAS is optioned.

Report Headers, Abbreviations, and Their Definitions

This report presents header information at the top of each page. This information includes the command entered to generate the report, the page number and the total number of pages in the report, the title of the report, and the time and date the report was generated. If more than 14 splits are being measured by BCMS, the remaining splits are displayed on multiple pages.

SPLIT NAME — The name of the split (for example, sales, service, or help line). If no name exists, the split extension (for example, EXT 12345) is displayed.

CALLS WAIT — The number of calls in the split's queue that are currently waiting to be answered and calls ringing at an agent's phone. If any of the calls in the queue are Direct Agent calls, an asterisk appears before this field. Consult the Glossary for a description of the Direct Agent feature.

OLDEST CALL — The number of minutes and seconds the oldest call in queue has been waiting to be answered. This includes calls ringing at an agent's phone.

AVG SPEED ANS — The average amount of time it takes before the calls are being answered. This value includes time waiting in the queue and time ringing at the agent's voice terminal. The calculation is:

$$AVG\ SPEED\ ANS\ =\ \frac{Sum\ of\ Each\ Completed\ Call's\ Time\ In\ Queue\ +\ Time\ Ringing}{The\ Total\ Number\ of\ ACD\ Calls\ Answered}$$

NOTE:
Keep the following things in mind:

- Calls that flow in from other split(s) do not include *time in queue* from the other splits in this calculation. Also, the AVG SPEED ANS does not include time spent listening to a forced first announcement.
- A completed call may span more than one time period. ACD calls that are in process (have not terminated) are counted in the time period in which they terminate. For example, if an ACD call begins in the 10:00 to 11:00 time period, but terminates in the 11:00 to 12:00 time period, the data for this call is counted in the 11:00 to 12:00 time period.
- Asterisks indicate that the maximum for the associated field has been exceeded.

AVAIL AGENT — The number of agents in this split who are currently available to receive an ACD call directed to this split.

ABAND CALLS — The total number of ACD calls that have hung up while waiting to be answered. This includes those calls that have abandoned while in queue or while ringing. Calls that are not queued (for example, because the queue is full, the caller receives a forced first announcement and abandons during the announcement, or no agents are staffed) are not counted as abandoned for the hunt group.

AVG ABAND TIME — The average time before an ACD call abandons. This does not include any time spent in another split's queue before intraflowing to this split. The calculation is:

$$AVG\ ABAND\ TIME\ =\ \frac{Total\ Abandon\ Time}{Total\ Number\ of\ Abandoned\ Calls}$$

NOTE:
This value does not include time spent listening to a forced first announcement or calls that *abandon* while listening to a forced first announcement.

ACD CALLS — The number of ACD calls completed during the current interval. This number also includes those calls that flow in from other splits.

AVG TALK TIME — The average duration of ACD calls for each split. This calculation includes the time each agent spent talking but does not include ring time at an agent's voice terminal. The calculation is:

$$AVG\ TALK\ TIME\ =\ \frac{Total\ ACD\ Talk\ Time}{Total\ Number\ of\ ACD\ Calls\ Answered}$$

AVG AFTER CALL — The average ACW time for call-related ACW time completed by agents in this split during this time interval. Call-related ACW is the time that occurs immediately after an ACD call (that is, when an agent was in Manual mode and an ACD call ended, or when the agent presses the ACW button during an ACD call). AVG AFTER CALL does not include time spent on direct incoming or outgoing calls while in ACW or time that immediately follows an EXTN call. The calculation is:

$$AVG\ AFTER\ CALL\ =\ \frac{Total\ Call\ Related\ ACW\ Time}{Number\ of\ Call\ Related\ ACW\ Sessions}$$

NOTE:
The average is for ACW sessions, which may not correspond to the number of ACD calls either because some ACD calls did not have ACW time or because the call was recorded in another interval.

% IN SERV LEVL — The percentage of calls answered with in the administered service level for this split. Calculation is based on the following:

$$\%\ IN\ SERV\ LEVL\ =\ \frac{Accepted\ *\ 100}{ACD\ calls\ +\ Abandons\ +\ Outflows\ +dequeued}$$

where

accepted is calls answered whose queue time was less than or equal to the administered service level for the split.

dequeued is a call that encountered the split's queue, but which was NOT answered, abandoned, or outflowed. This occurs with multiple split queuing.

Displaying the BCMS System Status Report

BCMS allows you to generate a BCMS System Status Report on all the BCMS splits or selected BCMS splits. To generate a report on all the BCMS splits, enter the **monitor bcms system** command. The report produced by this command presents information on all BCMS splits that had agents staffed when you entered the command. To generate a report on selected BCMS splits, you must include the split number(s) or split ranges at the end of the command. For example, if you wanted to generate a BCMS System Status Report on split 4, you would enter: `monitor bcms system 4`. If you wanted to generate a BCMS System Status Report on splits 1, 2, 3, 4, and 5, you would enter: `monitor bcms system 1-5`. BCMS also allows you to specify a range of splits and individual splits in a command. For example, if you have 8 splits (numbered 1 through 8) and wanted to generate a BCMS System Status Report on splits 1, 2, 3, 4, 6, and 8, you would enter: **monitor bcms system 1-4 6 8**.

To display the BCMS System Status Report, perform the following steps:

1. Enter `monitor bcms system` and press RETURN.
   — The BCMS System Status Report appears on your screen.
2. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.
3. If you want to immediately update the report data, press UPDATE.
4. To exit the BCMS System Status report, press CANCEL.
   — The enter command: prompt appears.

Printing the BCMS System Status Report

To print the BCMS System Status report, enter `monitor bcms system print` and press RETURN.

— The report is immediately printed on the printer attached to your terminal, and the system displays the enter command: prompt.

BCMS VDN Status Report

The VDN Status Report gives real-time status information for internally measured VDNs. You can monitor up to 99 VDNs at one time, however; the report can display up to 13 VDNs on a single page. Therefore, if you are monitoring 99 VDNs, the report is 6 pages long. You must specify the extensions of the VDNs you want the system to monitor. You can specify the extension in a list or in a range format. For example, *monitor bcms vdn 12345 12346 12350-12359.*

```
monitor bcms vdn 12345-12349

                    BCMS VECTOR DIRECTORY NUMBER STATUS
                                          Date: 15:30 Mon May 15, 1995

                              AVG           AVG    AVG                CALLS % IN
           CALLS OLDEST ACD   SPEED  ABAND ABAND  TALK/ CONN   FLOW  BUSY/ SERV
VDN NAME   WAIT  CALL   CALLS ANS    CALLS TIME   HOLD  CALLS  OUT   DISC  LEVL

knives        5    :25    50   :39      5   :45   2:30     0     0     24   91
EXT 12346     0    :00     0   :00      0   :00    :00     0     0      0    0
```

Screen 4-3. BCMS VDN Status Report Screen

* Indicates that the VDN name is not administered for the VDN; default extension is as shown.

Report Headers, Abbreviations, and Their Definitions

Date — The current date and time (updated every 30 seconds or when the update key is pressed).

VDN NAME — The name of the VDN being reported. If the VDN does not have a name administered, this field displays *EXT XXXXX* where "*XXXXX* is the VDN's extension.

CALLS WAIT — The number of calls that encountered this VDN and have not been answered, abandoned, outflowed, or forced busy/disc. Includes calls in queues in vector processing, and ringing at an agent's station.

OLDEST CALL — The time the oldest call currently waiting has waited in the VDN. Timing starts when the call enters the VDN.

ACD CALLS — The number of completed ACD calls answered in a BCMS-measured split. The split may have been reached via the queue-to-main, check backup, route-to, messaging split, or adjunct routing commands. Includes Direct Agent calls.

AVG SPEED ANS — The average speed of answer for ACD and connect calls that have completed for this VDN during the current period. This includes the time in vector processing, in a split's queue, and time ringing. The calculation is:

$$AVG\ SPEED\ ANS\ =\ \frac{Total\ Answer\ Time}{Total\ ACD\ Calls\ +\ Total\ CONNect\ CALLS}$$

NOTE:
Answer time for a call is recorded when the call ends. If a call originates in interval x, is answered in interval y, and ends in interval z, the associated answer and talk times are recorded in interval z.

ABAND CALLS — The number of calls to this VDN that have abandoned before being answered during the current period. This includes VDN calls that were routed to an attendant, station, or announcement, and abandoned before being answered.

AVG ABAND TIME — The average time abandoned calls waited before abandoning during the current period. The calculation is:

$$AVG\ ABAND\ TIME\ =\ \frac{Total\ Abandon\ Time}{Total\ Calls\ Abandoned}$$

AVG TALK/HOLD — The average talk time for ACD calls completed by this VDN during the current period. This does not include ring time, but it does include any time the caller spent on Hold. The calculation is:

$$AVG\ TALK/HOLD\ =\ \frac{Total\ Talk\ Time}{ACD\ Calls}$$

CONN CALLS — The number of calls that were routed to a station (agent or non-ACD), attendant, or announcement, and were answered there.

FLOW OUT — The number of calls that were routed to another VDN or to a trunk, including successful look-ahead attempts.

CALLS BUSY/DISC — The number of calls that encountered a busy or disconnect step (and the announcement ends).

% IN SERV LEVL — The percent of calls offered that completed and were answered within the acceptable service level defined on the VDN form. The calculation is:

$$\%\ SERV\ LEVL\ =\ \frac{Acceptable\ *\ 100}{Offered}$$

Offered is defined as:

```
acdcalls + flowout calls + abandoned + connect + busy/disc
```

Acceptable is the number of ACD and CONNect calls that were answered within the administered service level. This field is blank if no calls were recorded for this time interval. This field is also blank if no *Acceptable Service Level* has been administered on the VDN form.

Displaying the BCMS VDN Status Report

BCMS allows you to generate a BCMS VDN Status Report on all the BCMS VDNs or selected BCMS VDNs. To generate a report on all the BCMS VDNs, enter the **monitor bcms vdn** command. The report produced by this command presents information on all BCMS VDNs that had agents staffed when you entered the command. You may include up to 30 VDNs at a time. To generate a report on selected BCMS VDNs, you must include the VDN number(s) or VDN ranges at the end of the command. For example, if you wanted to generate a BCMS System Status Report on VDN 8250, you would enter: `monitor bcms vdn 8250`. If you wanted to generate a BCMS System Status Report on VDNs 8251, 8252, 8253, 8254, and 8255, you would enter: `monitor bcms vdn 8251-8255`. BCMS also allows you to specify a range of VDNs and individual VDNs in a command. For example, if you have eight VDNs (numbered 51 through 58) and wanted to generate a BCMS VDN Status Report on these eight VDNs, you would enter the following command: **monitor bcms vdn 51-58**.

To display the BCMS VDN Status Report, perform the following steps:

1. Enter `monitor bcms system` and press RETURN.

   — The BCMS VDN Status Report appears on your screen.

2. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

3. If you want to immediately update the report data, press UPDATE.

4. To exit the BCMS VDN Status report, press CANCEL.

   — The enter command: prompt appears.

Printing the BCMS VDN Status Report

To print the BCMS VDN Status report, enter `monitor bcms vdn print` and press RETURN.

— The report is immediately printed on the printer attached to your terminal, and the system displays the enter command: prompt.

Historical Reports

BCMS provides eight historical reports. These reports give you information for an interval of time. You can print the reports for a period time measured in minutes or hours, or a period of time measured in days. The BCMS historical reports are:

- Agent Report
- Agent Summary Report
- Split and Skill Report
- Split and Skill Summary Report
- Trunk Group Report
- Trunk Group Summary Report
- VDN Report
- VDN Summary Report

You are able to print the historical reports using the list commands, which are discussed below.

List Commands

The **list** commands are used to display historical information for agents, splits, system, trunk groups, and VDNs. There are eight secondary list commands:

- **bcms agent**
- **bcms summary agent**
- **bcms split**
- **bcms summary split**
- **bcms trunk**
- **bcms summary trunk**
- **bcms vdn**
- **bcms summary vdn**

With these commands, you can specify:

- Whether you want the data in the reports to be displayed in hourly/half-hourly or daily intervals
- The times or days for which you wish to see data
- The system to immediately display the report on your terminal
- The system to print the report. If you include **print** at the end of the command, the system will immediately print the report to a slaved printer. If you include **schedule** at the end of the command, the system will allow

you to schedule the report to print to the system printer immediately (immediate), at a later time (deferred), or routinely at specified times (scheduled).

NOTE:
Time interval data may be collected in half-hour or one-hour increments. (To select the desired increment, access the Feature-Related System Parameters screen and enter `half-hour` or `hour` in the Measurement Interval: field. Consult Chapter 6, "Use of BCMS Reports for ACD Planning" for more information.) The switch stores time interval data in a time database which holds a maximum of 25 intervals. Data for the 26th interval overwrites the first interval in the time database (and so on). Therefore, if the half-hour option is selected, care should be exercised to ensure that time interval reports are run while the data for the desired interval is still available in the time database. For example, if you select the half-hour option, print the report twice daily to ensure that you do not lose information.

BCMS Agent Report

The BCMS Agent Report provides traffic information for the specified agent. Depending on specifics from the command line, the information may be displayed as either a time interval or a daily summary. If neither *time* nor *day* is specified, *time* is the default. In this case, the report displays data accrued for the previous 24 time intervals (hour or half-hour), including data from the most recently completed time interval. To get information on the current time interval, you must use a **monitor bcms** command. Screen 4-4 shows the BCMS Agent Report — Hourly, and Screen 4-5 shows the BCMS Agent Report — Daily.

NOTE:
BCMS can track agents based on their phone numbers, or based on login IDs. If BCMS/VuStats Login IDs is optioned, BCMS tracks login IDs.

NOTE:
When analyzing this report, keep the following things in mind:

- All averages are for completed calls only.
- A completed call may span more than one time interval. ACD calls that are in process (have not terminated) are counted in the time interval in which they terminate. For example, if an ACD call begins in the 10:00 to 11:00 time interval, but terminates in the 11:00 to 12:00 time interval, the data for this call is counted in the 11:00 to 12:00 time interval.
- Asterisks indicate that the maximum for the associated field has been exceeded.

```
 list bcms agent 4222 8:00
                                BCMS AGENT REPORT

Switch Name: Lab Model                          Date: 11:05 am MON MAY 15, 1995
      Agent: 4222
 Agent Name: s-jones

                    AVG    TOTAL   TOTAL   TOTAL        AVG   TOTAL    TOTAL
             ACD    TALK   AFTER   AVAIL   AUX/  EXTN   EXTN  TIME     HOLD
TIME         CALLS  TIME   CALL    TIME    OTHER CALLS  TIME  STAFFED  TIME

 8:00- 9:00    10   1:15    7:30   25:00   10:40     1  4:00    60:00    :20
 9:00-10:00    18   1:40   18:00    4:20     :00     2  3:20    60:00   1:00
10:00-11:00    10   1:20    8:20   16:10     :00     0   :00    38:00    :10
-----------  ----- ------ ------- ------- ------- ----- ----- -------- ------
SUMMARY        38   1:28   33:50   45:30   10:40     3  3:33   158:00   1:30
```

Screen 4-4. BCMS Agent Report — Hourly

NOTE:
4222 could be a login ID or an extension, depending on whether BCMS/VuStats Login IDs is administered.

```
 list bcms agent 4222 day 5/17
                                BCMS AGENT REPORT

Switch Name: Lab Model                          Date: 11:05 am MON MAY 15, 1995
      Agent: 4222
 Agent Name: s-jones

                    AVG    TOTAL   TOTAL   TOTAL        AVG   TOTAL    TOTAL
             ACD    TALK   AFTER   AVAIL   AUX/  EXTN   EXTN  TIME     HOLD
DAY          CALLS  TIME   CALL    TIME    OTHER CALLS  TIME  STAFFED  TIME

 5/14/95       200   1:30  100:00   35:00   80:00    10  2:00   540:00   5:00
 5/13/95        38   1:28   34:12   45:30   10:40     3  3:33   158:00   1:30
-----------  ----- ------ ------- ------- ------- ----- ----- -------- ------
SUMMARY        238   1:30  134:12   80:30   90:40    13  2:22   698:00   6:30
```

Screen 4-5. BCMS Agent Report — Daily

NOTE:
4222 could be a login ID or an extension.

Report Headers, Abbreviations, and Their Definitions

This report presents header information at the top of each page. This information includes the command entered to generate the report, the page number of the report, the title of the report, and the time and date the report was generated. If this is a time report and there are more than 11 time intervals, this report is displayed on multiple pages. A daily summary report is displayed on the last page of the report.

AGENT NAME — The name of the agent. If no name is administered, the agent's extension is displayed in the form *EXT 65432.*

TIME/DAY — The time or day interval specified in the command line.

Time is always expressed in 24-hour format. Start and stop times are optional. Reports always start at the earliest time interval (either hour or half-hour). If no start time is given, the oldest time interval is the default. A stop time requires an associated start time. If no stop time is given, the last completed time interval (hour or half-hour) is the default. If no start time or stop time is given, the report displays data accrued for the previous 24 time intervals. If you specify *day* in the command and do not include a start day or stop day, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).

ACD CALLS — The number of ACD calls answered by this agent for all splits during the reporting interval. This value includes calls that flowed in from other splits and Direct Agent calls.

AVG TALK TIME — The average duration of ACD calls for all splits the agent was logged into. This value includes time spent talking but does not include the amount of time the agent was holding an ACD call or ring time at the agent's voice terminal. The calculation is:

$$AVG\ TALK\ TIME\ =\ \frac{Total\ ACD\ Talk\ Time}{Total\ Number\ of\ ACD\ Calls\ Answered}$$

TOTAL AFTER CALL — The total amount of time that the agent spent in call-related or non-call-related ACW work states for all splits during the reporting interval. This does not include time spent on direct incoming or outgoing calls while in ACW. If an agent entered ACW in one interval, but ended ACW in another interval, the appropriate amount of ACW time is credited to each of the intervals.

TOTAL AVAIL TIME — The sum of the time that the agent was available to receive ACD calls during the current interval. During this time, the agent:

- Was in Auto-In or Manual-In work modes for at least one split
- Was not in ACW in any split

- Was not on any call or placing any call (unless MCH is active)
- Did not have ringing calls

TOTAL AUX/OTHER — The sum of the time that the agent has the AUX button pressed and is not doing anything else for any of the other splits (that is, the sum of the time that the agent is in AUX work mode for all splits). This value does not include time the agent spent on an EXTN call or in Manual-In, Auto-In, or ACW mode for another split. Note that if the agent was in Other for all logged-in splits that time is reflected here. For example, ringing calls can cause several seconds of AUX time to accrue.

For the agent report, any non-ACD call time is totaled in the AVG EXTN TIME column. Two points of contrast are:

1. The measurement TOTAL AUX/OTHER is time-interval based, rather than being call related. For example, assuming that the previously identified stipulations are met, then if the agent is in AUX from 9:55 to 10:05, five minutes is pegged in the 9:00 to 10:00 time interval and five minutes is pegged in the 10:00 to 11:00 time interval.
2. The measurement AVG EXTN TIME is call related. For example, if an agent is on a non-ACD call from 9:55 to 10:05, the call and ten minutes of EXTN time is pegged in the 10:00 to 11:00 time interval.

   Because the agent report includes some call-related items, the sum of all items for a given hour may not exactly equal 60 minutes.

EXTN CALLS — The total number of non-ACD incoming and outgoing calls for this agent during the reporting interval. Only those non-ACD calls that are originated and/or received while the agent is logged into at least one split are counted.

AVG EXTN TIME — The average amount of time that the agent spent on non-ACD calls while logged into at least one split during the reporting interval. This average does not include time when the agent was holding the EXTN call. The calculation is:

$$AVG\ EXTN\ TIME\ =\ \frac{Total\ Ext\ Time}{Total\ Number\ of\ Ext\ Calls}$$

TOTAL TIME STAFFED — The total time that the agent spent logged into at least one split during the reporting interval. Staff time is clocked for an agent who is in multiple splits as long as the agent is logged into any split. Concurrent times for each split are not totaled.

TOTAL HOLD TIME — The total time that the agent placed ACD calls on hold. This time is the *caller's hold time* and is independent of the state of the agent. TOTAL HOLD TIME does not include the hold time for non-ACD calls.

SUMMARY — The total of each of the columns that do not contain averages.

Columns that do contain averages are the total time divided by the number of calls.

Displaying the BCMS Agent Report

BCMS allows you to collect data in either hourly/half-hourly intervals or daily intervals and display the report on your terminal.

Displaying an Hourly/Half-Hourly Interval Report

To display this report, perform the following steps:

1. Enter `list bcms agent ext time xx:xx xx:xx` (where "ext" is a valid agent extension measured by BCMS). The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

   NOTE:
   Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The BCMS Agent Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Displaying a Daily Report

To display this report, perform the following steps:

1. Enter `list bcms agent ## day xx/xx xx/xx` (where ## is a valid agent extension or login ID measured by BCMS). The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).

2. Press RETURN.

   — The BCMS Agent Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Printing the BCMS Agent Report

BCMS allows you to collect data in either hourly or half-hourly intervals and daily intervals and to print the report. If you have a printer directly connected to your terminal, you may print reports using the instructions provided below. If you do not have a printer directly connected to your terminal, consult the instructions for scheduling reports to print to the system printer.

Printing an Hourly/Half-Hourly Interval Report

To print this report, perform the following steps:

1. Enter `list bcms agent ## time xx:xx xx:xx print` (where ## is a valid agent extension or login ID measured by BCMS). The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

   NOTE:
   Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The BCMS Agent Report prints on the printer attached to your terminal.

Printing a Daily Report

To print this report, perform the following steps:

1. Enter `list bcms agent ## day xx/xx xx/xx print` (where ## is a valid agent extension or login ID measured by BCMS). The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).
2. Press RETURN.

   — The BCMS Agent Report prints on the printer attached to your terminal.

Scheduling the BCMS Agent Report to Print

The Report Scheduler allows you to schedule the day or days for the system to print the report. If you do not have a printer directly connected to your terminal, you may use the Report Scheduler feature to print the report immediately to the system printer. The data for this report can be collected in hourly/half-hourly intervals or daily intervals.

Scheduling an Hourly/Half-Hourly Interval Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms agent ## time xx:xx xx:xx schedule` (where ## is a valid agent extension or login ID measured by BCMS). The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

   NOTE:
   Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms agent ## time xx:xx xx:xx
                                                                    Page 1

                            REPORT SCHEDULER
                                          Date: 11:00 pm MON APR 23, 1990

    Job Id: 1                          Job Status: none

    Command: list bcms agent ## time xx:xx xx:xx

    Print Interval: immediate
```

Screen 4-6. Report Scheduler Form

NOTE:
If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.
   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms agent ## time xx:xx xx:xx
         Page 1
                            REPORT SCHEDULER
                                     Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                           Job Status: none

    Command: list bcms agent ## time xx:xx xx:xx

    Print Interval: scheduled

    Print Time: xx:xx


        Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-7. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.
5. Enter y for the day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.
   — The report has been scheduled, and the system presents the enter command: prompt.

Scheduling a Daily Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms agent ## day xx/xx xx/xx schedule` (where ## is a valid agent extension or login ID measured by BCMS). The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).

2. Press RETURN.

   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms agent ## day xx/xx xx/xx
          Page 1
                          REPORT SCHEDULER
                                      Date: 11:00 pm MON APR 23, 1990


       Job Id: 1                        Job Status: none

       Command: list bcms agent ## day xx/xx xx/xx

       Print Interval: immediate
```

Screen 4-8. Report Scheduler Form

NOTE:
If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.

   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms agent ## day xx/xx xx/xx
          Page 1
                          REPORT SCHEDULER
                                      Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                        Job Status: none

    Command: list bcms agent ##

    Print Interval: scheduled

    Print Time: xx:xx


         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-9. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.
5. Enter y for day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.
   — The report has been scheduled, and the system presents the enter command: prompt.

BCMS Agent Summary Report

This report is similar to the BCMS Agent Report except that this report provides one line of data for each agent. You can specify one or more agents by entering agent IDs or extensions. An agent does not appear on the report if there is no data for that agent. If you specify that you want the report to include more than one time period, and the data exists for one or more, but not all of the specified times, the system uses the available data to calculate and display the one-line summary; the system does not identify which times are not included in the calculations.

NOTE:
BCMS can track agents based on their phone numbers, or based on login IDs. If BCMS/VuStats Login IDs is optioned, BCMS tracks login IDs.

```
 list bcms summary agent 4222-4224 4869 time 8:00-12:00

                          BCMS AGENT SUMMARY REPORT

Switch Name: Lab Model                            Date: 11:05 am MON MAY 15, 1995
       Time: 8:00-12:00

                    AVG    TOTAL   TOTAL   TOTAL        AVG   TOTAL    TOTAL
             ACD    TALK   AFTER   AVAIL   AUX/  EXTN   EXTN  TIME     HOLD
AGENT NAME   CALLS  TIME   CALL    TIME    OTHER CALLS  TIME  STAFFED  TIME

 s-jones       10   1:15    7:30   25:00   10:40     1  4:00    60:00    :20
 t-anderson    18   1:40   18:00    4:20     :00     2  3:20    60:00   1:00
 j-jacobsen    10   1:20    8:20   16:10     :00     0   :0     38:00    :10
-----------  ----- ------ ------- ------- ------- ----- ----- -------- ------
SUMMARY        38   1:28   33:50   45:30   10:40     3  3:33   158:00   1:30
```

Screen 4-10. BCMS Agent Summary Report — Hourly Summary

NOTE:
4222-4224 in the command line could be a login ID or an extension, depending on whether BCMS/VuStats Login IDs is administered.

```
 list bcms sum agent 4222-4223 4869 day 5/14

                          BCMS AGENT SUMMARY REPORT

Switch Name: Lab Model                          Date: 11:05 am MON MAY 15, 1995
        Day: 5/14

                    AVG    TOTAL   TOTAL   TOTAL        AVG   TOTAL    TOTAL
              ACD   TALK   AFTER   AVAIL   AUX/  EXTN   EXTN  TIME     HOLD
AGENT NAME    CALLS TIME   CALL    TIME    OTHER CALLS  TIME  STAFFED  TIME

 s-jones        10  1:15    7:30   25:00   10:40     1  4:00    60:00    :20
 t-anderson     18  1:40   18:00    4:20     :00     2  3:20    60:00   1:00
 j-jacobsen     10  1:20    8:20   16:10     :00     0   :0     38:00    :10
-----------  ----- ------ ------- ------- ------- ----- ----- -------- ------
SUMMARY         38  1:28   33:50   45:30   10:40     3  3:33   158:00   1:30
```

Screen 4-11. BCMS Agent Summary Report — Daily Summary

NOTE:
4222-4224 in the command line could be a login ID or an extension, depending on whether BCMS/VuStats Login IDs is administered.

Report Headers, Abbreviations, and Their Definitions

This report presents header information at the top of each page. This information includes the command entered to generate the report, the page number of the report, the title of the report, and the time and date the report was generated. If this is a time report and there are more than 11 time intervals, this report is displayed on multiple pages. A summary time is displayed on the last page of the report.

TIME/DAY — The time or day interval specified in the command line.

Time is always expressed in 24-hour format. Start and stop times are optional. Reports always start at the earliest time interval (either hour or half-hour). If no start time is given, the most recent time interval is the default. A stop time requires an associated start time. If no stop time is given, only the start interval/day is used. If no start time or stop time is given, the most current interval/day is used. If you specify *day* in the command and do not include a start day or stop day, the report displays data for the current day accrued through the most recently completed interval (hour or half-hour).

AGENT NAME — The name of the agent. If no name is administered, the agent's extension is displayed in the form *EXT 65432.*

ACD CALLS — The number of ACD calls answered by this agent for all splits during the reporting interval. This value includes calls that flowed in from other splits and Direct Agent calls.

AVG TALK TIME — The average duration of ACD calls for all splits the agent was logged into. This value includes time spent talking but does not include the amount of time the agent was holding an ACD call or ring time at the agent's voice terminal. The calculation is:

$$AVG\ TALK\ TIME\ =\ \frac{Total\ ACD\ Talk\ Time}{Total\ Number\ of\ ACD\ Calls\ Answered}$$

TOTAL AFTER CALL — The total amount of time that the agent spent in call-related or non-call-related ACW work states for all splits during the reporting interval. This does not include time spent on direct incoming or outgoing calls while in ACW. If an agent entered ACW in one interval, but ended ACW in another interval, the appropriate amount of ACW time is credited to each of the intervals.

TOTAL AVAIL TIME — The sum of the time that the agent was available to receive ACD calls during the current interval. During this time, the agent:

- Was in Auto-In or Manual-In work modes for at least one split
- Was not in ACW in any split
- Was not on any call or placing any call
- Did not have ringing calls

TOTAL AUX/OTHER — The sum of the time that the agent has the AUX button pressed and is not doing anything else for any of the other splits (that is, the sum of the time that the agent is in AUX work mode for all splits). This value does not include time the agent spent on an EXTN call or in Manual-In, Auto-In, or ACW mode for another split. Note that if the agent was in Other for all logged-in splits that time is reflected here. For example, ringing calls can cause several seconds of AUX time to accrue.

For the agent report, any non-ACD call time is totaled in the AVG EXTN TIME column. Two points of contrast are:

1. The measurement TOTAL AUX/OTHER is time-interval based, rather than being call related. For example, assuming that the previously identified stipulations are met, then if the agent is in AUX from 9:55 to 10:05, five minutes is pegged in the 9:00 to 10:00 time interval and five minutes is pegged in the 10:00 to 11:00 time interval.

2. The measurement AVG EXTN TIME is call related. For example, if an agent is on a non-ACD call from 9:55 to 10:05, the call and ten minutes of EXTN time is pegged in the 10:00 to 11:00 time interval.

   Because the agent report includes some call-related items, the sum of all items for a given hour cannot exactly equal 60 minutes.

EXTN CALLS — The total number of non-ACD incoming and outgoing calls for this agent during the reporting interval. Only those non-ACD calls that are originated and/or received while the agent is logged into at least one split are counted.

AVG EXTN TIME — The average amount of time that the agent spent on non-ACD calls while logged into at least one split during the reporting interval. This average does not include time when the agent was holding the EXTN call. The calculation is:

$$AVG\ EXTN\ TIME\ =\ \frac{Total\ Ext\ Time}{Total\ Number\ of\ Ext\ Calls}$$

TOTAL TIME STAFFED — The total time that the agent spent logged into at least one split during the reporting interval. Staff time is clocked for an agent who is in multiple splits as long as the agent is logged into any split. Concurrent times for each split are not totaled.

TOTAL HOLD TIME — The total time that the agent placed ACD calls on hold. This time is the *caller's hold time* and is independent of the state of the agent. TOTAL HOLD TIME does not include the hold time for non-ACD calls.

SUMMARY — The total of each of the columns that do not contain averages. Columns that do contain averages are the total time divide by the number of calls.

Displaying the BCMS Agent Summary Report

BCMS allows you to collect data in either hourly/half-hourly intervals or daily intervals and display the report on your terminal.

Displaying an Hourly/Half-Hourly Interval Report

To display this report, perform the following steps:

1. Enter `list bcms summary agent ## time xx:xx xx:xx` (where ## is a valid agent extension or login ID measured by BCMS). The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number.

Minutes are always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

NOTE:
Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The BCMS Agent Summary Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Displaying a Daily Report

To display this report, perform the following steps:

1. Enter `list bcms summary agent ## day xx/xx xx/xx` (where ## is a valid agent extension or login ID measured by BCMS). The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).
2. Press RETURN.

   — The BCMS Agent Summary Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Printing the BCMS Agent Summary Report

BCMS allows you to collect data in either hourly/half-hourly intervals or daily intervals and print the report. If you have a printer directly connected to your terminal, you may print reports using the instructions provided below. If you do not have a printer directly connected to your terminal, consult the instructions for scheduling reports to print to the system printer.

Printing an Hourly/Half-Hourly Interval Report

To print this report, perform the following steps:

1. Enter `list bcms summary agent ## time xx:xx xx:xx print` (where ## is a valid agent extension or login ID measured by BCMS). The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format;

however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

NOTE:
Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The BCMS Agent Summary Report prints on the printer attached to your terminal.

Printing a Daily Report

To print this report, perform the following steps:

1. Enter `list bcms summary agent ## day xx/xx xx/xx print` (where ## is a valid agent extension or login ID measured by BCMS). The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).
2. Press RETURN.

   — The BCMS Agent Report Summary prints on the printer attached to your terminal.

Scheduling the BCMS Agent Summary Report to Print

The Report Scheduler allows you to schedule the day or days for the system to print the report. If you do not have a printer directly connected to your terminal, you may use the Report Scheduler feature to print the report immediately to the system printer. The data for this report can be collected in hourly/half-hourly intervals or daily intervals.

Scheduling an Hourly/Half-Hourly Interval Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms summary agent ## time xx:xx xx:xx schedule` (where ## is a valid agent extension or login ID measured by BCMS). The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or

2-digit number. Minutes are always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

NOTE:
Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms summary agent ## time xx:xx xx:xx
                                                                Page 1

                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990

    Job Id: 1                           Job Status: none

    Command: list bcms summary agent ## time xx:xx xx:xx

    Print Interval: immediate
```

Screen 4-12. Report Scheduler Form

NOTE:
If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.

   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms summary agent ## time xx:xx xx:xx
         Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms summary agent ## time xx:xx xx:xx

    Print Interval: scheduled

    Print Time: xx:xx


         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-13. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.
5. Enter y for the day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.
   — The report has been scheduled, and the system presents the enter command: prompt.

Scheduling a Daily Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms summary agent ## day xx/xx xx/xx schedule` (where ## is a valid agent extension or login ID measured by BCMS). The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).
2. Press RETURN.
   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms summary agent ## day xx/xx xx/xx
          Page 1
                          REPORT SCHEDULER
                                      Date: 11:00 pm MON APR 23, 1990


       Job Id: 1                      Job Status: none

       Command: list bcms summary agent ## day xx/xx xx/xx

       Print Interval: immediate
```

Screen 4-14. Screen 4-14. Report Scheduler Form

NOTE:
If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.

   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms summary agent ## day xx/xx xx/xx
          Page 1
                          REPORT SCHEDULER
                                      Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                       Job Status: none

    Command: list bcms summary agent

    Print Interval: scheduled

    Print Time: xx:xx


         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-15. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.

   — The cursor moves to the Sun: field.

5. Enter y for day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.

   — The report has been scheduled, and the system presents the enter command: prompt.

BCMS Split Report

The BCMS Split Report provides traffic information for the specified split number. Depending on specifics from the command line, the information may be displayed as either a time interval or a daily summary. If neither *time* nor *day* is specified, *time* is the default. In this case, the report displays data accrued for the previous 24 time intervals (hour or half-hour), including data from the most recently completed time interval. To get information on the current time interval, you must use a **monitor bcms** command. Screen 4-16 shows the BCMS Split or Skill Summary Report — Hourly, and Screen 4-17 shows the BCMS Split or Skill Report — Daily.

NOTE:
When analyzing this report, keep the following things in mind:

- All averages are for completed calls only.
- A completed call may span more than one time interval. ACD calls that are in process (have not terminated) are counted in the time interval in which they terminate. For example, if an ACD call begins in the 10:00 to 11:00 time interval, but terminates in the 11:00 to 12:00 time interval, the data for this call is counted in the 11:00 to 12:00 time interval.
- Asterisks within a field indicate that the maximum for that field has been exceeded.

```
 list bcms split 3 time 8:00-10:00
                                BCMS SPLIT REPORT

Switch Name: Lab Model                          Date: 11:05 am MON MAY 15, 1995
      Split: 03
 Split Name: services                            Acceptable Service Level: 17

                  AVG           AVG    AVG    TOTAL             TOTAL       % IN
             ACD  SPEED ABAND   ABAND  TALK   AFTER  FLOW FLOW  AUX/  AVG   SERV
TIME         CALLS ANS  CALLS  TIME   TIME   CALL   IN   OUT   OTHER STAFF LEVL

 8:00- 9:00    32   :25     4    :32  5:15   16:00     3    5   3:30   4.0   80*
 9:00-10:0      8   :07     1    :03  3:20     :00     0    0   9:30   2.2   85
----------- ----- ----- -----  ----- ----- -------  ---- ---- ------ ----- ---
 SUMMARY       40   :21     5    :26  4:52     :26     3    5  13:00   3.1   81
```

Screen 4-16. BCMS Split or Skill Report — Hourly

* Acceptable service level changed.

