

# **CMS™ 400**

# **Leased Access Manager**

## **User's Guide**

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# About This Manual

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## Manual Description

The Communications Management Series (*CMS*) 400 Leased Access Manager *User's Guide* is designed to help you understand and operate your CMS 400 Leased Access Manager module. It is important that you understand your network configuration and the concepts of a PC-based network. You should also be familiar with the basic skills and concepts required to use the CMS 400 network management system. See "How to Use the CMS 400 Document Set" on the next page for information about other CMS 400 manuals you should read.

This manual is organized as follows:

- **Chapter 1 - Introduction** provides an overview of what you can do with the CMS 400 Leased Access Manager. It includes a list of the products you can manage, an explanation of system features, and an overview of leased access networks.
- **Chapter 2 - Database Configuration** explains how to add and define the various ports, channels, and leased access units used in your network.
- **Chapter 3 - Unit Configuration** explains how to view, modify, and compare unit option settings. It also explains how to configure Excalibur T-1 CSU and ISX 5300 channel mapping.
- **Chapter 4 - Monitoring** explains how to monitor the status of your leased access units. It includes instructions for monitoring EIA interface signals, analog signal levels, multiplexer status, unit performance statistics, and alarms.
- **Chapter 5 - Unit Control** explains how to initialize units, control their speeds, control dial operations, use front panel emulation, and send call messages.
- **Chapter 6 - Dial Backup** explains how to restore communications when a dedicated line fails.
- **Chapter 7 - Testing** explains how to perform diagnostic tests on your leased access units.
- **Appendix A - Strap Cross-Reference Tables** contains tables that cross-reference CMS 400 strap (option) names with the strap names shown on a product's front panel. Tables are provided for those products that have front panel strap names that differ from the CMS name.

## How to Use the CMS 400 Document Set

The first CMS 400 manual you should read is the *CMS 400 Installation Manual*. This manual explains how to install your hardware and software. It provides a complete description of system components, cabling requirements, and power connection procedures.

Next, read the *CMS 400 Reference Manual*. This manual is designed to familiarize you with the basic skills and concepts you'll need to use the CMS 400. It defines all key functions, describes both the Windows and non-Windows operator interfaces, and explains how to enter commands on the command line.

Then, read the *CMS 400 User's Guide*. This manual explains how to use specific CMS 400 applications. The information in this manual is generic to all types of managed products.

Finally, read the manual that comes with each element management module you are using. Each of these manuals contains information that is specific to that particular module.

## Terminology and Conventions

This manual covers both the Windows and non-Windows versions of this software product. In most instances, the step-by-step instructions do not distinguish between the two methods of operation.

This manual uses the generic term "Select" to indicate all possible ways to execute a command—clicking a mouse button, moving the cursor to a designated location and pressing [ENTER], or typing a character sequence. Refer to the *CMS 400 Reference Manual* for instructions about Windows and non-Windows operation.

This manual uses the following typographical conventions:

- Text appearing on a computer screen is shown in this font:

The screen displays Write Straps To Table.

- Characters that you must type on a keyboard are shown in **this font**:

At the prompt, type **MON\_EIA**.

- Special keys that you must press on a keyboard (such as Enter or Ctrl) are shown in brackets:

Press [ENTER].

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# Chapter 1

## Introduction

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### About the Leased Access Manager

The Communications Management Series (CMS) 400 Leased Access Manager allows you to manage and control your entire network of Milgo Solutions leased line products from a central location. You can configure unit options, monitor operating status, control unit operation, initiate dial backup, display statistics, generate reports, receive alarms, and conduct tests — all without the aid of remote personnel.

The Leased Access Manager can manage a wide range of Milgo Solutions leased line products. These products include leased line and short-haul modems, DSU/CSUs, statistical multiplexers, TDM multiplexers, fractional and full T-1 multiplexers, and a variety of accessory devices.

The following is a list of all leased line products you can manage with the CMS 400:

Omnimode 48	ISX5314 2E1/4DTE
Omnimode 96	ISX5314 1T1/4DTE
Omnimode 14.4	ISX5314 2T1/4DTE
Omnimode 14.4 FP	ISX 5540
Omnimode 1614	CMS DSU 1500
Excalibur 9.6	CMS DSU 1556
Excalibur 19.2	CMS DSU 500RD
RM 1916	CMS DSU 556RD
Alpha 96	CMS 6424
Alpha 4	Excalibur Multirate DAP
Delta Plus	Excalibur Multiport DAP
RMD 3222	Excalibur Multirate SET-1
ALM 3223	Excalibur Multiport SET-1
ALM 3239	Excalibur ISX 5300
ALM MP4	Excalibur ISX 5302
MD 332	Excalibur ISX 2500
MD 334	Excalibur T1 CSU
Omnimux 40	Excalibur Dial Restoral System*
Omnimux 80	RMTS MK II
Omnimux 160	EIA MK II
Omnimux 320	NCM-7
Omnimux 82	CMS TCM-7
Omnimux 162	CMM-7
Omnimux 322	CMS 700
Omnimux 800	CMS 800
Omnimux 7000	CMS DCU
Omnimux 8000	Com-Link 3S
ISX5314 1E1/4DTE	Com-Link 7S

Com-Link IV	MPS 9629
Modem 1200	96 Multi-Mode
Card 24	12 LMS
RM 24	24 LMS
24 LSI	27 LSI
CS 24 LSI	MPS 14.4
24 LSI MKII	CMS 12
CS 24 LSI MKII	CMS 24
LSI 2401	CMS 26X
26 LSI	CMS 48
MPS 2426	CMS 4801
MPS 48	CMS 7201
MPS 4801	CMS 9601
MPS 4827	CMS 9629
48 Multi-Mode	
MPS 7201	
72 Multi-Mode	
MPS 9601	

- \* The CMS 400 is the primary user interface for the Excalibur Dial Restoral System (EDRS). Therefore, the instructions for CMS 400 control of EDRS are contained in the *Excalibur Dial Restoral System Installation and Operation Manual* rather than this manual.

## Software Description

The Leased Access Manager is one of several element management modules available with the CMS 400. Each module allows the CMS 400 to manage a certain group of products. Although the code for managing leased line products is embedded within the CMS 400 base software (kernel), you must install the Leased Access Manager software to turn it on. This modular software architecture allows you to customize the CMS 400 system for your particular network requirements. (Refer to Chapter 3 in the *CMS 400 Installation Manual* for instructions about installing modules.)

## System Features

The CMS 400 Leased Access Manager has an extensive array of features to give you complete centralized control of your leased access network. These features include:

- **Unit Configuration** – Allows you to view and change options for any unit in the network. You can download option changes to one, several, or all units in the network.
- **Status Monitoring** – Allows you to quickly view the status of any unit in the network. You can monitor EIA interface status, analog signal levels, operating speeds, and various unit-specific status conditions.

- **Statistics Monitoring** – Allows you to view and store a variety of unit performance statistics. When managing Excalibur DAPs, the Line Quality Statistics feature allows you to precisely measure and graphically display the quality of a digital line.
- **Alarm and Event Logs** – Automatically stores alarm and event messages received from network units. These messages notify you of unit problems. Allows you to view or print reports.
- **Dial Backup** – Allows you to originate and disconnect dial backup connections for failed leased line circuits.
- **Fault Management** – Continuously monitors network units and reports conditions that exceed user-defined thresholds. Provides early warning of potential line problems and network outages.
- **Unit Testing** – Allows you to perform comprehensive diagnostic testing on any network unit.
- **Front Panel Emulation** – Allows you to control certain types of devices as if you were sitting at their front panel. You can view a graphic representation of the front panel and "press" buttons using a mouse or keyboard.