Split is displayed as "Skill" when EAS is optioned.

```
 list bcms split 3 day 5/14/95

                                BCMS SPLIT REPORT

 Switch Name: Lab Model                          Date: 11:05 am MON MAY 15, 1995
       Split: 03
  Split Name: services                            Acceptable Service Level: 17

                   AVG           AVG    AVG    TOTAL             TOTAL       % IN
              ACD  SPEED ABAND   ABAND  TALK   AFTER  FLOW FLOW  AUX/  AVG   SERV
DAY           CALLS ANS  CALLS  TIME   TIME   CALL   IN   OUT   OTHER STAFF LEVL

 5/14/95        40   :21     5    :26  4:52   17:20     3    5  13:00   3.1   81
 --------    ----- -----  ----  ----- ----- ------- ---- ---- ------- ----- ---
 SUMMARY        40   :21     5    :26  4:52   17:20     3    5  13:00   3.1   81
```

Screen 4-17. BCMS Split or Skill Report — Daily

Split is displayed as "Skill" when EAS is optioned.

NOTE:
Xs are used to show field size and are not displayed as part of the form.

Report Headers, Abbreviations, and Their Definitions

This report presents header information at the top of each page. This information includes the command entered to generate the report, the page number of the report, the title of the report, and the time and date the report was generated. If this is a time report and there are more than 10 time intervals, this report is displayed on multiple pages. A daily summary report is displayed on the last page of the report.

SPLIT — The split number specified with the command line.

SPLIT NAME — Displays the name that is administered for this split number. If no name exists, BCMS displays the split extension (for example, EXT 65432).

ACCEPTABLE SERVICE LEVEL — The desired time to answer for a given hunt group. Timing for a call begins when the call enters the hunt group queue.

TIME/DAY — The time or day interval specified in the command line.

Time is always expressed in 24-hour format. Start and stop times are optional. Reports always start at the earliest time interval (either hour or half-hour). If no start time is given, the oldest time interval is the default. A stop time requires an associated start time. If no stop time is given, the last completed time interval (hour or half-hour) is the default. If no start or stop time is given, the report displays data accrued for the previous 24 time intervals. If you specify *day* in the command and do not include a start day or stop day, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).

ACD CALLS — The number of ACD calls completed for this split during the current interval. This number also includes calls that flowed in from other splits and Direct Agent calls.

AVG SPEED ANS — The average amount of time answered ACD calls (split and Direct Agent) spent in queue and ringing at an agent's station before being answered during the reporting interval. Calls that flowed in do not have queue time from the previous split included in this average. This calculation is:

$$AVG\ SPEED\ ANS\ = \frac{Sum\ of\ Each\ Answered\ Call's\ Time\ In\ Queue\ +\ Time\ Ringing\ at\ the\ Agent's\ Extension}{Total\ Number\ of\ ACD\ Calls\ Answered}$$

NOTE:
Keep the following things in mind:

- This value does not include time listening to a forced first announcement.

- A completed call may span more than one time period. ACD calls that are in process (have not terminated) are counted in the time period in which they terminate. For example, if an ACD call begins in the 10:00 to 11:00 time period, but terminates in the 11:00 to 12:00 time period, the data for this call is counted in the 11:00 to 12:00 time period.

ABAND CALLS — The total number of ACD calls that have hung up while waiting to be answered during this time interval. This value includes those calls that have abandoned while in queue or while ringing. Calls that are not queued (because the queue is full, the caller receives a forced first announcement and abandons during the announcement, or no agents are staffed) are not counted as abandoned. Also, calls that abandon while on hold are not counted as abandoned.

AVG ABAND TIME — The average time before an ACD call abandons. This value does not include any time spent in another split's queue before flowing into this split. The calculation is:

$$AVG\ ABAND\ TIME\ =\ \frac{Total\ Abandon\ Time}{Total\ Number\ of\ Abandoned\ Calls}$$

NOTE:
This value does not include time listening to a forced first announcement or calls that *abandon* while listening to a forced first announcement.

AVG TALK TIME — The average amount of time agents are active on ACD calls (split and direct agent) for each split. This includes time spent talking. The calculation does not include ring time at an agent's voice terminal or time spent on hold. The calculation is:

$$AVG\ TALK\ TIME\ =\ \frac{Total\ ACD\ Talk\ Time}{Total\ Number\ of\ ACD\ Calls}$$

TOTAL AFTER CALL — The amount of time that the agents in this split spent in call-related or noncall-related ACW mode during the reporting interval. This value includes time spent on direct incoming or outgoing calls while in ACW. If an agent entered ACW in one interval, but left ACW in another interval, each interval is credited with ACW time.

FLOW IN — The total number of completed calls that this split received as a coverage point (intraflowed) from another BCMS-measured split, or are call forwarded (interflowed) to this split during the reporting interval. This total does not include calls that are interflowed from a remote switch by means of the Look Ahead Interflow feature. FLOW INs are recorded when a call ends.

FLOW OUT — The total number of calls queued to this split that were:

- Successfully sent to the split's coverage point after queuing for the specified *don't answer* interval. (This does not include calls that went to coverage based on any other criterion.)
- Forwarded-out via call forwarding
- Forwarded-out via a route to station extension vector step
- Answered via the Call Pickup feature
- Forwarded-out via Look Ahead Interflow
- First queued to this split and answered by the second or third split queued to
- Were redirected back to this split or its coverage path due to Redirect On No Answer timing.

FLOW OUTs are recorded when a call ends.

NOTE:
In a multiple split-queuing environment, inflows and outflows become a bit more complicated. Consider the following scenarios:

- If a multiply queued call is answered in a nonprimary split (that is, a second or third split), an outflow is recorded to the statistics for the first split, and an inflow and an answer are recorded to the statistics for the answering split. For example, suppose there are three splits numbered 1 through 3. A call comes in for split 1, but all agents are busy on this split. The call then goes into queue for splits 2 and 3. An agent on split 3 answers the call. In this example, an outflow is recorded to the statistics for split 1, and an inflow and an answer are recorded to the statistics for split 3. The statistics for split 2 are unaffected because the call was not answered in this split. This scenario is shown in the following table.

Call Answered by Nonprimary Split

	Split Pegging		
	Split 1	**Split 2**	**Split 3**
BCMS	outflow	dequeued	inflow answer

If the call is answered in the primary split, no inflows or outflows are recorded to the statistics for any split. Splits 2 and 3 record the call as dequeued.

- If a call is queued on three splits (for example, splits 1, 2, and 3, with split 1 being the primary split), then encounters a **route-to** command that sends the call to another VDN, that queues to different splits (for example, splits 4 and 5), an outflow is recorded to the statistics for split 1. If the call is answered in split 4, an

answer is recorded to the statistics for split 4. However, no inflow is recorded to the statistics for split 4. This scenario is shown in the following table.

Call Answered by Primary Split after a Route to VDN

	Split Pegging				
	Split 1	**Split 2**	**Split 3**	**Split 4**	**Split 5**
BCMS	outflow	dequeued	dequeued	answer	dequeued

If the call is answered on split 5, an outflow is recorded for the statistics to split 4, and both an inflow and an answer are recorded to the statistics for split 5. This scenario is shown in the following table.

Call Answered by Non-Primary Split after a Route to VDN

	Split Pegging				
	Split 1	**Split 2**	**Split 3**	**Split 4**	**Split 5**
BCMS	outflow	dequeued	dequeued	outflow	inflow answer

Similarly, if a multiply queued call routes to another split, an outflow is recorded to the statistics for the primary split, but no inflow is recorded to the statistics for the routed-to split.

TOTAL AUX/OTHER — The total time that logged-in agents in this split were unavailable to receive calls during the reporting interval. This value includes time spent on non-ACD calls while in AUX for this split. This value does not include the time agents spent on another split's calls or in ACW for another split.

Note that a split totals AUX TIME whenever any agent logs into the split and:

- Receives a EXTN call while in AUX or AVAIL state
- Makes a EXTN call while in AUX or AVAIL state
- Hits his/her AUX button
- Other

Furthermore, the split report measurement AUX TIME is time-interval based, since it is not directly related to a call. For example, if an agent is in AUX for any of the previously identified reasons from 9:55 to 10:05, then five minutes is pegged in the 9:00 to 10:00 time interval and five minutes is pegged in the 10:00 to 11:00 time interval.

If you perform these calculations for each agent within a split and total them — the calculated number should generally be the same as displayed on the split report. However, because of differences in how the agent and split reports handle EXTN calls you may (occasionally) see different numbers between the two reports.

AVG STAFF — The average number of agents who were logged into this split (staffed) during the reporting interval.

$$AVG\ STAFF\ =\ \frac{Total\ Staff\ Time}{Time\ Interval}$$

% IN SERV LEVL — The percentage of calls answered within the administered service level.

$$\%\ IN\ SERV\ LEVL\ =\ \frac{Accepted*100}{ACD\ calls\ +\ abandons\ +\ outflows\ +\ dequeued}$$

where

accepted is calls answered whose queue time was less than or equal to the administered service level for the split

dequeued is a call that encountered the split's queue, but that was NOT answered, abandoned, or outflowed. This occurs with multiple split queuing.

SUMMARY — For those columns that specify averages, the summary is an average for the entire reporting interval. For the ACD CALLS, ABAND CALLS, TOTAL AFTER CALL, FLOW IN, FLOW OUT, AUX TIME, and TOTAL HOLD TIME columns, the summary is the sum of individual time intervals or specified days.

Displaying the BCMS Split Report

BCMS allows you to collect data in either hourly or half-hourly intervals and daily intervals, and to display the report on your terminal.

Displaying an Hourly/Half-Hourly Interval Report

To display this report, perform the following steps:

1. Enter `list bcms split ## time xx:xx xx:xx` (where "##" is an administered split measured by BCMS). If the split is only one digit (for example, split 5), just enter the single digit. The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

   NOTE:
   Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The BCMS Split Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Displaying a Daily Report

To display this report, perform the following steps:

1. Enter `list bcms split ## day xx/xx xx/xx` (where ## is an administered split measured by BCMS). If the split is only one digit (for example, split 5), just enter the single digit. The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days plus data accrued through the most recently completed interval (hour or half-hour).
2. Press RETURN.

   — The BCMS Split Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Printing the BCMS Split Report

BCMS allows you to collect data in either hourly or half-hourly intervals and daily intervals, and to print the report. If you have a printer directly connected to your terminal, you may print reports using the instructions provided below. If you do not have a printer directly connected to your terminal, consult the instructions in the next section for scheduling reports to print to the system printer.

Printing an Hourly/Half-Hourly Interval Report

To print this report, perform the following steps:

1. Enter `list bcms split ## time xx:xx xx:xx print` (where ## is an administered split measured by BCMS). If the split is only one digit (for example, split 5), just enter the single digit. The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

NOTE:
Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The BCMS Split Report prints on the printer attached to your terminal.

Printing a Daily Report

To print this report, perform the following steps:

1. Enter `list bcms split ## day xx/xx xx/xx print` (where ## is an administered split measured by BCMS). If the split is only one digit (for example, split 5), just enter the single digit. The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days plus data accrued through the most recently completed interval (hour or half-hour).
2. Press RETURN.

   — The BCMS Split Report prints on the printer attached to your terminal.

Scheduling the BCMS Split Report to Print

The Report Scheduler allows you to schedule the day or days for the system to print the report. If you do not have a printer directly connected to your terminal, you may use the Report Scheduler feature to print the report immediately to the system printer. The data for this report can be collected in hourly/half-hourly intervals or daily intervals.

Scheduling an Hourly/Half-Hourly Interval Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms split ## time xx:xx xx:xx schedule` (where ## is an administered split measured by BCMS). If the split is only one digit (for example, split 5), just enter the single digit. The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

NOTE:
Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms split ## time xx:xx xx:xx
           Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms split ## time xx:xx xx:xx

    Print Interval: immediate
```

Screen 4-18. Report Scheduler Form

If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.

   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms split ## time xx:xx xx:xx
          Page 1
                          REPORT SCHEDULER
                                       Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms split ## time xx:xx xx:xx

    Print Interval: scheduled

    Print Time: xx:xx


         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-19. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.
5. Enter y for the day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.
   — The report has been scheduled, and the system presents the enter command: prompt.

Scheduling a Daily Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms split ## day xx/xx xx/xx schedule` (where ## is an administered split measured by BCMS). If the split is only one digit (for example, split 5), just enter the single digit. The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days plus data accrued through the most recently completed interval (hour or half-hour).
2. Press RETURN.
   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
          Page 1
                          REPORT SCHEDULER
                                      Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms split ## day xx/xx xx/xx schedule

    Print Interval: immediate
```

Screen 4-20. Report Scheduler Form

If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.
   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms split ## day xx/xx xx/xx
           Page 1
                          REPORT SCHEDULER
                                      Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms split

    Print Interval: scheduled

    Print Time: xx:xx


         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-21. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.
5. Enter y for the day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.

— The report has been scheduled, and the system presents the enter command: prompt.

BCMS Split Summary Report

NOTE:
This report replaces (and enhances) the BCMS System Report. Customers with upgrades from previous DEFINITY releases running BCMS will see that their scheduled **list bcms system** command is changed automatically to the **list bcms summary split** command to get this new report.

The BCMS Split Summary Report provides traffic measurement information for a specified group of BCMS splits. Depending on specifics from the command line, the information may be displayed as either a time interval or daily summary. If neither *time* nor *day* is specified, *time* is the default. In this case, the report displays data accrued for the previous 24 time intervals (hour or half-hour), including data from the most recently completed time interval. To get information on the current time interval, you must use a **monitor bcms** command. Screen 4-22 shows the BCMS Split or Skill Summary Report — Hourly Summary, and Screen 4-23 shows the BCMS Split or Skill Summary Report — Daily Summary.

This report is similar to the Split Report except that this report provides one line of data for each split, and that includes all data for the specified times. A split does not appear on the report if there is no data for that split. If you specify more than one time period, and data exists for one or more, but not all, of the specified times, the system uses the available data to calculate and display the one-line summary; the system does not identify which agents are not included in the calculations.

Time is always expressed in 24-hour format. Start and stop times are optional. Reports always start at the earliest time interval (either hour or half-hour). If no start time is given, the most recent time interval is the default. A stop time requires an associated start time. If no stop time is given, then only the last interval of data will be used to calculate the one-line display for each split. If you specify *day* in the command and do not include a start day or stop day, the report displays data for the current day accrued through the most recently completed interval (hour or half-hour).

NOTE:
When analyzing this report, keep the following things in mind:

- All averages are for completed calls only.
- Asterisks indicate that the maximum for the associated field has been exceeded.

```
 list bcms summary split 3 15 time 9:00-16:00

                          BCMS SPLIT SUMMARY REPORT

Switch Name: Lab Model                         Date: 11:05 am MON MAY 15, 1995
       Time: 9:00-16:00

                 AVG          AVG    AVG    TOTAL             TOTAL       % IN
            ACD  SPEED ABAND  ABAND  TALK   AFTER  FLOW FLOW  AUX/  AVG   SERV
SPLIT NAME  CALLS ANS   CALLS  TIME   TIME   CALL   IN   OUT   OTHER STAFF LEVL

 Sales        32   :25     4    :32  5:15   16:00     3    5   3:30   4.0   75
 Service       8   :07     1    :03  3:20     :00     0    0   9:30   2.2   83*
--------    ----- -----  ----  ----- ----- ------- ---- ---- ------- ----- ---
SUMMARY       40   :21     5    :26  4:52   16:00     3    5  13:00   3.1   76
```

Screen 4-22. BCMS Split or Skill Summary Report — Hourly Summary

SPLIT is displayed as "SKILL" when EAS is optioned.

```
 list bcms summary split 5 3 day

                          BCMS SPLIT SUMMARY REPORT

Switch Name: Lab Model                         Date: 11:05 am MON MAY 15, 1995
        Day: 5/15/95

                 AVG          AVG    AVG    TOTAL             TOTAL       % IN
            ACD  SPEED ABAND  ABAND  TALK   AFTER  FLOW FLOW  AUX/  AVG   SERV
SPLIT NAME  CALLS ANS   CALLS  TIME   TIME   CALL   IN   OUT   OTHER STAFF LEVL

 Sales        32   :25     4    :32  5:15   16:00     3    5   3:30   4.0   75
 Service       8   :07     1    :03  3:20     :00     0    0   9:30   2.2   83*
--------    ----- -----  ----  ----- ----- ------- ---- ---- ------- ----- ---
SUMMARY       40   :21     5    :26  4:52   16:00     3    5  13:00   3.1   76
```

Screen 4-23. BCMS Split or Skill Summary Report — Daily Summary

SPLIT is displayed as "SKILL" when EAS is optioned.

Report Headers, Abbreviations, and Their Definitions

This report presents header information at the top of each page. This information includes the command entered to generate the report, the page number of the report, the title of the report, and the time and date the report was generated. If this is a time report and there are more than 10 time intervals, this report is displayed on multiple pages. A daily summary report is displayed on the last page of the report.

TIME/DAY — The time or day interval specified in the command line.

Time is always expressed in 24-hour format. Start and stop times are optional. Reports always start at the earliest time interval (either hour or half-hour). If no start time is given, the oldest time interval is the default. A stop time requires an associated start time. If no stop time is given, the last completed time interval (hour or half-hour) is the default. If no start or stop time is given, the report displays data accrued for the previous 24 time intervals. If you specify *day* in the command and do not include a start day or stop day, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).

SPLIT NAME — Displays the name that is administered for this split number. If no name exists, the split extension (for example, EXT 65432) is displayed.

ACD CALLS — The number of ACD calls completed for this split during the current interval. This number also includes calls that flowed in from other splits and Direct Agent calls.

AVG SPEED ANS — The average amount of time ACD calls (split and Direct Agent) spent in queue and ringing at an agent's station before being answered during the reporting interval. Calls that flowed in do not have queue time from the previous split included in this average. This calculation is:

$$AVG\ SPEED\ ANS\ = \frac{Sum\ of\ Each\ Completed\ Call's\ Time\ In\ Queue\ +\ Time\ Ringing\ at\ the\ Agent's\ Extension}{Total\ Number\ of\ ACD\ Calls\ Answered}$$

NOTE:
Keep the following things in mind:

- This value does not include time listening to a forced first announcement.
- Asterisks indicate that the maximum for the associated field has been exceeded.

ABAND CALLS — The total number of ACD calls that have hung up while waiting to be answered during this time interval. This value includes those calls

that have abandoned while in queue or while ringing. Calls that are not queued (because the queue is full, the caller receives a forced first announcement and abandons during the announcement, or no agents are staffed) are not counted as abandoned. Also, calls that abandon while on hold are not counted as abandoned.

AVG ABAND TIME — The average time before an ACD call abandons. This value does not include any time spent in another split's queue before flowing into this split. The calculation is:

$$AVG\ ABAND\ TIME\ =\ \frac{Total\ Abandon\ Time}{Total\ Number\ of\ Abandoned\ Calls}$$

NOTE:
This value does not include time listening to a forced first announcement or calls that *abandon* while listening to a forced first announcement.

AVG TALK TIME — The average duration of ACD calls (split and direct agent) for each split. This includes time spent talking. The calculation does not include ring time at an agent's voice terminal or time spent on hold. The calculation is:

$$AVG\ TALK\ TIME\ =\ \frac{Total\ ACD\ Talk\ Time}{Total\ Number\ of\ ACD\ Calls}$$

TOTAL AFTER CALL — The amount of time that the agents in this split spent in call-related or noncall-related ACW mode during the reporting interval. This value includes time spent on direct incoming or outgoing calls while in ACW. If an agent entered ACW in one interval, but left ACW in another interval, each interval is credited with ACW time.

FLOW IN — The total number of calls that this split received as a coverage point (intraflowed) from another BCMS-measured split, or are call forwarded (interflowed) to this split during the reporting interval. This total does not include calls that are interflowed from a remote switch by means of the Look Ahead Interflow feature. FLOW INs are recorded as they occur.

FLOW OUT — The total number of calls queued to this split that were:

- Successfully sent to the split's coverage point after queuing for the specified *don't answer* interval. (This does not include calls that went to coverage based on any other criterion.)
- Forwarded-out via call forwarding
- Answered via the Call Pickup feature
- Forwarded-out via Look Ahead Interflow
- Forwarded-out via a "route to" station extension vector step
- First queued to this split and answered by the second or third split queued to

- Were redirected back to this split or its coverage path due to Redirect On No Answer timing.

FLOW OUTs are recorded when a call ends.

NOTE:
In a vectoring environment, inflows and outflows become a bit more complicated. Consider the following scenarios:

- If a multiple queued call is answered in a nonprimary split (that is, a second or third split), an outflow is recorded to the statistics for the first split, and an inflow and an answer are recorded to the statistics for the answering split. For example, suppose there are three splits numbered 1 through 3. A call comes in for split 1, but all agents are busy on this split. The call then goes into queue for splits 2 and 3. An agent on split 3 answers the call. In this example, an outflow is recorded to the statistics for split 1, and an inflow and an answer are recorded to the statistics for split 3. The statistics for split 2 are unaffected because the call was not answered in this split. This scenario is shown in the following table.

Call Answered by Nonprimary Split

	Split Pegging		
	Split 1	**Split 2**	**Split 3**
BCMS	outflow	dequeued	inflow answer

If the call is answered in the primary split, no inflows or outflows are recorded to the statistics for any split. Splits 2 and 3 record the call as not recorded.

- If a call is queued on three splits (for example, splits 1, 2, and 3, with split 1 being the primary split), then encounters a **route-to** command that sends the call to another VDN, that queues to different splits (for example, splits 4 and 5), an outflow is recorded to the statistics for split 1. If the call is answered in split 4, an answer is recorded to the statistics for split 4. However, no inflow is recorded to the statistics for split 4. This scenario is shown in the following table.

Call Answered by Primary Split after a Route to VDN

	Split Pegging				
	Split 1	**Split 2**	**Split 3**	**Split 4**	**Split 5**
BCMS	outflow	dequeued	dequeued	answer	dequeued

If the call is answered on split 5, an outflow is recorded for the statistics to split 4, and both an inflow and an answer are recorded to the statistics for split 5. This scenario is shown in the following table.

Call Answered by Non-Primary Split after a Route to VDN

	Split Pegging				
	Split 1	**Split 2**	**Split 3**	**Split 4**	**Split 5**
BCMS	outflow	dequeued	dequeued	outflow	inflow answer

Similarly, if a multiple queued call routes to another split, an outflow is recorded to the statistics for the primary split, but no inflow is recorded to the statistics for the routed-to split.

TOTAL AUX/OTHER — The total time that logged-in agents in this split were unavailable to receive calls during the reporting interval. This value includes time spent on non-ACD calls while in AUX for this split. This value does not include the time agents spent on another split's calls or in ACW for another split.

A split totals AUX/OTHER TIME whenever any agent logs into the split and:

- Receives a EXTN call while in AUX or AVAIL state
- Makes a EXTN call while in AUX or AVAIL state
- Hits his/her AUX button
- Other

Furthermore, the split report measurement AUX TIME is time-interval based, since it is not directly related to a call. For example, if an agent is in AUX for any of the previously identified reasons from 9:55 to 10:05, then five minutes is pegged in the 9:00 to 10:00 time interval and five minutes is pegged in the 10:00 to 11:00 time interval.

If you perform these calculations for each agent within a split and total them — the calculated number should generally be the same as displayed on the split report. However, because of differences in how the agent and split reports handle EXTN calls you may (occasionally) see different numbers between the two reports.

AVG STAFF — The average number of agents who were logged into this split (staffed) during the reporting interval.

$$AVG\ STAFF\ =\ \frac{Total\ Staff\ Time}{Time\ Interval}$$

% IN SERV LEVL — The percentage of calls answered within the administered service level.

$$\%\ IN\ SERV\ LEVL\ =\ \frac{Accepted*100}{ACD\ calls\ +\ abandons\ +\ outflows\ +\ dequeued}$$

where

accepted is calls answered whose queue time was less than or equal to the administered service level for the split

dequeued is a call that encountered the split's queue, but that was NOT answered, abandoned, or outflowed. This occurs with multiple split queuing.

SUMMARY — For those columns that specify averages, the summary is an average for the entire reporting interval. For the ACD CALLS, ABAND CALLS, TOTAL AFTER CALL, FLOW IN, FLOW OUT, AUX TIME, and TOTAL HOLD TIME columns, the summary is the sum of individual time intervals or specified days.

Displaying the BCMS Split Summary Report

BCMS allows you to collect data in either hourly or half-hourly intervals and daily intervals, and to display the report on your terminal.

Displaying an Hourly/Half-Hourly Interval Report

To display this report, perform the following steps:

1. Enter `list bcms summary split time xx:xx xx:xx`. The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given then only the last interval of data will be used to calculate the one-line display for each split.

   NOTE:
   Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The BCMS Split Summary Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Displaying a Daily Report

To display this report, perform the following steps:

1. Enter `list bcms summary split day xx/xx xx/xx`. The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given then the data accumulated for the last day (the current day) will be used to calculate the one-line display for each split.
2. Press RETURN.
   — The BCMS Split Summary Report appears on your screen.
3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Printing the BCMS Split Summary Report

BCMS allows you to collect data in either hourly/half-hourly intervals or daily intervals and print the report. If you have a printer directly connected to your terminal, you may print reports using the instructions provided below. If you do not have a printer directly connected to your terminal, consult the instructions for scheduling reports to print to the system printer.

Printing an Hourly/Half-Hourly Interval Report

To print this report, perform the following steps:

1. Enter `list bcms summary split time xx:xx xx:xx print`. The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given then only the last interval of data will be used to calculate the one-line display for each split.

   NOTE:
   Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.
   — The BCMS Split Summary Report prints on the printer attached to your terminal.

Printing a Daily Report

To print this report, perform the following steps:

1. Enter `list bcms summary split day xx/xx xx/xx print`. The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given then the data accumulated for the last day (the current day) will be used to calculate the one-line display for each split.
2. Press RETURN.
   — The BCMS Split Summary Report prints on the printer attached to your terminal.

Scheduling the BCMS Split Summary Report to Print

The Report Scheduler allows you to schedule the day or days for the system to print the report. If you do not have a printer directly connected to your terminal, you may use the Report Scheduler feature to print the report immediately to the system printer. The data for this report can be collected in hourly/half-hourly intervals or daily intervals.

Scheduling an Hourly/Half-Hourly Interval Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms summary split time xx:xx xx:xx schedule`. The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given then only the last interval of data will be used to calculate the one-line display for each split.

   NOTE:
   Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.
   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms summary split time xx:xx xx:xx
          Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms summary split time xx:xx xx:xx schedule

    Print Interval: immediate
```

Screen 4-24. Report Scheduler Form

NOTE:
If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.
   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms summary split time xx:xx xx:xx
          Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms summary split time xx:xx xx:xx schedule

    Print Interval: scheduled

    Print Time: xx:xx

         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-25. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.

5. Enter y for the day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.
   — The report has been scheduled and the system presents the enter command: prompt.

Scheduling a Daily Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms summary split day xx/xx xx/xx schedule`. The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given then the data accumulated for the last day (the current day) will be used to calculate the one-line display for each split.
2. Press RETURN.
   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms summary split day xx/xx xx/xx
          Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms summary split day xx/xx xx/xx schedule

    Print Interval: immediate
```

Screen 4-26. Report Scheduler Form

NOTE:
If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.
   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms summary split day xx/xx xx/xx
          Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms summary split day xx/xx xx/xx schedule

    Print Interval: scheduled

    Print Time: xx:xx


         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-27. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.
5. Enter y for the day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.
   — The report has been scheduled, and the system presents the enter command: prompt.

BCMS Trunk Group Report

The BCMs Trunk Group Report gives statistical information for all BCMS trunk groups. The BCMS Trunk Group Report may be used by the ACD administrator and/or manager to monitor use of the trunk group and to determine the optimal number of trunks for the trunk group. Depending on specifics from the command line, the information may be displayed as either a time interval or a daily summary. If neither *time* nor *day* is specified, *time* is the default. In this case, the report displays data accrued for the previous 24 time intervals (hour or half-hour), including data from the most recently completed time interval. Screen 4-28 shows the BCMS Trunk Group Time Interval Report, and Screen 4-29 shows the BCMS Trunk Group Daily Report.

NOTE:
When analyzing this report, keep the following things in mind:

- All averages are for completed calls only.

- A completed call may span more than one time interval. ACD calls that are in process (have not terminated) are counted in the time interval in which they terminate. For example, if an ACD call begins in the 10:00 to 11:00 time interval, but terminates in the 11:00 to 12:00 time interval, the data for this call is counted in the 11:00 to 12:00 time interval.
- Asterisks in a field indicate that the maximum for that field has been exceeded.
- A single asterisk at the end of a time or date field indicates that during the interval, trunk group administration occurred which changed the number of trunks.

```
 list bcms trunk 1 time 8:00 11:00

                              BCMS TRUNK GROUP REPORT
Switch Name: Lab Model                          Date: 12:59 pm THU APR 20, 1995
      Group: 1
 Group Name: TG 1                                        Number of Trunks: 11

            |          INCOMING            |           OUTGOING         |%ALL %TIME
TIME        |CALLS ABAND   TIME      CCS | CALLS  COMP   TIME    CCS|BUSY  MAINT

 8:00- 9:00*    23     2   2:15    31.02       1     1   1:36    .96    0      0
 9:00-10:00     35     2   1:48    35.74       4     4   1:42   4.08    0      0
10:00-11:00     24     1   1:40    22.93       0     0    :00    .00    0      0
-----------  -----  ---- ------ --------   -----  ---- ------ ------  ---    ---
SUMMARY         82     5   1:54    29.89       5     5   1:39   2.52    0      0
```

Screen 4-28. BCMS Trunk Group Time Interval Report

NOTE:
Xs are used to show field size and are not displayed as part of the form.

```
 list bcms trunk 1 day 4/17

                              BCMS TRUNK GROUP REPORT
Switch Name: Lab Model                          Date: 12:59 pm THU APR 20, 1995
      Group: 1
 Group Name: TG 1                                        Number of Trunks: 11

            |          INCOMING            |           OUTGOING          |%ALL  %TIME
DAY         |CALLS ABAND   TIME      CCS | CALLS  COMP   TIME    CCS|BUSY  MAINT

 4/17/95*       82     5   1:54    29.89       5     5   1:39   2.52    0      0
-----------  -----  ---- ------ --------   -----  ---- ------ ------  ---    ---
 SUMMARY        82     5   1:54    29.89       5     5   1:39   2.52    0      0
```

Screen 4-29. BCMS Trunk Group Daily Report

Report Headers, Abbreviations, and Their Definitions

This report presents header information at the top of each page. This information includes the command entered to generate the report, the page number of the report, the title of the report, and the time and date the report was generated. If this is a time interval report and there are more than 11 time intervals, this report is displayed on multiple pages. A daily summary report is displayed on one page.

Trunk Group — The trunk group number specified with the command line.

Trunk Group Name — The name that is administered for this trunk group. If no name is administered, then this field is displayed as blank.

Number of Trunks — The number of individual trunks in the trunk group at the end of the first interval being reported.

TIME/DAY — The time or day interval specified in the command line.

Time is always expressed in 24-hour format. Start and stop times are optional. Reports always start at the top of the time interval (either hour or half-hour). If no start time is given, the report displays data accrued for the previous 24 time intervals. A stop time requires an associated start time. If no stop time is given, the last completed time interval (hour or half-hour) is the default. If no start time or stop time is given, the report displays data accrued for the previous 24 time intervals. If you specify *day* in the command and do not include a start day or stop day, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).

If switch administration causes the number of trunks in a BCMS-measured trunk group to change during a day or a time interval, an asterisk appears in the *DAY/TIME* field.

INCOMING CALLS — The total number of incoming calls carried by this trunk group.

INCOMING ABAND — The number of incoming calls that queued to ACD splits, then abandoned (without being answered by a staffed agent within this split) during the reporting interval. Calls that cannot queue (for example, queue full, or calls that receive a busy signal from the Central Office because there aren't any available trunks) are not included in the INCOMING ABAND number. Also included are calls directly to staffed ACD agents that are unanswered.

INCOMING TIME — The average holding time for incoming calls to this trunk group during the specified reporting interval. Holding time is defined as the length of time in minutes and seconds that a facility is used during a call. The calculation for incoming time is:

$$INCOMING\ TIME = \frac{Total\ Holding\ Time\ \text{for}\ all\ Incoming\ Calls}{Total\ Number\ of\ Incoming\ Calls}$$

INCOMING CCS — The total holding time (usage) for incoming calls to the trunk group during the specified reporting interval. The units are expressed in hundred call seconds (CCS). Refer to the Glossary for a description of the term CCS.

OUTGOING CALLS — The total number of outgoing calls for this trunk group during the specified reporting interval.

OUTGOING COMP — The total number of outgoing calls that were placed over this trunk group and answered during the specified reporting interval.

NOTE:
Completion is determined by either return of network answer supervision, or a call that lasts longer than the answer supervision time-out parameter; whichever occurs first.

OUTGOING TIME — The average holding time for outgoing calls during the specified reporting interval. The calculation is:

$$OUTGOING\ TIME = \frac{Total\ Holding\ Time\ \text{for}\ Outgoing\ Calls}{Total\ Number\ of\ Outgoing\ Calls}$$

OUTGOING CCS — The total holding time for outgoing calls from this trunk group. The units are expressed in CCS.

% ALL BUSY — The percentage of time that all the trunks in this trunk group were busy. This value includes trunks that are maintenance busy. The calculation is:

$$\%\ ALL\ BUSY\ =\ \frac{Total\ of\ all\ Busy\ Times}{Time\ Interval}\ \times\ (100)$$

where Busy Times is expressed in minutes and is the sum of all times when all trunks were simultaneously busy.

% TIME MAINT — The percentage of time that one or more trunks have been busied-out for maintenance purposes. The calculation is:

$$\%\ TIME\ MAINT\ =\ \frac{Total\ Maintenance\ Busy\ Time\ \times\ 100}{Time\ Interval\ \times\ Number\ of\ Trunks\ in\ Group}$$

where:

- Total Maintenance Busy Time is the sum of Maintenance Busy Time (in minutes) for all trunks (individually) in this trunk group during this interval
- Time Interval is expressed in minutes (for example, *30* if using a half-hour interval, *60* if using a one-hour interval, and *1440* if using a daily summary)

NOTE:
For reporting purposes, call data is stored during the time interval (hour or half-hour) that the trunk goes idle, not when the station releases. Also, changing the number of trunks in a trunk group can cause unexpected results for that interval.

Displaying the BCMS Trunk Group Report

BCMS allows you to collect data in either hourly/half-hourly intervals or daily intervals and display the report on your terminal.

Displaying an Hourly/Half-Hourly Interval Report

To display this report, perform the following steps:

1. Enter `list bcms trunk ## time xx:xx xx:xx` (where ## is a valid BCMS measured trunk group). If the trunk group is only one digit (for example, trunk 5), just enter the single digit. The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

NOTE:
Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The BCMS Trunk Group Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Displaying a Daily Report

To display this report, perform the following steps:

1. Enter `list bcms trunk ## day xx/xx xx/xx` (where ## is a valid BCMS measured trunk group). If the trunk group is only one digit (for example, trunk 5), just enter the single digit. The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).
2. Press RETURN.

   — The BCMS Trunk Group Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Printing the BCMS Trunk Group Report

BCMS allows you to collect data in either hourly/half-hourly intervals or daily intervals and print the report. If you have a printer directly connected to your terminal, you may print reports using the instructions provided below. If you do not have a printer directly connected to your terminal, consult the instructions for scheduling reports to print to the system printer.

Printing an Hourly/Half-Hourly Interval Report

To print this report, perform the following steps:

1. Enter `list bcms trunk ## time xx:xx xx:xx print` (where ## is a valid BCMS measured trunk group). If the trunk group is only one digit (for example, trunk 5), just enter the single digit. The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours

may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

NOTE:
Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.
   — The BCMS Trunk Group Report prints at the printer attached to your terminal.

Printing a Daily Report

To print this report, perform the following steps:

1. Enter `list bcms trunk ## day xx/xx xx/xx print` (where ## is a valid BCMS measured trunk group). If the trunk group is only one digit (for example, trunk 5), just enter the single digit. The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).
2. Press RETURN.
   — The BCMS Trunk Group Report prints at the printer attached to your terminal.

Scheduling the BCMS Trunk Group Report to Print

The Report Scheduler allows you to schedule the day or days for the system to print the report. If you do not have a printer directly connected to your terminal, you may use the Report Scheduler feature to print the report immediately to the system printer. The data for this report can be collected in hourly/half-hourly intervals or daily intervals.

Scheduling an Hourly/Half-Hourly Interval Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms trunk ## time xx:xx xx:xx schedule` (where ## is a valid BCMS measured trunk group). If the trunk group is only one digit (for example, trunk 5), just enter the single digit. The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are

always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

NOTE:
Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.
   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms trunk ## time xx:xx xx:xx
          Page 1
                          REPORT SCHEDULER
                                      Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms trunk ## time xx:xx xx:xx schedule

    Print Interval: immediate
```

Screen 4-30. Report Scheduler Form

NOTE:
If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.
   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms trunk ## time xx:xx xx:xx
          Page 1
                          REPORT SCHEDULER
                                       Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms trunk ## time xx:xx xx:xx schedule

    Print Interval: scheduled

    Print Time: xx:xx


         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-31. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.
5. Enter y for the day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.
   — The report has been scheduled, and the system presents the enter command: prompt.

Scheduling a Daily Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms trunk ## day xx/xx xx/xx schedule` (where ## is a valid BCMS measured trunk group). If the trunk group is only one digit (for example, trunk 5), just enter the single digit. The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).
2. Press RETURN.
   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms trunk ## day xx/xx xx/xx
          Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms trunk ## day xx/xx xx/xx schedule

    Print Interval: immediate
```

Screen 4-32. Report Scheduler Form

NOTE:
If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter schedule and press RETURN.
   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms trunk ## day xx/xx xx/xx
          Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms trunk ## day xx/xx xx/xx schedule

    Print Interval: scheduled

    Print Time: xx:xx


         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-33. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.

5. Enter y for the day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.
   — The report has been scheduled, and the system presents the enter command: prompt.

BCMS Trunk Group Summary Report

The BCMS Trunk Group Summary Report provides information about BCMS-measured trunk groups. You can specify the trunk groups you want included in the report. The BCMS Trunk Group Report can be used by the ACD administrator and/or manager to monitor use of one or more trunk groups and to determine the optimal number of trunks for the trunk groups. Note that this applies only to trunk groups measured by BCMS.

This report is similar to the BCMS Trunk Group Report except that the information for a trunk appears on separate lines of the report, with totals of activity for all trunks in the trunk group for the specified time. You can print the report for a certain time period specified in either hours or days (up to 7 days).

The report displays only the information that exists and does not identify absent data. If data does not exist for a specified trunk group, the trunk group does not appear on the report. Also, if information does not exist for a portion of the specified time period, the report displays all existing information but does not identify where there is no data. Screen 4-34 shows the BCMS Trunk Group Summary Report for an interval of hours, and Screen 4-35 shows the BCMS Trunk Group Summary Report for a daily interval.

NOTE:
When analyzing this report, keep the following things in mind:

- All averages are for completed calls only.
- Asterisks in a field indicate that the maximum for that field is exceeded.
- A single asterisk at the end of a time or date field indicates that during the interval, trunk group administration occurred which changed the number of trunks.

```
 list bcms trunk sum 23-25 time 8:00

                        BCMS TRUNK GROUP SUMMARY REPORT

Switch Name: Lab Model                          Date: 12:59 pm THU APR 20, 1995
       Time: 8:00-13:00

            |         INCOMING           |          OUTGOING         |%ALL %TIME
GROUP NAME  |CALLS ABAND   TIME      CCS | CALLS  COMP   TIME    CCS|BUSY  MAINT

IN-800          23     2   2:15    31.02       1     1   1:36   0.96    0      0
OUT-WATTS*      35     2   1:48    35.74       4     4   1:42   4.08    0      0
TIE-GROUP       24     1   1:40    22.93       0     0    :00   0.00    0      0
-----------  -----  ---- ------ ---------   ----- ----- ------ ------  ---    ---
SUMMARY         82     5   1:54    29.89       5     5   1:39   2.52    0      0
```

Screen 4-34. BCMS Trunk Group Summary Report — Hourly

```
 list bcms trunk sum 23 day 5/17/92

                        BCMS TRUNK GROUP SUMMARY REPORT

Switch Name: Lab Model                          Date: 12:59 pm THU APR 20, 1995
        Day: 5/17/95

            |         INCOMING           |          OUTGOING         |%ALL %TIME
GROUP NAME  |CALLS ABAND   TIME      CCS | CALLS  COMP   TIME    CCS|BUSY  MAINT

IN-800*         82     5   1:54    29.89       5     5   1:39   2.52    0      0
-----------  -----  ---- ------ ---------   ----- ----- ------ ------  ---    ---
SUMMARY         82     5   1:54    29.89       5     5   1:39   2.52    0      0
```

Screen 4-35. BCMS Trunk Group Summary Report — Daily

Report Headers, Abbreviations, and Their Definitions

This report presents header information at the top of each page. This information includes the command entered to generate the report, the page number of the report, the title of the report, and the time and date the report was generated.

TIME/DAY — The time or day interval specified in the command line. Time is always expressed in 24-hour format. Start and stop times are optional. Reports always start at the top of the time interval (either hour or half-hour). If no start time is given, the report displays data accrued for the previous 24 time intervals. A stop time requires an associated start time. If no stop time is given, the last

completed time interval (hour or half-hour) is the default. If no start time or stop time is given, the report displays data accrued for the previous 24 time intervals. If you specify *day* in the command and do not include a start day or stop day, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).

If switch administration causes the number of trunks in a BCMS-measured trunk group to change during a day or a time interval, an asterisk appears in the *DAY/TIME* field.

NAME — The name that is administered for this trunk group. If no name is administered, this field is displayed as blank.

INCOMING CALLS — The total number of incoming calls carried by this trunk group.

INCOMING ABAND — The number of incoming calls that queued to ACD splits, then abandoned (without being answered by a staffed agent within this split) during the reporting interval. Calls that cannot queue (for example, queue full, or calls that receive a busy signal from the central office because there are no available trunks) are not included in the INCOMING ABAND number. Also included are calls directly to staffed ACD agents that are unanswered.

INCOMING TIME — The average holding time for incoming calls to this trunk group during the specified reporting interval. Holding time is defined as the length of time in minutes and seconds that a facility is used during a call. The calculation for incoming time is:

$$INCOMING\ TIME = \frac{Total\ Holding\ Time\ \text{for}\ all\ Incoming\ Calls}{Total\ Number\ of\ Incoming\ Calls}$$

INCOMING CCS — The total holding time (usage) for incoming calls to the trunk group during the specified reporting interval. The units are expressed in hundred call seconds (CCS). Refer to the Glossary for a description of the term CCS.

OUTGOING CALLS — The total number of outgoing calls for this trunk group during the specified reporting interval.

OUTGOING COMP — The total number of outgoing calls that were placed over this trunk group and answered during the specified reporting interval.

NOTE:
Completion is determined by either return of network answer supervision, or a call that lasts longer than the answer supervision time-out parameter; whichever occurs first.

OUTGOING TIME — The average holding time for outgoing calls during the specified reporting interval. The calculation is:

$$OUTGOING\ TIME = \frac{Total\ Holding\ Time\ \text{for}\ Outgoing\ Calls}{Total\ Number\ of\ Outgoing\ Calls}$$

OUTGOING CCS — The total holding time for outgoing calls from this trunk group. The units are expressed in CCS.

% ALL BUSY — The percentage of time that all the trunks in this trunk group were busy. This value includes trunks that are maintenance busy. The calculation is:

$$\%\ ALL\ BUSY = \frac{Total\ of\ all\ Busy\ Times}{Time\ Interval} \times (100)$$

where

Busy Times is expressed in minutes and is the sum of all times when all trunks were simultaneously busy.

% TIME MAINT — The percentage of time that one or more trunks have been busied-out for maintenance purposes. The calculation is:

$$\%\ TIME\ MAINT = \frac{Total\ Maintenance\ Busy\ Time \times 100}{Time\ Interval \times Number\ of\ Trunks\ in\ Group}$$

where

- Total Maintenance Busy Time is the sum of Maintenance Busy Time (in minutes) for all trunks (individually) in this trunk group during this interval
- Time Interval is expressed in minutes (for example, *30* if using a half-hour interval, *60* if using a one-hour interval, and *1440* if using a daily summary)

NOTE:
For reporting purposes, call data is stored during the time interval (hour or half-hour) that the trunk goes idle, not when the station releases. Also, changing the number of trunks in a trunk group can cause unexpected results for that interval.

Displaying the BCMS Trunk Group Summary Report

BCMS allows you to collect data in either hourly/half-hourly intervals or daily intervals and display the report on your terminal.

Displaying an Hourly/Half-Hourly Interval Report

To display this report, perform the following steps:

1. Enter `list bcms summary trunk ## time xx:xx xx:xx` (where ## is a valid BCMS measured trunk group). If the trunk group is only one digit (for example, trunk 5), just enter the single digit. The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given then the last interval of data will be used to calculate the one-line display for each trunk group.

   NOTE:
   Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The BCMS Trunk Group Summary Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Displaying a Daily Report

To display this report, perform the following steps:

1. Enter `list bcms summary trunk ## day xx/xx xx/xx` (where ## is a valid BCMS measured trunk group). If the trunk group is only one digit (for example, trunk 5), just enter the single digit. The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given then the last day of data will be used to calculate the one-line display for each trunk group.

2. Press RETURN.

   — The BCMS Trunk Group Summary Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Printing the BCMS Trunk Group Summary Report

BCMS allows you to collect data in either hourly/half-hourly intervals or daily intervals and print the report. If you have a printer directly connected to your terminal, you may print reports using the instructions provided below. If you do not have a printer directly connected to your terminal, consult the instructions for scheduling reports to print to the system printer.

Printing an Hourly/Half-Hourly Interval Report

To print this report, perform the following steps:

1. Enter `list bcms summary trunk ## time xx:xx xx:xx print` (where ## is a valid BCMS measured trunk group). If the trunk group is only one digit (for example, trunk 5), just enter the single digit. The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given then the last interval of data will be used to calculate the one-line display for each trunk group.

   NOTE:
   Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The BCMS Trunk Group Summary Report prints at the printer attached to your terminal.

Printing a Daily Report

To print this report, perform the following steps:

1. Enter `list bcms summary trunk ## day xx/xx xx/xx print` (where ## is a valid BCMS measured trunk group). If the trunk group is only one digit (for example, trunk 5), just enter the single digit. The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given then the last day of data will be used to calculate the one-line display for each trunk group.

2. Press RETURN.

   — The BCMS Trunk Group Summary Report prints at the printer attached to your terminal.

Scheduling the BCMS Trunk Group Summary Report to Print

The Report Scheduler allows you to schedule the day or days for the system to print the report. If you do not have a printer directly connected to your terminal, you may use the Report Scheduler feature to print the report immediately to the system printer. The data for this report can be collected in hourly/half-hourly intervals or daily intervals.

Scheduling an Hourly/Half-Hourly Interval Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms summary trunk ## time xx:xx xx:xx schedule` (where ## is a valid BCMS measured trunk group). If the trunk group is only one digit (for example, trunk 5), just enter the single digit. The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given then the last interval of data will be used to calculate the one-line display for each trunk group.

   NOTE:
   Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms summary trunk ## time xx:xx xx:xx
          Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms summary trunk ## time xx:xx xx:xx schedule

    Print Interval: immediate
```

Screen 4-36. Report Scheduler Form

NOTE:
If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.
   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms summary trunk ## time xx:xx xx:xx
          Page 1
                          REPORT SCHEDULER
                                       Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms summary trunk ## time xx:xx xx:xx schedule

    Print Interval: scheduled

    Print Time: xx:xx


         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-37. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.
5. Enter y for the day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.
   — The report has been scheduled, and the system presents the enter command: prompt.

Scheduling a Daily Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms summary trunk ## day xx/xx xx/xx schedule` (where ## is a valid BCMS measured trunk group). If the trunk group is only one digit (for example, trunk 5), just enter the single digit. The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given then the last day of data will be used to calculate the one-line display for each trunk group.

2. Press RETURN.

   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms summary trunk ## day xx/xx xx/xx
          Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms summary trunk ## day xx/xx xx/xx schedule

    Print Interval: immediate
```

Screen 4-38. Report Scheduler Form

NOTE:
If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.

   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms summary trunk ## day xx/xx xx/xx
          Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms summary trunk ## day xx/xx xx/xx schedule

    Print Interval: scheduled

    Print Time: xx:xx


         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-39. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.
5. Enter y for the day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.
   — The report has been scheduled, and the system presents the enter command: prompt.

BCMS VDN Report

The BCMS VDN Report provides statistical information for the specified VDN. Depending on specifics from the command line, the information may be displayed as either a time interval or a daily summary. If neither *time* nor *day* is specified, *time* is the default. In this case, the report displays data accrued for the previous 24 time intervals (hour or half-hour), including data from the most recently completed interval. Screen 4-40 shows the BCMS VDN Report — Hourly, and Screen 4-41 shows the BCMS VDN Report — Daily.

NOTE:
When analyzing this report, keep the following things in mind:

- All averages are for completed calls only.
- A completed call may span more than one time period. ACD calls that are in process (have not terminated) are counted in the time period in which they terminate. For example, if an ACD call begins in the 10:00 to 11:00 time period, but terminates in the 11:00 to 12:00 time period, the data for this call is counted in the 11:00 to 12:00 time period.
- Asterisks indicate that the maximum for the associated field has been exceeded.

```
list bcms vdn 12345 time 8:00 12:00

                      BCMS VECTOR DIRECTORY NUMBER REPORT

Switch Name: Lab Model                          Date: 11:05 am MON MAY 15, 1995
        VDN: 12345
   VDN Name: Ginsu Knives                        Acceptable Service Level:  17

                            AVG          AVG    AVG               CALLS  % IN
              CALLS   ACD   SPEED ABAND  ABAND  TALK/ CONN   FLOW BUSY/  SERV
TIME          OFFERED CALLS ANSW  CALLS  TIME   HOLD  CALLS  OUT  DISC   LEVL

08:00-09:00       79    50    :39     5    :45   2:30     0     0    24    85*
-----------     ----- ----- -----  -----  -----  ----- -----  ----  ----   ---
SUMMARY           79    50    :39     5    :45   2:30     0     0    24    85
```

Screen 4-40. BCMS VDN Report — Hourly

```
list bcms vdn 12345 day 5/14

                      BCMS VECTOR DIRECTORY NUMBER REPORT

Switch Name: Lab Model                          Date: 11:05 am MON MAY 15, 1995
        VDN: 12345
   VDN Name: Ginsu Knives                        Acceptable Service Level:  17

                            AVG          AVG    AVG               CALLS  % IN
              CALLS   ACD   SPEED ABAND  ABAND  TALK/ CONN   FLOW BUSY/  SERV
DAY           OFFERED CALLS ANSW  CALLS  TIME   HOLD  CALLS  OUT  DISC   LEVL

5/14/95           79    50    :39     5    :45   2:30     0     0    24    85*
-----------     ----- ----- -----  -----  -----  ----- -----  ----  ----   ---
SUMMARY           79    50    :39     5    :45   2:30     0     0    24    85
```

Screen 4-41. BCMS VDN Report — Daily

Report Headers, Abbreviations, and Their Definitions

This report presents header information at the top of each page. This information includes the command entered to generate the report, the page number of the report, the title of the report, and the time and date the report was generated. If this is a time report and there are more than 10 time intervals, this report is displayed on multiple pages. A daily summary report is displayed on the last page of the report.

VDN — The VDN specified with the command line.

VDN NAME — The name that is administered for this VDN. If no name exists, the VDN extension (for example, EXT 64532) is displayed.

ACCEPTABLE SERVICE LEVEL — The desired time to answer the VDN. Timing for a call begins when the VDN is encountered.

TIME/DAY — The time or day interval specified in the command line.

Time is always expressed in 24-hour format. Start and stop times are optional. Reports always start at the earliest time interval (either hour or half-hour). If no start time is given, the oldest time interval is the default. A stop time requires an associated start time. If no stop time is given, the last completed time interval (hour or half-hour) is the default. If no start or stop time is given, the report displays data accrued for the previous 24 time intervals. If you specify *day* in the command and do not include a start day or stop day, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).

CALLS OFFERED — The total number of ended calls that accessed the VDN during the current interval. This calculation is:

$$CALLS\ OFFERED = NUM\ ANS + FLOW\ OUT + CALLS\ BUSY/DISC + NUM\ ABAND$$

ACD CALLS — The total number of calls to the VDN that ended in the specified interval and were answered by an agent in a BCMS-measured hunt group. ACD calls include calls that reached the split via the queue-to-main, check backup, route-to, messaging split, or adjunct routing commands.

AVG SPEED ANS — The average speed of answer for answered ACD and CONNect calls that have ended for this VDN during the current period. This includes time in vector processing, time in a split's queue, and time ringing. This calculation is:

$$AVG\ SPEED\ ANS = \frac{Total\ Answer\ Time}{Total\ ACD\ Calls + Total\ Connect\ Calls}$$

NOTE:
A completed call can span more than one time period. ACD calls that are in process (have not terminated) are counted in the time period in which they terminate. For example, if an ACD call begins in the 10:00 to 11:00 time period, but terminates in the 11:00 to 12:00 time period, the data for this call is counted in the 11:00 to 12:00 time period.

ABAND CALLS — The total number of calls that have abandoned from the VDN before being answered or outflowed to another position during the current interval. This value includes calls that abandoned while in vector processing or while ringing an agent. Calls that abandoned immediately after the agent answered are recorded as NUM ANS.

AVG ABAND TIME — The average time calls spent waiting in this VDN before being abandoned by the caller during the current interval. The calculation is:

$$AVG\ ABAND\ TIME\ =\ \frac{Total\ VDN\ Abandon\ Time}{Total\ Number\ of\ Abandoned\ VDN\ Calls}$$

AVG TALK/HOLD TIME — The average duration of calls (from answer to disconnect) for this VDN during the current interval. This includes time spent talking and on hold. The calculation does not include ring time at an agent's voice terminal. The calculation is:

$$AVG\ TALK\ TIME\ =\ \frac{Total\ VDN\ Talk/Hold\ Time}{NUM\ ANS}$$

CONN CALLS — The number of ended calls that were routed to a station, attendant, or announcement, and were answered there.

FLOW OUT — The total number of ended calls that were routed to another VDN or to a trunk, including successful lookahead attempts.

FLOW OUT does not include calls that encounter a **goto vector** command.

Once a call outflows, the system does not take further measurements on the call for this VDN. As a result, if an outflowed call later abandons, it is not recorded in NUM ABAND for this VDN.

CALLS BUSY/DISC — The total number of calls that were forced busy or forced disconnect during the current interval. This value does not include abandoned calls.

% IN SERV LEVL — The percentage of calls that were answered with the administered service level for this VDN. Calculate as the following:

$$\%\ IN\ SERV\ LEVL\ =\ \frac{accepted\ *\ 100}{calls\ offered}$$

where

accepted is the number of answered calls (*num ans*) whose answer time was less than or equal to the administered service level for the VDN. *num ans* here refers to the data item on the form of the same name.

calls offered the total number of completed calls that accessed the VDN during the current interval.

This field is blank if no calls have been recorded for this time interval. This field is also blank if no *Acceptable Service Level* is administered on the VDN form.

SUMMARY — For those columns that specify averages, the summary is also an average for the entire reporting interval. For the TOTAL ATTEMPTS, NUM ANS, NUM ABAND, FLOW OUT, and OTHER CALLS columns, the summary is the sum of individual time intervals or specified days.

Displaying the BCMS VDN Report

BCMS allows you to collect data in either hourly/half-hourly intervals or daily intervals and display the report on your terminal.

Displaying an Hourly/Half-Hourly Interval Report

To display this report, perform the following steps:

1. Enter `list bcms vdn ##### time xx:xx xx:xx` (where ##### is an administered VDN extension measured by BCMS). The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

   NOTE:
   Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The BCMS VDN Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Displaying a Daily Report

To display this report, perform the following steps:

1. Enter `list bcms vdn ##### day xx/xx xx/xx` (where ##### is an administered VDN extension measured by BCMS). The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days and data accrued through the most recently completed time interval (hour or half-hour).

2. Press RETURN.

   — The BCMS VDN Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Printing the BCMS VDN Report

BCMS allows you to collect data in either hourly/half-hourly intervals or daily intervals and print the report. If you have a printer directly connected to your terminal, you may print reports using the instructions provided below. If you do not have a printer directly connected to your terminal, consult the instructions for scheduling reports to print to the system printer.

Printing an Hourly/Half-Hourly Interval Report

To print this report, perform the following steps:

1. Enter `list bcms vdn ##### time xx:xx xx:xx print` (where ##### is an administered VDN extension measured by BCMS). The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

   NOTE:
   Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The BCMS VDN Report prints on the printer attached to your terminal.

Printing a Daily Report

To print this report, perform the following steps:

1. Enter `list bcms vdn ##### day xx/xx xx/xx print` (where ##### is an administered VDN extension measured by BCMS). The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days and data accrued through the most recently completed time interval (hour or half-hour).

2. Press RETURN.

   — The BCMS VDN Report prints on the printer attached to your terminal.

Scheduling the BCMS VDN Report to Print

BCMS allows you to schedule the day or days for the system to print the report. If you do not have a printer directly connected to your terminal, you may use the Report Scheduler feature to print the report immediately to the system printer. The data for this report can be collected in hourly/half-hourly intervals or daily intervals.

Scheduling an Hourly/Half-Hourly Interval Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms vdn ##### time xx:xx xx:xx schedule` (where ##### is an administered VDN extension measured by BCMS). The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given, the report displays data accrued for the previous 24 time intervals (hour or half-hour).

   NOTE:
   Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms vdn ##### time xx:xx xx:xx
           Page 1
                          REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms vdn #### time xx:xx xx:xx schedule

    Print Interval: immediate
```

Screen 4-42. Report Scheduler Form

NOTE:
If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.
   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms vdn ##### time xx:xx xx:xx
          Page 1
                          REPORT SCHEDULER
                                       Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms vdn #### time xx:xx xx:xx schedule

    Print Interval: scheduled

    Print Time: xx:xx


         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-43. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.
5. Enter y for the day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.
   — The report has been scheduled, and the system presents the enter command: prompt.

Scheduling a Daily Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms vdn ##### day xx/xx xx/xx schedule` (where ##### is an administered VDN extension measured by BCMS). The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).

2. Press RETURN.

   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms vdn ##### day xx/xx xx/xx
          Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990

    Job Id: 1                          Job Status: none

    Command: list bcms vdn #### day xx/xx xx/xx schedule

    Print Interval: immediate
```

Screen 4-44. Report Scheduler Form

NOTE:
If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.

   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms vdn ##### day xx/xx xx/xx
          Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990

    Job Id: 1                          Job Status: none

    Command: list bcms vdn #### day xx/xx xx/xx schedule

    Print Interval: scheduled

    Print Time: xx:xx

         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-45. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.
5. Enter y for the day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.
   — The report has been scheduled, and the system presents the enter command: prompt.

BCMS VDN Summary Report

This report is similar to the VDN Report except that it provides one line of data for each VDN included in the report, and the one line includes all data for the specified times. If no data exists for a VDN, the VDN does not appear on the report.

```
 list bcms summary vdn 12345, 13443-13448 time 8:00-12:00

                    BCMS VECTOR DIRECTORY NUMBER SUMMARY REPORT

Switch Name: Lab Model                          Date: 11:05 am MON MAY 15, 1995
       Time: 8:00-12:00
                                AVG             AVG    AVG                CALLS  % IN
               CALLS   ACD      SPEED ABAND     ABAND  TALK/ CONN   FLOW BUSY/  SERV
VDN NAME       OFFERED CALLS    ANSW  CALLS     TIME   HOLD  CALLS  OUT  DISC   LEVL

EXT 13443            0     0    :00     0     :00    :00      0     0     0
EXT 13444            0     0    :00     0     :00    :00      0     0     0
EXT 13445            0     0    :00     0     :00    :00      0     0     0
EXT 13446            0     0    :00     0     :00    :00      0     0     0
EXT 13447            0     0    :00     0     :00    :00      0     0     0
EXT 13448            0     0    :00     0     :00    :00      0     0     0
Ginsu Knive         79    50    :39     5     :45   2:30      0     0    24     85*
-----------      ----- ----- -----   ----  -----  -----  -----  ----  ----    ---
SUMMARY             79    50    :39     5     :45   2:30      0     0    24     85
```

Screen 4-46. BCMS VDN Summary Report — Hourly Summary

```
 list bcms summary vdn 12345 day 5/14

                    BCMS VECTOR DIRECTORY NUMBER SUMMARY REPORT

Switch Name: Lab Model                          Date: 11:05 am MON MAY 15, 1995
        Day: 5/14/95
                                AVG           AVG    AVG                CALLS  % IN
              CALLS   ACD     SPEED ABAND   ABAND  TALK/ CONN    FLOW BUSY/  SERV
VDN NAME      OFFERED CALLS   ANSW  CALLS   TIME   HOLD  CALLS   OUT  DISC   LEVL

Ginsu Knives       79    50    :39     5    :45   2:30     0     0    24     85*
 -----------   -----   ----- -----  ----  -----  -----  -----  ----  ----    ---
SUMMARY            79    50    :39     5    :45   2:30     0     0    24     85
```

Screen 4-47. BCMS VDN Summary Report — Daily Summary

Report Headers, Abbreviations, and Their Definitions

This report presents header information at the top of each page. This information includes the command entered to generate the report, the page number of the report, the title of the report, and the time and date the report was generated. If this is a time report and there are more than 10 time intervals, this report is displayed on multiple pages. A daily summary report is displayed on the last page of the report.

TIME/DAY — The time or day interval specified in the command line.

Time is always expressed in 24-hour format. Start and stop times are optional. Reports always start at the earliest time interval (either hour or half-hour). If no start time is given, the oldest time interval is the default. A stop time requires an associated start time. If no stop time is given, the last completed time interval (hour or half-hour) is the default. If no start or stop time is given, the report displays data accrued for the previous 24 time intervals. If you specify *day* in the command and do not include a start day or stop day, the report displays data accrued for the previous six days and data accrued through the most recently completed interval (hour or half-hour).

VDN NAME — The name that is administered for this VDN. If no name exists, the VDN extension (for example, EXT 64532) is displayed.

CALLS OFFERED — The total number of completed calls that accessed the VDN during the current interval. This calculation is:

$$CALLS\ OFFERED = NUM\ ANS + FLOW\ OUT + OTHER\ CALLS + NUM\ ABAND$$

where OTHER CALLS are calls classified as forced busy or forced disconnect.

ACD CALLS — The total number of calls to the VDN that ended in the specified interval and were answered by an agent as a result of a queue to main or check backup split step.

AVG SPEED ANS — The average time that calls spend in a vector before being connected as an ACD call to an agent (for example, via a queue to the main split or check backup step) during the current interval. This includes queue time and time ringing at an agent's station. This calculation is:

$$AVG\ TIME\ TO\ CONNECT\ =\ \frac{Total\ Time\ Calls\ spend\ in\ VDN\ before\ being\ answered}{NUM\ ANS}$$

NOTE:
A completed call may span more than one time period. ACD calls that are in process (have not terminated) are counted in the time period in which they terminate. For example, if an ACD call begins in the 10:00 to 11:00 time period, but terminates in the 11:00 to 12:00 time period, the data for this call is counted in the 11:00 to 12:00 time period.

ABAND CALLS — The total number of calls that have abandoned from the VDN before being answered or outflowed to another position during the current interval. This value includes calls that abandoned while in vector processing or while ringing an agent. Calls that abandoned immediately after the agent answered are recorded as NUM ANS.

AVG ABAND TIME — The average time calls spent waiting in this VDN before being abandoned by the caller during the current interval. The calculation is:

$$AVG\ ABAND\ TIME\ =\ \frac{Total\ VDN\ Abandon\ Time}{Total\ Number\ of\ Abandoned\ VDN\ Calls}$$

AVG TALK/HOLD TIME — The average duration of calls (from answer to disconnect) for this VDN during the current interval. This includes time spent talking and on hold. The calculation does not include ring time at an agent's voice terminal. The calculation is:

$$AVG\ TALK\ TIME\ =\ \frac{Total\ VDN\ Talk/Hold\ Time}{NUM\ ANS}$$

CONN CALLS — The number of calls that were routed to a station, attendant, or announcement, and were answered there.

FLOW OUT — The total number of calls that were routed to another VDN or to a trunk.

FLOW OUT does not include calls that encounter a **goto vector** command or calls that forward to another extension (which are tracked as CONNected CALLS).

Once a call outflows, the system does not take further measurements on the call for this VDN. As a result, if an outflowed call later abandons, it is be recorded in NUM ABAND for this VDN.

CALLS BUSY/DISC — The total number of calls that were forced busy or forced disconnect during the current interval. This value does not include abandoned calls.

% IN SERV LEVL — The percentage of calls that were answered with the administered service level for this VDN. Calculate as the following:

$$\%\ IN\ SERV\ LEVL\ =\ \frac{accepted\ *\ 100}{calls\ offered}$$

where

accepted is the number of answered calls (*num ans*) whose answer time was less than or equal to the administered service level for the VDN. *num ans* here refers to the data item on the form of the same name.

calls offered the total number of completed calls that accessed the VDN during the current interval.

SUMMARY — For those columns that specify averages, the summary is also an average for the entire reporting interval. For the TOTAL ATTEMPTS, NUM ANS, NUM ABAND, FLOW OUT, and OTHER CALLS columns, the summary is the sum of individual time intervals or specified days.

Displaying the BCMS VDN Summary Report

BCMS allows you to collect data in either hourly/half-hourly intervals or daily intervals and display the report on your terminal.

Displaying an Hourly/Half-Hourly Interval Report

To display this report, perform the following steps:

1. Enter `list bcms summary vdn ##### time xx:xx xx:xx` (where ##### is an administered VDN extension measured by BCMS). The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1- or 2-digit number. Minutes are always expressed as two digits. If no start time is given then the last interval of data will be used to calculate the one-line display for each VDN.

NOTE:
Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The BCMS VDN Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Displaying a Daily Report

To display this report, perform the following steps:

1. Enter `list bcms summary vdn ##### day xx/xx xx/xx` (where ##### is an administered VDN extension measured by BCMS). The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given then the data accumulated for the last day (the current day) will be used to calculate the one-line display for each VDN.

2. Press RETURN.

   — The BCMS VDN Report appears on your screen.

3. If the report consists of more than one page, press the NEXTPAGE key to display subsequent pages and the PREVPAGE key to display previous pages.

Printing the BCMS VDN Summary Report

BCMS allows you to collect data in either hourly/half-hourly intervals or daily intervals and print the report. If you have a printer directly connected to your terminal, you may print reports using the instructions provided below. If you do not have a printer directly connected to your terminal, consult the instructions for scheduling reports to print to the system printer.

Printing an Hourly/Half-Hourly Interval Report

To print this report, perform the following steps:

1. Enter `list bcms summary vdn ##### time xx:xx xx:xx print` (where ##### is an administered VDN extension measured by BCMS). The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1-

NOTE:
Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The BCMS VDN Report prints on the printer attached to your terminal.

Printing a Daily Report

To print this report, perform the following steps:

1. Enter `list bcms summary vdn ##### day xx/xx xx/xx print` (where ##### is an administered VDN extension measured by BCMS). The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given then the data accumulated for the last day (the current day) will be used to calculate the one-line display for each VDN.
2. Press RETURN.

   — The BCMS VDN Report prints on the printer attached to your terminal.

Scheduling the BCMS VDN Summary Report to Print

BCMS allows you to schedule the day or days for the system to print the report. If you do not have a printer directly connected to your terminal, you may use the Report Scheduler feature to print the report immediately to the system printer. The data for this report can be collected in hourly/half-hourly intervals or daily intervals.

Scheduling an Hourly/Half-Hourly Interval Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms summary vdn ##### time xx:xx xx:xx schedule` (where ##### is an administered VDN extension measured by BCMS). The first specified time is referred to as the start time, while the second time is referred to as the stop time. Time must be displayed in 24-hour format; however, the hours may be indicated as either a 1-

NOTE:
Whether the system collects the data in hourly or half-hourly intervals depends on the Measurement Interval setting in the Feature-Related System Parameters screen.

2. Press RETURN.

   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms summary vdn ##### time xx:xx xx:xx
           Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                           Job Status: none

    Command: list bcms summary vdn #### time xx:xx xx:xx schedule

    Print Interval: immediate
```

Screen 4-48. Report Scheduler Form

NOTE:
If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.

   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms summary vdn ##### time xx:xx xx:xx
           Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                           Job Status: none

    Command: list bcms summary vdn #### time xx:xx xx:xx schedule

    Print Interval: scheduled

    Print Time: xx:xx


         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-49. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.
5. Enter y for the day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.
   — The report has been scheduled, and the system presents the enter command: prompt.

Scheduling a Daily Report to Print

To schedule this report, perform the following steps:

1. Enter `list bcms summary vdn ##### day xx/xx xx/xx schedule` (where ##### is an administered VDN extension measured by BCMS). The first specified day is referred to as the start day, while the second day is referred to as the stop day. If no start day is given then the data accumulated for the last day (the current day) will be used to calculate the one-line display for each VDN.
2. Press RETURN.
   — The Report Scheduler form appears on your screen. The cursor is located in the Print Interval: field.

```
list bcms summary vdn ##### day xx/xx xx/xx
          Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms summary vdn #### day xx/xx xx/xx schedule

    Print Interval: immediate
```

Screen 4-50. Report Scheduler Form

NOTE:
If you do not have a printer directly connected to your terminal, you can immediately print the report to the system printer by pressing ENTER.

3. Enter `schedule` and press RETURN.
   — The Print Time: field appears beneath the Print Interval: field, and fields for each day of the week appear at the bottom of the form. The cursor is located in the Print Time: field.

```
list bcms summary vdn ##### day xx/xx xx/xx
          Page 1
                            REPORT SCHEDULER
                                        Date: 11:00 pm MON APR 23, 1990


    Job Id: 1                          Job Status: none

    Command: list bcms summary vdn #### day xx/xx xx/xx schedule

    Print Interval: scheduled

    Print Time: xx:xx


         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 4-51. Report Scheduler Form with the Print Interval Set to *scheduled*

4. Enter the time you want the report printed and press RETURN.
   — The cursor moves to the Sun: field.
5. Enter y for the day(s) you want the report printed. Use RETURN to move the cursor to the next field.
6. When you are finished, press ENTER.
   — The report has been scheduled, and the system presents the enter command: prompt.

System Printer and Report Scheduler

5

System Printer

The system printer, rather than the slave printer that is attached directly to the Management Terminal is used to print those reports that are scheduled. However, when desired and on demand, individual reports may still be printed using the printer that is attached to the Management Terminal.

The Report Scheduler feature uses the system printer as its output device. The hardware parameters for the system printer must have been previously administered.

The customer uses the Feature-Related System Parameters screen to administer the hardware parameters of the system printer. The system administrator login may access this screen form by entering the **change system-parameters features** command. The procedures for administering the system printer are different for G3i and G3r.

G3i System Printer Administration

Screen 5-1 shows the Feature-Related System Parameters screen for Generic 3i and Table 5-1 describes the data fields for this screen.

```
                                                              Page  4 of 6
                      FEATURE-RELATED SYSTEM PARAMETERS
SYSTEM PRINTER PARAMETERS
             System Printer Extension: _____                Lines Per Page: ___
                  EIA Device Bit Rate: ____
SYSTEM-WIDE PARAMETERS
                        Switch Name: ____________________
CALL CENTER SYSTEM PARAMETERS
 Expert Agent Selection (EAS) Enabled? _    Direct Agent Announcement Delay: __
Minimum Agent-LoginID Password Length: _          Converse First Data Delay: _
  Direct Agent Announcement Extension: _____     Converse Second Data Delay: _
Msg Waiting Lamp Indicates Status For: __

CALL MANAGEMENT SYSTEM PARAMETERS
BCMS/VuStats Measurement Interval: _________
BCMS/VuStats Abandon Call Timer (seconds): __           Validate Login IDs? _
          ACD Login Identification Length: _          Adjunct CMS Release: ____

MALICIOUS CALL TRACE PARAMETERS
               Apply MCT Warning Tone? _     MCT Voice Recorder Trunk Group: ___
```

Screen 5-1. System Printer Hardware Administration Screen for G3i

NOTE:
The Measurement Interval field determines the length of the BCMS time interval. Choices are `hour` and `half-hour`.

The system printer must use an Electronic Industries Association EIA 232 asynchronous serial interface. The AT&T 475 printer and the AT&T 572 printer (or compatible) meet these requirements and are recommended for use as the system printer. Depending upon the type and/or model of serial printer that is used, certain hardware option switch settings may have to be changed as a part of the installation procedure. Appendix B, "Data Module and Printer Options" lists the option switch settings for the AT&T 475 printer and the programmable settings for the AT&T 572 printer.