## Leased Access Management Network

The CMS 400 can manage both local and remotely installed leased access units. It can manage these units in point-to-point, multidrop, and tail circuit applications. If the unit is at the same site as the CMS 400 hub, you can connect it to the hub through an External Diagnostic Multiplexer (EDM) or through an EDM connected to a Distributed Diagnostic Multiplexer (DDM). If the unit is at a remote site, the CMS 400 can communicate with it over a leased or dial-up circuit. Figure 1-1 shows a typical leased access management network.

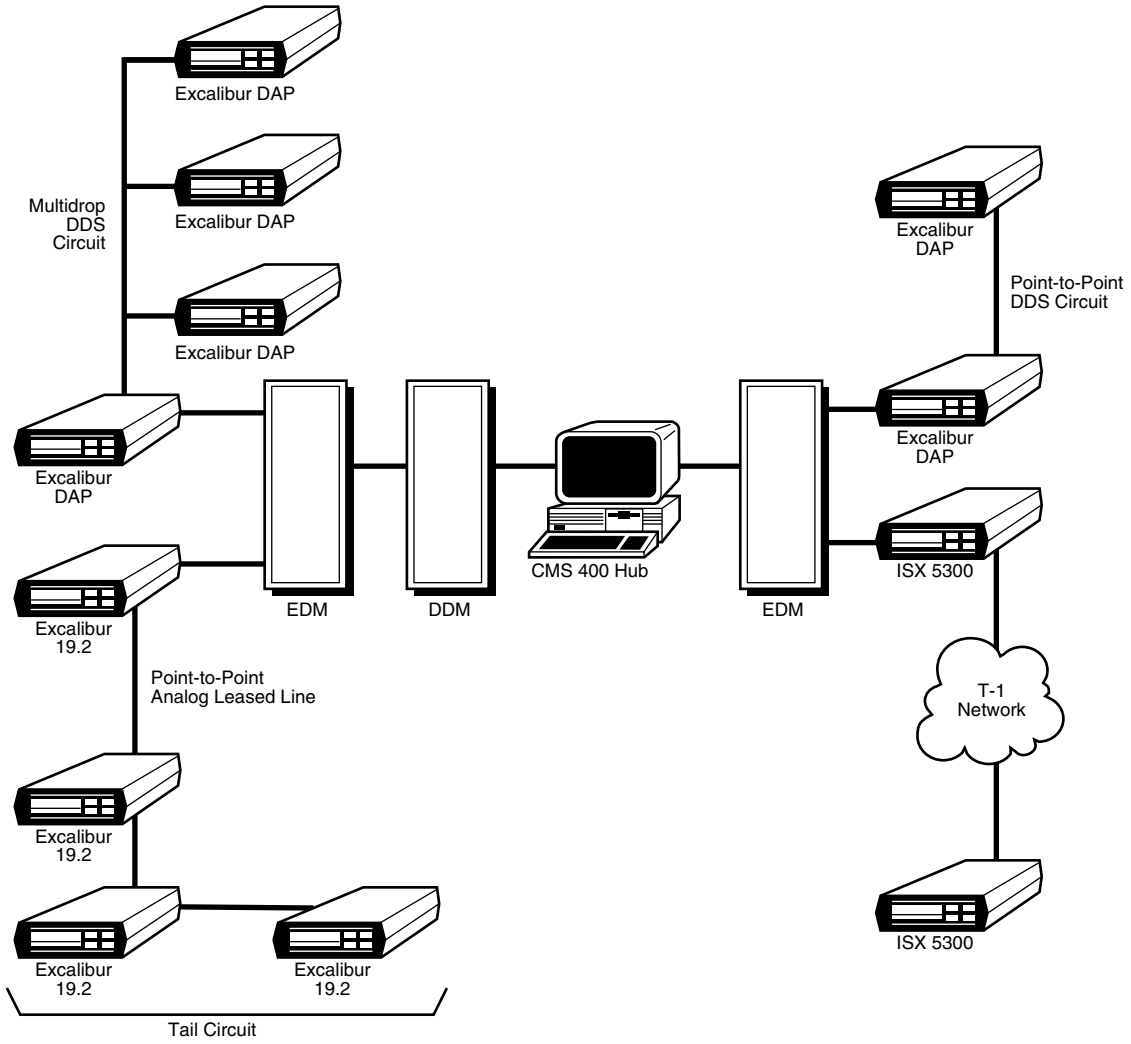


Figure 1-1. Typical Leased Access Management Network

# Chapter 2

## Database Configuration

---

### Introduction

Before you can begin managing your leased access network, you must configure the CMS 400 database. This involves adding and defining the various ports, channels, and leased access units used in your network.

This chapter covers database configuration procedures that are specific to leased access units. For general information about creating and modifying a CMS 400 database, see the *CMS 400 User's Guide*.

### Adding Ports and Channels

The first step is to add to the database the ports and channels you are using to control each unit. To do so, you must:

1. Use CMS Component Map to add and define the COM port(s) to which the EDM is connected.
2. Use CMS Component Map to add and define the EDM(s) to which each leased access unit is connected.
3. Use CMS Component Map to add and define a channel for each connected EDM port.

---

**Note:** See the *CMS 400 Installation Manual* and the individual product manuals for instructions about connecting units to an EDM port.

---

### Adding COM Ports

Starting from the CMS 400 main window, follow these steps for each connected CMS 400 COM port:

1. Select Database from the Commands menu.
2. Select CMS Component Map from the adjacent menu.
3. Select Add Port.

The Add Ports screen is displayed.

4. If the COM port is connected directly to the EDM, enter **EDM On No DDM** in the Usage field.

If the COM port is connected to a DDM, enter **DDM 1-4** in the Usage field.

---

**Note:** For proper operation, the COM port must have the correct address and IRQ assigned. See the *CMS 400 User's Guide* for detailed instructions.

---

5. Press [PGDN] to add the COM port to the database.

## Adding EDMs

Follow these steps for each EDM connected to a leased access unit:

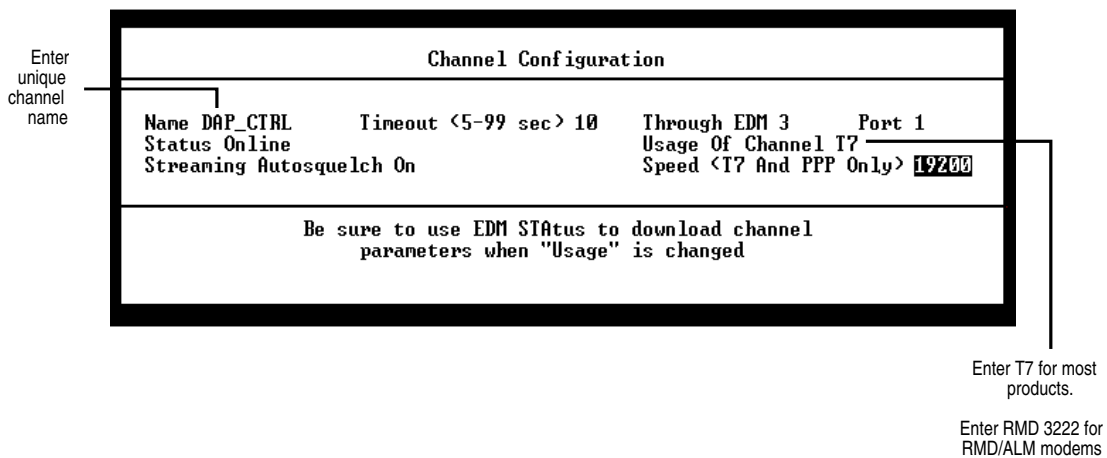
1. Position the cursor on the COM port and select Add EDM.
2. Define the various fields in the Add EDM screen as desired.
3. Press [PGDN] to add the EDM to the database.