Table 5-1. System Printer Hardware Administration for G3i

Field	Description
Printer Extension:	There are two possible options for the printer data link: (1) enter EIA if connected directly to the switch processor DCE connector on the back of the G3i cabinet (refer to Figure 5-1 on page 5-5 which follows), or (2) enter the extension number if connected to a switched port. There are two different types of switched port circuits. The TN754 circuit pack supports connections to 7400A-type data modules, while the TN726 circuit pack supports connections to the Asynchronous Data Unit (ADU)-type data module. Local requirements will determine which data link option to select. If the EIA connection is not available (for example, the CDR feature is already using it) one of the switched ports must be used. If the EIA connection is used by the system printer and at a later date it is desired to enable the CDR feature, then the system printer should be moved to a switched port to accommodate CDR.
EIA Bit Device Rate:	1200 bps are recommended whenever the Printer Extension: field is administered as EIA. Although other speeds may be administered, 1200 bps are adequate for this application, less demanding of the switch resources, and should eliminate any potential data buffer overflow problems. Whenever a switched port circuit is used, the EIA Bit Device Rate: field that is administered on the Data Module screen form will apply.
Lines Per Page:	The number of lines on the computer form. The range is from 24 to 132. Generally, 60 will be the appropriate selection.

G3r System Printer Administration

Screen 5-2 shows the Feature-Related System Parameters screen for Generic 3r, and Table 5-2 describes the data fields for this screen.

```
change system-parameters features
        Page  4 of 6
                          FEATURE-RELATED SYSTEM PARAMETERS
SYSTEM PRINTER PARAMETERS
             System Printer Extension: _____                 Lines Per Page: ___

SYSTEM-WIDE PARAMETERS
                           Switch Name: ____________________

CALL CENTER SYSTEM PARAMETERS
 Expert Agent Selection (EAS) Enabled? _    Direct Agent Announcement Delay: __
Minimum Agent-LoginID Password Length: _          Converse First Data Delay: _
  Direct Agent Announcement Extension: _____     Converse Second Data Delay: _
Msg Waiting Lamp Indicates Status For:

CALL MANAGEMENT SYSTEM PARAMETERS
BCMS/VuStats Measurement Interval: _________
BCMS/VuStats Abandon Call Timer (seconds): __          Validate Login IDs?
          ACD Login Identification Length: _           Adjunct CMS Release: ____

MALICIOUS CALL TRACE PARAMETERS
               Apply MCT Warning Tone? _     MCT Voice Recorder Trunk Group: ___
```

Screen 5-2. System Printer Hardware Administration Screen for G3r

NOTE:
The Basic CMS Measurement Interval: field determines the length of the BCMS time interval. Choices are `hour` and `half-hour`.

The system printer may be either an AT&T 475 printer or AT&T 572 printer. Depending upon the model of serial printer that is used, certain hardware option switch settings may have to be changed as a part of the installation procedure. Appendix B, "Data Module and Printer Options" lists the option switch settings for the AT&T 475 printer and the programmable settings for the AT&T 572 printer.

Table 5-2. System Printer Hardware Administration for G3r

Field	Description
Printer Extension:	Enter the data module extension number associated with the system printer.
Lines Per Page:	The number of lines on the computer form. The range is from 24 to 132. Generally, 60 will be the appropriate selection.

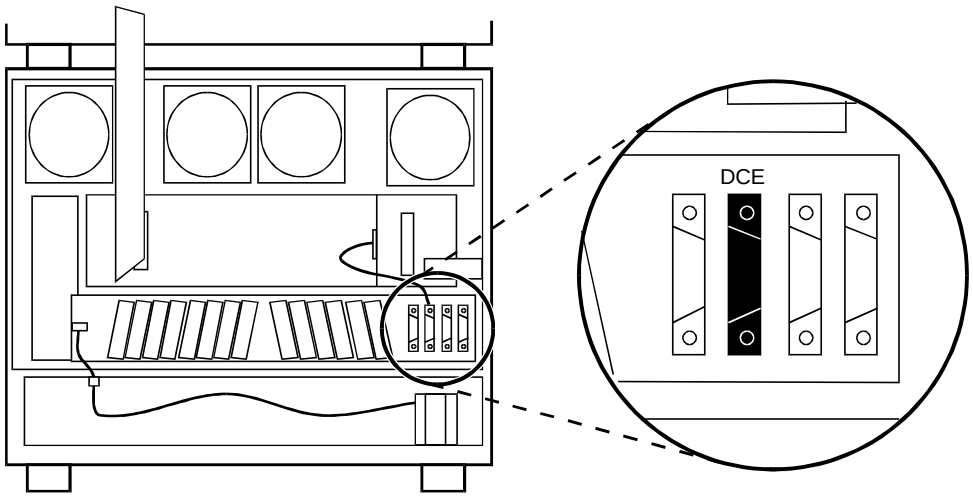

Figure 5-1. Rear View, Single Carrier Cabinet Detail shows ports, with DCE port shaded in black

System Printer Data Link Operation and Maintenance

Operation and maintenance of the system printer data link is significantly different from the CDR and journal printer data links. For example, the CDR and journal printer data links are maintained in a constant link up state, while the system printer data link is only brought up once every 15 minutes provided there are reports to be printed, or when an immediate report is scheduled.

The system printer data link has three states that identify its operational condition. The states are: (1) link up, (2) link down, and (3) maintenance busyout. Whenever the communication path (including software processes, hardware cabling, and printer) functions properly and data is exchanged successfully between them, the data link is defined as being in the link up state. The link down state refers to all times except (1) whenever reports are being printed and (2) whenever maintenance personnel have disabled the link. The maintenance busyout state is the result of executing the **busyout sp-link** command from the Manager I terminal. While in the maintenance busyout state, the switch software processes are disabled and the link retry operation is disabled.

It is assumed that all customers will monitor the operating status of the system printer and, as necessary, refill the paper bin, relieve any paper jams, verify that the printer is receiving power, etc.

NOTE:
A point of clarification is that only AT&T services personnel can execute the **busyout sp-link** command. This is normally only performed via the maintenance login. Therefore, as necessary, all nonmaintenance personnel should simply flip the printer power switch to the OFF position to refill the paper bin and remove jammed paper. Subsequently, the system printer can be restored on-line by turning the power switch ON.

If the system printer link generates either a Warning alarm or a Minor alarm, the problem should be referred to the proper maintenance personnel.

Report Scheduler

The Report Scheduler may be used with many switch features. Specifically, virtually all **list**, **display**, or **test** commands may be executed with the **schedule** qualifier. Therefore, the system administrator login, maintenance login, and other logins, may schedule reports.

Whenever a command containing the **schedule** option is executed, it results in generating a Job Id. A maximum of 50 different Job Ids (50 different reports) can be scheduled for printing. The Report Scheduler feature is used to specify the actual day(s) and time of day that each report will be printed.

Print Intervals

For purposes of printing reports, three print intervals are available:

- **immediate** — If you select this option, the report will be printed immediately.
- **scheduled** — If you select this option, the date, time, and day(s) parameters for the report are set administratively. To change them, readministration is required.
- **deferred** — If you select this option, the report will be generated once for the date, time, and day specified.

Adding a Report to the Report Scheduler

To add a report to the Report Scheduler, enter a **list**, **test**, **display**, or other command followed by the **schedule** option. Whenever a report is initially scheduled, the print interval of **immediate** is automatically assigned as the default. Therefore, if **immediate** is not desired, the print interval must be changed to **deferred** or **scheduled** and a day and print time must still be added to the Report Scheduler. Table 5-3 describes the data fields for this screen.

```
list measurements attendant-group                                    Page 1
                              REPORT SCHEDULER
    Job Id: 1                        Job Status: none
    Command: list measurements attendant-group
    Print Interval: immediate
```

Screen 5-3. Adding a Report with the List Measurements Attendant-Group Schedule Command

Table 5-3. Report Scheduler Field Descriptions

Field	Description
Job Id:	This is a display-only field. Whenever a command is executed with the qualifier **schedule**, the system responds by generating a unique Job Id number. The Job Id assigned by the system is the lowest number within the range of 1 through 50 that is not in use.
Job Status:	This is a display-only field. It identifies the print status of the report. Since the job is not yet on the Report Scheduler, this field displays none.
Command:	This is a display-only field. It displays the command line parameters ACTION, OBJECT, and QUALIFIER, of the command being scheduled.

Continued on next page

Table 5-3. Report Scheduler Field Descriptions — *Continued*

Field	Description
Print Interval:	This field has three options: immediate, deferred, and scheduled. The **immediate** option is initially assigned as a default. Thereafter this option is used whenever the administrator would like to print the report immediately. Whenever the Print Interval: field is changed from immediate to `deferred`, or `scheduled`, the system responds as appropriate with the word deferred or scheduled. Furthermore, the screen changes to the format shown in Screen 5-4 on page 5-9 and the administrator is prompted to enter values for the Print Time: and the days of the week fields. **NOTE:** The **deferred** option is only used when you want to schedule the report for a single printing. Thereafter, the Job Id is automatically removed from the Report Scheduler. Those reports that are administered as scheduled are printed on a week after week basis.
Print Time:	Within a given hour, reports may be scheduled at 15-minute intervals (that is, xx:00, xx:15, xx:30, or xx:45). The system printer requires significant switch processor resources. Therefore, it is important that the reports be scheduled for off-peak hours. Furthermore, the reports should not all be scheduled for the same hour and time interval, but should be staggered across multiple off-peak time intervals. If, because of printing volume or other problems, a report is not printed within four hours of its scheduled time interval, it will not be printed until its next scheduled time interval. This is a 4-hour (non-administrable) limit. Immediate and deferred jobs would be removed from the Report Scheduler under this scenario and would require reentry to print.
Days of Week	For each day of the week that the report is to be printed, enter y (yes). Alternatively, enter n (no) for those days when the report should not be printed. Selecting an n for all seven days of the week will effectively disable a report from being printed. Days are defaulted to n.

```
list report scheduler                                                Page 1
                              REPORT SCHEDULER
    Job Id: 1                       Job Status: none
    Command: list report scheduler
    Print Interval: scheduled
    Print Time: xx:xx
         Sun: n   Mon: n   Tue: n   Wed: n   Thu: n   Fri: n   Sat: n
```

Screen 5-4. Administering a Time/Date When Adding a Scheduled Report

Other commands, such as those described in Chapters 4 and 5, are added to the Report Scheduler in a similar manner. Simply append the schedule qualifier to the command (for example, **list aca-parameters schedule**, etc.) and, whenever the first screen appears, change the Print Interval: field from **immediate** to **scheduled** and subsequently administer the Print Time: and days of the week fields.

Summary of the Steps for Printing Reports on the System Printer

Procedure:

Execute a command with the **schedule** qualifier.

Response:

The first screen of the Report Scheduler (for example, Screen 5-3 on page 5-7 with the appropriate command) is displayed. It indicates that the print interval is immediate.

Procedure:

Either (a) press ENTER — to print the report (immediately) on the system printer, or (b) since the cursor is on the word immediate just type the word **scheduled**, or **deferred**, and then press ENTER.

NOTE:
If you are using a PC running the 513 terminal emulation package, your keyboard will not have an ENTER. You must map a function key to serve in this capacity (pressing RETURN will not achieve the desired results).

Response:

When the print interval is changed to **scheduled** or **deferred**, the Print Time: and the days of the week fields are displayed (for example, Screen 5-4 with the appropriate command).

Procedure:

Type in the desired print time and press ENTER. The cursor is now on the days of the week field. For those days that you desire to print the report, type in a y.

Response:

Press ENTER to execute the command. The system responds with a prompt for the next command.

Listing Scheduled Reports

To display a list of all reports that are on the Report Scheduler, enter the **list report-scheduler** command. This command displays a list of all reports in the Report Scheduler. The order of the list is according to scheduled print time. Reports will be printed according to this list (for example, first report on the list is the first report printed). Screen 5-5 shows the screen for the **list report-scheduler** command. Table 5-4 describes the data fields for this screen.

```
list report-scheduler
                                                                Page 1 of x
                              REPORT SCHEDULER
      Job Id     Days (smtwtfs)        Time      User      Status     Type
            Command
        4              nynnnnn        18:45      bcms      printing   immediate
           list measurements attendant-group time 14:15
        2              nynynyn        19:00      bcms      waiting    scheduled
           list measurements call-rate time 07:00
        7               nnnnnyn        19:15      bcms      waiting    deferred
           list bcms agent 5000 time  08:00     12:00
        23             nnynnnn        19:15      bcms      waiting    scheduled
           list bcms agent 4000  day  09/11     09/15
```

Screen 5-5. Report Scheduler Screen Form — Typical

NOTE:
In instances such as those for Job Id 4, if an immediate report is scheduled, the Days field is completed with one y for the current day and n for the others.

All fields are display-only. If, after reviewing this report, it is determined that change needs to be made, the **change report-scheduler** command may be used to make the desired changes.

Table 5-4. Report Scheduler Screen Form

Field	Description
Job Id	Whenever a command is executed with the schedule qualifier, the system responds by generating a unique Job Id number. The Job Id assigned by the system is the lowest number within the range of 1 through 50 that is not in use.
Days (smtwtfs)	On a per-day basis, an n indicates that the report will not be printed that day; a y indicates that the report will be printed that day. Selecting an n for all seven days of the week will effectively disable a report from being printed.
Time	The time interval that the report is scheduled to be printed.
User	The user login that scheduled the identified report.
Status	Same as ''Job Status'' which was described previously. The four possible states are: ■ Waiting—means that the report is not scheduled for any activity during the current 15-minute time interval. ■ Print-Next—means that the report is scheduled to be printed within the current 15-minute time interval. ■ Printing—means that the report is currently being printed. ■ Printed—means that the report has been successfully printed during the current 15-minute time interval.
Type	Indicates the type of print interval that is scheduled for the report.
Command	This field displays the complete command line (excluding the schedule option) that the user entered to produce the identified report.

Change Command

The **change report-scheduler** command is used to change the schedule of a report. To display this screen form, enter the **change report-scheduler xx** command. The xx corresponds to the Job Id. Screen 5-6 shows the Change Report-Scheduler screen. Table 5-5 describes the data fields for this screen.

```
change report-scheduler 23                                          Page 1
                              REPORT SCHEDULER
    Job Id: 23                          Job Status: printed
    Command: list bcms agent 4000 time start 08:00 stop 12:00
    Print Interval: scheduled
    Print Time: 19:15
     Sun: n    Mon: y    Tue: n    Wed: y    Thu: n    Fri: y    Sat: n
```

Screen 5-6. Change Report-Scheduler Screen

Table 5-5. Change Report-Scheduler Screen Form

Field	Description
Job Id:	This is a display-only field. It is the unique identifier for the report. The Job Id assigned by the system is the lowest number within the range of 1 through 50 that is not in use.
Job Status:	This is a display-only field. It identifies the print status of the report. The four possible states are: ■ Waiting—means that the report is not scheduled for any activity during the current 15-minute time interval. ■ Print-Next—means that the report is scheduled to be printed within the current 15-minute time interval. ■ Printing—means that the report is currently being printed. ■ Printed—means that the report has been successfully printed during the current 15-minute interval.
Command:	This is a display-only field. It is the command that is to be executed.

Table 5-5. Change Report-Scheduler Screen Form

Field	Description
Print Interval:	The three possible options are immediate, scheduled, and deferred. If the print time of a report is changed so that its scheduled time now falls inside the current 15-minute time interval (that is, the Job Status: field changes from waiting to print-next), the report will not be printed in the current interval.
Print Time:	Within a given hour, reports may be scheduled at 15-minute intervals (that is xx:00, xx:15, xx:30, xx:45). This field may be changed as desired. The system printer requires significant switch processor resources. Therefore, it is important that the reports be scheduled for off-peak hours. Furthermore, the reports should not all be scheduled for the same hour and time interval, but should be staggered across multiple off-peak time intervals. If, because of printing volume or other problems, a report is not printed within four hours of its scheduled time interval, it will not be printed until its next scheduled time interval. This is a 4-hour (nonadministrable) limit. Immediate and deferred jobs would be removed from the Report Scheduler under this scenario and would require reentry to print.
Days of Week	On a per-day basis, an n indicates that the report will not be printed for that day; a y indicates that the report will be printed for that day. This field may be changed as desired. Selecting an n for all seven days of the week will effectively disable a report.

Remove Command

The **remove report-scheduler** command is used to remove a report from the Report Scheduler. To display this screen form, enter the **remove report-scheduler xx** command. The xx corresponds to the Job Id. Screen 5-7 shows this screen. Table 5-6 describes the data fields for the screen.

```
remove report-scheduler 23                                          Page 1
                          REPORT SCHEDULER
    Job Id: 23                        Job Status: printed
    Command: list bcms agent 7000 time start 08:00 stop 12:00
    Print Interval: scheduled
    Print Time: 19:15
    Sun: n    Mon: y    Tue: n    Wed: y    Thu: n    Fri: y    Sat: n
```

Screen 5-7. Remove Report Scheduler Command Screen

NOTE:
All fields are display-only. Once the user has verified that the identified report is the one to be removed, it is then necessary to press RETURN. Following this action, the system waits for the next command.

Table 5-6. Remove Report Scheduler Command Screen

Field	Description
Job Id:	The unique identifier for the report. The Job Id assigned by the system is the lowest number within the range of 1 through 50 that is not in use.
Job Status:	Identifies the print status of the report. The four possible states are: ■ Waiting—Means that the report is not scheduled for any activity during the current 15-minute time interval. ■ Print-Next—Means that the report is scheduled to be printed within the current 15-minute time interval. ■ Printing—Means that the report is currently being printed. ■ Printed—Means that the report has been successfully printed during the current 15-minute interval.
Command:	The command associated with the Job Id that is being removed.
Print Interval:	The three possible options are immediate, scheduled, and deferred.
Print Time:	Within a given hour, reports may be scheduled at 15-minute intervals (for example, xx:00, xx:15, xx:30, xx:45).
Days of Week	On a per-day basis, an n indicates that the report will not be printed for that day; a y indicates that the report will be printed that day. Selecting an n for all seven days of the week will effectively disable a report from being printed.

Use of BCMS Reports for ACD Planning

6

Planning/Engineering Objectives

Before presenting examples of how you can use the BCMS reports to optimize the operations of an ACD application, this chapter reviews certain relevant points. First, recall that the ACD hunt groups and trunk groups may be administered for:

- Internal measurements
- External measurements
- Both internal and external
- None (no measurements)

Second, the ACD feature can support a maximum number of agents, splits, and trunk groups. Since the BCMS feature may measure fewer agents, splits, and trunk groups (see Table 2-1 on page 2-3 for BCMS capacities), those agents, splits, and trunk groups that are not measured with the BCMS feature either are measured with external CMS or are not measured at all.

If you are planning to implement BCMS and you do not have accurate traffic information, then the ACD splits are initially designed based on an estimated number of trunks and agents according to the particular needs of each ACD split. The number of trunks and agents is based on an estimated volume of incoming traffic. The primary purpose of the BCMS reports is to monitor the ACD application and provide information detailing how the splits, agents, and trunk groups are being used. By analyzing these reports, you can determine the optimum number of agents and trunks needed to support a given ACD application.

The overall design of an ACD should be based on how a business values a lost or blocked call. For example, if the ACD split handles sales and each blocked or

dropped call represents potential lost revenue, it will probably be desirable to provide more trunks than agents to minimize the lost calls. As a contrast, if the ACD split handles calls from a captive customer base and each agent performs a significant amount of ''After Call Work'' that results in an expense to the organization, it will probably be desirable to provide fewer trunks than agents.

Finally, remember that the report scheduler allows only 50 reports each night. If you do not need to view historical data on an hour-by-hour basis, or if you prefer to see data sorted by entity (such as agents, splits, or VDNs) rather than sorted by time, then you should utilize the summary reports. These reports can include up to 30 entities at one time, and thus can allow you to make better use of the 50 available scheduler slots.

BCMS System Status Report

You should use the BCMS System Status Report (**monitor bcms system**) as the first step toward determining how the ACD is functioning. This report displays data that details how each split's queue is currently functioning. Specifically, the report lists:

- The number of CALLS WAITING in the queue (this includes calls ringing)
- The length of time that the OLDEST CALL has been queued
- The number of ACD calls that have been answered
- The number of agents that are available to receive ACD calls
- The number of calls that have abandoned
- The average length of time before a call abandons the queue
- The average length of time it is taking before the ACD calls are answered
- The average length of time the agents spend talking
- The average length of time the agents spend in ACW mode.
- The percentage of calls answered with in service level.

  If any of the numbers are not within their desired range, the individual split(s) should be observed more closely with the Monitor Split Status Report. Some of the more obvious indications of a problem are:

  — An excessive number of calls waiting in the queue

  — An excessive number of calls that have abandoned the queue

  — A large number of agents that are available to receive ACD calls

  — If only a small number of ACD calls have been answered, but the split is still staffed with a large number of agents

  — An excessive amount of time is spent in ACW mode, AUX work, ExtnIn/ExtnOut calls, etc.

BCMS Split Status Report

You can use the Split Status Report (**monitor bcms split**) to determine:

- Whether there are enough "staffed" agents for the current level of incoming calls.
  - — If after monitoring the Avail field for several minutes and no agents are indicated as being available to receive calls, you will probably want to ‘‘staff’’ some of the ‘‘unstaffed’’ positions, especially if this loss of business represents a loss in revenue.
  - — If all agent positions are ‘‘staffed,’’ it may be appropriate to add more agents to the split.
  - — If an excessive amount of time is being spent answering ACD calls for another split, then it may be appropriate to determine the reason and possibly to assign more agents to the other split.
- Whether any particular agent or agents are spending too much time on ExtnCalls.
  - — If an agent is suspected of spending too much time on ExtIn/ExtOut calls, the BCMS Agent Report should be used to investigate further.
- Whether, based on a comparison of agents within this split, any particular agent is taking more time to handle calls than appropriate. More specifically, this would be referred to as excessive ACD talk time.
  - — If an agent is suspected of taking more time than appropriate, the BCMS Agent Report should be used to investigate further.

BCMS VDN Status Report

You can use the BCMS VDN Status Report (**monitor bcms vdn**) to determine how one or more internally-measured VDNS and vectors are functioning. This report can help you to determine whether you need to change a VDN instead of moving agents between splits when ACD traffic changes. Specifically, some information this report indicates is:

- How many calls have encountered a VDN but have not been answered
- The time the oldest call has been waiting in the VDN
- The average length of time for a call to be completed by the VDN during the current period
- The average length of time a call waited before abandoning during the current period
- The average length of talk time during the current period for calls completed by the VDN
- The percent of calls being answered by the VDN within the acceptable service level during the current period

BCMS Trunk Group Report

You can use the BCMS Trunk Group Report (**list bcms trunk**) to determine:

- The number of incoming and outgoing calls
- The average amount of time for incoming calls
- The average amount of time for outgoing calls
- The number of incoming calls that abandoned. This may be an indication that there are not enough ''staffed'' agent positions rather than not enough trunks
- The number of outgoing calls that were placed over this trunk group and answered during the specified reporting period
- The CCS traffic load for incoming calls
- The CCS traffic load for outgoing calls
- The percent of time that one or more trunks have been busied-out for maintenance purposes
- The percent of time that all trunks within this group are busy. This field should serve as an indication of whether additional trunks may be needed.

If the designated trunk group serves a split that provides a revenue-producing function, it will generally be desirable for the trunk group to contain enough trunks to accommodate the peak level of traffic. After identifying when peak traffic occurs, it is then necessary to schedule a trunk report for that time of day. Subsequently, the information from this report and other reports may be used with the ''Trunk Engineering Guidelines'' (described later) to determine the correct number of trunks for the trunk group.

BCMS Agent Report

You can use the BCMS Agent Report (**list bcms agent**) to determine exactly how the specified agent uses his or her time. Subsequently, and depending on the specifics of the data, you may observe that certain changes are in order. For example, if the TOTAL AVAIL TIME field shows a high number, you may find it desirable to:

1. Change this agent's work schedule
2. Place, via an administration change, this agent into multiple splits. You can identify those splits that may be in need of additional agents by analyzing the individual BCMS Split Reports.

If the AVG TALK TIME field shows high numbers, this may indicate that the agent needs additional instruction and training.

BCMS Split or Skill Report

You can use the BCMS Split Report (**list bcms split**) to identify the time of day and days of the week when the split is most and least busy. Again, the type of actions that should be taken will be determined by the business function provided by the split (for example, whether the split provides a revenue-producing function such as sales or a revenue-draining function such as warranty service). If the split is revenue-producing, it may be desirable to identify the time and day when peak traffic occurs and provide enough trunks and agents to keep the number of blocked calls low and the service level is high. Furthermore, you can determine the appropriate number of agents that should be staffed for other times.

BCMS VDN Report

You can use the BCMS VDN Report (**list bcms vdn**) to determine if your calls are being handled in a timely manner. For example, the AVG ABAND TIME indicates how long callers will wait for an agent before hanging up. If the AVG ABAND TIME is less than the AVG SPEED ANS, you may assume that callers are not being serviced fast enough by an agent. As a result, this VDN may need more staffing.

If the percentage in service level (% IN SERV LEVL) is not high enough, you may need more agents or it may be appropriate to provide ''backup'' splits when the primary split is under heavy load.

The FLOW OUT and CALLS BUSY/DISC values help you determine the performance of your vectors. A high FLOW OUT value indicates that the VDN cannot handle the calls in time. A high CALLS BUSY/DISC value may indicate that your vectors are written incorrectly.

You should use the ''Agent Engineering/Optimizing Guidelines'' (described later) to determine the correct number of agents for each ACD split.

Engineering ACD Applications with Data Obtained from the BCMS Reports

When engineering and/or optimizing an ACD, Tables 6-2 through 6-13 should be used to determine how many agents and trunks will be required to handle a given number of incoming calls. Each split should be designed individually for the number of agents and trunks required, subject to any pertinent system limitations. You should include for any planned future growth, but do not exceed the maximum values of the ACD parameters supported by the BCMS feature.

Interpolation is a method of estimating tabular values of a function between two known values of that function. When using Tables 6-2 through 6-12 to determine

the number of agents required and Table 6-12 to determine the number of trunks required for a given ACD, you may find that the expected number of call arrivals or the carried load lies somewhere between two entries in the tables. Therefore, the number of agents or trunks required will also lie somewhere between the two entries.

If this is the case, the number of agents required or number of trunks needed can only be found by interpolation. Use the following equation to interpolate between tabular values:

$$y = y_0 + (y_1 - y_0)\frac{x - x_0}{x_1 - x_0}$$

Where:

x	Is the independent variable in terms of calls per hour
y	Is the dependent or functional variable in terms of agents or trunks needed
x_0	Is the tabular value of the independent variable that immediately precedes x
x_1	Is the tabular value of the independent variable that immediately succeeds x
y_0	Is the tabular value of the dependent variable that immediately precedes y
y_1	Is the tabular value of the dependent variable that immediately succeeds y

Agent Engineering/Optimizing Guidelines

Tables 6-2 through 6-12 list the number of ACD agents required to handle a given incoming call load. The top rows on each of these tables show the possible delay times for a given incoming call load (calls per hour or busy hour calls), and the left-most column lists the agents required to handle the incoming call load such that 90 percent the incoming calls will be answered by the agents before the specified delay has occurred.

NOTE:
The entries in Tables 6-2 through 6-12 are in busy-hour calls, which are the number of calls received by the ACD during peak levels of caller activity.

To determine how many agents will be required to handle the incoming call load of an ACD split, use Tables 6-2 through 6-12 as follows:

- Use the BCMS Split Report (**list bcms split**) to determine the AVG TALK TIME (the time an agent spends processing a call, or talking to a caller). Tables 6-2 through 6-12 contain data that describes the following service times: 7, 15, 30, 45, 60, 90, 120, 180, 240, 300, and 600 seconds. Choose the appropriate table for the AVG TALK TIME of the ACD split.

  NOTE:
  For purposes within this document the term ‘‘AVG Talk Time’’ is equivalent to the term ‘‘AVG Service Time.’’

- At the top of the table, choose the closest possible AVG SPEED ANS in seconds. AVG SPEED ANS is actually a delay time that is defined as the elapsed time from when a call is routed to the ACD split until it is answered by an agent. The delay criterion states that 90 percent of the incoming calls will be answered by the agents before the specified delay has occurred.
- If the calling volume, otherwise referred to as the busy-hour calls, is known, then use the number indicated on the report. Otherwise, you must estimate this number. Busy-hour calls denotes the number of calls received by the ACD during peak levels of caller activity. A typical busy-hour calling rate might be 120, 130, or 160 calls per hour.

  NOTE:
  The actual busy-hour calling rate depends on agent staffing and the particular application. Obviously, the numbers that are identified here as being typical would be much too high for five agent positions and too low for 30 agent positions. The numbers given are only for illustration purposes.

- After choosing the appropriate table and delay column, find the entry in the table for busy-hour calls that is greater than or equal to the number of busy-hour calls chosen.
- The number of agent positions required is then found in the left-most column of the respective table.
- You can interpolate between the tables (for different call service times), between the columns (for different delay times), and between the rows (for different number of calls per hour).

Tables 6-2 through 6-12 were prepared by using a range of 1 to 1000 agents. For small service times, this yields high traffic rates, even for a small number of agents. The high traffic rates are presented in the tables for completeness only.

Example 1:

The classified ads department of a newspaper receives 160 calls per hour. The average time an agent spends on each call is three minutes. If most of the calls

should be answered in less than 30 seconds, how many agents should be employed in this department?

Table 6-8 provides data for 180-second (3-minute) call durations. Under the 30-second column heading (AVG SPEED ANS), find the first entry greater than 160 calls per hour (168). Follow this row left to the agents column and find 12 agents. The number of agents required to answer 160 calls (of 3-minute duration) per hour with 90 percent of the callers waiting less than 30 seconds is 12 agents.

For this example, consider the efficiency of the agents and the sensitivity of the parameters to changes in the call arrival rate. The efficiency of the agents is the ratio of the number of agent hours spent on the phone to the number of agent hours in an hour. The number of agent hours spent on the phone is 160 calls per hour times .05 hours (3 minutes) which equals 8 agent hours. Therefore, the efficiency is 8/12 (12 agents for 1 hour) and equals .67 or 67 percent.

Suppose the calls per hour increased to 185 calls per hour. The efficiency is now 185 X 0.05 w 12 = 0.77 or 77 percent. The efficiency has increased, but this added efficiency is not free of charge. The delay criterion has changed significantly from about 9.5 percent of all calls taking longer than 30 seconds for an agent to answer to about 18.0 percent (168 calls per hour yield 10.0 percent, but 160 calls per hour were stated). To get the delay criterion back to 9.5 percent would require a delay time of about 65 seconds. Another measure of what is happening with the queue is the average time spent waiting for service in the queue. With 160 calls per hour, the mean time spent in the queue is 7.53 seconds. With 185 calls per hour, the mean time in the queue is 16.14 seconds. The point of this example is to emphasize the sensitivity of the time in the queue to the arrival rate. In other words, increasing the agent efficiency from 67 percent to 77 percent nearly doubles the various measures of queuing time.

NOTE:
For Examples 2 and 3, the ''?s'' in the tables represent the unknown values you are looking for. The italicized numbers in the tables represent numbers that are not included in Tables 6-2 through 6-12.

Example 2:

The reservations department for a hotel chain knows that the average call duration is five minutes and that most of the potential customers will not wait more that one minute for their call to be answered. How many agents are required to handle 150 calls per hour? Under the 60-second column of Table 6-10, you will find the following information:

agents	60
16	145
?	150
18	167

$$y = \text{number of agents needed}$$

$$y = y_0 + (y_1 - y_0)\frac{x - x_0}{x_1 - x_0}$$

$$y = 16 + (18 - 16)\frac{150 - 145}{167 - 145}$$

$$y = 16 + (2 \times .227)$$

$$y = 16.45$$

Therefore, 17 agents are needed to support the reservations department.

Example 3:

The manager of a split in an ACD knows that calls average 75 seconds and that the split receives 200 calls per hour. The manager wants most of the calls to be answered in less than 40 seconds. How many agents are required? To answer this question, you must interpolate between all parameters—first, between delay time and calls per hour to obtain the number of calls per hour for a 40-second delay time. Under the 30- and 45-second columns of Tables 6-6 and 6-7 you will find:

60 Seconds Average Service Time				**75 Seconds**	**90 Seconds Average Service Time**			
	AVG ANSWER SPEED					**AVG ANSWER SPEED**		
agents	**30**	**40**	**45**		**agents**	**30**	**40**	**45**
5	186	?	202		7	182	?	194
?		*200*			?		*200*	
6	238	?	257		8	217	?	231

Now interpolate between delay time and calls per hour in both tables to obtain calls per hour for a 40-second delay time.

$$y = \textit{number of calls per hour}$$

$$y = y_0 + (y_1 - y_0)\frac{x - x_0}{x_1 - x_0}$$

$$y = 186 + (202 - 186)\frac{40 - 30}{45 - 30}$$

$$y = 186 + (16 \times 0.666)$$

$$y = 196.66$$

Now you can fill in the first blank: 197 calls per hour under the 40-second delay time heading. Repeat the interpolation process three more times to come up with the figures 251, 190, and 226.

60 Seconds Average Service Time				**75 Seconds**	**90 Seconds Average Service Time**			
	AVG ANSWER SPEED					**AVG ANSWER SPEED**		
agents	**30**	**40**	**45**		**agents**	**30**	**40**	**45**
5	186	*197*	202		7	182	*190*	194
?		*200*			?		*200*	
6	238	*251*	257		8	217	*226*	231

$$y = \textit{number of agents needed when a } 60\text{-}\textit{second service time is desirable}$$

$$y = y_0 + (y_1 - y_0)\frac{x - x_0}{x_1 - x_0}$$

$$y = 5 + (6 - 5)\frac{200 - 197}{251 - 197}$$

$$y = 5 + (1 \times 0.055)$$

$$y = 5.05$$

So now we know that 5.05 agents would be needed when a 60-second service time is desirable. Repeat the above interpolation process once (for a 90-second service time) to come up with the result:

y (number of agents) = 7.27

60 Seconds Average Service Time				75 Seconds		90 Seconds Average Service Time		
	AVG ANSWER SPEED					AVG ANSWER SPEED		
agents	30	40	45		agents	30	40	45
5	186	*197*	202		7	182	*190*	194
5.05		*200*			*7.27*		*200*	
6	238	*251*	257		8	217	*226*	231

y = *number of agents needed when a 75-second service time is desirable*

$$y = y_0 + (y_1 - y_0)\frac{x - x_0}{x_1 - x_0}$$

$$y = 5.05 + (7.27 - 5.05)\frac{75 - 60}{90 - 60}$$

$$y = 5.05 + (2.22 \times 0.50)$$

$$y = 6.16 \ (or \ 6)$$

From exact calculations, the use of six agents implies that 12.2 percent of the incoming calls will wait more than 40 seconds. Or, with seven agents, 5.56 percent will wait more than 40 seconds. If anything above, 10 percent is undesirable, a seventh agent must be acquired.

Table 6-1. 7 Seconds Average Service Time

	AVG SPEED ANS								
agents	11	15	22	30	45	60	90	120	180
1	154	195	253	302	359	392	429	449	470
2	575	648	736	799	865	902	942	962	984
3	1044	1135	1237	1305	1376	1415	1455	1476	1498
4	1531	1633	1743	1815	1888	1928	1969	1990	2012
5	2025	2136	2251	2326	2401	2441	2483	2504	2526
6	2525	2641	2761	2838	2914	2955	2997	3018	3040
7	3027	3149	3272	3350	3428	3469	3511	3533	3555

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Table 6-1. 7 Seconds Average Service Time — *Continued*

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
8	3532	3657	3783	3863	3941	3983	4025	4047	4069
9	4038	4167	4295	4376	4455	4496	4539	4561	4583
10	4545	4677	4808	4889	4969	5010	5053	5075	5097
12	5562	5699	5833	5916	5997	6039	6082	6104	6126
14	6581	6722	6859	6943	7025	7067	7110	7132	7155
16	7602	7746	7885	7971	8053	8095	8139	8161	8183
18	8625	8771	8912	8998	9081	9123	9167	9189	9212
20	9648	9797	9939	10026	10109	10152	10195	10218	10240
25	12208	12362	12508	12596	12680	12723	12767	12789	12812
30	14772	14929	15077	15166	15251	15294	15338	15360	15383
35	17337	17497	17647	17736	17822	17865	17909	17932	17954
40	19903	20065	20217	20307	20393	20436	20481	20503	20526
45	22470	22634	22787	22878	22964	23008	23052	23074	23097
50	25037	25204	25357	25449	25535	25579	25623	25646	25669
60	30174	30343	30499	30591	30677	30721	30766	30789	30811
70	35312	35483	35640	35733	35820	35864	35909	35932	35954
80	40451	40624	40782	40875	40963	41007	41052	41074	41097
90	45591	45765	45924	46018	46105	46150	46195	46217	46240
100	50731	50906	51066	51160	51248	51292	51337	51360	51383
125	63582	63760	63922	64016	64105	64149	64194	64217	64240
150	76435	76615	76778	76873	76961	77006	77051	77074	77097
175	89289	89471	89634	89730	89818	89863	89909	89931	89954
200	102144	102326	102491	102586	102675	102720	102766	102788	102811
225	114999	115182	115347	115443	115532	115577	115623	115646	115668
250	127854	128038	128204	128300	128389	128435	128480	128503	128526
275	140710	140895	141061	141157	141246	141292	141337	141360	141383
300	153565	153751	153917	154014	154104	154149	154194	154217	154240
350	179277	179464	179631	179728	179818	179863	179908	179931	179954
400	204990	205177	205345	205442	205532	205577	205623	205645	205668
450	230702	230891	231059	231156	231246	231291	231337	231360	231383

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Table 6-1. 7 Seconds Average Service Time — *Continued*

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
500	256415	256604	256773	256870	256960	257006	257051	257074	257097
550	282128	282318	282487	282584	282674	282720	282765	282788	282811
600	307842	308032	308201	308298	308389	308434	308480	308503	308525
650	333555	333745	333915	334013	334103	334148	334194	334217	334240
700	359268	359459	359629	359727	359817	359863	359908	359931	359954
750	384982	385173	385343	385441	385531	385577	385623	385645	385668
800	410696	410887	411057	411155	411246	411291	411337	411360	411383
850	436409	436601	436771	436869	436960	437005	437051	437074	437097
900	462123	462315	462485	462583	462674	462720	462765	462788	462811
950	487837	488029	488199	488298	488388	488434	488480	488503	488525
1000	513551	513743	513914	514012	514103	514148	514194	514217	514240

Table 6-2. 15 Seconds Average Service Time

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
1	44	52	68	86	115	136	163	180	198
2	196	222	261	295	339	367	399	417	437
3	386	425	478	521	572	603	637	656	676
4	592	640	703	752	808	840	876	896	916
5	806	862	933	986	1045	1078	1115	1135	1156
6	1025	1089	1165	1221	1282	1317	1355	1375	1396
7	1248	1317	1399	1457	1521	1556	1594	1615	1636
8	1474	1548	1634	1694	1759	1795	1834	1854	1875
9	1702	1780	1869	1932	1998	2035	2074	2094	2115
10	1931	2013	2106	2170	2237	2274	2313	2334	2355
12	2393	2482	2580	2646	2715	2753	2793	2814	2835
14	2858	2953	3055	3124	3194	3232	3273	3294	3315
16	3326	3425	3531	3601	3673	3712	3752	3773	3795
18	3796	3899	4008	4079	4152	4191	4232	4253	4275
20	4266	4373	4485	4558	4631	4671	4712	4733	4755
25	5448	5562	5679	5754	5830	5870	5911	5933	5955
30	6634	6753	6875	6952	7029	7069	7111	7133	7155
35	7823	7947	8071	8150	8228	8269	8311	8333	8355
40	9013	9141	9268	9349	9427	9468	9511	9533	9555
45	10205	10336	10466	10547	10626	10668	10711	10732	10755
50	11399	11532	11664	11746	11826	11868	11910	11932	11955
60	13787	13926	14061	14144	14225	14267	14310	14332	14355
70	16178	16321	16458	16543	16624	16667	16710	16732	16755
80	18571	18716	18856	18942	19024	19066	19110	19132	19154
90	20965	21113	21254	21341	21423	21466	21510	21532	21554
100	23359	23510	23653	23740	23823	23866	23910	23932	23954
125	29349	29504	29650	29738	29822	29866	29910	29932	29954
150	35341	35499	35648	35737	35822	35865	35909	35932	35954
175	41334	41496	41646	41736	41821	41865	41909	41932	41954

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Table 6-2. 15 Seconds Average Service Time — *Continued*

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
200	47329	47493	47645	47735	47821	47865	47909	47932	47954
225	53325	53490	53644	53735	53821	53865	53909	53932	53954
250	59321	59488	59643	59734	59821	59865	59909	59932	59954
275	65318	65487	65642	65734	65820	65864	65909	65932	65954
300	71315	71485	71641	71733	71820	71864	71909	71932	71954
350	83310	83482	83640	83733	83820	83864	83909	83931	83954
400	95307	95480	95639	95732	95820	95864	95909	95931	95954
450	107303	107478	107638	107732	107819	107864	107909	107931	107954
500	119301	119477	119637	119731	119819	119864	119909	119931	119954
550	131298	131476	131636	131731	131819	131864	131909	131931	131954
600	143296	143474	143636	143731	143819	143864	143909	143931	143954
650	155294	155473	155635	155730	155819	155864	155909	155931	155954
700	167293	167473	167635	167730	167819	167863	167909	167931	167954
750	179291	179472	179635	179730	179819	179863	179909	179931	179954
800	191290	191471	191634	191730	191818	191863	191909	191931	191954
850	203289	203470	203634	203729	203818	203863	203909	203931	203954
900	215287	215470	215634	215729	215818	215863	215909	215931	215954
950	227286	227469	227633	227729	227818	227863	227909	227931	227954
1000	239285	239469	239633	239729	239818	239863	239908	239931	239954

Table 6-3. 30 Seconds Average Service Time

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
1	16	18	22	26	35	43	57	68	82
2	79	86	98	111	132	147	169	183	200
3	161	173	193	212	240	260	286	301	319
4	252	270	296	320	353	376	404	420	438
5	349	371	403	431	468	493	522	539	558
6	450	476	513	544	585	611	641	659	677
7	554	583	624	659	702	729	760	778	797
8	660	692	737	774	819	847	880	898	917
9	767	803	851	890	937	966	999	1017	1037
10	875	914	965	1007	1055	1085	1118	1137	1157
12	1096	1140	1196	1241	1292	1323	1358	1376	1396
14	1319	1368	1429	1476	1530	1562	1597	1616	1636
16	1544	1597	1663	1712	1768	1801	1836	1856	1876
18	1772	1829	1898	1949	2007	2040	2076	2096	2116
20	2001	2061	2133	2186	2245	2279	2316	2335	2356
25	2577	2645	2724	2781	2843	2877	2915	2935	2956
30	3159	3232	3317	3377	3440	3476	3514	3535	3556
35	3743	3822	3911	3973	4039	4075	4114	4134	4155
40	4330	4414	4507	4571	4637	4674	4714	4734	4755
45	4919	5006	5103	5168	5236	5274	5313	5334	5355
50	5509	5600	5699	5766	5835	5873	5913	5934	5955
60	6692	6789	6894	6963	7034	7072	7113	7134	7155
70	7879	7981	8089	8160	8233	8271	8312	8333	8355
80	9067	9174	9285	9358	9432	9471	9512	9533	9555
90	10257	10368	10482	10556	10631	10670	10712	10733	10755
100	11449	11563	11680	11755	11830	11870	11912	11933	11955
125	14432	14552	14674	14752	14829	14869	14911	14933	14955
150	17419	17545	17670	17750	17828	17869	17911	17933	17955
175	20408	20538	20667	20748	20827	20868	20911	20933	20955

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Table 6-3. 30 Seconds Average Service Time — *Continued*

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
200	23399	23533	23665	23746	23826	23868	23911	23932	23955
225	26392	26529	26662	26745	26826	26867	26910	26932	26955
250	29386	29525	29661	29744	29825	29867	29910	29932	29955
275	32380	32522	32659	32743	32825	32867	32910	32932	32955
300	35375	35519	35658	35742	35824	35867	35910	35932	35954
350	41367	41514	41655	41741	41824	41866	41910	41932	41954
400	47360	47510	47653	47740	47823	47866	47910	47932	47954
450	53354	53507	53652	53739	53823	53866	53910	53932	53954
500	59349	59504	59650	59738	59822	59866	59910	59932	59954
550	65345	65502	65649	65738	65822	65865	65910	65932	65954
600	71341	71500	71648	71737	71822	71865	71909	71932	71954
650	77338	77498	77647	77737	77822	77865	77909	77932	77954
700	83335	83496	83646	83736	83821	83865	83909	83932	83954
750	89332	89495	89646	89736	89821	89865	89909	89932	89954
800	95330	95493	95645	95735	95821	95865	95909	95932	95954
850	101327	101492	101644	101735	101821	101865	101909	101932	101954
900	107325	107491	107644	107735	107821	107865	107909	107932	107954
950	113323	113490	113643	113735	113821	113865	113909	113932	113954
1000	119322	119489	119643	119734	119821	119865	119909	119932	119954

Table 6-4. 45 Seconds Average Service Time

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
1	10	11	12	14	17	21	29	35	45
2	48	52	57	63	74	83	98	109	122
3	99	105	115	125	142	155	174	186	201
4	157	165	179	193	213	229	251	264	280
5	218	229	246	263	287	305	329	343	359
6	282	296	316	335	363	382	407	422	439
7	348	364	387	409	439	460	486	501	519
8	416	434	460	484	516	538	565	581	598
9	485	504	533	559	593	616	644	660	678
10	555	576	607	635	671	695	723	740	758
12	697	722	758	788	827	852	882	899	918
14	841	870	909	943	984	1010	1041	1059	1077
16	988	1019	1062	1098	1142	1169	1200	1218	1237
18	1135	1170	1216	1254	1300	1327	1360	1378	1397
20	1284	1322	1371	1410	1458	1486	1519	1537	1557
25	1661	1704	1760	1803	1854	1884	1918	1937	1957
30	2042	2090	2151	2198	2251	2282	2317	2336	2356
35	2426	2479	2544	2594	2649	2681	2717	2736	2756
40	2812	2869	2938	2990	3047	3080	3116	3136	3156
45	3199	3260	3333	3387	3445	3479	3516	3535	3556
50	3589	3653	3729	3784	3844	3878	3915	3935	3956
60	4370	4440	4522	4580	4642	4677	4715	4735	4756
70	5154	5230	5316	5376	5440	5476	5514	5535	5556
80	5941	6021	6111	6173	6239	6275	6314	6334	6355
90	6730	6814	6907	6971	7038	7074	7114	7134	7155
100	7520	7607	7703	7769	7837	7874	7913	7934	7955
125	9499	9594	9696	9765	9835	9873	9913	9934	9955
150	11483	11584	11691	11761	11833	11872	11912	11933	11955
175	13470	13576	13686	13759	13832	13871	13912	13933	13955

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Table 6-4. 45 Seconds Average Service Time — *Continued*

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
200	15459	15569	15683	15757	15831	15870	15912	15933	15955
225	17449	17563	17680	17755	17830	17870	17912	17933	17955
250	19441	19558	19677	19754	19829	19870	19911	19933	19955
275	21434	21554	21675	21752	21829	21869	21911	21933	21955
300	23428	23550	23673	23751	23828	23869	23911	23933	23955
350	27417	27543	27670	27749	27827	27868	27911	27933	27955
400	31408	31538	31667	31748	31827	31868	31911	31933	31955
450	35400	35533	35665	35747	35826	35868	35911	35932	35955
500	39393	39530	39663	39745	39826	39867	39910	39932	39955
550	43387	43526	43661	43744	43825	43867	43910	43932	43955
600	47382	47523	47660	47744	47825	47867	47910	47932	47955
650	51378	51521	51658	51743	51824	51867	51910	51932	51955
700	55374	55518	55657	55742	55824	55867	55910	55932	55954
750	59370	59516	59656	59742	59824	59866	59910	59932	59954
800	63366	63514	63655	63741	63824	63866	63910	63932	63954
850	67363	67512	67654	67741	67823	67866	67910	67932	67954
900	71360	71511	71653	71740	71823	71866	71910	71932	71954
950	75358	75509	75653	75740	75823	75866	75910	75932	75954
1000	79355	79508	79652	79739	79823	79866	79910	79932	79954

Table 6-5. 60 Seconds Average Service Time

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
1	7	7	8	9	11	13	17	22	29
2	35	36	40	43	50	56	66	74	85
3	72	75	81	87	97	106	120	130	143
4	113	118	126	135	149	160	177	188	202
5	158	164	175	186	202	216	234	246	261
6	204	212	225	238	257	272	292	305	321
7	253	262	277	292	313	329	351	364	380
8	302	313	330	346	370	387	410	424	440
9	352	365	383	401	427	445	469	483	500
10	403	417	438	457	484	503	528	542	559
12	508	524	548	570	600	620	646	662	679
14	614	632	659	684	716	738	765	781	799
16	721	742	772	799	833	856	884	900	918
18	830	853	886	914	951	975	1003	1020	1038
20	940	965	1000	1030	1069	1093	1123	1139	1158
25	1218	1248	1289	1322	1364	1390	1421	1439	1457
30	1500	1534	1579	1616	1661	1688	1720	1738	1757
35	1784	1822	1872	1911	1958	1987	2019	2038	2057
40	2071	2112	2165	2207	2256	2285	2319	2337	2357
45	2358	2403	2459	2503	2554	2584	2618	2637	2657
50	2648	2695	2754	2800	2852	2883	2918	2937	2956
60	3229	3281	3346	3395	3450	3481	3517	3536	3556
70	3813	3870	3939	3990	4047	4080	4116	4136	4156
80	4399	4460	4534	4587	4646	4679	4716	4735	4756
90	4987	5052	5129	5184	5244	5278	5315	5335	5356
100	5576	5645	5725	5781	5843	5877	5915	5935	5956
125	7054	7130	7216	7276	7340	7376	7414	7435	7456
150	8536	8618	8709	8772	8838	8875	8914	8934	8955
175	10021	10108	10204	10269	10337	10374	10413	10434	10455

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Table 6-5. 60 Seconds Average Service Time — *Continued*

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
200	11509	11600	11700	11767	11836	11873	11913	11934	11955
225	12998	13094	13196	13264	13335	13373	13413	13434	13455
250	14489	14588	14693	14763	14834	14872	14913	14934	14955
275	15980	16082	16190	16261	16333	16372	16412	16433	16455
300	17473	17578	17688	17760	17832	17871	17912	17933	17955
350	20460	20570	20683	20757	20831	20871	20912	20933	20955
400	23450	23563	23680	23755	23830	23870	23912	23933	23955
450	26440	26558	26677	26754	26829	26870	26911	26933	26955
500	29432	29553	29675	29752	29829	29869	29911	29933	29955
550	32426	32549	32673	32751	32828	32869	32911	32933	32955
600	35419	35545	35671	35750	35828	35869	35911	35933	35955
650	38414	38542	38669	38749	38827	38868	38911	38933	38955
700	41409	41539	41667	41748	41827	41868	41911	41933	41955
750	44404	44536	44666	44747	44826	44868	44911	44932	44955
800	47400	47534	47665	47747	47826	47868	47911	47932	47955
850	50396	50531	50664	50746	50826	50868	50910	50932	50955
900	53393	53529	53663	53745	53826	53867	53910	53932	53955
950	56389	56527	56662	56745	56825	56867	56910	56932	56955
1000	59386	59526	59661	59744	59825	59867	59910	59932	59955

Table 6-6. 90 Seconds Average Service Time

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
1	5	5	5	6	7	9	11	14	18
2	23	24	26	29	32	37	42	49	54
3	47	50	53	58	63	71	77	87	93
4	75	78	83	90	96	107	115	125	132
5	104	109	115	124	131	144	153	164	171
6	135	141	148	159	168	181	191	204	211
7	167	174	182	194	205	220	230	243	251
8	199	208	217	231	242	258	269	282	290
9	233	242	252	268	280	297	308	322	330
10	267	277	288	305	318	336	347	362	370
12	336	348	361	380	394	414	426	441	450
14	406	421	435	456	471	492	505	521	529
16	477	494	510	532	549	571	584	600	609
18	549	568	585	610	627	650	664	680	689
20	622	642	661	687	705	729	743	760	769
25	807	831	852	882	902	927	942	959	968
30	994	1021	1045	1077	1099	1126	1141	1159	1168
35	1182	1213	1239	1274	1297	1324	1341	1358	1368
40	1373	1406	1435	1471	1495	1524	1540	1558	1568
45	1564	1600	1630	1669	1693	1723	1740	1758	1768
50	1756	1794	1826	1867	1892	1922	1939	1958	1968
60	2142	2185	2220	2263	2290	2321	2338	2357	2367
70	2530	2577	2615	2660	2688	2720	2738	2757	2767
80	2920	2971	3011	3058	3087	3119	3138	3157	3167
90	3311	3365	3407	3456	3485	3519	3537	3557	3567
100	3703	3760	3804	3854	3884	3918	3937	3957	3967
125	4687	4750	4797	4851	4882	4917	4936	4956	4967
150	5673	5742	5792	5848	5881	5917	5936	5956	5967
175	6662	6735	6788	6846	6879	6916	6936	6956	6967

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Table 6-6. 90 Seconds Average Service Time — *Continued*

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
200	7653	7729	7784	7844	7878	7915	7935	7956	7967
225	8645	8725	8782	8843	8878	8915	8935	8956	8967
250	9638	9721	9779	9842	9877	9915	9935	9956	9966
275	10631	10717	10777	10841	10876	10914	10935	10956	10966
300	11626	11714	11775	11840	11876	11914	11934	11956	11966
350	13616	13708	13772	13838	13875	13914	13934	13955	13966
400	15608	15704	15769	15837	15874	15913	15934	15955	15966
450	17601	17700	17767	17836	17873	17913	17934	17955	17966
500	19594	19697	19765	19835	19873	19913	19934	19955	19966
550	21589	21694	21763	21834	21872	21913	21934	21955	21966
600	23584	23691	23762	23833	23872	23912	23933	23955	23966
650	25580	25689	25760	25833	25871	25912	25933	25955	25966
700	27576	27687	27759	27832	27871	27912	27933	27955	27966
750	29573	29685	29758	29832	29871	29912	29933	29955	29966
800	31569	31683	31757	31831	31871	31912	31933	31955	31966
850	33566	33682	33756	33831	33870	33912	33933	33955	33966
900	35563	35680	35755	35830	35870	35912	35933	35955	35966
950	37561	37679	37755	37830	37870	37912	37933	37955	37966
1000	39559	39678	39754	39830	39870	39911	39933	39955	39966

Table 6-7. 120 Seconds Average Service Time

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
1	3	4	4	4	5	6	7	9	11
2	17	17	18	20	22	25	28	33	37
3	34	36	37	40	43	49	53	60	65
4	54	57	59	63	67	74	80	88	94
5	76	79	82	88	93	101	108	117	123
6	99	102	106	113	119	129	136	146	153
7	122	126	131	139	146	157	165	175	182
8	146	151	156	165	173	185	193	205	212
9	170	176	182	192	201	213	223	234	241
10	195	202	209	220	229	242	252	264	271
12	246	254	262	275	285	300	310	323	331
14	298	307	316	331	342	358	369	383	390
16	350	361	371	387	399	417	428	442	450
18	404	415	427	444	457	475	487	502	510
20	457	470	483	501	515	534	547	561	570
25	594	609	624	646	661	682	695	711	719
30	732	750	767	791	808	830	844	860	869
35	872	892	911	937	956	979	993	1010	1019
40	1013	1035	1056	1084	1103	1128	1143	1159	1169
45	1155	1179	1201	1231	1252	1277	1292	1309	1318
50	1297	1324	1347	1379	1400	1426	1442	1459	1468
60	1584	1614	1641	1675	1697	1725	1741	1758	1768
70	1873	1906	1935	1972	1995	2024	2040	2058	2068
80	2163	2199	2230	2269	2293	2323	2340	2358	2368
90	2454	2493	2526	2566	2592	2622	2639	2658	2668
100	2746	2788	2822	2864	2891	2921	2939	2958	2967
125	3480	3527	3565	3610	3638	3670	3688	3707	3717
150	4216	4268	4309	4357	4386	4419	4437	4457	4467
175	4954	5011	5054	5105	5135	5168	5187	5207	5217

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Table 6-7. 120 Seconds Average Service Time — *Continued*

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
200	5694	5754	5800	5853	5883	5918	5937	5957	5967
225	6436	6499	6547	6601	6632	6667	6686	6706	6717
250	7178	7244	7294	7349	7381	7417	7436	7456	7467
275	7921	7990	8041	8098	8130	8166	8186	8206	8217
300	8665	8737	8789	8847	8880	8916	8936	8956	8967
350	10154	10230	10285	10345	10379	10416	10435	10456	10467
400	11645	11725	11782	11843	11878	11915	11935	11956	11967
450	13137	13220	13279	13342	13377	13415	13435	13456	13466
500	14630	14716	14776	14840	14876	14914	14935	14956	14966
550	16124	16213	16274	16339	16375	16414	16434	16456	16466
600	17618	17710	17773	17839	17875	17914	17934	17955	17966
650	19113	19207	19271	19338	19374	19414	19434	19455	19466
700	20609	20704	20769	20837	20874	20913	20934	20955	20966
750	22105	22202	22268	22336	22374	22413	22434	22455	22466
800	23601	23700	23767	23836	23873	23913	23934	23955	23966
850	25097	25198	25266	25335	25373	25413	25434	25455	25466
900	26594	26696	26765	26835	26873	26913	26934	26955	26966
950	28091	28195	28264	28334	28372	28413	28434	28455	28466
1000	29588	29693	29763	29834	29872	29913	29934	29955	29966

Table 6-8. 180 Seconds Average Service Time

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
1	2	2	2	2	3	3	3	4	5
2	11	11	11	12	13	14	16	19	21
3	22	23	24	25	26	29	31	35	39
4	35	36	37	39	41	45	48	53	57
5	49	51	52	55	57	62	66	72	76
6	64	66	67	71	74	79	84	91	96
7	79	81	83	87	91	97	102	110	115
8	95	97	100	104	108	115	121	129	134
9	111	113	116	122	126	134	140	148	154
10	127	130	133	139	144	152	159	168	174
12	160	164	168	175	180	190	197	207	213
14	194	198	203	211	217	228	236	246	253
16	228	233	239	247	255	266	274	285	292
18	263	269	275	284	292	305	313	325	332
20	298	304	311	322	330	343	353	364	372
25	387	395	403	416	426	441	451	463	471
30	478	487	497	511	523	539	549	563	571
35	570	581	591	607	620	637	648	662	670
40	662	674	686	704	717	736	747	762	770
45	755	769	782	801	815	834	847	861	870
50	849	864	878	898	913	933	946	961	970
60	1038	1055	1071	1094	1110	1132	1145	1160	1169
70	1228	1247	1265	1290	1307	1330	1344	1360	1369
80	1419	1441	1460	1487	1505	1529	1543	1560	1569
90	1612	1635	1656	1684	1703	1728	1743	1759	1769
100	1804	1829	1852	1882	1902	1927	1942	1959	1968
125	2289	2318	2343	2377	2399	2425	2441	2459	2468
150	2776	2809	2837	2873	2896	2924	2940	2958	2968
175	3264	3301	3331	3369	3394	3423	3440	3458	3468

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Table 6-8. 180 Seconds Average Service Time — *Continued*

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
200	3755	3794	3826	3867	3892	3922	3939	3958	3968
225	4246	4288	4322	4365	4391	4421	4439	4458	4468
250	4738	4783	4819	4863	4890	4921	4938	4957	4967
275	5231	5278	5316	5361	5388	5420	5438	5457	5467
300	5724	5774	5813	5859	5887	5920	5938	5957	5967
350	6713	6766	6808	6857	6886	6919	6937	6957	6967
400	7703	7760	7804	7854	7885	7918	7937	7957	7967
450	8694	8754	8800	8853	8883	8918	8937	8957	8967
500	9686	9750	9797	9851	9882	9917	9936	9956	9967
550	10680	10745	10795	10850	10882	10917	10936	10956	10967
600	11673	11742	11792	11848	11881	11917	11936	11956	11967
650	12668	12738	12790	12847	12880	12916	12936	12956	12967
700	13662	13735	13788	13846	13880	13916	13936	13956	13967
750	14657	14732	14786	14845	14879	14916	14935	14956	14967
800	15653	15730	15785	15845	15879	15916	15935	15956	15967
850	16649	16727	16783	16844	16878	16915	16935	16956	16967
900	17645	17725	17782	17843	17878	17915	17935	17956	17967
950	18641	18723	18780	18842	18877	18915	18935	18956	18966
1000	19638	19721	19779	19842	19877	19915	19935	19956	19966

Table 6-9. 240 Seconds Average Service Time

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
1	2	2	2	2	2	2	2	3	3
2	8	8	8	9	9	10	11	12	14
3	16	17	17	18	19	20	22	24	27
4	26	27	27	28	30	32	34	37	40
5	36	37	38	40	41	44	46	51	54
6	47	48	49	51	53	57	59	64	68
7	58	60	61	63	66	69	73	78	82
8	70	71	73	76	78	83	87	92	97
9	82	83	85	88	91	96	100	107	111
10	94	96	98	101	104	110	114	121	126
12	118	121	123	127	131	137	142	150	155
14	143	146	149	154	158	165	171	179	185
16	169	172	175	181	186	194	200	208	214
18	195	198	202	208	213	222	229	238	244
20	221	225	229	235	241	251	258	267	273
25	287	292	297	305	312	323	331	341	348
30	354	360	366	376	383	395	404	415	422
35	422	429	436	447	456	469	478	490	497
40	491	499	506	518	528	542	552	564	571
45	561	569	577	590	601	616	626	638	646
50	630	639	649	663	674	689	700	713	721
60	771	781	792	808	820	837	849	862	870
70	912	924	936	954	967	986	998	1012	1020
80	1055	1068	1081	1101	1115	1134	1147	1161	1170
90	1198	1213	1227	1248	1263	1283	1296	1311	1320
100	1341	1358	1373	1395	1411	1432	1445	1461	1469
125	1702	1722	1740	1765	1782	1805	1819	1835	1844
150	2065	2088	2108	2136	2155	2179	2193	2210	2219
175	2430	2455	2477	2507	2527	2552	2567	2584	2593

Continued on next page

Table 6-9. 240 Seconds Average Service Time — *Continued*

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
200	2796	2823	2847	2879	2900	2926	2942	2959	2968
225	3162	3192	3218	3251	3273	3300	3316	3334	3343
250	3530	3562	3589	3624	3647	3675	3691	3708	3718
275	3898	3932	3961	3997	4021	4049	4065	4083	4093
300	4267	4302	4332	4370	4394	4423	4440	4458	4468
350	5005	5045	5077	5117	5142	5172	5189	5208	5218
400	5746	5788	5822	5865	5891	5922	5939	5958	5968
450	6487	6532	6568	6612	6639	6671	6688	6707	6717
500	7229	7277	7315	7360	7388	7420	7438	7457	7467
550	7972	8022	8062	8109	8137	8170	8188	8207	8217
600	8715	8768	8809	8857	8886	8919	8937	8957	8967
650	9459	9514	9557	9606	9635	9669	9687	9707	9717
700	10204	10261	10304	10355	10385	10418	10437	10457	10467
750	10949	11007	11052	11104	11134	11168	11187	11207	11217
800	11694	11754	11800	11853	11883	11918	11937	11957	11967
850	12440	12502	12549	12602	12633	12668	12686	12706	12717
900	13186	13249	13297	13351	13382	13417	13436	13456	13467
950	13932	13997	14045	14100	14132	14167	14186	14206	14217
1000	14678	14744	14794	14849	14881	14917	14936	14956	14967

Table 6-10. 300 Seconds Average Service Time

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
1	1	1	1	1	1	2	2	2	2
2	6	6	7	7	7	8	8	9	10
3	13	13	13	14	14	15	16	18	20
4	21	21	21	22	23	24	26	28	30
5	29	29	30	31	32	34	36	39	41
6	37	38	39	40	41	44	46	49	52
7	46	47	48	50	51	54	56	60	63
8	56	56	57	59	61	64	67	71	75
9	65	66	67	69	71	75	78	83	86
10	74	76	77	79	81	85	89	94	98
12	94	95	97	100	102	107	111	117	121
14	114	116	117	121	124	129	133	140	144
16	134	136	138	142	145	151	156	163	168
18	155	157	159	164	167	174	179	186	191
20	175	178	181	185	189	196	202	210	215
25	228	231	235	240	245	253	260	268	274
30	281	285	289	296	302	311	318	327	333
35	336	340	345	352	359	369	377	387	393
40	390	395	401	409	416	427	435	446	453
45	445	451	457	466	474	486	494	505	512
50	501	507	513	524	532	545	554	565	572
60	612	620	627	639	649	662	672	684	691
70	725	734	742	755	766	781	791	804	811
80	838	848	857	872	883	899	910	923	931
90	952	963	973	989	1001	1018	1029	1043	1050
100	1067	1078	1089	1106	1119	1137	1148	1162	1170
125	1354	1368	1381	1401	1415	1434	1447	1461	1470
150	1643	1659	1675	1696	1712	1733	1746	1761	1769
175	1934	1952	1969	1992	2009	2031	2045	2060	2069

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Table 6-10. 300 Seconds Average Service Time — *Continued*

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
200	2225	2245	2264	2289	2307	2330	2344	2360	2369
225	2518	2539	2559	2586	2605	2629	2643	2660	2669
250	2811	2834	2855	2884	2904	2928	2943	2959	2969
275	3104	3129	3152	3182	3202	3227	3242	3259	3268
300	3398	3425	3449	3480	3501	3527	3542	3559	3568
350	3987	4017	4043	4076	4098	4125	4141	4159	4168
400	4578	4610	4638	4674	4697	4724	4741	4758	4768
450	5170	5204	5234	5271	5295	5324	5340	5358	5368
500	5762	5799	5830	5869	5894	5923	5940	5958	5968
550	6355	6394	6427	6467	6492	6522	6539	6558	6568
600	6948	6990	7024	7065	7091	7122	7139	7158	7168
650	7543	7586	7621	7664	7690	7721	7739	7757	7767
700	8137	8182	8219	8262	8290	8321	8338	8357	8367
750	8732	8779	8816	8861	8889	8920	8938	8957	8967
800	9327	9376	9414	9460	9488	9520	9538	9557	9567
850	9923	9973	10012	10059	10087	10120	10138	10157	10167
900	10518	10570	10610	10658	10687	10719	10738	10757	10767
950	11114	11167	11209	11257	11286	11319	11337	11357	11367
1000	11711	11765	11807	11856	11886	11919	11937	11957	11967

Table 6-11. 600 Seconds Average Service Time

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
1	1	1	1	1	1	1	1	1	1
2	3	3	3	3	3	4	4	4	5
3	6	6	7	7	7	7	8	8	9
4	10	10	11	11	11	11	12	13	14
5	14	14	15	15	15	16	17	18	19
6	19	19	19	19	20	21	22	23	25
7	23	23	24	24	25	26	27	28	30
8	28	28	28	29	30	30	32	33	36
9	32	32	33	34	35	36	37	39	41
10	37	37	38	38	40	41	43	44	47
12	47	47	48	48	50	51	53	55	58
14	56	57	58	59	60	62	64	67	70
16	66	67	68	69	71	73	76	78	81
18	77	77	78	80	82	84	87	89	93
20	87	88	89	90	93	95	98	101	105
25	113	114	116	117	120	123	127	130	134
30	140	141	143	145	148	151	156	159	164
35	166	168	170	172	176	179	185	188	193
40	194	195	198	200	205	208	214	218	223
45	221	223	226	228	233	237	243	247	253
50	248	250	254	257	262	266	272	277	282
60	304	306	310	314	320	324	331	336	342
70	360	363	367	371	378	383	390	395	402
80	416	419	424	429	436	442	450	455	461
90	473	476	482	487	495	501	509	514	521
100	530	533	539	545	553	560	568	574	581
125	672	677	684	691	700	708	717	723	731
150	816	822	830	837	848	856	866	873	880
175	961	967	977	984	996	1005	1016	1022	1030

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Table 6-11. 600 Seconds Average Service Time — *Continued*

	AVG SPEED ANS								
agents	**11**	**15**	**22**	**30**	**45**	**60**	**90**	**120**	**180**
200	1106	1113	1123	1132	1145	1154	1165	1172	1180
225	1251	1259	1270	1280	1293	1303	1314	1322	1330
250	1397	1405	1418	1428	1442	1452	1464	1471	1480
275	1543	1552	1565	1576	1591	1601	1614	1621	1630
300	1690	1699	1713	1724	1740	1750	1763	1771	1780
350	1983	1994	2010	2021	2038	2049	2063	2071	2079
400	2277	2289	2306	2319	2337	2348	2362	2370	2379
450	2572	2585	2603	2617	2636	2648	2662	2670	2679
500	2867	2881	2901	2915	2934	2947	2961	2970	2979
550	3163	3177	3198	3213	3234	3246	3261	3270	3279
600	3459	3474	3496	3512	3533	3546	3561	3569	3579
650	3755	3771	3794	3811	3832	3845	3861	3869	3879
700	4051	4069	4092	4109	4131	4145	4160	4169	4179
750	4348	4366	4391	4408	4431	4444	4460	4469	4479
800	4645	4664	4689	4707	4730	4744	4760	4769	4779
850	4942	4961	4988	5006	5029	5044	5060	5069	5079
900	5239	5259	5286	5305	5329	5343	5360	5369	5378
950	5536	5557	5585	5604	5629	5643	5660	5669	5678
1000	5834	5855	5884	5904	5928	5943	5959	5969	5978
1	154	195	253	302	359	392	429	449	470
2	575	648	736	799	865	902	942	962	984
3	1044	1135	1237	1305	1376	1415	1455	1476	1498
4	1531	1633	1743	1815	1888	1928	1969	1990	2012
5	2025	2136	2251	2326	2401	2441	2483	2504	2526
6	2525	2641	2761	2838	2914	2955	2997	3018	3040

Trunk Engineering Guidelines

The number of trunks required for a typical ACD ranges from 1.1 to 1.7 times the number of agents (whenever a blocked call represents potential lost revenue). As in the case of agents, the number of trunks required for an ACD is based on the incoming traffic to each split, not the ACD as a whole.

The left-most column in Table 6-12 lists the number of trunks required to service a split depending on the carried load in *Erlangs* and the blocking probability. Erlang is a unit of traffic intensity, or load, used to express the amount of traffic it takes to keep one facility busy for one hour. Blocking probability relates to the desired grade of service. The possible blocking probabilities are shown across the top of Table 6-12, and the entries under the blocking probabilities are carried loads in Erlangs.

To determine the number of trunks needed for a given split, use Table 6-12 as follows:

- You will need a split report for the peak busy-hour (for example, `list bcms split ## time xx:xx xx:xx`) for the busiest day of the week.

  NOTE:
  If the time interval is sufficiently long to cover the busiest hours of the day (such as 8:00 to 18:00) you need only scan the report to determine which hour is the busy hour. If you have this report for a time other than the peak busy hour then you will need to estimate values for the busy hour.

- For the identified peak busy hour, you will need to determine the AVG TALK TIME and the AVG SPEED ANS. Otherwise, you must estimate the average call duration: the total time a caller spends waiting for an answer, plus any time on hold (in queue), and plus the service time (the time the caller spends talking to an agent).
- If you know the calling volume, otherwise referred to as the busy-hour calls, then use that value. As an alternative, you must estimate the number of busy hour calls received by the ACD split during peak levels of caller activity.

  NOTE:
  The calling volume is simply the sum of the two fields (# ACD and # ABAND) for the identified busy hour. This does not include:

  - calls never queued
  - calls given Central Office (CO) busy

- Multiply the call duration (in fractions of an hour) by the rate of busy-hour calls (in calls per hour). This number is the carried load in Erlangs. Abandoned calls should be multiplied by the AVG ABAND time.

- Determine the desired grade of service (the blocking probability). The blocking probability for each split is defined as the ratio of blocked calls to the total number of incoming calls.
- In the column corresponding to the desired grade of service, (for example, 1 percent blocking probability) choose the nearest higher carried load. The number of trunks required is then read from the left-most column.

NOTE:
The entries in Table 6-12 are offered loads in Erlangs.

Example 4:

An insurance agency has an ACD that queues calls incoming from the public switched network. The agency knows that the average caller spends 30 seconds on hold (in queue), and requires 6 minutes and 20 seconds to service. The busy-hour call arrival rate is 70 per hour. How many trunks does the agency need to provide a service level of 99 percent (1 percent blocking probability)?