## Adding Channels

You can now add and define the channels that control each leased access unit. Follow these steps for each EDM port connected to a leased access unit:

1. Position the cursor on the EDM and select Channels.
2. Position the cursor on the EDM port and select Add.

The Channel Configuration screen appears. (See Figure 2-1.)



**Figure 2-1. Channel Configuration Screen**

3. Define the fields in the screen as follows:

**Name** – Enter a unique name to identify the channel.

**Timeout** – If the channel speed is set to 75 bps, change the default setting of 10 seconds to a minimum of 30 seconds. If the channel speeds is set to a faster speed than 75 bps, you do not need to change the default setting.

**Usage of Channel** – Enter the network management protocol supported by the particular unit. For most Milgo leased access products, the proper setting is T7. For RMD and ALM series modems, the proper setting is RMD 3222.

**Speed** – The recommended channel speed depends on whether the units on the channel have a fixed or configurable CMS rate:

Some units, such as the CMS DSU and Excalibur DAP, have a fixed (non-configurable) CMS rate of 75 bps. If the channel has fixed-rate devices, set the channel speed to 75.

Some units, such as the ISX 5300, have a configurable CMS rate that you can set as high as 19,200 bps. If the channel has configurable-rate devices, the recommended channel speed is 19,200.

---

**Note:** If there are multiple configurable-rate devices connected to the same EDM, you may need to set a lower channel speed to avoid overburdening the EDM. It is recommended that the sum of the CMS rates of the devices connected to the EDM not exceed 19,200 bps.

---


Set other fields in the screen as desired.

4. Press [PGDN] to add the channel to the database.

## Adding Units

The next step is to add all leased access units to the database. Follow these steps for each unit:

1. From the CMS 400 main window, do one of the following.:

- Click the  toolbar button.
- Select Database from the Commands menu. Then select Network Map from the adjacent menu.

2. Select Insert.

The Insert Unit screen appears. (See Figure 2-2.)

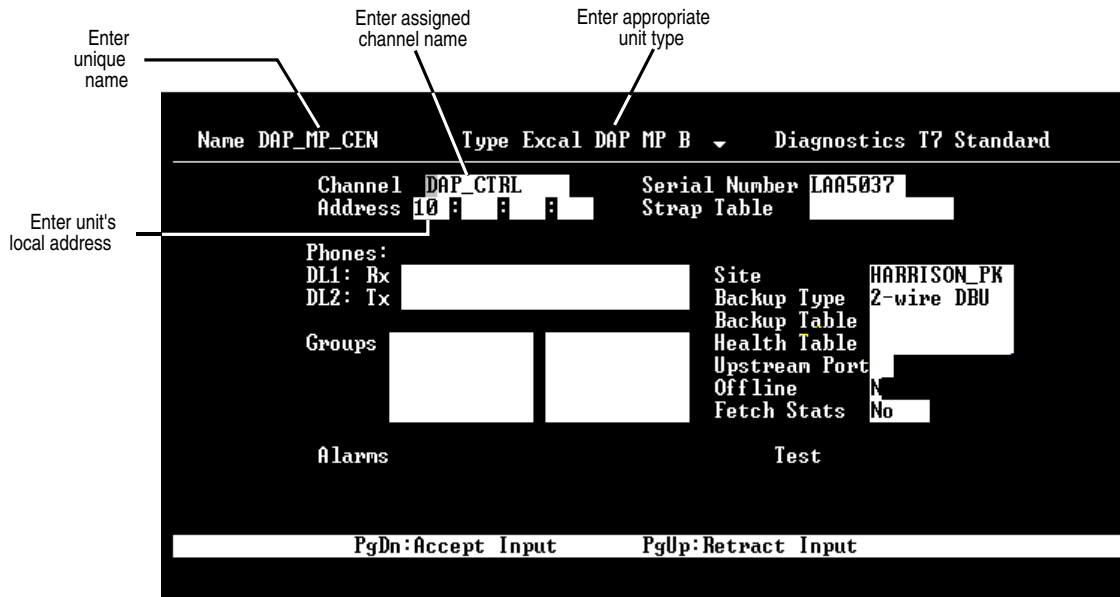


Figure 2-2. Insert Unit Screen

3. Define the fields in the Insert Unit screen as follows:

Name – Enter a unique name to identify the unit.

Type – Enter the appropriate unit type.

Diagnostics – For most Milgo leased access products, the proper setting is T7 Standard. For Excalibur DAPs set for interruptive diagnostics, select T7 Interrupt. For RMD and ALM series modems, select RMD3222 Aux.

Channel – Enter the name you previously assigned to the channel controlling this unit.

Address – For most Milgo leased access products, set the first (leftmost) address field to match the address assigned through the unit's front panel and leave the remaining fields blank. For RMD and ALM series modems, set the first and second address fields to match the address set through the unit's front panel (X, X format). Leave the third address field blank.

Set other fields in the screen as desired.

4. Press [PGDN] to add the unit to the database.

## Defining Excalibur T-1 CSU Unit Tables

If you added Excalibur T-1 CSUs to the database, you should define a unit table for each. The unit table stores the names of all Excalibur SET-1 DAPs that will communicate through the T-1 CSU. This table allows you to configure and monitor associated SET-1 DAPs using the Excalibur T-1 CSU Control application.

To define an Excalibur T-1 CSU unit table:

1. From the Main Menu, select Strap.
2. Select Define Strap Table from the pulldown menu.
3. Select Add Item .
4. Enter a unique name to identify the table in the Strap Table field. Enter **Excal T1CSU Unit** in the Strap Type field. Then press [PGDN].

The Excalibur T-1 CSU unit table is displayed. (See Figure 2-3.)

Excalibur T1 CSU Unit Name	Slot	Cage 1 Unit Name	Cage 2 Unit Name	Cage 3 Unit Name
EXCAL_T1	1	SET1_DAP_1		
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	14			
	15			
	16			

**Note:**  
For each of the cages shown on pages 1 and 2, enter the units that are associated with the Excalibur T1 CSU unit defined above.

PgDn:Next Screen      PgUp:Prior Screen

Figure 2-3. Excalibur T-1 CSU Unit Table

5. Enter the name you previously assigned to the Excalibur T-1 CSU in the Unit Name field. Then press [ENTER].
6. Enter the names of the associated Excalibur SET-1 DAPs in the appropriate cage and slot fields. Then press [PGDN].

## Assigning Excalibur T-1 CSU Unit Tables

After you define the required unit tables, you must assign them to their intended Excalibur T-1 CSU units.

Follow these steps for each Excalibur T-1 CSU:

1. From the Main Menu, select Database.
2. Select Network Map from the pulldown menu.
3. Position the cursor on the desired Excalibur T-1 CSU and select Mod.
4. Enter the name of the unit table in the Unit Table field. Then press [PGDN].