The average call duration is:

$$average\ call\ duration\ = 30 + 380 = 410\ \ seconds\ or\ 0.11389\ hours$$

Therefore, the carried load in Erlangs is:

$$carried\ load\ = 0.11389\ \times\ 70 = 7.972$$

Under the 1 percent column, you will find that 14 trunks can service a carried load of 7.278 Erlangs while 16 trunks can service 8.786 Erlangs. Interpolate as follows:

$$y\ =\ number\ of\ trunks$$

$$y = y_0 + (y_1 - y_0)\frac{x - x_0}{x_1 - x_0}$$

$$y = 14 + (16 - 14)\frac{7.972 - 7.278}{8.786 - 7.278}$$

$$y = 14 + (2 \times 0.460)$$

$$y = 14.92$$

Therefore, the agency will need 15 trunks to satisfy its customers.

Table 6-12. ACD Trunk Engineering

	Blocking Probability								
trunks	**0.01%**	**0.02%**	**0.05%**	**0.10%**	**0.20%**	**0.50%**	**1.00%**	**2.00%**	**5.00%**
1	0.0002	0.0003	0.0006	0.0011	0.0021	0.0050	0.0100	0.0200	0.0500
2	0.0142	0.0202	0.0321	0.0457	0.0652	0.1049	0.1511	0.2190	0.3622
3	0.0868	0.1102	0.1516	0.1936	0.2482	0.3473	0.4509	0.5902	0.8544
4	0.2347	0.2824	0.3622	0.4388	0.5340	0.6977	0.8607	1.070	1.448
5	0.4519	0.5269	0.6482	0.7614	0.8981	1.126	1.347	1.624	2.108
6	0.7282	0.8314	0.9952	1.145	1.323	1.614	1.890	2.230	2.812
7	1.054	1.186	1.392	1.577	1.795	2.147	2.476	2.877	3.551
8	1.422	1.582	1.829	2.049	2.306	2.716	3.096	3.555	4.316
9	1.825	2.013	2.300	2.555	2.849	3.316	3.745	4.258	5.102
10	2.260	2.474	2.801	3.089	3.420	3.941	4.417	4.982	5.905
12	3.207	3.473	3.876	4.227	4.628	5.253	5.817	6.482	7.553
14	4.238	4.555	5.030	5.441	5.907	6.630	7.278	8.036	9.243
16	5.338	5.703	6.246	6.715	7.244	8.059	8.786	9.632	10.97
18	6.495	6.905	7.515	8.038	8.626	9.530	10.33	11.26	12.72
20	7.700	8.154	8.827	9.402	10.05	11.04	11.91	12.92	14.49
25	10.88	11.44	12.26	12.96	13.74	14.92	15.96	17.15	18.99
30	14.24	14.90	15.86	16.67	17.57	18.94	20.13	21.49	23.56
35	17.75	18.49	19.58	20.50	21.52	23.05	24.39	25.91	28.19
40	21.37	22.19	23.40	24.42	25.55	27.24	28.72	30.38	32.87
45	25.08	25.98	27.31	28.42	29.65	31.50	33.10	34.89	37.57
50	28.86	29.85	31.28	32.48	33.81	35.80	37.52	39.45	42.31
60	36.62	37.75	39.38	40.75	42.27	44.53	46.48	48.65	51.84
70	44.57	45.83	47.66	49.19	50.88	53.39	55.55	57.95	61.43
80	52.68	54.07	56.07	57.75	59.60	62.35	64.71	67.31	71.08
90	60.92	62.42	64.60	66.42	68.42	71.40	73.94	76.74	80.76
100	69.26	70.87	73.21	75.17	77.31	80.51	83.22	86.21	90.48
125	90.47	92.35	95.07	97.33	99.82	103.5	106.6	110.1	114.9
150	112.1	114.2	117.3	119.8	122.6	126.8	130.3	134.1	139.4
175	134.0	136.3	139.7	142.5	145.6	150.2	154.0	158.2	163.9

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Table 6-12. ACD Trunk Engineering — *Continued*

	Blocking Probability								
trunks	**0.01%**	**0.02%**	**0.05%**	**0.10%**	**0.20%**	**0.50%**	**1.00%**	**2.00%**	**5.00%**
200	156.2	158.7	162.4	165.5	168.8	173.8	177.9	182.4	188.6
225	178.5	181.3	185.2	188.5	192.1	197.5	201.9	206.7	213.3
250	201.0	203.9	208.2	211.7	215.6	221.3	226.0	231.1	238.0
275	223.7	226.8	231.3	235.0	239.1	245.1	250.2	255.5	262.7
300	246.4	249.7	254.4	258.4	262.7	269.1	274.4	280.0	287.5
400	338.4	342.3	347.9	352.6	357.8	365.3	371.6	378.2	386.7
500	431.4	435.9	442.3	447.7	453.6	462.2	469.3	476.7	486.2
600	525.1	530.1	537.3	543.4	549.9	559.5	567.3	575.5	585.7
700	619.4	624.9	632.8	639.4	646.6	657.1	665.6	674.5	685.4
800	714.2	720.1	728.7	735.8	743.6	754.9	764.1	773.5	785.1
900	809.3	815.7	824.9	832.5	840.8	852.9	862.7	872.7	884.8
1000	904.7	911.5	921.3	929.4	938.2	951.1	961.5	972.0	984.6
1100	1000	1008	1018	1026	1036	1049	1060	1071	1084
1200	1096	1104	1115	1124	1134	1148	1159	1171	1184
1300	1192	1200	1212	1221	1231	1246	1258	1270	1284
1400	1289	1297	1309	1319	1329	1345	1357	1370	1384
1500	1385	1394	1406	1416	1427	1444	1456	1469	1484
1600	1482	1490	1503	1514	1526	1542	1556	1569	1584
1700	1578	1587	1601	1612	1624	1641	1655	1668	1684

Error Messages

A

The following is a list of all error messages for BCMS that may be displayed as the result of a BCMS login entering a command incorrectly.

- BCMS agents exceeded maximum—remove excess before changing measured value
- Basic Call Management System (BCMS) feature not assigned
- Invalid extension
- Invalid range
- Invalid report type for specified time or day
- Invalid split number
- Invalid trunk group number
- Invalid start time or day: Enter [hh:mm] for time or [mm/dd] for day
- Invalid stop time or day: Enter [hh:mm] for time or [mm/dd] for day
- Invalid VDN extension
- Number of BCMS measured agents exceeds maximum
- Number of BCMS measured agents per split exceeds maximum
- Number of BCMS measured hunt groups exceeds maximum
- Number of BCMS measured trunk groups exceeds maximum
- Space for entering VDN extensions has been exceeded

- Split is not measured by Basic Call Management System (BCMS)
- Too many extensions specified; only 30 allowed
- Too many extensions or login IDs specified; only 30 allowed
- <value> is an invalid identifier; please press HELP

Data Module and Printer Options

B

7400A Data Module Switch Settings for BCMS Terminals

To connect a BCMS supervisor terminal with a 7400A Data Module to the G3, set the following options on the data module:

Table B-1. 7400A Data Module Switch Settings

Option	Setting
Speed	1200 or 9600
Set Answer	manual
AT Control	off
Break Disconnect	long
CH Lead	off
CH2 Lead	off
CI Lead	off
CI2 Lead	off
CTS Lead	normal
DCD Lead	normal
DTR Detect	50 msec

Continued on next page

Table B-1. 7400A Data Module Switch Settings — *Continued*

Option	Setting
DSR	normal
DTR Lead	follow/EIA standard
LL Lead	off
Parity	space
Remote Loop	deny
RI Lead	off
RL Lead	off
SIGLS Disconnect	on
TM Lead	off

7400A Data Module Switch Settings for AT&T 475 Printer

To use an AT&T 475 printer as a system printer, you must set the following options on the 7400A Data Module:

Option	Setting
Speed	1200
Set Answer	auto
Break Disconnect	long
CH Lead	off
CI Lead	off
CTS Lead	normal
DCD Lead	on
DTR Detect	50 msec
DSR	on
DTR Lead	follow/EIA standard
LL Lead	off
Remote Loop	grant/deny

RI Lead	on
RL Lead	off
SIGLS Disconnect	on
TM Lead	off

AT&T 615 Terminal Options

To use an AT&T 615 terminal as a BCMS supervisor terminal, set the following options on the terminal:

Option	Setting
Speed	9600
Parity	space
Autowrap	off
Newline on LF	yes
Enter key	<Esc>SB

AT&T 572 Printer

To use the AT&T 572 printer as your system printer, set the printer switches to the following settings:

Table B-2. AT&T 572 Printer Switch Settings

Option	Setting
01 FORM LENGTH	09 11
02 LPI	01 6
03 CPI	01 10
04 LQ OR NLQ	01 LQ
05 BUZZER	01 ON
06 FONT	02 FONTCART
07 RESOLUTION	01 144
11 BUFFER	02 N-LINE

Continued on next page

Table B-2. AT&T 572 Printer Switch Settings — *Continued*

Option	Setting
13 PW ON MODE	01 ON-LINE
14 DIRECTION	01 BI-DIR.1
15 BUF. FULL	02 LF + CR
17 AUTO OR	01 CR + LF
18 ZERO	01 0
22 AUTO LF	01 CR ONLY
31 1" SKIP	01 OFF
32 CHAR. SET	02 USA
33 CHAR. SET	01 UK
34 CHAR. SET	03 GE
35 CHAR. SET	07 LINE DRAWING
81 OFF-LINE	07 ALL RECEIVE
82 DSR	02 OFF
84 CD	02 OFF
85 CTS	02 OFF
91 OVER RUN	02 256
92 DATA BIT	02 8
93 PROTOCOL	03 XON/XOFF
94 STOP BIT	01 1
95 PARITY	01 NON
96 BPS	?? 1200

AT&T 475 Printer

To use the AT&T 475 printer as your system printer, set the printer switches to the following settings:

Switch 1	Switch 2	Switch 21
1 - on	1 - off	1 - off
2 - on	2 - off	2 - off
3 - off	3 - off	3 - off
4 - on	4 - off	4 - on
5 - on	5 - off	5 - off
6 - off	6 - off	6 - off
7 - off	7 - on	7 - off
8 - on	8 - off	8 - on

Switch 22	Switch 23	Switch 24
1 - off	1 - on	1 - off
2 - on	2 - off	2 - on
3 - on	3 - off	3 - off
4 - off	4 - off	4 - off
	5 - on	5 - off
	6 - off	6 - on
		7 - off
		8 - on

References

C

The following is a list of DEFINITY Communications System Generic 3 documents, including a brief description of each document.

To order copies, refer to the address and phone number on the back of this document's title page. For addition DEFINITY Communications System documents, refer to the *GBCS Publications Catalog,* 555-000-010, available from the AT&T Customer Information Center.

Basic

The following are basic documents for anyone using the DEFINITY Communications System.

DEFINITY Communications System Generic 3 Feature Description, Issue 2 **555-230-204**

Provides comprehensive technical descriptions of system features and parameters. Includes the applications and benefits, feature interactions, administration requirements, hardware and software requirements, and a brief discussion of data communications and private networking configurations.

DEFINITY Communications System Generic 3 Version 4 Implementation, Issue 1 **555-230-655**

DEFINITY Communications System Generic 3 V2/V3 Implementation, Issue 1 Addendum and Addendum 2 **555-230-653**

Provides step-by-step procedures for preparing the hardcopy forms that correspond to the screens and are required to implement the features, functions, and services of the system. Includes procedures for completing a communications survey. Includes an initial set of blank forms (555-230-655B, 555-230-653B).

DEFINITY Communications System Generic 3 Version 4 Implementation Blank Forms, Issue 1 **555-230-655B**

DEFINITY Communications System Generic 3 V2/V3 Implementation Blank Forms, Issue 1 **555-230-653B**

Provides additional blank hardcopy forms that correspond to the screens that are required to implement the features, functions, and services of the system.

Copies of these forms are automatically included with the *DEFINITY Communications System Generic 3 Version 4 Implementation, Issue 1*, 555-230-655 or *DEFINITY Communications System Generic 3 V2/V3 Implementation, Issue 1*, 555-230-653. Use this order number to purchase additional forms.

DEFINITY Communications System Generic 3 System Description and Specifications, Issue 3 **555-230-206**

Provides a technical description of the systems and is intended for service personnel, sales personnel, and customers who need a comprehensive overview of the system. Includes descriptions of hardware, software features, technical specifications, environment requirements, maintenance requirements, and illustration of components.

DEFINITY Communications System Generic 3 Version 4 Traffic Reports, Issue 2 **555-230-511**

Provides detailed descriptions of all the measurement, status, and security reports available in the system and is intended for administrators who validate traffic reports and evaluate system performance. This document was titled *System Reports* for earlier systems. Includes corrective actions for potential problems.

DEFINITY Communications System Generic 1 and Generic 3 Installation and Test, Issue 5 **555-230-104**

Provides descriptions of the procedures for installing and testing the system's common equipment and adjuncts. Includes setup procedures for the system management terminal, power and grounding requirements, and testing steps. Includes compete details on system wiring. Provides both domestic and international information.

DEFINITY Communications System Generic 3 Installation (for Single-Carrier Cabinets), Issue 1 **555-230-894 UK English**
555-230-895 German
555-230-896 French
555-230-897 Spanish
555-230-900 Chinese

Provides procedures and information for hardware installation and initial testing of the DEFINITY Communications System Generic 3, models Generic 3i and Generic 3 single-carrier cabinet switches only. The UK version will be shipped with all single-carrier cabinet systems in the US. Some languages may not be available until a future date.

DEFINITY Communications System Generic 3 Version 1.1 - Version 4 Upgrades and Additions, Issue 2 **555-230-107**

Provides procedures for an installation technician to convert an existing DEFINITY Communications System Generic 1, Generic 2, Generic 3 Version 1, Generic 3 Version 2, Generic 3 Version 3, or System 75 R1V3 to Generic 3 Version 4. Included are upgrade considerations, lists of required hardware, and step-by-step upgrade procedures. Also included are procedures to add control carriers, switch node carriers, port carriers, circuit packs, auxiliary cabinets, and other equipment.

DEFINITY Communications System Generic 3r Maintenance, Issue 4 **555-230-105**

DEFINITY Communications System Generic 3i/s/vs Maintenance, Issue 7 **555-204-105**

Provide detailed descriptions of the procedures for monitoring, testing, and maintaining the systems. Included are maintenance commands, step-by-step trouble-clearing procedures, the procedures for using all tests, and explanations of the system's error codes.

An Introduction to DEFINITY Communications System Generic 3, Issue 1 **555-230-023**

Provides a detailed overview of the system including descriptions of many of the major features, applications, hardware, system capabilities, and the AT&T support provided with the system. This document reflects Generic 3 Version 2 software, but still contains relevant information.

DEFINITY Communications System Generic 3 Planning and Configuration, Issue 2 **555-230-601**

Provides step-by-step procedures for the account team in determining the customer's equipment and hardware requirements to configure a system according to the customer specifications. Includes detailed requirements and block diagrams. This document reflects Generic 3 Version 2 software, but still contains relevant information.

GBCS Products Security Handbook, Issue 4 **555-025-600**

Provides information about the risks of telecommunications fraud and measures for addressing those risks and preventing unauthorized use of GBCS products. This document is intended for telecommunications managers, console operators, and security organizations within companies.

DEFINITY Communications System and System 75 and System 85 Terminals and Adjuncts Reference, Issue 7 **555-015-201**

Provides descriptions of the peripheral equipment that can be used with System 75, System 85, and DEFINITY Communications System. This document is intended for customers and AT&T account teams for selecting the correct peripherals to accompany a system.

DEFINITY Communications System Generic 1 and Generic 3 Voice Terminal Operations, Issue 1 **555-230-701**

Provides detailed operating instructions for the system features on each type of voice terminal. Included are definitions of the voice features and user requirements.

DEFINITY Communications System Generic 1, Generic 3, and System 75 Voice Terminal Guide Builder, Issue 1 **555-230-755**

Provides capability to produce laser-printed documentation for specific voice terminals. The software is supported by a comprehensive user's guide and on-line help. This product requires a 386 PC, minimum of 6MB disk space, minimum of 4MB RAM, a printer supported by Microsoft GDI printer drive, and Microsoft Windows 3.1 or higher. A mouse is recommended.

Call Center

The following list of documents are Call-Center specific. Refer also to the basic DEFINITY Communications System documents.

DEFINITY Communications System Generic 3 Call Vectoring/Expert Agent Selection (EAS) Guide, Issue 4 **555-230-520**

Provides information on how to write, use, and troubleshoot vectors, which are command sequences that process telephone calls in an Automatic Call Distribution (ACD) environment. It is provided in two parts: tutorial and reference.

The tutorial provides step-by-step procedures for writing and implementing basic call vector scripts.

The reference includes detailed descriptions of the call vectoring features, vector management, vector administration, adjunct routing, troubleshooting, and interactions with management information systems (including the Call Management System).

DEFINITY Communications System Generic 3 Basic Call Management System (BCMS) Operations, Issue 4 **555-230-704**

Provides detailed instructions on how to generate reports and manage the system and is intended for telecommunications managers who wish to use BCMS reports and system managers responsible for maintaining the system.

Networks

The following list of documents are network-specific. Refer also to the basic DEFINITY Communications System documents.

DEFINITY Communications System Generic 3 Wideband Technical Reference, Issue 1 **555-230-230**

Provides detailed information regarding the Wideband Switching feature for the system and is intended for users and technical support personnel involved with the installation, administration, and operation of this feature. This feature provides high speed end-to-end connectivity between customer endpoints where dedicated facilities are not economical or appropriate. The primary function is to support high speed video-conferencing and data applications.

DEFINITY Communications System Generic 2.2 and Generic 3 Version 2 DS1/CEPT1/ISDN PRI Reference Manual, Issue 1 **555-025-107**

Provides a detailed technical description of digital trunks in the DEFINITY Communications Systems. This includes trunks conforming to the DS1 standard (1.544 Mbps) and the CEPT1 standard and all other methods of signalling, including bit-oriented signalling as well as ISDN-PRI signalling. This document includes background information on these topics, information on how digital trunk capabilities have been designed into the DEFINITY Communications System and information for field personnel and customers on how to provision and administer digital trunk capabilities and features. Provides both domestic and international information.

Application Specific

The following list of documents are application-specific. Refer also to the basic DEFINITY Communications System documents.

DEFINITY Communications System Generic 2 to Generic 3 Version 4 Transition Reference, Issue 1 **555-230-636**

Provides detailed descriptions of the difference between features and administrative forms for systems Generic 2 to Generic 3 Version 4 and is intended for AT&T personnel and customers involved in planning upgrades and migrations from an older system. Includes descriptions of new administrative commands.

DEFINITY Communications System Generic 3 CallVisor ASAI Planning Guide, Issue 4 **555-230-222**

Provides procedures and directions for the account team and customer personnel for effectively planning and implementing the CallVisor Adjunct/Switch Application Interface (ASAI) PBX-Host environment. The CallVisor ASAI is a communications interface that allows adjunct processors to access switch features and to control switch calls. It is implemented using an Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI). Included are hardware and software requirements.

DEFINITY Communications System Generic 3 CallVisor ASAI Protocol Reference, Issue 4 **555-230-221**

Provides detailed layer 3 protocol information regarding the CallVisor Adjunct/Switch Application Interface (ASAI) for the systems and is intended for the library or driver programmer of an adjunct processor to create the library of commands used by the applications programmers. Describes the ISDN message, facility information elements, and information elements.

DEFINITY Communications System Generic 3 CallVisor ASAI Technical Reference, Issue 4 **555-230-220**

Provides detailed information regarding the CallVisor Adjunct/Switch Application Interface (ASAI) for the systems and is intended for the application designer responsible for building and/or programming custom applications and features.

DEFINITY Communications System Installation, Administration, and Maintenance of CallVisor ASAI Over the DEFINITY LAN Gateway, Issue 1 **555-230-223**

Provides procedures for installation, administration, and maintenance of the CallVisor Adjunct/Switch Application Interface (ASAI) Ethernet application and is intended for system administrators, telecommunications managers, Management Information System (MIS) managers, LAN managers, and AT&T personnel. The ASAI-Ethernet application provides ASAI functionality using 10Base-T Ethernet rather than BRI as a transport media.

DEFINITY Communications System Generic 3 Automatic Call Distribution (ACD) Agent Instructions, Issue 4 **555-230-722**

Provides information for use by agents after they have completed ACD training. Includes descriptions of ACD features and the procedures for using them.

DEFINITY Communications System Generic 3 Automatic Call Distribution (ACD) Supervisor Instructions, Issue 4 **555-230-724**

Provides information for use by supervisors after they have completed ACD training. Includes descriptions of ACD features and the procedures for using them.

DEFINITY Communications System Generic 1 and Generic 3 Console Operation, Issue 2 **555-230-700**

Provides operating instructions for the attendant console. Included are descriptions of the console control keys and functions, call-handling procedures, basic system troubleshooting information, and routine maintenance procedures.

DEFINITY Communications System Generic 1 and Generic 3 Console Quick Reference, Issue 1 **555-230-890 UK English**
555-230-891 German
555-230-892 French
555-230-893 Spanish
555-230-920 Chinese

Provides operating instructions for the attendant console. Included are descriptions of the console control keys and functions, call handling, basic system-troubleshooting information, and routine maintenance procedures. Some languages may not be available until a future date.

An Introduction to DEFINITY Communications System Generic 3 Hospitality Services, Issue 1 **555-230-021**

Provides an overview of the features available for use by the lodging and health industries to improve their property management and to provide assistance to their employees and clients. Included are brief definitions of many of the system features, descriptions of the hardware, planning considerations, and list of the system capabilities.

DEFINITY Communications System Generic 1 and Generic 3 User's Guide Hospitality Operations, Issue 2 **555-230-723**

Provides step-by-step procedures for using the features available for use by the lodging and health industries to improve their property management and to provide assistance to their employees and clients. Includes detailed descriptions of reports.

BMCS/CMS Report Heading Comparison

D

The following is a comparison of reports and report headings for BCMS and CMS R3V2 and later releases. The attachments detail each column from each BCMS report, its corresponding column from a standard CMS report (or a database item in the R3 CMS database or a calculation, if no corresponding column appears in a standard CMS report) and present notes on any differences between the two.

Summary of Differences

The following are the primary differences between the BCMS report items and those in R3 CMS:

1. Names of measured entities on the switch are limited to 15 (or 11) characters. On R3 CMS, they are limited to 20 characters. (Note that both systems may truncate names to fit on some reports.)
2. Almost all database items in R3 CMS are call-based rather than interval-based. This means that almost all data for a call is pegged in the interval *in which the call and any associated after call work completed.* In BCMS, most items are pegged when the call itself completes (not following after call work), except for transfers, which are pegged when the transfer takes place, i.e., when the agent pushes the transfer button for the second time. In fact, half of the call ends with the transfer and is recorded at that point (since one of the facilities goes away on a transfer).
3. The G2.1, G2.2, and G3 switches support "ring" state when reporting on ACD calls to the CMS. This means that they send the DCON message to CMS when an ACD call is ringing at the agent's voice terminal. CMS tracks the time that calls spend ringing and will show an agent with a call ringing as being in the "ring" state, on real-time reports. BCMS receives notification when a call is ringing at the agent's terminal and puts the

agent into the "Other" state in real-time reports. It does not have a "ring" state nor does it explicitly track the time calls spend ringing at agents' terminals.

4. In G3V1 and G3V2 BCMS, "Other" time, including the time agents spend with ACD calls ringing at their sets, is included in the AUX TIME reported on historical reports. In G3V3 and later release BCMS, this column in reports has been renamed to ''AUX/OTHER.''

5. In BCMS, total ACW and total AUX times for the agent do *not* include time on extension in/out calls. Those data are reported separately via "EXTN" items. In R3 CMS, ACW and AUX agent time items on standard reports *do* include time on extension in/out calls. There are separate database items for extension calls and their times, so customers can pull these data out from the ACW and AUX items if they wish. BCMS split reports, however, do include extension time in the total ACW and total AUX times.

6. CMS collects both interval-based and call-based after call work time. The interval-based ACW time includes any time on non-call related ACW, as well as call-based ACW time. (The agent pushed the ACW button while not on an ACD call.) The call-based ACW time includes only ACW time associated with a call. CMS agent reports that show the time agents spent in the various work states display interval-based ACW time. CMS split and VDN reports that show average after call work time use the call-based ACW time to calculate the average.

   BCMS historical reports display the equivalent of interval-based ACW time, i.e., the ACW time reported includes both call-related and non-call related ACW time. The "monitor system" (BCMS System Status) report displays only call-related ACW time.

7. The BCMS real-time agent report shows the *clock time* at which the agent entered the current work state. R3 CMS real-time agent reports show the *elapsed time* the agent has spent in the current work state.

8. CMS does not include direct agent ACD calls with split ACD calls on split reports. BCMS does include direct agent ACD calls in ACD CALLS on split reports.

9. R3 CMS pegs dequeues for calls that dequeue from non-primary splits in a VDN. BCMS does not display a count of dequeued calls in any reports, however dequeued calls do count as calls offered to the split and thus have an effect on the percent within service level calculation for the split.

10. BCMS reports hold time only for ACD calls. CMS reports hold time for ACD calls on split reports, but reports hold time for ACD and extension calls in agent reports.

11. The calls answered counted for VDNs in CMS include calls from the following vector commands: "queue to main," "check backup," "messaging split/skill," "route to" split/skill or direct agent and "adjunct routing" to a split/skill or direct agent. In G3V1 and G3V2, BCMS calls answered for

VDNs include only those calls answered in a "queue to main" or "check backup" command. In G3V3 and later release BCMS, calls answered in VDNs are the same as for CMS.

- The calls abandoned counted for VDNs in CMS include calls that abandoned from vector processing or while queued or ringing as a result of one of the following vector commands: "queue to main", "check backup", "messaging split/skill", "route to" split/skill or direct agent and "adjunct routing" to a split/skill or direct agent. In G3V1 and G3V2, BCMS calls abandoned for VDNs include only those calls abandoned while in vector processing or while queued or ringing as a result of "queue to main" or "check backup" commands. In G3V3 and later release BCMS, calls abandoned from VDNs are the same as for CMS.
- In G3V1 and G3V2, the "FLOW OUT" item in the BCMS VDN report includes calls that successfully execute a "route to", a "messaging split/skill" or an "adjunct routing" command. In the R3 CMS VDN report, "VDN Flow Out" includes only those calls which routed successfully to a VDN or to an external destination. Calls that execute a "route to" a station or attendant and are answered will be tracked in CMS in the "Other Calls Connect" column on the VDN report. In G3V3 and later release BCMS, FLOW OUT contains calls that routed to another VDN or off the switch, just as CMS does. Calls that route to a station, attendant or announcement are recorded in CONN CALLS.

Table D-1. G3V3 and later release BCMS Agent Status (Real-Time) Report

BCMS Column	Description	CMS Report	CMS Column/DB Item	CMS Notes
Split	Split number	Split Status	Split	name or number
Split Name	Split name	Split Status	Split	name or number
Calls Waiting	ACD/DA calls waiting	Split Status	Calls Waiting	ACD calls only
Oldest Call	time oldest ACD/DA call waited	Split Status	Oldest Call Waiting	time oldest ACD call waited
Staffed	agts logged into split	Split Report	Agents Staffed	
Avail	agts available in split	Split Report	Agents Available	
ACD	agts on ACD/DA calls for split	Split Report	Agents ACD Calls	ACD calls only

Continued on next page

Table D-1. G3V3 and later release BCMS Agent Status (Real-Time) Report — *Continued*

BCMS Column	Description	CMS Report	CMS Column/DB Item	CMS Notes
ACW	agts in ACW for split, not on extn calls	Split Report	Agents After Call Work	includes agents on extn calls, ACW for ACD calls only
AUX	agts in AUX for split, not on extn calls	Split Report	Agents Aux Work	includes agents on extn calls
Extn	agents on extn calls		ONACWIN +ONAUXIN +ONACWOUT +ONAUXOUT	Not on std CMS RT reports
Other	agts on ACD or in ACW for another split, with calls ringing or calls on hold	Split Report	Agents Other	includes agents on DA calls
AGENT	name or extn	Agent Report	Agent Name	
LOGIN ID	agent login ID		LOGID	Not on standard CMS RT reports
EXT	agent extension	Agent Report	Extn	
STATE	Avail, ACD, ACW, AUX, Ext In, Ext Out, Other,INIT	Agent Report	State	CMS states: AVAIL, ACDIN,ACDOUT, ACW,ACWIN, ACWOUT,AUX, AUXIN,AUXOUT, DACD,DACW,RING, UNKNOWN,OTHER
TIME	clock time agent entered state	Agent Report	Time	elapsed time in state
ACD CALLS	number in/out ACD +DA calls completed		ACDCALLS	Not on std CMS RT reports
EXT IN CALLS	extension in calls completed		ACWINCALLS+ AUXINCALLS	Not on std CMS RT reports
EXT OUT CALLS	extension out calls completed		ACWOUTCALLS+ AUXOUTCALLS	Not on std CMS RT reports

Table D-2. G3V3 and later release BCMS System Status (real-time) Report/CMS Real-time Split Report

BCMS Column	Description	CMS Column/DB Item	CMS Notes
SPLIT	Split name or ext	Split	
CALLS WAIT	ACD and DA calls waiting	Calls Waiting	ACD calls only
OLDEST CALL	time oldest ACD/DA call has waited	Oldest Call Waiting	ACD calls only
AVG SPEED ANS	avg speed of ans for ACD/DA calls	Avg Speed of Answer	ACD calls only
AVAIL AGENT	avail agts	Agents Available	
ABAND CALLS	ACD/DA calls abandoned from queue or ringing	Abandoned Calls	ACD calls only
AVG ABAND TIME	avg time for ACD/DA calls to abandon	Avg Time to Abandon	ACD calls only
ACD CALLS	ACD/DA calls completed	Split ACD Calls	ACD calls only
AVG TALK TIME	avg talk time for ACD/DA calls	Avg Split ACD Talk Time	ACD calls only
AVG AFTER CALL	avg ACW time for ACD/DA calls for call-related ACW	(ACWTIME-ACWINTIME -ACWOUTTIME)/ACD CALLS	Not on std CMS RT reports
% IN SERV LEVL	% calls answered within service level	%Within Service Level	on Queue/Agent Summary and Call Profile repts

Table D-3. G3V3 and later release BCMS VDN Status Report / CMS VDN Report

BCMS Column	Description	CMS Column/DB Item	CMS Notes
VDN	VDN extension	VDN	name or number
CALLS WAIT	calls waiting in VDN	Calls Wait	
OLDEST CALL	time oldest call has waited	Oldest Call	
ACD CALLS	completed ACD/DA calls	ACD Calls	
AVG SPEED ANS	avg speed of answer for ACD and connect calls	Avg Speed Answer	
ABAND CALLS	VDN calls that abandoned	Calls Aban	
AVG ABAND TIME	avg time for VDN calls to abandon	Aban Time	
AVG TALK/HOLD	avg time ACD caller spent talking and on hold	Avg ACD Talk	CMS number does not contain hold time
CONN CALLS	calls routed to station, attendant or annc and answered there	CONNECTCALLS	not on standard CMS RT report
FLOW OUT	calls routed to another VDN or to a trunk	VDN Flow Out	
CALLS BUSY/DISC	calls that executed busy or disconnect step	Busy/Disc	
% IN SERV LEVL	% ACD and connect calls answered within service level	% Within Service Level	on VDN Call Profile rept

Table D-4. G3V3 and later release BCMS Agent Report / CMS Agent Summary

BCMS Column	Description	CMS Column/DB Item	CMS Notes
Agent	Agent name or extn	Agent Name	login ID if no name
ACD CALLS	ACD/DA calls completed for all splits	ACD Calls	
AVG TALK TIME	avg time talking on ACD/DA calls, all splits	Avg Talk Time	
TOTAL AFTER CALL	Total ACW time for ACD/DA calls and non-call related ACW; does not include time on extn calls	I_ACWTIME	Includes time on extn calls
TOTAL AVAIL TIME	time avail in ALL splits	Agent Time Avail	
TOTAL AUX/OTHER	time in AUX in ALL splits; does not include time on extn calls; does include "Other" time, ringing time	Agent Time AUX	includes time on extn calls; does not include time ringing, in other
EXTN CALLS	in/out extn calls completed	Extn In Calls, Extn Out Calls	CMS has two columns
AVG EXTN TIME	avg time on extn calls	Avg Extn In Talk Time, Avg Extn Out Talk Time	CMS has two columns
TOTAL TIME STAFFED	total time staffed in any split	Agent Time Staff	
TOTAL HOLD TIME	time ACD calls on hold	HOLDTIME	ACD and personal calls

Table D-5. G3V3 and later release BCMS Split Summary / CMS Split Summary

BCMS Column	Description	CMS Column/DB Item	CMS Notes
Split	split number	Split	name or number
Split Name	split name or extn	Split	name or number
ACD CALLS	ACD/DA calls completed by this split	ACD Calls	ACD calls only
AVG SPEED ANS	avg speed of ans for ACD/DA calls	Avg Speed Ans	ACD calls only
ABAND CALLS	ACD/DA calls abandoned for this split	Aban Calls	ACD calls only
AVG ABAND TIME	avg time to abandon for ACD/DA calls	Avg Aban Time	ACD calls only
AVG TALK TIME	avg talk time for ACD/DA calls	Avg Talk Time	ACD calls only
TOTAL AFTER CALL	total ACW time for ACD/DA calls and non-call related ACW	I_ACWTIME	for ACD calls and non-call related ACW
FLOW IN	calls split accepted as coverage pt, or call-forwarded (non-vectoring); calls answered by non-primary split (vectoring). Must have outflowed from a BCMS-measured split.	Flow In	
FLOW OUT	calls split extends to its coverage pt, which call-forward out or are answered via call pickup (non-vectoring); calls that dequeue (and are not answered) from primary split's queue (vectoring)	Flow Out	
TOTAL AUX/OTHER	time agents spent in AUX, including "Other" time	I_AUXTIME	other time not included
AVG STAFF	avg # people staffed during period	Avg Pos Stf	
% IN SERV LEVL	% calls answered within service level	% Within Service Level	on Split Status report

Table D-6. G3V3 and later release BCMS Trunk Group Summary / CMS Trunk Group Summary Report

BCMS Column	Description	CMS Column/DB Item	CMS Notes
Trunk Group	trunk group number	Trunk group	name or number
Trunk Group Name	trunk group name	Trunk group	name or number
Number of Trunks	trunks in group	Number of trunks	
INCOMING CALLS	incoming calls carried	Inbound Calls Carr	
INCOMING ABAND	incoming calls abandoned	Inbound Calls Aban	
INCOMING TIME	avg holding time, incoming calls	Inbound Avg Trk Holding Time	
INCOMING CCS	total holding time in CCS, incoming calls	Inbound Total CCS	
OUTGOING CALLS	outgoing calls carried	Outbound Calls Carr	
OUTGOING COMP	outgoing calls answered	Outbound Far End Comp	
OUTGOING TIME	avg holding time, outgoing calls	Outbound Avg Trk Holding Time	
OUTGOING CCS	total holding time in CCS, outgoing calls	Outbound Total CCS	
% ALL BUSY	% time all trunks in tk gp busy	% Time All Trunks Busy	
% TIME MAINT	% time trunks busied out for maint	% Time Maint Busy	

Table D-7. G3V3 and later release BCMS VDN Summary / CMS VDN Report

BCMS Column	Description	CMS Column(s)	CMS Notes
VDN Ext	VDN extension	VDN	name or number
VDN Name	VDN name or extension	VDN	name or number
CALLS OFFERED	calls that used the VDN	Calls Offered	
ACD CALLS	ACD/DA calls answered by agent; for "queue to main" and "check backup" only	Calls Ans	includes calls from "queue to main", "check backup", "route to" split/skill, "messaging split/skill" and "adjunct routing"
AVG SPEED ANS	avg speed ans for ACD/DA calls	Avg Speed Ans	
ABAND CALLS	calls abandoned from VDN from "queue to main" and "check backup" only	Calls Aban	includes calls from "queue to main", "check backup", "route to" split/skill, "messaging split/skill" and "adjunct routing"
AVG ABAND TIME	avg time in VDN before abandon	Avg Aban Time	
AVG TALK/HOLD	avg talk time on ACD/DA calls, including time on hold	Avg Talk Time	excludes time on hold
CONN CALLS	calls routed to station, attendant or annc and answered there	Other Calls Connect	
FLOW OUT	calls that execute "route to", "messaging split" or "adjunct routing" successfully	VDN Flow Out	calls that route to external or VDN only
CALLS BUSY/DISC	calls forced busy or disconnected	Calls Forced Busy, Calls Forced Disc	
% IN SERV LEVL	% ACD and connect calls answered within service level	% Within Service Level	on VDN Status rept

Abbreviations

A

AA
Archangel

AAR
Automatic Alternate Routing

AC
Alternating Current

ACA
Automatic Circuit Assurance

ACB
Automatic Callback

ACD
Automatic Call Distribution

ACU
Automatic Call Unit

ACW
After Call Work

AD
Abbreviated Dialing

ADAP
AUDIX Data Acquisition Package

ADM
Asynchronous Data Module

ADU
Asynchronous Data Unit

AE
Access Endpoint

AIM
Asynchronous Interface Module

AIOD
Automatic Identification of Outward Dialing

ALM-ACK
Alarm Acknowledge

AMW
Automatic Message Waiting

AN
Analog

ANI
Automatic Number Identification

AOL
Attendant Offered Load

AP
Applications Processor

APLT
Advanced Private Line Termination

ARS
Automatic Route Selection

ASAI
Adjunct Switch Applications Interface

ASCII
American Standard Code for Information Interchange

ATB
All Trunks Busy

ATD
Attention Dial

ATMS
Automatic Transmission Measurement System

AUDIX
Audio Information Exchange

AUX
Auxiliary

AVD
Alternate Voice/Data

AWOH
Administration Without Hardware

AWT
Average Work Time

B

BCC
Bearer Capability Class

BCMS
Basic Call Management System

BCT
Business Communications Terminal

BHCC
Busy Hour Call Completions

BLF
Busy Lamp Field

BN
Billing Number

BOS
Bit Oriented Signaling

BPN
Billed Party Number

BPS
Bits Per Second

BRI
Basic Rate Interface

BTU
British Thermal Unit

C

CA-TSC
Call-Associated Temporary Signaling Connection

CACR
Cancellation of Authorization Code Request

CAG
Coverage Answer Group

CAMA
Centralized Automatic Message Accounting

CARR-POW
Carrier Port and Power Unit for AC Powered Systems

CAS
Centralized Attendant Service, Call Accounting System

CBC
Call-By-Call and Coupled Bonding Conductor

CC
Country Code

CCIS
Common Channel Interoffice Signaling

CCITT
Consultative Committee for International Telephone and Telegraph

CCMS
Common Channel Message Set

CCS
Centum (Hundred) Call Seconds

CCSA
Common Control Switching Arrangement

CDM
Channel Division Multiplexing

CDOS
Customer-Dialed and Operator Serviced

CDR
Call Detail Recording

CDRP
Call Detail Record Poller

CDRR
Call Detail Recording and Reporting

CDRU
Call Detail Recording Utilities

CEM
Channel Expansion Multiplexing

CEPT1
European Conference of Postal and Telecommunications Rate 1

CI
Clock Input

cm
Centimeter

CM
Connection Manager

CMDR
Centralized Message Detail Recording

CMS
Call Management System

CO
Central Office

COR
Class of Restriction

COS
Class of Service

CP
Circuit Pack

CPE
Customer Premises Equipment

CPN
Called-Party Number

CPN/BN
Calling Party Number/Billing Number

CPTR
Call Progress Tone Receiver

CRC
Cyclical Redundancy Checking

CSA
Canadian Safety Association

CSCN
Center Stage Control Network

CSD
Customer Service Document

CSM
Centralized System Management

CSS
Center Stage Switch

CSSO
Customer Services Support Organization

CSU
Channel Service Unit

CTS
Clear to Send

CWC
Call Work Codes

D

DAC
Dial Access Code or Direct Agent Calling

dB
Decibel

DC
Direct Current

DCE
Data Communications Equipment

DCP
Digital Communications Protocol

DCS
Distributed Communications System

DDC
Direct Department Calling

DDD
Direct Distance Dialed

DID
Direct Inward Dialed

DIOD
Direct Inward and Outward Dialing

DIVA
Data In/Voice Answer

DLC
Data Line Circuit

DLDM
Data Line Data Module

DMI
Digital Multiplexed Interface

DND
Do Not Disturb

DNIS
Dialed Number Identification Service

DOD
Direct Outward Dialing

DOSS
Delivery Operations Support System

DOT
Duplication Option Terminal

DPM
Dial Plan Manager

DPR
Dual Port RAM

DS1
Data Services Level 1

DS1C
Digital Signal Level-1 Converter

DSI
Digital Signal Interface

DSU
Data Service Unit

DTDM
Digital Terminal Data Module

DTE
Data Terminal Equipment

DTGS
Direct Trunk Group Select

DTMF
Dual-Tone Multifrequency

DTS
Disk Tape System

DXS
Direct Extension Selection

E

E&M
Ear and Mouth (receive and transmit)

EAA
Expansion Archangel

EAL
Expansion Archangel Link

EBCDIC
Extended Binary-Coded Decimal Interexchange Code

ECC
Error Correct Code

EFP
Electronic Power Feed

EI
Expansion Interface

EIA
Electronic Industries Association

EMI
Electro-Magnetic Interference

EPN
Expansion Port Network

EPROM
Erasable Programmable Read Only Memory

EPSCS
Enhanced Private Switched Communications Services

ESF
Extended Superframe Format

ETA
Extended Trunk Access

ETN
Electronic Tandem Network

ETSI
European Telecommunications Standards Institute

F

FAC
Feature Access Code

FAS
Facility-Associated Signaling

FAT
Facility Access Trunk

FAX
Facsimile

FCC
Federal Communications Commission

FEAC
Forced Entry of Account Codes

FEP
Front End Processor

FIC
Facility Interface Codes

FNPA
Foreign Numbering-Plan Area

FRL
Facilities Restriction Level

FX
Foreign Exchange

G

G1
Generic1

G3-MA
Generic 3 Management Applications

G3-MT
Generic 3 Management Terminal

G3i
Generic 3, Intel

G3i-G
Generic 3, global

G3r
Generic 3, RISC (Reduced Instruction Set Computer)

GM
Group Manager

GPTR
General-Purpose Tone Receiver

GRS
Generalized Route Selection

H

HNPA
Home Numbering Plan Area Code

Hz
Hertz

I

IAS
Inter-PBX Attendant Service

IC
Inter-Cabinet

ICC
Intercarrier Cable

ICD
Inbound Call Director

ICDOS
International Customer Dialed Operator Serviced

ICHT
Incoming Call-Handling Table

ICI
Incoming Call Identifier

ICM
Inbound Call Management

IDDD
International Direct Distance Dialing

IDF
Intermediate Distribution Frame

IE
Information Element

IMT
Intermachine Trunk

in
Inch

INADS
Initialization and Administration System

INS
ISDN Network Service

INWATS
Inward Wide Area Telephone Service

IO
Information Outlet

ISDN
Integrated Services Digital Network

ISN
Information Systems Network

ISO
International Standards Organization

ISV
Independent Software Vendor

ITP
Installation Test Procedures

ITU
International Telecommunications Union

IXC
Interexchange Carrier Code

K

kHz
Kilohertz

kbps
Kilobits Per Second

kbyte
Kilobyte

kg
Kilogram

L

LAN
Local Area Network

LAP-D
Link Access Procedure on the D-channel

LAPD
Link Access Procedure Data

LATA
Local Access and Transport Area

lb
Pound

LDN
Listed Directory Number

LDS
Long-Distance Service

LEC
Local Exchange Carrier

LED
Light-Emitting Diode

LINL
Local Indirect Neighbor Link

LMM
Low Level Maintenance Monitor

LSU
Local Storage Unit

LWC
Leave Word Calling

M

M-Bus
Memory Bus

MA-UUI
Message Associated User-to-User Signaling

MADU
Modular Asynchronous Data Unit

MAP
Maintenance Action Process

Mbps
Megabits Per Second

Mbyte
Megabytes

MCC
Multi-Carrier Cabinet

MCS
Message Center Service

MDF
Main Distribution Frame

MDM
Modular Data Module

MDR
Message Detail Record

MEM
Memory

MET
Multibutton Electronic Telephone

MFC
Multifrequency Compelled Signaling

MHz
Megahertz

MIM
Management Information Message

MIS
Management Information System

MISCID
Miscellaneous Identification

MMS
Material Management Services

MOS
Message-Oriented Signaling

MPDM
Modular Processor Data Module

MS
Message Server

ms
Millisecond

MS/T
Main Satellite/Tributary

MSA
Message Servicing Adjunct

MSG
Message Service

MSM
Modular System Management

MSS
Mass Storage System

MSSNET
Mass Storage/Network Control

MT
Management Terminal

MTDM
Modular Trunk Data Module

MTP
Maintenance Tape Processor

MTT
Multi-Tasking Terminal

MWL
Message Waiting Lamp

N

NANP
North American Numbering Plan

NAU
Network Access Unit

NCA/TSC
Non-Call Associate/Temporary Signaling Connection

NCOSS
Network Control Operations Support Center

NCSO
National Customer Support Organization

NEC
National Engineering Center

NEMA
National Electrical Manufacturer's Association

NFAS
Non-Facility Associated Signaling

NID
Network Inward Dialing

NM
Network Management

NN
National Number

NPA
Numbering Plan Area

NPE
Network Processing Element

NQC
Number of Queued Calls

NSE
Night Service Extension

NSU
Network Sharing Unit

NXX
Public Network Office Code

O

OA
Operator Assisted

OCM
Outbound Call Management

ONS
On-Premises Station

OPS
Off-Premises Station

OQT
Oldest Queued Time

OSHA
Occupational Safety and Health Act

OSI
Open Systems Interconnect

OSS
Operations Support System

OSSI
Operations Support System Interface

OTQ
Outgoing Trunk Queuing

P

PACCON
Packet Control

PAD
Packet Assembly/Disassembly

PBX
Private Branch Exchange

PC
Personal Computer

PCM
Pulse Code Modulated

PCOL
Personal Central Office Line

PCOLG
Personal Central Office Line Group

PCS
Permanent Switched Calls

PDM
Processor Data Module

PDS
Premises Distribution System

PE
Processing Element

PEC
Price Element Codes

PEI
Processor Element Interchange

PGATE
Packet Gateway

PGN
Partitioned Group Number

PI
Processor Interface

PIB
Processor Interface Board

PIDB
Product Image Database

PKTINT
Packet Interface

PL
Private Line

PLS
Premises Lightwave System

PMS
Property Management System

PN
Port Network

PNA
Private Network Access

POP
Point Of Presence

PPN
Processor Port Network

PRI
Primary Rate Interface

PROCR
Processor

PSC
Premises Service Consultant

PSDN
Packet Switch Public Data Network

PT
Personal Terminal

PTC
Positive Temperature Coefficient

PTT
Postal Telephone and Telegraph

R

R2-MFC
R2 Multifrequency Compelled Signaling

RAM
Random Access Memory

RBS
Robbed-Bit Signaling

RCL
Restricted Call List

RHNPA
Remote Home Numbering Plan Area

RINL
Remote Indirect Neighbor Link

RISC
Reduced Instruction Set Computer

RLT
Release Link Trunk

RMATS
Remote Maintenance, Administration, and Traffic System

RNX
Route Number Index (Private Network Office Code)

ROM
Read-Only Memory

RPN
Routing Plan Number

RS232C
Recommended Standard 232C

RS449
Recommended Standard 449

RSC
Regional Support Center

S

SABM
Set Asynchronous Balance Mode

SAKI
Sanity and Control Interface

SAT
System Access Terminal

SCC
Single Carrier Cabinet

SCD
Switch-Control Driver

SCI
Switch Communications Interface

SCO
System Control Office

SCOTCH
Switch Conferencing for TDM Bus in Concentration Highway

SCSI
Small Computer System Interface

SDDN
Software Defined Data Network

SDI
Switched Digital International

SDLC
Synchronous Data Link Control

SDN
Software Defined Network

SID
Station Identification Number

SIT
Special Information Tones

SMDR
Station Message Detail Recording

SMM
Standby Maintenance Monitor

SN
Switch Node

SNA
Systems Network Architecture

SNC
Switch Node Clock

SNI
Switch Node Interface

SPE
Switch Processing Element

SPID
Service Profile Identifier

SSI
Standard Serial Interface

SSM
Single Site Management

SSV
Station Service

ST3
Stratum 3 Clock Board

STARLAN
Star-Based Local Area Network

SVN
Security Violation Notification

SXS
Step-by-Step

SYSAM
System Access and Administration

T

TAAS
Trunk Answer from Any Station

TAC
Trunk Access Code

TC
Technical Consultant

TCM
Traveling Class Mark

TDM
Time-Division Multiplex(ing)

TDR
Time of Day Routing

TEG
Terminating Extension Group

TEI
Terminal Endpoint Identifier

TOD
Time of Day

TOP
Task Oriented Protocol

TSC
Technical Service Center

TTR
Touch-Tone Receiver

TTT
Terminating Trunk Transmission

TTTN
Tandem Tie Trunk Network

TTY
Teletypewriter

U

UAP
Usage Allocation Plan

UART
Universal Asynchronous Transmitter

UCD
Uniform Call Distribution

UCL
Unrestricted Call List

UDP
Uniform Dial Plan

UL
Underwriter Laboratories

UM
User Manager

UNMA
Unified Network Management Architecture

UNP
Uniform Numbering Plan

UPS
Uninterruptible Power Supply

USOP
User Service Order Profile

UUCP
UNIX-to-UNIX Communications Protocol

UUI
User-to-user information

V

VDN
Vector Directory Number

VIS
Voice Information System

VLSI
Very Large Scale Integration

VM
Voltmeter

VNI
Virtual Nodepoint Identifier

W

WATS
Wide Area Telecommunications Service

WCC
World Class Core

WSA
Waiting Session Accept

Z

ZCS
Zero Code Suppression

Glossary

Numerics

3B2 Message Server
An AT&T software application that combines voice and data messaging services for voice terminal users whose extensions are connected to a G3 switch.

800 service
A service in the USA, which allows incoming calls from a certain area or areas to an assigned number for a flat-rate charge based on usage.

A

abandoned call
An incoming call, where the caller hangs up before being answered.

access code
A 1-, 2-, or 3-digit dial code used to activate or cancel a feature, or access an outgoing trunk. The star (*) and pound (#) can be used as the first digit of an access code.

access endpoint
Either a nonsignaling channel on a DS1 interface or a nonsignaling port on an analog tie trunk circuit pack that is assigned a unique extension.

access tie trunk
A trunk that connects a main communications system with a tandem communications system in an electronic tandem network (ETN). An access tie trunk can also be used to connect a system or tandem to a serving office or service node. Also called ''access trunk.''

ACCUNET
A trademarked name for a family of digital services offered by AT&T in the USA.

ACD
See **Automatic Call Distribution**. ACD also refers to the ''Work State'' indicating that the agent is on an ACD call.

ACD split (or split)
A group of extensions that are staffed by agents trained to handle a certain type of incoming call. Valid split numbers range from 1~through 99. Each number identifies a unique grouping of ACD agent positions. ACD split is also referred to as an *ACD hunt group* or *hunt group*.

ACD work modes
See **work modes**.

active-notification association
A ''link'' that is initiated by the adjunct allowing it to receive Event Reports for a specific switch entity, for example, an outgoing call. This association is initiated by the adjunct via the *Event Notification Request* capability.

active-notification call
A call for which Event Reports are being sent over an active-notification association (communication channel) to the adjunct. Sometimes referred to as a monitored call.

active notification domains
Domains are VDNs and ACD split extensions for which Event Notification has been requested.

adjunct-control association
A relationship initiated by an application via the *Third Party Make Call*, the *Third Party Take Control* or *Domain (Station) Control* capabilities to set up calls and control calls already in progress.

adjunct-controlled calls
Include all the calls that can be controlled using an adjunct-control association. These calls must have been originated via the *Third Party Make Call* or *Domain (Station) Control* capabilities or must have been taken control of via the *Third Party Take Control* or *Domain (Station) Control* capabilities.

adjunct-controlled splits
ACD splits administered to be under adjunct control. Agents logged into such splits must do all telephony and ACD login and/or logout and change work mode functions through the adjunct (except for auto-available adjunct controlled splits, whose agents may not be logged in and/or logged out or have their work modes changed).

adjunct-monitored calls
Include all the adjunct-controlled calls and the active-notification calls. In addition it includes calls which provide event reporting over domain-control associations.

application
An application refers to an adjunct entity that requests and receives ASAI services or capabilities. One or more applications can reside on a single adjunct. However, the switch cannot distinguish among several applications residing on the same adjunct and treats the adjunct, and all resident applications, as a single application. The terms application and adjunct are used interchangeably throughout this document.

after call work (ACW) mode
In this mode, agents are unavailable to receive ACD calls. Agents should enter the ACW mode to perform ACD-related activities such as filling out a form after an ACD call. If agents are in the Manual-In mode and disconnect from an ACD call, they automatically enter the ACW mode. Agents who normally use Auto-In mode can enter the ACW state by depressing the ACW button while on a call.

adjunct
A processor that does one or more tasks for another processor and that is optional in the configuration of the other processor.

adjunct-switch application interface (ASAI)
An AT&T recommendation for interfacing adjuncts and communications systems, based on the CCITT Q.932 specification for layer 3.

administer
To access and change parameters associated with the services or features of a system.

Administered Connection (AC)
Administered Connection is a feature that allows the switch to automatically establish and maintain end-to-end connections between access endpoints (trunks) and/or data endpoints (data modules).

administration terminal
A terminal used to administer and maintain a system. See also **terminal**.

Administration Without Hardware (AWOH)
Provides the ability to administer ports without the need for the associated terminals or other hardware to be physically present.

abandoned call
An incoming call, where the caller hangs up before being answered.

agent (or ACD agent)
An answering position who receives calls that are directed to a split. A member of an ACD hunt group (ACD split).

agents in multiple splits
An agent may be logged into more than one split (three maximum). If, while logged into more than one split, the agent (1) answers an ACD call, (2) is in ACW mode for any split, or (3) makes or receives a direct extension call, the switch will not distribute additional ACD calls to that agent.

agent report
Provides historical traffic information for internally measured agents.

American National Standard Code for Information Interchange
See **ASCII**.

analog
The representation of information by means of continuously variable physical quantities such as amplitude, frequency, and phase.

analog data
Data that is transmitted over a digital facility in analog (pulse code modulation) form. The data must pass through a modem either at both ends or at a modem pool at the distant end.

analog telephone
A telephone that receives acoustic voice signals and sends analog electrical signals along the telephone line. Analog telephones are usually served by a single wire pair (tip and ring). The model-2500 telephone set is a typical example of an analog telephone.

analog-to-digital converter (ADC)
A device that converts an analog signal to digital form. See also **digital-to-analog converter**.

angel
A microprocessor located on each port card in a processor port network (PPN). The angel uses the control-channel message set (CCMS) to manage communications between the port card and the archangel on the controlling switch processing element (SPE). The angel also monitors the status of other microprocessors on a port card and maintains error counters and thresholds. See also **archangel**.

answerback code
An assigned number used to respond to a page from a code-calling or loudspeaker-paging system, or to retrieve a parked call.

appearance
A software process that is associated with an extension and whose purpose is to supervise a call. Also called ‘‘call appearance,’’ ‘‘line appearance,’’ and ‘‘occurrence.’’

applications processor
A minicomputer used with several user-controlled applications such as traffic analysis and electronic documentation.

architecture
The organizational structure of a system, including hardware and/or software.

ASCII (American National Standard Code for Information Interchange)
The standard code, using a coded character set consisting of 7-bit coded characters (eight bits, including parity check), used for information interchange among data processing systems, data communications systems, and associated equipment. The ASCII set consists of control characters and graphic characters.

asynchronous data transmission
A method of transmitting data in which each character is preceded by a start bit and followed by a stop bit, thus permitting data characters to be transmitted at irregular intervals. This type transmission is advantageous when transmission is not regular (characters typed at a keyboard). Also called ''asynchronous transmission.'' See also **synchronous data transmission**.

association
An association is a communication channel between the adjunct and switch for messaging purposes. An active association is one which applies to an existing call on the switch or to an extension on the call.

asynchronous data unit (ADU)
A data communications equipment (DCE) type device that allows direct connection between RS232C equipment and a digital switch.

attendant

A person at a console on a customer's premises who provides personalized service for incoming callers and voice-services users by performing switching and signaling operations. See also attendant console.

attendant console
The workstation used by an attendant. The attendant console allows the attendant to originate a call, answer an incoming call, transfer a call to another extension or trunk, put a call on hold, and remove a call from hold. Attendants using the console can also manage and monitor some system operations. Also called ''console.'' See also **attendant**.

Audio Information Exchange (AUDIX)
A fully integrated voice-mail system that can be used with a variety of communications systems to provide call-history data, such as subscriber identification and reason for redirection.

auto-in trunk groups
Those trunk groups where the CO processes all of the digits for the incoming call. Whenever the switch determines that the CO has seized a trunk from an Auto-In trunk group, it automatically (without processing any digits) connects the trunk to the destination. The destination will typically be an ACD split where(emif there are no agents available(emthe call will go into a queue in which the callers wait to be answered in the order in which they arrived.

auto-in work mode
One of four agent work modes. The work mode where an agent indicates, to the system, that the agent is ready to process another call as soon as the current call is completed. Specifically, if an agent disconnects from an ACD call while in Auto-in Work Mode, then that agent immediately becomes available to receive another ACD call. *See* **Manual-In Work Mode** for a contrast.

Automatic Call Distribution (ACD) split
Calls of a similar type are distributed among agents.

automatic trunk
A trunk that does not require the sending or receiving of addressing information because the destination is predetermined. A request for service on the trunk, called a ''seizure,'' is sufficient to route the call. The normal destination of an automatic trunk is the communications-system attendant group. Also called ''automatic incoming trunk'' and ''automatic tie trunk.''

automatic restoration
A service that restores disrupted connections between access endpoints (nonsignaling trunks) and data endpoints (devices that connect the switch to data terminal and/or communications equipment). This restoration is done within seconds of a service disruption so that critical data applications can remain operational.

auxiliary equipment
Equipment used for optional system features, such as Loudspeaker Paging and Music-on-Hold.

auxiliary trunk
A trunk used to connect auxiliary equipment, such as radio-paging equipment, to a communications system.

aux-work mode
In this mode, agents are unavailable to receive ACD calls. Agents should enter aux-work mode when involved in non-ACD activities such as taking a break, going to lunch, or placing an outgoing call.

When agents log in, they are automatically placed in the Aux-Work mode. They can then use the Auto-In or Manual-In feature to make themselves available to answer the first call.

Also, the last available agent in a split cannot enter the aux-work mode if any ACD calls are remaining in the queue. If the last available agent attempts to enter aux-work mode, the following occurs: (1) Calls in the queue are routed to the agent until the queue is empty (2) If the last available agent has an aux-work button, the light next to the button flashes until all calls in the queue are answered. When the last call is answered, the light next to the button goes on steadily, and the agent then enters aux-work mode.

B

bandwidth
The difference, expressed in Hertz, between the defined highest and lowest frequencies in a frequency range.

barrier code
A security code used with the Remote Access feature to prevent unauthorized access to the system.

baud
In telecommunications applications, a unit of transmission speed equal to the number of signal events per second. See also **bit rate** and **bits per second**.

BCC
The Bearer Capability Class (BCC) identifies the type of a call, for example, voice and different types of data. Determination of BCC is based on the call originator's characteristics for non-ISDN endpoints and on the Bearer Capability and Low-Layer Compatibility Information Elements of an ISDN endpoint.

Current BCCs are:

- 0: Voice-grade data and voice
- 1: DMI Mode 1, 56 kbps data transmission
- 2: DMI Mode 2, synchronous/asynchronous data transmission up to 19.2 kbps
- 3: DMI Mode 3, 64 kbps circuit/packet data transmission
- 4: DMI Mode 0, 64 kbps synchronous data
- 5: Temporary Signaling Connection
- 6: Wideband Call, 128 to 1984 kbps synchronous data

bit (binary digit)
One unit of information in binary notation having two possible states or values, 0 or 1.

bits per second (bps)
The number of binary units of information that are transmitted or received per second. See also **baud** and **bit rate**.

bit rate
The speed at which bits are transmitted, usually expressed in bits per second. Also called ''data rate.'' See also **baud** and **bits per second**.

bridge (bridging)
The appearance of a voice terminal's extension at one or more other voice terminals.

BRI
The ISDN Basic Rate Interface specification.

bridged appearance
A call appearance on a voice terminal that matches a call appearance on another voice terminal for the duration of a call.

buffer
(1) In hardware, a circuit or component that isolates one electrical circuit from another. Typically, a buffer holds data from one circuit or process until another circuit or process is ready to accept the data. (2) In software, an area of memory used for temporary storage.

bus
A multiconductor electrical path used to transfer information over a common connection from any of several sources to any of several destinations.

business communications terminal (BCT)
An integrated digital data terminal used for business applications. A BCT can function via a digital terminal data module (DTDM) or a processor data module (PDM) as a special-purpose terminal for services provided by an applications processor (AP) or, as a terminal for data entry and retrieval.

BX.25
An AT&T version of the CCITT X.25 protocol for data communications. BX.25 adds a fourth level to the standard X.25 interface. This uppermost level combines levels 4, 5, and 6 of the International Standards Organization (ISO) reference model.

bypass tie trunks
A one-way, outgoing tie trunk from a tandem switch to a main switch in an electronic tandem network (ETN). Bypass tie trunks, provided in limited quantities, are used as a ''last-choice'' route when all trunks to another tandem switch are busy. Bypass tie trunks are used only if all applicable intertandem trunks are busy.

byte
A sequence of (usually eight) bits processed together.

C

cabinet
Housing for racks, shelves, or carriers that hold electronic equipment.

cable
The physical connection between two pieces of equipment (em for example, cable from a data terminal to a modem (em or between a piece of equipment and a termination field (em for example, circuit pack I/O cables.

cable connector
A cable connector is either a jack (female) or plug (male) on the end of a cable. A cable connector connects wires on a cable to specific leads on telephone or data equipment.

call appearance, attendant console
Six buttons, labeled ''a'' through ''f,'' and used to originate, receive, and hold calls. Each button has two lights to show the status of the call appearance.

call appearance, voice terminal
A button labeled with an extension number and used to place outgoing calls, receive incoming calls, or hold calls. Two lights next to the button show the status of the call appearance or the status of the call.

call control capabilities
call control capabilities are all the capabilities (*Third Party Selective Hold, Third Party Reconnect, Third Party Merge*) that can be used in either of the Third Party Call Control ASE (cluster) subsets: Call Control and Domain Control.

call detail recording
A switch feature that utilizes software and hardware to record call data (same as CDRU).

call detail recording utility (CDRU)
Applications software that collects, stores, optionally filters, and outputs call detail records for direct or polled output to peripheral devices.

call management system (CMS)
An application, running on an adjunct processor, that collects information from an Automatic Call Distribution (ACD) unit. CMS enables customers to monitor and manage telemarketing centers by generating reports on the status of agents, splits, trunks, trunk groups, vectors, and vector directory numbers (VDNs), and enables customers to partially administer the ACD feature for a communications system.

call reference value (CRV)
An identifier present in ISDN messages that serves to associate a related sequence of messages. In ASAI, the CRVs distinguish between associations.

call vector
A set of up to 15 vector commands to be performed for an incoming or internal call.

callback call
A call that is automatically returned to a voice terminal user who activated the Automatic Callback or Ringback Queuing feature.

call-waiting ringback tone
A low-pitched tone identical to ringback tone except that the tone decreases in the last 0.2~second (in the United States). A call-waiting ringback tone notifies the attendant that the Attendant Call Waiting feature has been activated and that the called user is aware of the waiting call. Tones in international countries may sound different.

call work code
A number, up to 16 digits, entered by Automatic Call Distribution (ACD) agents to record the occurrence of customer-defined events (such as account codes, social security numbers, or phone numbers) on ACD calls.

carrier
An enclosed shelf containing vertical slots that hold circuit packs.

carried load
The amount of traffic actually served by traffic-sensitive facilities during a given interval.

CCS or hundred call seconds
A unit of traffic measure that is used to determine usage. In order to determine usage for a facility, it is scanned every 100 seconds. If the facility is found busy, then it is assumed to have been busy for the entire scan interval. There are 3600 seconds per hour. The Roman numeral for 100 is the capital letter ''C.'' The abbreviation for call seconds is CS. Therefore, 100 call seconds is abbreviated as CCS. If a facility is busy for an entire hour, then it is said to have been busy for 36 CCS. *See also* **Erlang**.

capability
A capability is a either a request or indication of an operation. For example, a *Third Party Make Call* is a request for setting-up a call and an *Event Report* is an indication that an event has occurred.

capability groups
Capability groups are sets of capabilities, provisioned through switch administration, that can be requested by an application. Each capability group may contain capabilities from several capability groups. Capability groups are also referred to, in other documentation, as administration groups or Application Service Elements (ASEs). Capability groups denote association types. For example, *Call Control* is a type of association which allows certain functions (the ones in the capability group) to be performed over this type of association.

cause value
A Cause Value is returned in responses to requests or in event reports when a denial occurs or an unexpected condition is encountered. ASAI cause values fall into two ''coding standards'': Coding Standard 0 includes any cause values that are part of AT&T and CCITT ISDN specifications, and, Coding standard 3 includes any other ASAI cause values. This document uses a notation for cause value where the coding standard for the cause is given first, then a slash, then the cause value. For example, CS0/100 is coding standard 0, cause value 100.

CCITT
CCITT (Comitte Consultatif International Telephonique et Telegraphique) is now called *International Telecommunications Union* (ITU). See this name for information.

center stage switch (CSS)
The central interface between the processor port network (PPN) and expansion port networks (EPNs) in a CSS-connected system.

central office (CO)
The location housing telephone switching equipment that provides local telephone service and access to toll facilities for long-distance calling.

central office (CO) codes
The first three digits of a 7-digit public network telephone number in the USA. CO codes are numbered from 200 through 999.

central office (CO) trunk
A telecommunications channel that provides access from the system to the public network through the local CO.

channel
The term channel is nonspecific and must be taken in context. Channel can refer to a circuit-switched call or a communications path for transmitting voice and/or data.

In wideband, a channel refers to all of the time slots necessary to support a call. For example, an H0-channel uses six 64 kbps time slots. This definition of channel is the same whether the time slots necessary to support the call are contiguous or noncontiguous.

Channel can also refer to a DS0 on a T1 or E1 facility not specifically associated with a logical circuit-switched call. In this context, a channel is analogous to a single trunk.

channel negotiation
Channel negotiation is the process by which the channel offered in the Channel Identification Information Element (CIIE) in the SETUP message is ''negotiated'' to be another channel acceptable to the switch receiving the SETUP message and ultimately to the switch that sent the SETUP. Negotiation will only be attempted if the CIIE is encoded as *Preferred*. Channel negotiation will not be attempted for wideband calls.

circuit
(1) An arrangement of electrical elements through which electric current flows, providing one or more specific functions. (2) A channel or transmission path between two or more points.

circuit pack
A card on which electrical circuits are printed, and integrated circuit (IC) chips and electrical components are installed. A circuit pack is installed in a switch carrier.

Class of Restriction (COR)
A feature that allows up to 64 classes of call-origination and call-termination restrictions for voice terminals, voice terminal groups, data modules, and trunk groups. See also **Class of Service (COS)**.

Class of Service (COS)
A feature that uses a number (0 through 15) to specify if voice terminal users can activate the Automatic Callback, Call Forwarding(emAll Calls, Data Privacy, or Priority Calling features.

common control switching arrangement (CCSA)
A private telecommunications network using dedicated trunks and a shared switching center for interconnecting company locations.

communications system
The software-controlled processor complex that interprets dialing pulses, tones, and/or keyboard characters and makes the proper interconnections both within the system and external to the system. The communications system itself consists of a digital computer, software, storage device, and carriers with special hardware to perform the actual connections. A communications system provides voice and/or data communications services, including access to public and private networks, for telephones and data terminals on a customer's premises. See also **switch**.

confirmation tone
A tone confirming that a feature activation, deactivation, or cancellation has been accepted.

connectivity
The connection of disparate devices within a single system.

console
See **attendant console**.

contiguous
Contiguous, which is a wideband term, refers to adjacent DS0s within one T1 or E1 facility or adjacent TDM or fiber time slots. Note that the first and last TDM bus, DS0, or fiber time slots are not considered contiguous (no wraparound). For an E1 facility with a %D-channel, DS0s 15 and 17 are considered contiguous.

control cabinet
See **control carrier**.

control carrier
A carrier in a multicarrier cabinet that contains the switch processing element (SPE) circuit packs and, unlike a G3r control carrier, port circuit packs. Also called ''control cabinet'' in a single-carrier cabinet. See also **switch processing element**.

controlled station
A station that is being monitored and controlled via a domain-control association.

coverage answer group
A group of up to eight voice terminals that ring simultaneously when a call is redirected to it by Call Coverage. Any one of the group can answer the call.

coverage call
A call that is automatically redirected from the called party's extension number to an alternate answering position when certain coverage criteria are met.

coverage path
The order in which calls are redirected to alternate answering positions.

coverage point
An extension or attendant group, vector directory number (VDN), or Automatic Call Distribution (ACD) split designated as an alternate answering position in a coverage path.

covering user
A person at a coverage point who answers a redirected call.

critical reliability system
A system that has the following duplicated items: control carriers, tone-clock circuit packs, expansion interface (EI) circuit packs, and cabling between port networks (PNs) and center stage switch (CSS) in a CSS-connected system. See also **duplicated common control**, **duplicate processor-only system**, and **duplication**.

D

data channel
A communications path between two points used to transmit digital signals.

data communications equipment (DCE)
The equipment (em usually a modem, data module, or packet assembler/disassembler (em on the network side of a communications link that provides the functions to make the binary serial data from the source or transmitter compatible with the communications channel.

data link
The configuration of physical facilities enabling end terminals to communicate directly with each other.

data module
An interconnection device between a basic rate interface (BRI) or digital communications protocol (DCP) interface of the switch and data terminal equipment (DTE) or data communications equipment (DCE).

data path
The end-to-end connection used for a data-communications link. A data path is the combination of all the elements of an interprocessor communication in a distributed communications system (DCS).

data port
A point of access to a computer that uses trunks or lines for transmitting or receiving data.

data rate
See **bit rate**.

data service unit (DSU)
A device designed to transmit digital data on transmission facilities.

data terminal
An input/output (I/O) device that has either switched or direct access to a host computer or to an applications processor (AP).

data terminal equipment (DTE)
Equipment consisting of the endpoints in a connection over a data circuit. For example, in a connection between a data terminal and a host, the terminal, the host, and their associated modems or data modules make up the DTE. DTE usually consists of the following functional units: control logic, buffer store, and one or more input or output devices or computers. DTE can contain error control, synchronization, and telephone-identification capabilities.

D-channel backup
D-channel backup is used with Non-Facility Associated Signaling (NFAS). With D-channel backup, a primary D-channel provides signaling for an NFAS D-channel group (two or more PRIs facilities). A second (redundant) %D-channel, located on a separate PRI facility of the NFAS D-channel group is designated as backup for the D-channel. The failure of the primary D-channel causes an automatic transfer of call-control signaling to the backup D-channel. When this happens, the backup becomes the primary D-channel, and when the previous primary is returned to service it becomes the backup D-channel.

delay-dial trunk
A trunk that allows dialing directly into a communications system (em that is, the digits are received as they are dialed.

denying a request
Denying a Request is the same as sending a negative acknowledgement (NAK), and is done by sending an Facility Information Element (FIE) with a *return error* component (a cause value is also provided). It should not be confused with the ‘‘denial’’ event report which applies to calls.

designated voice terminal
The specific voice terminal to which calls, originally directed to a certain extension number, are redirected. Commonly used to mean the ‘‘forwarded-to’’ terminal when Call Forwarding All Calls is active.

dial-repeating tie trunk
A tie trunk that transmits called-party addressing information between two communications systems.

digit conversion
A process used to convert specific dialed numbers into other dialed numbers.

digital communications protocol (DCP)
An AT&T proprietary protocol used to transmit both digitized voice and digitized data over the same communications link. A DCP link is made up of two 64~kbps information (I-) channels and one 8-kbps signaling (S-) channel.

digital data endpoints
In G3iV2, digital data endpoints include devices such as the 510D terminal or the 515-type business communications terminal (BCT).

digital multiplexed interface (DMI)
An interface that provides connectivity between a communications system and a host computer or between two communications systems using digital signal level-1 (DS1) 24th-channel signaling. DMI provides 23 64~kbps data channels and 1 common signaling channel over a twisted-pair connection. DMI is offered through two capabilities: bit-oriented signaling (DMI-BOS) and message-oriented signaling (DMI-MOS).

digital signal level 0 (DS0)
A single 64 kbps voice channel. A DS0 is a single 64 kbps channel in a T1 or E1 facility and consists of eight bits in a T1 or E1 frame every 125 micro-seconds.

digital terminal data module (DTDM)
An integrated or adjunct data module that shares with a digital telephone the same physical port for connection to a communications system. The function of a DTDM is similar to that of a processor data module (PDM) and modular processor data module (MPDM) in that it converts RS232C signals to DCP signals.

digital-to-analog converter
A device that converts data in digital form to the corresponding analog signals. See also **analog-to-digital converter**.

digital transmission
A mode of transmission in which the information to be transmitted is first converted to digital form and then transmitted as a serial stream of pulses.

digital trunk
A circuit in that carries digital voice and/or digital data in a telecommunications channel.

dial-repeating trunks
A PBX tie trunk that is capable of handling PBX station signaling information without attendant assistance.

direct agent
A switch feature accessed only via Adjunct Switch Applications Interface (ASAI) which allows a call to be placed in a split queue but routed only to a specific agent in that split. This allows a call to receive normal ACD call treatment (for example, announcements) and to be measured as an ACD call while ensuring that a particular agent answers.