## Configuring Database for Excalibur Chassis Application


The CMS 400 provides an application, called Excalibur Chassis, that displays a graphic view of an Excalibur Card Carrier and the Excalibur DAPs and SET-1 DAPs that it contains. From this application, you can control, configure, monitor, and test any Excalibur DAP or SET-1 DAP unit installed in an Excalibur Card Carrier.

To use this application, you must first configure the database as follows:

1. Add the card carriers in your network to the database.
2. Define a unit table for each card carrier. This involves defining which DAP and SET-1 DAP units are installed in which card carrier slots. (These units must already be defined in the database. See “Adding Units” earlier in the chapter for details.)

## Adding Excalibur Card Carriers

Follow these steps for each card carrier:

1. From the CMS 400 main window, do one of the following:
  - Click the  toolbar button.
  - Select Database from the Commands menu. Then select Network Map from the adjacent menu.
2. Select Insert.

The Insert Unit screen appears.

3. Define the fields in the Insert Unit screen as follows:

Name – Enter a unique name to identify the card carrier.

Type – Enter **Excal Chassis**.

Channel – Leave blank.

Address – Leave blank.

Chassis No. - Enter the cage address (1-6).

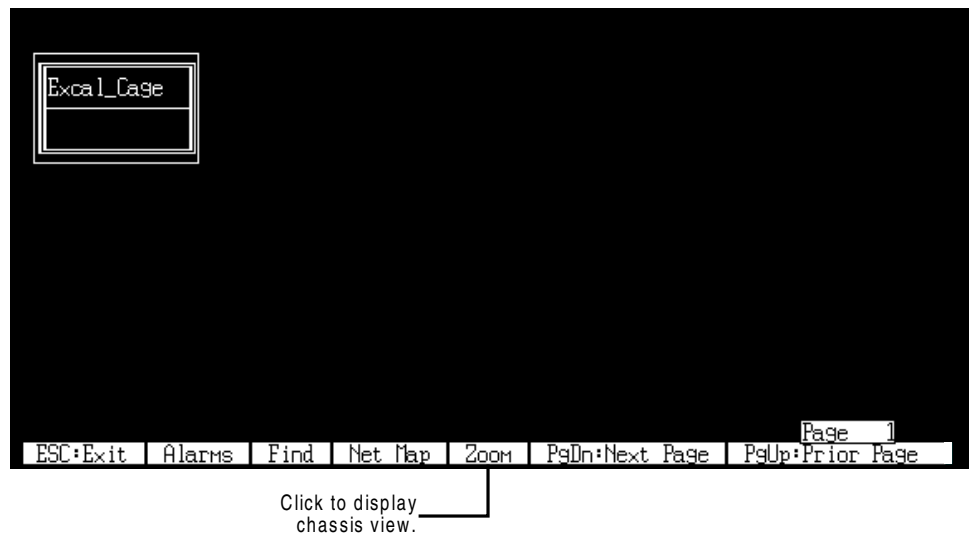
4. Press [PGDN] to add the card carrier to the database.

## Defining Unit Tables

Follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select Excalibur Chassis from the adjacent menu.

The screen displays all card carriers defined in the database. (See Figure 2-4.)



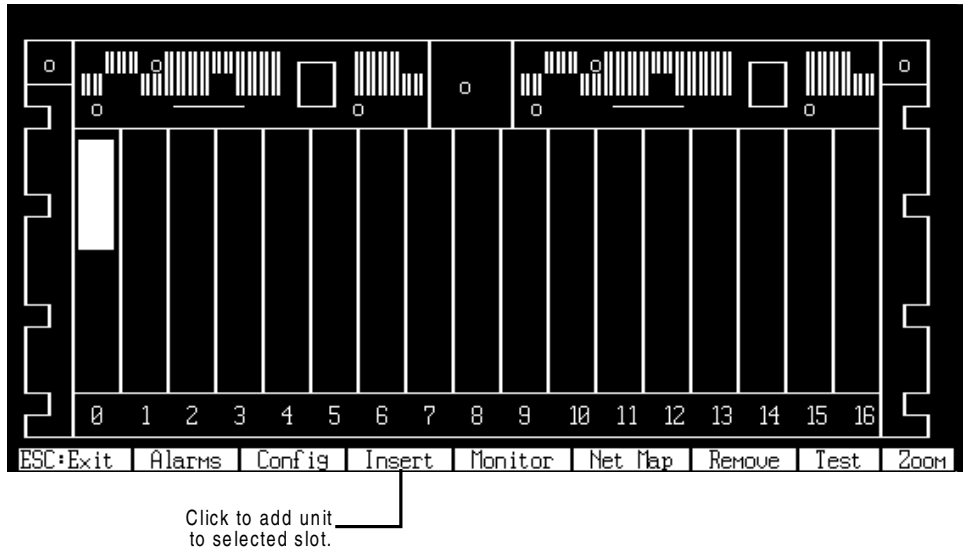
**Figure 2-4. Excalibur Chassis Application - Top Level View**

3. Position the cursor on the card carrier you want to add units to, and select Zoom.

If you haven't yet created a unit table for the chassis, the screen prompts you to enter a unit table name.

4. Enter a unique name to identify the unit table. Then press [PGDN].

The screen displays the chassis view. (See Figure 2-5.)



**Figure 2-5. Excalibur Chassis Application - Chassis View**

5. Position the cursor on the chassis slot in which the unit is installed and select Insert.

The Select Unit by Criteria screen appears.

6. Enter unit information in the criteria fields. You do not need to fill in all fields; enter only enough information to uniquely identify the unit. Then press [PGDN].

The unit appears in the chassis view and is added to the unit table.

Continue in this manner to add all installed units to the card carrier's unit table. If you want to remove a unit you already added, position the cursor on the unit and select Remove.

---

**Note:** The Insert and Remove functions insert or remove units from the unit table only. These functions do not insert or remove units from the CMS 400 database.

---

For further instructions about using the Excalibur Chassis application, see Chapter 8.

# Chapter 3

## Unit Configuration

---

### Overview

The CMS 400 allows you to configure the strap (option) settings of an entire network of leased access units from a central location. Unit configuration consists of the following basic steps:

1. Creating desired strap tables
2. Assigning strap tables to units
3. Downloading strap tables to units

This chapter explains how to complete each of these steps. It also explains how to download preselect strap tables, change strap and threshold settings, compare two sets of strap configurations, configure Excalibur T-1 CSU and ISX 5300/2500 channel mapping, and configure MD 332/334 modems.

### Creating Strap Tables

A strap table defines a particular configuration of unit option settings. You should create one strap table for every unit or group of units in your network that you want to configure identically. The CMS 400 can store up to 4000 different strap tables.

There are two ways to create a strap table:

- **Read straps from a preconfigured unit.** With this method, you first configure a unit using one of these methods:
  - Download a preselection table as described in “Downloading Preselection Tables” later in this chapter.
  - Use CMS 400 front panel emulation as described in Chapter 5.
  - Use the unit’s own front panel.

You then read the unit’s strap settings into the CMS 400 and write them to a strap table.

- **Manually define a strap table.** With this method, you select a strap table type (depending on the type of unit), and then set each option in the table manually.

**Note:** You cannot create a strap table for an MD 332 or MD 334 modem in the manner described here. To configure these devices, refer to “Configuring MD 332/334 Modems” later in this chapter.