Direct Extension Selection (DXS)
A feature on an attendant console that allows an attendant direct access to voice terminals by pressing a group select button and a DXS button.

Direct Inward Dialing (DID)
A feature that allows an incoming call from the public network (not FX or WATS) to reach a specific telephone without attendant assistance. DID calls to DID-restricted telephone lines are routed to an attendant or recorded announcement, depending on the option selected.

direct inward dialing (DID) trunk
An incoming trunk used for dialing directly from the public network into a communications system without help from the attendant.

disk drive
An electromechanical device that stores data on and retrieves data from one or more disks.

distributed communications system (DCS)
A network configuration linking two or more communications systems in such a way that selected features appear to operate as if the network were one system.

domain
Available domains are VDNs, ACD splits, and stations. The VDN domain is only used for active-notification associations, the station domain is only used for the domain-control associations. The ACD-split domain is for active-notification associations and domain-control associations.

domain-control association
A *Third Party Domain Control Request* capability initiates a unique ‘‘CRV/link number’’ combination, which is referred to as a domain-control association.

domain-controlled split
A split for which *Third Party Domain Control* request has been accepted. A domain-controlled split provides an event report for logout.

domain-controlled station
A station for which a *Third_Party_Domain_Control* request has been accepted. A domain-controlled station provides event reports for calls that are alerting, connected, or held at the station.

domain-controlled station on a call
A station active on a call which provides event reports over one or two domain-control associations.

duplicated common control
Two processors ensuring continuous operation of a communications system. While one processor is on-line, the other functions as a backup. The backup processor goes on-line periodically or when a problem condition occurs.

duplication
The use of redundant components to improve availability. When a duplicated subsystem fails, its backup redundant system automatically takes over.

duplication option
A system option that duplicates the following:

- Control carrier, which contains the switch processing element (SPE)
- Expansion interface (EI) circuit packs in carriers
- Fiber-optic cabling between port networks (PNs)
- Center-stage switch (CSS) in a CSS-connected system

E

E1
A digital transmission standard that carries traffic at the rate of 2.048 Mbps.

The E1 facility is divided into 32 channels (DS0s) of 64 kbps information numbered from 0~to 31. Channel 0 is reserved for framing and synchronization information. When a D-channel is present, it occupies channel 16.

ear and mouth (E&M) signaling
Trunk supervisory signaling, used between two communications systems, whereby signaling information is transferred through two-state voltage conditions (on the E and M leads) for analog applications and through a single bit for digital applications.

electronic tandem network (ETN)
A tandem tie trunk network that has automatic call routing capabilities based on the number dialed and the most preferred route available at the time the call is placed. Each switch in the network is assigned a unique private network office code (RNX), and each voice terminal is assigned a unique extension number.

Electronics Industries Association (EIA)
A trade association of the electronics industry that establishes electrical and functional standards.

emergency transfer
If a major system failure occurs, the automatic transfer within a communications system of a predefined set of central office (CO) lines to a group of answering telephones with at least one telephone capable of making outgoing calls. The system operates in this mode until the failure is repaired and the system automatically returns to normal operation. Also called ''power-failure transfer.''

end-to-end signaling
The transmission of touch-tone signals generated by dialing from a voice terminal user to remote computer equipment. A connection must first be established over an outgoing trunk from the calling party to the computer equipment. Then additional digits can be dialed to transmit information to be processed by the computer equipment.

enhanced private-switched communications service (EPSCS)
An analog private telecommunications network based on the No. 5 Crossbar and 1A ESS that provides advanced voice and data telecommunications services to companies with many locations.

Erlang
A unit of traffic intensity, or load, used to express the amount of traffic it takes to keep one facility busy for one hour. One Erlang is equal to 36 CCS. See also **Hundred Call Seconds**.

expansion archangel (EAA)
A network-control microprocessor located on an expansion interface (EI) port circuit pack in an expansion port network (EPN). The EA provides an interface between the EPN and its controlling switch processing element (SPE).

expansion-archangel link (EAL)
A link-access function on the D-channel (LAPD) logical link that exists between a switch processing element (SPE) and an expansion archangel (EA). The EAL carries control messages from the SPE to the EA and to port circuit packs in an expansion port network (EPN).

expansion control cabinet
See **expansion control carrier**.

expansion control carrier
A carrier in a multicarrier cabinet that contains extra port circuit packs and a maintenance interface. Also called ‘‘expansion control cabinet’’ in a single-carrier cabinet.

expansion interface (EI)
A port circuit pack in a port network (PN) that provides the interface between a PN’s time-division multiplex (TDM) bus and packet bus, and a fiber-optic link. The EI carries circuit-switched data, packet-switched data, network control, timing control, and DS1 control. In addition, an EI in an expansion port network (EPN) communicates with the master maintenance circuit pack to provide the EPN’s environmental and alarm status to the switch processing element (SPE).

expansion port network (EPN)
A port network (PN) that is connected to the TDM bus and packet bus of a processor port network (PPN). Control is achieved by indirect connection of the EPN to the PPN via a port-network link (PNL). See also **port network**.

extension-in
Extension-In (ExtIn) is the work state agents go into when they answer (receive) a non-ACD call. If the agent is in Manual-In or Auto-In and receives an extension-in call, it is recorded by CMS as an AUX-In call.

extension-out
Extension-Out (ExtOut) is the work state agents go into when they place (originate) a non-ACD call. If the agent is in Manual-In or Auto-In and places an extension-out call, it is recorded by CMS as an AUX-Out call.

external measurements
Refers to those ACD measurements that are made by the External CMS adjunct.

extension number
A 1- to 5-digit number by which calls are routed through a communications system or, with a Uniform Dial Plan (UDP) or main-satellite dialing plan, through a private network. Extension numbers are primarily used for telephones and data terminals but can also be used with specific features.

external call
A connection between a communications system user and a party on the public network or on another communications system in a private network.

F

facility
A general term used for a telecommunications transmission pathway and associated equipment.

facility associated signaling (FAS)
Signaling in which a D-channel carries the signaling only for those channels on the same physical interface.

feature
A specifically defined function or service provided by the system.

feature button
A labeled button on a telephone or attendant console used to access a specific feature.

fiber optics
A technology using materials that transmit ultrawideband electromagnetic light-frequency ranges for high-capacity carrier systems.

fixed
Fixed is a trunk allocation term. In the fixed allocation scheme, the time slots necessary to support a wideband call are contiguous, and the first time slot is constrained to certain starting points.

flexible
Flexible is a trunk allocation term. The flexible allocation scheme allows the time slots of a wideband call to occupy noncontiguous positions within a single T1 or E1 facility.

floating
Floating is a trunk allocation term. In the floating allocation scheme, the time slots necessary to support a wideband call are contiguous, but the position of the first time slot is not fixed.

foreign exchange (FX)
A central office (CO) other than the one providing local access to the public telephone network.

foreign exchange trunk
A telecommunications channel that directly connects the system to a central office (CO) other than its local CO.

foreign numbering-plan area code (FNPAC)
An area code other than the local area code. The FNPAC must be dialed to call outside the local geographical area.

G

generalized route selection (GRS)
An enhancement to Automatic Alternate Routing/Automatic Route Selection (AAR/ARS) that performs routing based on call attributes, such as Bearer Capability Classes (BCCs), in addition to the address and facilities restriction level (FRL), thus facilitating a Uniform Dial Plan (UDP) that is independent of the type of call being placed.

glare
The simultaneous seizure of a two-way trunk by two communications systems, resulting in a standoff.

grade of service
The number of call attempts that fail to receive service immediately. Grade of service is also expressed as the quantity of all calls that are blocked or delayed.

ground-start trunk
A trunk on which, for outgoing calls, the system transmits a request for services to a distant switching system by grounding the trunk ring lead. To receive the digits of the called number, that system grounds the trunk tip lead. When the system detects this ground, the digits are sent.

H

handshaking logic
A format used to initiate a data connection between two data module devices.

H0
An ISDN information transfer rate for 384 kbps data defined by CCITT and ANSI standards.

H11
An ISDN information transfer rate for 1536 kbps data defined by CCITT and ANSI standards.

H12
An ISDN information transfer rate for 1920 kbps data defined by CCITT and ANSI standards.

Hertz (Hz)
A unit of frequency equal to one cycle per second.

high reliability system
A system having the following: two control carriers, duplicate expansion interface (EI) circuit packs in the PPN (in G3r with CSS), and duplicate switch node clock circuit packs in the switch node (SN) carriers. See also **duplicated common control**, **duplication**, **duplication option**, and **critical reliability system**.

holding time
The total length of time in minutes and seconds that a facility is used during a call.

home numbering-plan area code
The local area code. The area code does not have to be dialed to call numbers within the local geographical area.

hop
Nondirect communication between two switch communications interfaces (SCIs) whereby the SCI message passes automatically without intermediate processing through one or more intermediate SCIs.

host computer
A computer, connected to a network, that processes data from data-entry devices.

hunt group
A group of extensions that are assigned the Station Hunting feature so that a call to a busy extension will reroute to an idle extension in the group.

I

immediate-start tie trunk
A trunk on which, after making a connection with a distant switching system for an outgoing call, the system waits a nominal 65 ms before sending the digits of the called number. This allows time for the distant system to prepare to receive digits. On an incoming call, the system has less than 65 ms to prepare to receive the digits.

information exchange
The exchange of data between users of two different systems, such as the switch and a host computer, over a local area network (LAN).

information systems network (ISN)
A wide area network (WAN) and local area network (LAN) with an open architecture combining host computers, minicomputers, word processors, storage devices, PCs, high-speed printers, and nonintelligent terminals into a single packet-switching system.

inside call
A call placed from one telephone to another within the local communications system.

Integrated Services Digital Network (ISDN)
A public or private network that provides end-to-end digital communications for all services to which users have access by a limited set of standard multipurpose user-network interfaces defined by the CCITT. Through internationally accepted standard interfaces, ISDN provides digital circuit-switched or packet-switched communications within the network and links to other ISDNs to provide national and international digital communications. See also **Integrated Services Digital Network Basic Rate Interface** and **Integrated Services Digital Network Primary Rate Interface**.

Integrated Services Digital Network Basic Rate Interface (ISDN-BRI)
The interface between a communications system and terminal that includes two 64~kbps B-channels for transmitting voice or data and one 16-kbps D-channel for transmitting associated B-channel call control and out-of-band signaling information (em an arrangement called ''2B(pl1D.'' ISDN-BRI also includes 48~kbps for transmitting framing and D-channel contention information, for a total interface speed of 192 kbps. ISDN-BRI serves ISDN terminals and digital terminals fitted with ISDN terminal adapters. See also **Integrated Services Digital Network Primary Rate Interface**.

Integrated Services Digital Network Primary Rate Interface (ISDN-PRI)
The interface between multiple communications systems that in North America includes 24 64~kbps channels, corresponding to the North American digital signal level-1 (DS1) standard rate of 1.544 Mbytes per second.

The most common arrangement of channels in ISDN-PRI is 23 64~kbps B-channels for transmitting voice and data and one 64~kbps %D-channel for transmitting associated %B-channel call control and out-of-band signaling information (em an arrangement called ''23B(pl1D,'' although with nonfacility-associated signaling (NFAS) ISDN-PRI can include %24~B-channels and no %D-channel. See also **Integrated Services Digital Network**and **Integrated Services Digital Network Basic Rate Interface**.

intercept tone
An tone that indicates a dialing error or denial of the service requested.

interface
A common boundary between two systems or pieces of equipment.

internal call
A connection between two users within a system.

International Tele-communications Union (ITU)
Formerly known as International Telegraph and Telephone Consultative Committee (CCITT), ITU is an international organization that sets universal standards for data communications, including Integrated Services Digital Network (ISDN). ITU members are from telecommunications companies and organizations around the world. See also **BX.25**.

International Telegraph and Telephone Consultative Committee
See **International Telecommunications Union (ITU)**.

interflow
Allows calls to forward to other splits on the same PBX or a different PBX using the Call Forward All Calls switch feature.

intraflow
Allows calls to be redirected to other splits on the same PBX on a conditional or unconditional basis using call coverage ''busy,'' ''don't answer,'' or ''all'' criteria.

internal measurements
Refers to those BCMS measurements that are made by the system. ACD measurements that are made external to the system (via External CMS) are referred to as external measurements.

in-use lamp
A red light on a multiappearance voice terminal that is illuminated to show which call appearance will be selected when the handset is lifted or which call appearance is active when a user is off-hook.

ISDN Gateway (IG)
A feature allowing integration of the switch and a host-based telemarketing application via a link to a gateway adjunct. The gateway adjunct is a 3B-based product that notifies the host-based telemarketing application of call events.

ISDN trunk
A trunk administered for use with Integrated Services Digital Network primary rate interface (ISDN-PRI). Also called ''ISDN facility.''

ISDN-PRI Terminal Adapter
A terminal adapter acts as interface between endpoint applications and an ISDN PRI facility. ISDN-PRI terminal adapters are currently available from other vendors and are primarily designed for video conferencing applications. Accordingly, currently available terminal adapters adapt the two pairs of video codec data (V.35) and dialing (RS-366) ports to an ISDN PRI facility.

L

light-emitting diode (LED)
A semiconductor device that produces light when voltage is applied. LEDs provide a visual indication of the operational status of hardware components, the results of maintenance tests, and the alarm status of circuit packs, and the activation of telephone features.

lightwave transceiver
Hardware that provides an interface to fiber-optic cable from port circuit packs and digital signal level-1 (DS1) converter circuit packs. Lightwave transceivers convert electrical signals to light signals and vice versa.

line
A transmission path between a communications system or central office (CO) switching system and a voice terminal or other terminal.

line port
The hardware that provides the access point to a communications system for each circuit associated with a telephone and/or data terminal.

link
A transmitter-receiver channel that connects two systems.

link-access procedure on the D-channel (LAPD)
A link-layer protocol on the Integrated Services Digital Network basic rate interface (ISDN-BRI) and primary rate interface (ISDN-PRI) data-link layer (level 2). LAPD provides data transfer between two devices, and error and flow control on multiple logical links. LAPD is used for signaling and low-speed packet data (X.25 and mode 3) on the signaling (D-) channel and for mode-3 data communications on a bearer (B-) channel.

local area network (LAN)
A networking arrangement designed for a limited geographical area. Generally, a LAN is limited in range to a maximum of 6.2 miles and provides high-speed carrier service with low error rates. Common configurations include daisy chain, star (including circuit-switched), ring, and bus.

logical link
The communications path between a processor and a basic rate interface (BRI) terminal.

loop-start trunk
A trunk on which, after establishing a connection with a distant switching system for an outgoing call, the system waits for a signal on the loop formed by the trunk leads before sending the digits of the called number.

M

main-satellite-tributary
A private network configuration that can either stand alone or access an electronic tandem network (ETN). A ''main'' switch provides interconnection, via tie trunks, with one or more subtending switches, called ''satellites''; all attendant positions for the main/satellite configuration; and access to and from the public network. To a user outside the complex, a main/satellite configuration appears as one switch, with one listed directory number (LDN). A ''tributary'' switch is connected to the main switch via tie trunks, but which has its own attendant positions and LDN.

maintenance
The activities involved in keeping a telecommunications system in proper working condition: the detection and isolation of software and hardware faults, and automatic and manual recovery from these faults.

management terminal
The terminal that is used by the system administrator to administer the switch. The terminal may also be used to access the BCMS feature.

major alarm
An indication of a failure that has caused critical degradation of service and requires immediate attention. Major alarms are automatically displayed on LEDs on the attendant console and maintenance or alarming circuit pack, logged to the alarm log, and reported to a remote maintenance facility, if applicable.

manual-in work mode
In this mode, agents automatically enter the ACW mode when they disconnect from an ACD call. However, in order to become available to receive another ACD call, they must then manually enter the Auto-In or Manual-In mode. *See* **Auto-In Work Mode** for a contrast.

memory
A device into which information can be copied and held, and from which the information can be obtained at a later time.

message center
An answering service that supplies agents to and stores messages for later retrieval.

message center agent
A member of a message center hunt group who takes and retrieves messages for voice terminal users.

minor alarm
An indication of a failure that could affect customer service. Minor alarms are automatically displayed on LEDs on the attendant console and maintenance or alarming circuit pack, sent to the alarm log, and reported to a remote maintenance facility, if applicable.

modem
A device that converts digital data signals to analog signals for transmission over telephone circuits. The analog signals are converted back to the original digital data signals by another modem at the other end of the circuit.

modem pooling
A capability that provides shared conversion resources (modems and data modules) for cost-effective access to analog facilities by data terminals. When needed, modem pooling inserts a conversion resource into the path of a data call. Modem pooling serves both outgoing and incoming calls.

modular processor data module (MPDM)
A processor data module (PDM) that can be configured to provide several kinds of interfaces (RS232C, RS449, and V.35) to customer-provided data terminal equipment (DTE). See also **processor data module**.

modular trunk data module (MTDM)
A trunk data module (TDM) that can be configured to provide several kinds of interfaces (RS232C, RS449, and V.35) to customer-provided data terminal equipment (DTE).

modulator-demodulator
See **modem**.

multiappearance voice terminal
A terminal equipped with several call appearance buttons for the same extension number, allowing the user to handle more than one call, on that same extension number, at the same time.

multicarrier cabinet
A structure that holds one to five carriers. See also **single-carrier cabinet**.

multifrequency-compelled (MFC), release 2 (R2) signalling
A signal consisting of two frequency components, such that when a signal is transmitted from a switch, another signal acknowledging the transmitted signal is received by the switch. ''R2'' designates signaling used in the USA and countries outside the USA.

multiplexer
A device used to combine a number of individual channels into a single common bit stream for transmission.

multiplexing
A process whereby a transmission facility is divided into two or more channels, either by splitting the frequency band into a number of narrower bands or by dividing the transmission channel into successive time slots. See also **time-division multiplexing**.

multirate
Multirate refers to the new N x DS0 service (see N x DS0).

N

N x DS0
N x DS0, equivalently referred to as N~x 64~kbps, is an emerging standard for wideband calls separate from H0, H11, and H12 ISDN channels. The emerging N x DS0 ISDN multirate circuit mode bearer service will provide circuit-switched calls with data rate multiples of 64 kbps up to 1536 kbps on a T1 facility or up to 1920 kbps on an E1 facility. In the switch, N x DS0 channels will range up to 1984 kbps using NFAS E1 interfaces.

narrowband
A circuit-switched call at a data rate up to and including 64 kbps. All nonwideband switch calls are considered narrowband.

Non-Facility Associated Signaling (NFAS)
A method that allows multiple T1 and/or E1 facilities to share a single D-channel to form an Integrated Services Digital Network primary rate interface (ISDN PRI). If D-Channel Backup is not used, one facility is configured with a %D-channel, while the other facilities that share the D-channel are configured without D-channels. If D-Channel Backup is used, two facilities are configured to have D-channels (one D-channel on each facility), while the other facilities that share the D-channels are configured without D-channels.

On every facility, all DS0s that are not %D-channels are available as %B-channels. Therefore, a T1 facility without a D-channel has 24~B-channels, and an E1 facility without a %D-channel has 31~B-channels.

network
A series of points, nodes, or stations connected by communications channels.

network-specific facility (NSF)
An information element in an ISDN-PRI message that specifies which public-network service is used. NSF applies only when Call-by-Call Service Selection is used to access a public-network service.

network interface
A common boundary between two systems in an interconnected group of systems.

node
A switching or control point for a network. Nodes are either ‘‘tandem’’ (em they receive signals and pass them on (em or ‘‘terminal’’ (em they originate or terminate a transmission path.

O

offered load
The traffic that would be generated by all the requests for service occurring within a monitored interval, usually one hour.

othersplit
The Work State that indicates the agent is currently active on another split’s call, or in ACW for another split.

P

packet
A group of bits (em including a message element, which is the data, and a control information element (IE), which is the header (em used in packet switching and transmitted as a discrete unit. In each packet, the message element and control IE are arranged in a specified format. See also **packet bus** and **packet switching**.

packet bus
A wide-bandwidth bus that transmits packets.

packet switching
A data-transmission technique whereby user information is segmented and routed in discrete data envelopes called ''packets,'' each with its own appended control information, for routing, sequencing, and error checking. Packet switching allows a channel to be occupied only during the transmission of a packet; on completion of the transmission, the channel is made available for the transfer of other packets. See also **BX.25** and **packet**.

paging trunk
A telecommunications channel used to access an amplifier for loudspeaker paging.

party/extension active on call
A party is on the call if it is actually connected to the call (in active talk or in held state). An originator of a call is always a party on the call. Alerting parties, busy parties, and tones are not parties on the call.

PCOL
Personal Central Office Line.

primary extension
The main extension associated with the physical station set.

principal
A station that has its primary extension bridged on one or more other stations.

personal computer (PC)
A personally controllable microcomputer.

pickup group
A group of individuals authorized to answer any call directed to an extension number within the group.

port
A data- or voice-transmission access point on a device that is used for communicating with other devices.

port carrier
A carrier in a multicarrier cabinet or a single-carrier cabinet containing port circuit packs, power units, and service circuits. Also called a ''port cabinet'' in a single carrier cabinet.

port network (PN)
A cabinet containing a TDM bus and packet bus to which the following components are connected: port circuit packs, one or two tone-clock circuit packs, a maintenance circuit pack, service circuit packs, and (optionally) up to four expansion interface (EI) circuit packs in G3. Each PN is controlled either locally or remotely by a switch processing element (SPE). See also **expansion port network** and **processor port network**.

port-network connectivity
The interconnection of port networks (PNs), regardless of whether the configuration uses direct or switched connectivity.

Primary Rate Interface (PRI)
A standard Integrated Services Digital Network (ISDN) frame format that specifies the protocol used between two or more communications systems. PRI runs at 1.544 Mbps and, as used in North America, provides 23 64~kbps %B-channels (voice or data) and one 64~kbps %D-channel (signaling). The D-channel is the 24th channel of the interface and contains multiplexed signaling information for the other 23 channels.

PRI endpoint (PE)
The wideband switching capability introduces PRI Endpoints on switch line-side interfaces. A PRI endpoint consists of one or more contiguous B-channels on a line-side T1 or E1 ISDN PRI facility and has an extension number. Endpoint applications have call control capabilities over PRI endpoints.

principal (user)
A person to whom a telephone is assigned and who has message center coverage.

private network
A network used exclusively for the telecommunications needs of a particular customer.

private network office code (RNX)
The first three digits of a 7-digit private network number. These codes are numbered 220 through 999, excluding any codes that have a 0 or 1 as the second digit.

processor carrier
A phrase used for ''control carrier'' in G3rV2. See also **control carrier**.

processor data module (PDM)
A device that provides an RS232C data communications equipment (DCE) interface for connecting to data terminals, applications processors (APs), and host computers and provides a digital communications protocol (DCP) interface for connection to a communications system. See also **modular processor data module**.

processor port network (PPN)
A port network (PN) controlled by a switch processing element (SPE) that is directly connected to that PN's time-division multiplex (TDM) bus and local area network (LAN) bus. See also **port network**.

processor port network (PPN) control carrier
A carrier containing the maintenance circuit pack, tone/clock circuit pack, and switch processing element (SPE) circuit packs for a processor port network (PPN) and, optionally, port circuit packs.

Property Management System (PMS)
A stand-alone computer used by lodging and health services organizations use for services such as reservations, housekeeping, and billing.

protocol
A set of conventions or rules governing the format and timing of message exchanges to control data movement and correction of errors.

public network
The network that can be openly accessed by all customers for local or long-distance calling.

pulse-code modulation (PCM)
An extension of pulse-amplitude modulation (PAM) in which carrier-signal pulses modulated by an analog signal, such as speech, are quantized and encoded to a digital, usually binary, format.

Q

quadrant
A quadrant is a group of six contiguous DS0s in fixed locations on an ISDN PRI facility. Note that this term comes from T1 terminology (one-fourth of a T1), but there are five quadrants on an E1 ISDN PRI facility (30B + D).

A quadrant is considered available or idle when all six contiguous DS0s are idle. Otherwise, the quadrant is considered contaminated or partially contaminated. This is a dynamic condition; quadrants become idle and contaminated as calls are placed and dropped. Note that a T1 facility containing the primary or backup D-channel (23B + D) has a maximum of three idle quadrants. The fourth quadrant (DS0s 19-24) never has six contiguous idle DS0s because one is always allocated to the D-channel. On an E1 facility, channel 0 is reserved for framing and synchronization, and channel 16 contains the D-channel when present, but five quadrants are potentially available.

queue
An ordered sequence of calls waiting to be processed.

queuing
The process of holding calls in order of their arrival to await connection to an attendant, to an answering group, or to an idle trunk. Calls are automatically connected in first-in, first-out sequence.

R

random access memory (RAM)
A storage arrangement whereby information can be retrieved at a speed independent of the location of the stored information.

read-only memory (ROM)
A storage arrangement primarily for information retrieval applications.

recall dial tone
Tones signalling that the system has completed a function (such as holding a call) and is ready to accept dialing.

redirection criteria
The information administered for each voice terminal's coverage path that determines when an incoming call is redirected to coverage.

redirection on no answer
An optional feature that redirects an unanswered ringing ACD call after an administered number of rings. The call is then redirected back to the agent.

remote home numbering-plan area code (RHNPA)
A foreign numbering-plan area code that is treated as a home area code by the Automatic Route Selection (ARS) feature. Calls can be allowed or denied based on the area code and the dialed central office (CO) code rather than just the area code. If the call is allowed, the ARS pattern used for the call is determined by these six digits.

reorder tone
A tone to signal that at least one of the facilities, such as a trunk or a digit transmitter, needed for the call was not available at the time the call was placed.

report scheduler
Software that is used in conjunction with the system printer for the purpose of scheduling the days of the week and time of day that the desired reports are to be printed.

RS232C
A physical interface specified by the EIA. RS232C transmits and receives asynchronous data at speeds of up to 19.2 kbps over cable distances of up to 50 feet.

ROSE
Remote Operations Service Element is a CCITT and ISO standard that defines a notation and services that support interactions between the various entities that make up a distributed application.

S

sanity and control interface (SAKI)
A custom, very-large-scale-integration (VLSI) microchip located on each port circuit pack. The SAKI provides address recognition, buffering, and synchronization between the angel and the five control time slots that make up the control channel. The SAKI also scans and collects status information for the angel on its port circuit pack and, when polled, transmits this information to the archangel.

simplex system
A system that has no redundant hardware.

simulated bridged appearance
The same as a **temporary bridged appearance**, allows the station user (usually the principal) the ability to bridge onto a call which had been answered by another party on its behalf.

single-carrier cabinet
A combined cabinet and carrier unit that contains one carrier. See also **multicarrier cabinet**.

single-line voice terminal
A voice terminal served by a single-line tip and ring circuit (models 500, 2500, 7101A, 7103A).

small computer system interface (SCSI)
An ANSI bus standard that provides a high-level command interface between host computers and peripheral devices.

software
A set of computer programs that perform one or more tasks.

split
A condition whereby a caller is temporarily separated from a connection with an attendant. A split condition automatically occurs when the attendant, active on a call, presses the start button.

split number
The split's identity to the switch and BCMS.

split report
Provides historical traffic information for internally measured splits.

split (agent) status report
Provides the real-time status and measurement data for internally measured agents and the split to which they are assigned.

staffed
Indicates an agent position is logged-in. A staffed agent will be functioning in one of four work modes: Auto-In, Manual-In, ACW, or AUX-work.

Station Message Detail Recording (SMDR)
An obsolete term now called "CDR" (see call detail recording), which is a switch feature that utilizes software and hardware to record call data.

standard serial interface (SSI)
A communications protocol developed by AT&T Teletype Corporation for use with the 500 business communications terminals (BCTs) and the 400-series printers.

status lamp
A green light that shows the status of a call appearance or a feature button by the state of the light (lit, flashing, fluttering, broken flutter, or unlit).

stroke counts
A method used by Automatic Call Distribution (ACD) agents to record up to nine customer-defined events per call when the Call Management System (CMS) is active.

switch
Any kind of telephone switching system. See also **communications system**.

switchhook
The buttons located under the receiver on a voice terminal.

switch node (SN) carrier
A carrier containing a single switch node, power units, and, optionally, one or two digital signal level-1 (DS1) converter circuit packs. An SN carrier is located in a center stage switch (CSS).

switch node (SN) clock
The circuit pack in a switch node (SN) carrier that provides clock and maintenance alarm functions and environmental monitors for an SN.

switch node interface (SNI)
The basic building block of a switch node. An SNI circuit pack controls the routing of circuit, packet, and control messages.

switch node link (SNL)
The hardware that provides a bridge between two or more switch nodes. The SNL consists of the two switch node interface (SNI) circuit packs residing on the switch nodes and the hardware connecting the SNIs. This hardware can include lightwave transceivers that convert the SNI's electrical signals to light signals, the copper wire that connects the SNIs to the lightwave transceivers, a full-duplex fiber-optic cable, digital signal level-1 (DS1) converter circuit cards and DS1 facilities if a company does not have rights to lay cable, and appropriate connectors.

switch processing element (SPE)
A complex of circuit packs (em processor, memory, disk controller, and bus-interface cards (em mounted in a processor-port-network (PPN) control carrier. The SPE serves as the control element for that PPN and, optionally, for one or more expansion port networks (EPNs).

synchronous data transmission
A method of sending data in which discrete signal elements are sent at a fixed and continuous rate and specified times.

system administrator
The person who maintains overall customer responsibility for system administration. Generally, all administration functions are performed from the G3 Management Terminal (G3-MT). The switch

requires a special login, referred to as the system administrator login, in order to gain access to the system administration capabilities.

system printer
An optional printer that may be used to print scheduled reports via the report scheduler.

system report
Provides historical traffic information for all internally measured splits.

system status report
Provide real-time status information for internally measured splits.

system manager
A person responsible for specifying and administering features and services for a system.

system reload
A process that allows stored data to be written from a tape into the system memory (normally after a power outage).

T

T1
A digital transmission standard that in North America carries traffic at the digital signal %level-1 (DS1) rate of 1.544 Mbps. A T1 facility is divided into 24~channels (DS0s) of 64~kbps information numbered from 1~to~24. These 24~channels, with an overall digital rate of 1.536~Mbps, and an 8~kbps framing and synchronization channel make up the 1.544~Mbps transmission. When a %D-channel is present, it occupies channel 24.

T1 facilities are also used in Japan and some Middle-Eastern countries.

TAC
Trunk Access Code.

tandem switch
A switch within an electronic tandem network (ETN) that provides the logic to determine the best route for a network call, possibly modifies the digits outpulsed, and allows or denies certain calls to certain users.

tandem through
The switched connection of an incoming trunk to an outgoing trunk without human intervention.

tandem tie-trunk network
A private network that interconnects several customer switching systems by dial-

TEG
Terminating Extension Group.

terminal
A device that sends and receives data within a system. See also **administration terminal**.

tie trunk
A telecommunications channel that directly connects two private switching systems.

time-division multiplex (TDM) bus
A bus that is time-shared regularly by preallocating short time slots to each transmitter. In a PBX, all port circuits are connected to the TDM bus, permitting any port to send a signal to any other port.

time-division multiplexing (TDM)
Multiplexing that divides a transmission channel into successive time slots. See also **multiplexing**.

time interval
The period of time, either one hour or one-half hour, that BCMS measurements are collected for a report(s).

time slice
See **time interval**.

time slot
A time slot refers to 64 kbps of digital information structured as eight bits every 125 micro-seconds. In the switch, a time slot refers to either a DS0 on a T1 or E1 facility or a 64 kbps unit on the TDM bus or fiber connection between port networks.

time slot sequence integrity
Time slot sequence integrity means that the "N" octets of a wideband call that are transmitted in one T1 or E1 frame arrive at the output in the same order that they were introduced.

to control
To control means that an application can invoke Third Party Call Control capabilities using either an adjunct-control or a domain-control association.

to monitor
To monitor means that an application can receive *Event_Reports* on either an active-notification, adjunct-control, or a domain-control association.

tone ringer
A device with a speaker, used in electronic voice terminals to alert the user.

trunk
A dedicated telecommunications channel between two communications systems or central offices (COs).

trunk allocation
The manner in which trunks are selected to form wideband channels.

trunk data module
A device that provides the interface for connection between off-premises private-line trunk facilities and a G3V2 switch. The trunk data module provides conversion between the RS232C and the Digital Communications Protocol (DCP), and can connect to direct distance dialing (DDD) modems as the DCP member of a modem pool.

trunk group
Telecommunications channels assigned as a group for certain functions that can be used interchangeably between two communications systems or central offices (COs).

U

uniform dial plan
A feature that allows a unique 4- or 5-digit number assignment for each terminal in a multiswitch configuration such as a distributed communications system (DCS) or main-satellite-tributary system.

V

vector directory number (VDN)
An extension that provides access to the Vectoring feature on the switch. Vectoring allows a customer to specify the treatment of incoming calls based on the dialed number.

vector-controlled split
A hunt group or ACD split administered with the ''vector'' field enabled. Access to such split is only possible by dialing a VDN extension. Vector-Controlled Splits cannot be Active Notification Domains.

voice terminal
A single-line or multiappearance telephone.

W

wide area tele-communications service (WATS)
A service in the USA that allows calls to a certain area or areas for a flat-rate charge based on expected usage.

wideband
A circuit-switched call at a data rate greater than 64 kbps. A circuit-switched call on a single T1 or E1 facility with a bandwidth between 128 and 1536 (T1) or 1984 (E1) kbps in multiples of 64 kbps. H0, H11, H12, and N x DS0 calls are all wideband.

wideband access endpoint
The wideband switching capability extends Access Endpoints to include wideband access endpoints. A wideband access endpoint consists of one or more contiguous DS0s on a line-side T1 or E1 facility and has an extension number. The Administered Connections feature provides call control for calls originating from wideband access endpoints.

wink-start tie trunk
A trunk with which, after making a connection with a distant switching system for an outgoing call, the system waits for a momentary signal (wink) before sending the digits of the called number. Similarly, on an incoming call, the system sends the wink signal when ready to receive digits.

work modes (or ACD work modes)
A work mode is one of four states (Auto-In, Manual-In, ACW, AUX-work) that an ACD agent enters after logging in. Immediately upon logging in, an agent enters the AUX-work mode. To become available to receive ACD calls, the agent enters either the Auto-In or Manual-In work modes. To do work associated with an ACD call, at the conclusion of the call, an agent would enter the ACW mode. If an agent changes work modes while handling a call, the change becomes effective when the agent finishes the call. The system does not recognize the change until the call is completed.

In order to answer an ACD call, the ACD agent must specify a Work Mode. Generally, two methods are available for indicating Work Modes: (1) by pressing the appropriate button on their voice terminal, and (2) by dialing an access code. The four work modes associated with ACD call handling are Auto-In, Manual-In, ACW, and AUX-work. An agent can change work modes while handling a call, but the system will not recognize the change until the call is completed. It is important that the ACD agents always accurately indicate their correct work mode, otherwise the BCMS measurements will not be accurate.

work state
An ACD agent may be a member of up to three different splits. Each ACD agent continuously exhibits a work state for every split that it is a member of. Valid work states are Avail, Unstaffed, AUX-work, ACW, ACD (answering an ACD call), ExtIn, ExtOut, and OtherSpl. An agent's work state for a particular split may change for a variety of reasons (for example, whenever a call is answered, abandoned, the agent changes work modes, etc.). The BCMS feature monitors the work states and uses this information to provide the BCMS reports.

write operation
The process of putting information onto a storage medium, such as a hard disk.

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