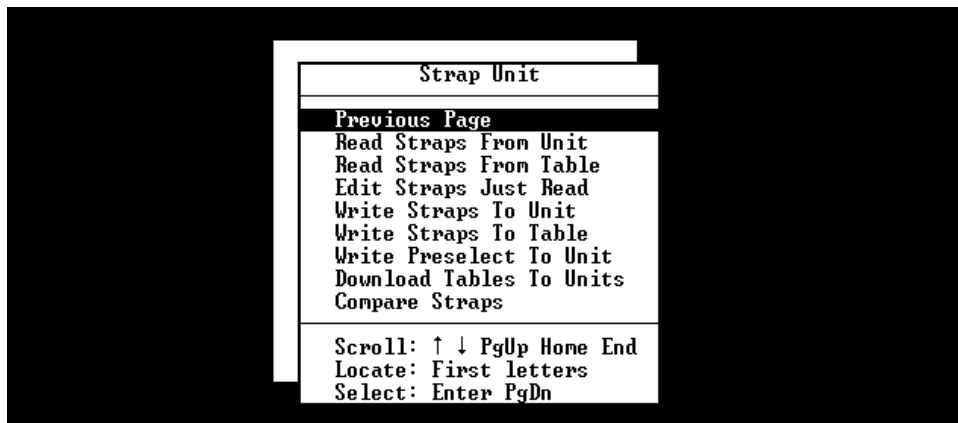
---

## Reading Straps from Unit

To create a strap table by reading straps from a preconfigured unit, follow these steps from the CMS main window:

1. Select Configuration from the Commands menu.
2. Select Strap Unit from the adjacent menu.

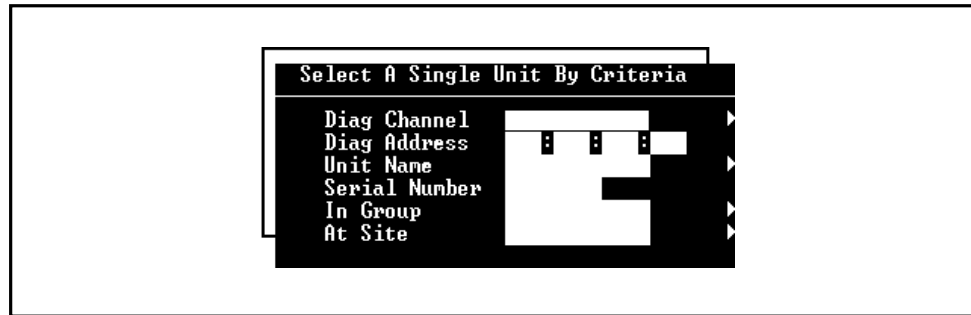
The Strap Unit menu is displayed. (See Figure 3-1.)



**Figure 3-1. Strap Unit Menu**

3. Select Read Straps from Unit.

The Select Unit By Criteria screen is displayed. (See Figure 3-2.)



**Figure 3-2. Select Unit By Criteria Screen**

4. Enter unit information in the criteria fields. You do not need to fill in all fields; enter only enough information to uniquely identify the unit you want to read from. Then press [PGDN].

If you selected an ALM series modem, you are then prompted to select a profile. ALM series modems store two different sets of strapping configurations, designated Profile 0 and Profile 1. Enter the number of the profile you want to read and press [PGDN].

The CMS 400 begins reading straps from the selected unit. When it is finished, the screen displays Strap Data Now in Edit Area.

---

**Note:** You can also read straps from a unit using Network Map. In Network Map, position the cursor on the desired unit and select Config .

---

If you want to change any of the strap settings before creating a table, follow Steps 5 and 6. If not, skip to Step 7.

5. Select Edit Straps Just Read.

The screen displays the strap settings just read.

6. Position the cursor on the strap(s) you want to change and press [TAB] to scroll through the possible settings.

Press [PGDN] or [PGUP] to move through the various pages of strap settings. When you've finished making changes, press [ESC] to return to the Strap Unit menu.

7. Select Write Straps to Table.
8. Select Create a New Strap Table.

9. Enter a unique name for the table and press [PGDN].

The configuration is then stored as a new strap table.

---

**Note:** For certain products, the strap names in the strap tables do not always match the strap names displayed on the unit's front panel. Appendix A contains tables that cross-reference the strap table name with the front panel names on these products.

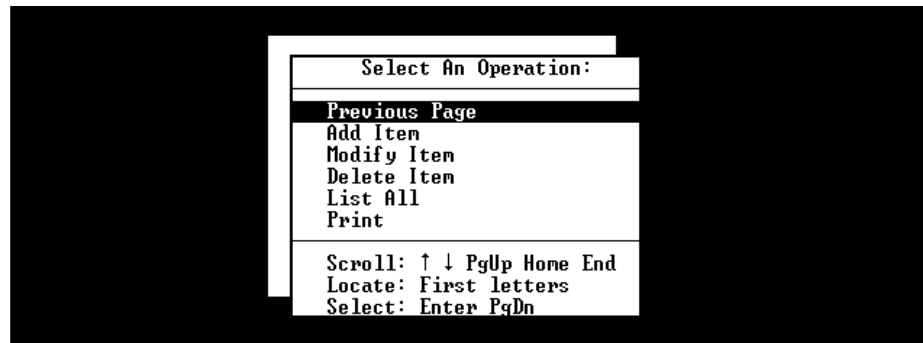
---

## Manually Defining a Strap Table

To manually define a new strap table, follow these steps from the CMS main window:

1. Select Configuration from the Commands menu.
2. Select Define Strap Table from the adjacent menu.

The Define Strap Table menu is displayed. (See Figure 3-3.)



**Figure 3-3. Define Strap Table Menu**

3. Select Add Item.
4. Enter a unique name to identify the table in the Strap Table field. Enter the table type in the Strap Type field. (Table 3-1 lists the strap table types available for leased access products.) Then press [PGDN].

The Define Strap Table screen is displayed. The options on the screen differ for each type of strap table. Figure 3-4 shows an Excalibur Multiport DAP strap table.

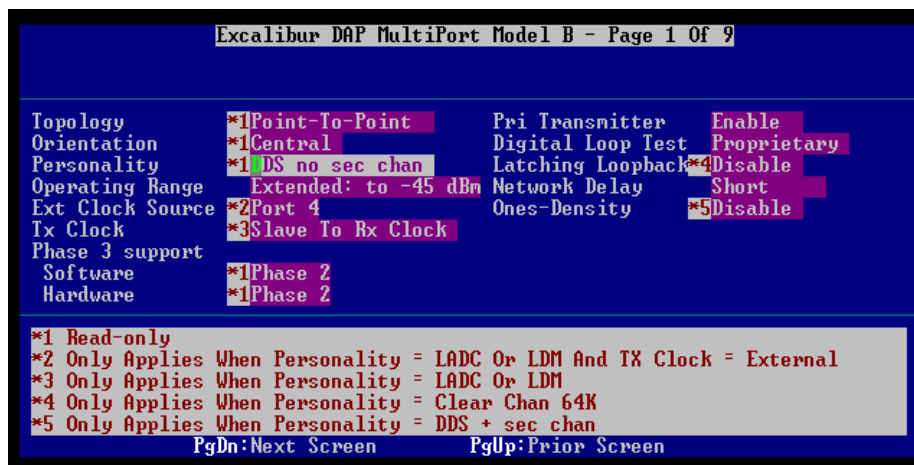


Figure 3-4. Strap Table

- To change a strap setting, position the cursor on the strap name and press [TAB] to scroll through the possible settings.

Press [PGDN] or [PGUP] to move through the various pages of strap settings. When you finish making changes, press [PGDN] to return to the Strap Unit menu.

**Note:** Strap tables for ALM series modems contain two sets of strapping configurations, designated Profile 0 and Profile 1. This allows you to quickly switch to an alternate configuration without restrapping. Use Profile 0 as the normal operating configuration, and Profile 1 as the alternate.

Table 3-1. Strap Table Types

Table Type	Description
Analog Parameter	Allows you to store analog parameter alarm thresholds for CMS series modems.
Omni 48 Modems	Allows you to store analog parameter alarm thresholds and strap settings for Omnimode 48 modems.
Omni 96 Modems	Allows you to store analog parameter alarm thresholds and strap settings for Omnimode 96 modems.
Omni 14.4 Modems	Allows you to store analog parameter alarm thresholds and strap settings for Omnimode 14.4 modems.
Omni 14.4FP Modems	Allows you to store analog parameter alarm thresholds and strap settings for Omnimode 14.4FP modems.

**Table 3-1: Strap Tables (Continued)**

<b>Table Type</b>	<b>Description</b>
Omni 1614 Modems	Allows you to store analog parameter alarm thresholds and strap settings for Omnimode 1614 modems.
Excalibur 9.6	Allows you to store analog parameter alarm thresholds and strap settings for Excalibur 9.6 modems.
Excalibur 19.2	Allows you to store analog parameter alarm thresholds and strap settings for Excalibur 19.2 modems.
RMD3222 Modems	Allows you to store strap settings for RMD 3222 modems.
ALM3223 Modems	Allows you to store strap settings for ALM 3223 modems.
ALM3239 Modems	Allows you to store strap settings for ALM 3239 modems.
Delta Plus Modem	Allows you to store analog parameter alarm thresholds and strap settings for Delta Plus modems.
Stat Muxes	Allows you to store strap settings for Omnimux 80 and 82 series statistical multiplexers.
CMS TDM B/C Mux	Allows you to store strap settings for Omnimux TDM B and C model time-division multiplexers.
CMS TDM D Mux	Allows you to store strap settings for Omnimux TDM model D time-division multiplexers.
Mux 800 Frac T1	Allows you to store strap settings for Omnimux FT1 fractional T1 multiplexers.
CMS DSU 5XX RD	Allows you to store strap settings for CMS DSU 500 and 556 RD.
CMS DSU 15XX	Allows you to store strap settings for CMS DSU 1500 and CMS DSU 1556.
CMS 6424	Allows you to store strap settings for CMS 6424 DSU.
Excal DAP SP A	Allows you to store analog parameter alarm thresholds and strap settings for Excalibur Multirate DAP Model A.
Excal DAP SP B	Allows you to store analog parameter alarm thresholds and strap settings for Excalibur Multirate DAP Model B.

**Table 3-1: Strap Tables (Continued)**

<b>Table Type</b>	<b>Description</b>
Excal DAP MP A	Allows you to store analog parameter alarm thresholds and strap settings for Excalibur Multiport DAP Model A.
Excal DAP MP B	Allows you to store analog parameter alarm thresholds and strap settings for Excalibur Multiport DAP Model B.
Excal SET1 SP B	Allows you to store analog parameter alarm thresholds and strap settings for Excalibur Multirate SET-1 DAP Model B.
Excal SET1 MP A	Allows you to store analog parameter alarm thresholds and strap settings for Excalibur Multiport SET-1 DAP Model A.
Excal SET1 MP B	Allows you to store analog parameter alarm thresholds and strap settings for Excalibur Multiport SET-1 DAP Model B.
Excal Chassis	Allows you to create a unit table for an Excalibur Card Carrier. See “Defining Unit Tables” in Chapter 2 for more information.
Bits (800, etc.)	Allows you to store up to 16 bit configurations with user-defined labels for control of any device that has the Control Bits option (such as CMS 800 and Model 42 AMM).
700 Backup Table	Allows you to store dial backup configurations for the CMS 700 Remote Dial System.
Excal T1CSU Main	Allows you to store the non-channel mapping strap settings for an Excalibur T-1 CSU.
Excal T1CSU Cmap	Allows you to store the channel mapping configuration for an Excalibur T-1 CSU.
Excal T1CSU Unit	Allows you to store the associated SET-1 DAP units for an Excalibur T-1 CSU.
ISX 5300 1-T1 CSU	Allows you to store the non-channel mapping strap settings for an Excalibur ISX 5300 with one T-1 interface.
ISX 5300 2-T1 CSU	Allows you to store the non-channel mapping strap settings for an Excalibur ISX 5300 with two T-1 interfaces.
ISX 5300 3-T1 CSU	Allows you to store the non-channel mapping strap settings for an Excalibur ISX 5300 with three T-1 interfaces.

**Table 3-1: Strap Tables (Continued)**

<b>Table Type</b>	<b>Description</b>
ISX 5302 DTE Exp	Allows you to store the non-channel mapping parameters for an Excalibur ISX 5302.
ISX 2500 2-T1 CSU	Allows you to store the non-channel mapping strap settings for an Excalibur ISX 2500 with two T-1 interfaces.
ISX 2500 3-T1 CSU	Allows you to store the non-channel mapping strap settings for an Excalibur ISX 2500 with three T-1 interfaces.
5300 1-T1 Cmap	Allows you to store the channel mapping configuration for an Excalibur ISX 5300 with one T-1 interface.
5300 2-T1 Cmap	Allows you to store the channel mapping configuration for an Excalibur ISX 5300 with two T-1 interfaces.
5300 3-T1 Cmap	Allows you to store the channel mapping configuration for an Excalibur ISX 5300 with three T-1 interfaces.
5302 Cmap	Allows you to store the channel mapping parameters for an Excalibur ISX 5302.
2500 2-T1 Cmap	Allows you to store the channel mapping strap settings for an Excalibur ISX 2500 with two T-1 interfaces.
2500 3-T1 Cmap	Allows you to store the channel mapping strap settings for an Excalibur ISX 2500 with three T-1 interfaces.
Alpha IV	Allows you to store strap settings for an Alpha IV modem. (Separate strap tables are available for version 3.1, 3.2, and 4.0 units.)
ALM MP IV	Allows you to store strap settings for an ALM MP IV modem. (Separate strap tables are available for version 3.1, 3.2, and 4.0 units.)

## Modifying a Strap Table

To make changes to an existing strap table:

1. From the Define Strap Table menu, select Modify Item.
2. Enter the name of the table you want to modify. You can press [TAB] to scroll through the defined tables. Then press [PGDN].
3. Change strap settings as described in Step 5 of "Manually Defining a Strap Table."

## Displaying List of Defined Strap Tables

The CMS 400 lets you display a list of all defined strap tables. The list contains each table's name, type, and number of associated units.

1. Select List All from the Define Strap Table menu. A screen similar to that shown in Figure 3-5 is displayed.
2. Press [PGDN] to move to subsequent pages of the display.

Name	Type	Units	Name	Type	Units
STRAP_032	Excalibur 9.6 Modems		DRS_Back	DRS Backup Table	
STRAP_034	Stat Muxes		STRAP_035	CMS TDM B/C Muxes	1
Excal	Excalibur 19.2	1	STRAP_043	Mux 800 Frac T1	2
STRAP_038	Omni 48 Modems	2	STRAP_045	CMS DSU 5XX RD	
STRAP_040	Analog Parameter		TestA	Excal DAP MP B	1
STRAP_042	Analog Parameter	1	STRAP_049	700 Backup Table	2
STRAP_041	Analog Parameter		STRAP_051	ALM3223 Modems	1
Test1	700 Backup Table		Excal_D_MP	Excalibur DAP MP	
Omnimode	Omni 96 Modems		Excal_D_SPB	Excal DAP SP B	2
STRAP_050	Bits <800, etc.>		DRS_Back	DRS Backup Table	1
Test2	Excalibur DAP SP	1	DELTA-CENT	Delta Plus Modem	2
DELTA-REMI	Delta Plus Modem	2	STRAP_055	RMD3264 3222Mode	1
RMD_Modem	RMD3264 3222Mode	1	STRAP_057	RMD3264 3222Mode	2
STRAP_044	RMD3222 Modems	2	Test	Excalibur 19.2	
STRAP_062	RMD3264 3222Mode		Test3	Omni 48 Modems	

Figure 3-5. Typical Strap Table List

## Printing a Strap Table

To print existing strap tables to a hub printer, station printer, or disk file:

1. From the Define Strap Table menu, select Print.
2. Enter the strap table name and type. Then press [PGDN].

3. Select the destination to which you want the table printed: None (cancels the operation), Hub Printer, Station Printer, or Disk File. Then press [ENTER].

## Deleting a Strap Table

To delete a strap table from the database:

1. From the Define Strap Table menu, select Delete Item.
2. Enter the strap table name and type. Then press [PGDN].


A confirmation message is displayed asking if you are sure you want to delete the item.

3. Enter **Y** to delete the strap table from the database.

## Assigning Strap Tables

After you create the desired strap tables, you should then assign them to their intended unit(s). You can assign the same strap table to any number of units that you want to configure identically.

Follow these steps for each unit you want to assign a strap table to:

1. From the CMS 400 main window, do one of the following:
  - Click the  toolbar button.
  - Select Database from the Commands menu. Then select Network Map from the adjacent menu.
2. Position the cursor on the desired unit and select Mod.
3. Enter the name of the desired strap table in the Strap Table field. Then press [PGDN].

---

**Note:** When assigning an Excalibur T-1 CSU or ISX 5300/2500 Channel Map (Cmap) table, enter its name in the Channel Table field, rather than the Strap Table field.

---

## Downloading Strap Tables

After you assign the strap tables, you can then configure units by downloading their assigned tables.

Follow these steps for each unit you want to configure:

1. From the Strap Unit menu, select Download Tables to Units.

The Select Unit By Criteria screen is displayed.

2. Enter information to specify the unit(s) you want to configure.
3. Press [PGDN].

The CMS 400 then downloads each unit's assigned strap table. When the downloading is completed, each unit configures itself to match the strap table.

## Downloading Preselection Tables

The CMS 400 allows you to download preselection strapping tables to the following types of modems:

- Omnimode 48, 96, 14.4, 14.4FP, and 1614
- Excalibur 9.6 and 19.2
- ALM 3223 and 3239
- Delta Plus

Preselection strapping tables (known as Quick Setups on ALM modems) cause the modem to automatically configure itself to the recommended strap settings for typical applications. This one-step configuration feature saves you the time of setting each strap individually.

To download a preselection table:

1. From the Strap Unit menu, select Write Preselect to Unit.
2. Select the unit type and press [PGDN].

The available preselection tables for that unit are displayed.

3. Press [TAB] to scroll through the available tables. When the desired table is displayed, press [PGDN].

4. Enter unit information to specify the unit you are configuring. Then press [PGDN].

The CMS 400 then downloads the preselect table to the selected unit.

## Changing Strap Settings

After you have configured the units in your network, you may need to change their strap settings from time to time. To change strap settings, you must do the following:

1. Read current strap settings from a unit or strap table. This places the strap settings into an edit buffer.
2. Edit the strap settings in the buffer.
3. Write the edited strap settings to the unit you want to reconfigure. (You can also write the edited strap settings to a new or existing table if desired.)

---

**Note:** This procedure does not allow you to change the settings of a unit's alarm thresholds. Refer to "Changing Alarm Threshold Settings" for further instructions.

---

## Reading Straps from Units and Tables

To read the current strap settings from any unit or strap table:

1. From the Strap Unit menu, select Read Straps from Unit or Read Straps from Table .
2. Enter the appropriate unit or strap table information. Then press [PGDN].

The CMS 400 begins reading straps from the selected unit or table. When it is finished, the screen displays **Strap Data Now in Edit Area**.

---

**Note:** You can also read straps from a unit using Network Map. In Network Map, position the cursor on the desired unit and select Config.

---

## Editing Strap Settings

The next step is to edit the straps you just read.

1. From the Strap Unit menu, select Edit Straps Just Read.

The screen displays the strap settings just read.

2. Position the cursor on the strap(s) you want to change and press [TAB] to scroll through the possible settings.

Press [PGDN] or [PGUP] to move through the various pages of strap settings. When you finish making changes, press [ESC] to return to the Strap Unit menu.

## Writing Straps to Units and Tables

After you've edited the straps to the settings you want, you can then write them to the unit(s) you want to reconfigure.

1. From the Strap Unit menu, select Write Straps to a Unit.
2. Enter the unit(s) to which the straps are to be written and press [PGDN].

The edited strap settings are then sent to the selected unit(s). (The straps sent must be compatible with the target unit; if not, an error message will appear.)

Follow the remaining steps if you want to write the edited straps to a new or existing strap table.

3. Select Write Straps to a Table.
4. Select Create A New Strap Table or Use An Existing Strap Table.
5. At the prompt, enter the new or predefined table name. Then press [PGDN].

The edited strap settings are then written into a new or existing strap table.

## Changing Alarm Threshold Settings

After you have configured the units in your network, you may need to change their alarm threshold settings. To change threshold settings, you must do the following:

1. Read current threshold settings from a unit or strap table. This places the settings into an edit buffer.
2. Edit the threshold settings in the buffer.
3. Write the edited threshold settings to the unit you want to reconfigure. (You can also write the edited threshold settings to a new or existing table if desired.)

---

**Note:** These procedures do not apply to RMD/ALM series modems.

---

## Reading Thresholds from Units and Tables

To read the current threshold settings from any unit or strap table, follow these steps from the CMS main window:

1. Select Configuration from the Commands menu.
2. Select Set Thresholds from the adjacent menu.

The Set Thresholds menu appears.

3. Select Read Thresholds from Unit or Read Thresholds from Table .
4. Enter the appropriate unit or strap table information. Then press [PGDN].

The CMS 400 begins reading thresholds from the selected unit or table. When it is finished, the screen displays Thresholds Now in Edit Area.

## Editing Threshold Settings

The next step is to edit the thresholds you just read.

1. From the Set Thresholds menu, select Edit Thresholds Just Read.

The screen displays the threshold settings just read.

2. Position the cursor on the threshold(s) you want to change and press [TAB] to scroll through the possible settings.
3. When you finished making changes, press [PGDN].

## Writing Thresholds to Units and Tables

After you've edited the thresholds to the settings you want, you can then write them to the unit(s) you want to reconfigure.

1. From the Set Thresholds menu, select Write Thresholds to a Unit.
2. Enter the unit(s) to which the thresholds are to be written and press [PGDN].

The edited threshold settings are then sent to the selected unit(s). (The thresholds sent must be compatible with the target unit; if not, an error message will appear.)

Follow the remaining steps if you want to write the edited thresholds to a new or existing strap table.

3. Select Write Thresholds to a Table.
4. Select Create A New Strap Table or Use An Existing Strap Table.
5. At the prompt, enter the new or predefined table name. Then press [PGDN].

The edited threshold settings are then written into a new or existing strap table.

## Comparing Strap Settings

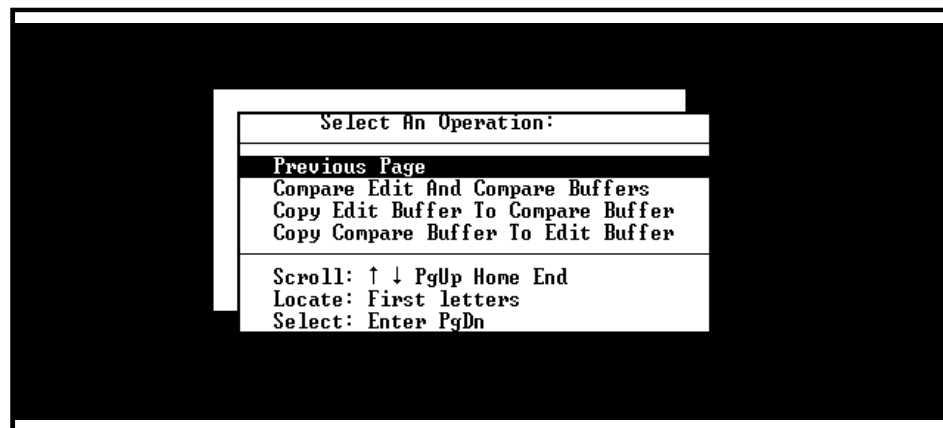
The CMS 400 lets you compare the strap settings of a unit or strap table with those of a second unit or strap table. This feature lets you quickly identify the differences between two sets of configurations.

1. From the Strap Unit menu, select Read Straps From Unit or Read Straps from Table (depending on the first configuration you are comparing).
2. Enter the appropriate unit or table information and press [PGDN].

The CMS 400 begins reading straps from the selected unit or table. When it is finished, the screen displays Strap Data Now in Edit Area.

3. Select Compare Straps.

The Compare Straps menu is displayed, as shown in Figure 3-6.



**Figure 3-6. Compare Straps Menu**

4. Select Copy Edit Buffer To Compare Buffer. Then return to the Strap Unit menu.

Follow Steps 1-3 for the second unit or table configuration you want to compare, and then follow Step 5.

5. Select Compare Edit And Compare Buffers.

A strap table screen is then displayed. In this screen, strap settings that do not match are displayed with white letters on a black background.

## Configuring Excalibur T-1 CSU Channel Mapping

Excalibur T-1 CSU channel mapping defines the unit's DS1 interface channel assignments. For communication to take place between the T-1 CSU and an Excalibur SET-1 DAP, a T-1 CSU DS1 channel must be assigned to the same TDM bus/channel as the Excalibur SET-1 DAP. (See "Configuring SET-1 DAP Bus/Channel Assignments" for more information.)

Although you can configure channel mapping by creating and assigning an Excal T1CSU Channel Map (Cmap) strap table (as described earlier in this chapter), we recommend that you use the Excalibur T-1 CSU application. This application allows you to quickly define the mapping for a specified range of channels, instead of having to set each channel individually. You can then write the channel mapping to a unit or a Channel Map strap table.

---

**Note:** See the *Excalibur T-1 CSU Installation and Operation Manual* for more information about T-1 CSU channel mapping.

---

To configure Excalibur T-1 CSU channel mapping, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select Excal/ISX T1 CSU Control from the adjacent menu.

The screen shows all Excalibur T-1 CSU and ISX 5300/2500 units defined in the database.

3. Position the cursor on the desired Excalibur T-1 CSU and select Channel Map.

The CMS 400 begins reading the current channel mapping configuration from the selected unit. When it is finished, the DS1 Channel Map screen appears. (See Figure 3-7.) This screen shows the component (DS1 or TDM bus) and channel to which each DS1 channel is currently assigned.

4. To toggle between the DS1 Channel Map screen and the TDM Bus Channel Map screen, press [TAB].

The TDM Bus Channel Map screen shows the component and channel to which each TDM bus channel is assigned.

DS1 A Channel Assignments																
1-8	Free	1	TDMA	3	TDMA	4	TDMA	5	TDMA	6	TDMA	7	TDMA	8	TDMA	9
9-16	TDMA	10	TDMA	11	TDMA	12	TDMA	13	TDMA	14	TDMA	15	TDMA	16	TDMA	17
17-24	TDMA	18	TDMA	19	TDMA	20	TDMA	21	TDMA	22	TDMA	23	TDMA	24	Free	1

DS1 B Channel Assignments																
1-8	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1
9-16	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1
17-24	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1

DS1 C Channel Assignments																
1-8	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1
9-16	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1
17-24	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1	Free	1

ESC:Exit Tab:TDM Bus View Edit Read Strapping Unit Time Slots Write  
Activity Completed

**Figure 3-7. Excalibur T-1 DS1 Channel Map Screen**

5. Select Edit.

You can now change the assignment of any DS1 or TDM bus channel as follows:

- To scroll through each channel's possible assignments, press [TAB]. Possible component selections are TDMA, TDMB, DS1A, DS1B, DS1C, or Free (not assigned). Possible channel selections are 1-24 for a DS1 and 1-64 for a TDM bus.
- To move from channel to channel, press [ENTER] or the up and down arrow keys.
- To toggle between the DS1 and TDM bus channel mapping screens, press [CTRL] [F8].

6. To change the assignments of a range of channels, press [F8].

A menu with the following options appears:

Free All – Allows you to free all channel assignments.

Select Range to Free – Allows you to specify a range of channels you want to free.

Select Range to Assign – Allows you to assign a range of channels on a specified DS1 or TDM bus to consecutive or alternate channels on a specified DS1 or TDM bus.

7. When all desired channel assignments are made, press [PGDN].

The CMS 400 saves the changes you made.

8. Select Write.

You have the following options:

- To write the channel mapping directly to the Excalibur T-1 CSU, select Write To Unit.
- To write the channel mapping to a new Channel Map table, select Write To Table. Then select Create a New Strap Table, enter a unique name for the table, and press [PGDN].
- To write the channel mapping to an existing Channel Map table, select Write To Table. Then select Use An Existing Table, enter the table name, and press [PGDN].

## Configuring SET-1 DAP Bus/Channel Assignments

For an Excalibur SET-1 DAP to communicate through a specific DS1 channel on the Excalibur T-1 CSU, you must assign the SET-1 DAP to the same TDM bus/channel that you assigned to the DS1 channel (see previous section.)

You can configure SET-1 DAP bus and channel assignments by creating and assigning unit strap tables, as described earlier in this chapter, or you can use the Excalibur T-1 CSU application. To use the Excalibur T-1 CSU application, you must have already created and assigned an Excalibur T-1 CSU unit table, as described in Chapter 2.

---

**Note:** See the appropriate Excalibur SET-1 DAP manual for more information about SET-1 DAP bus and channel assignments.

---

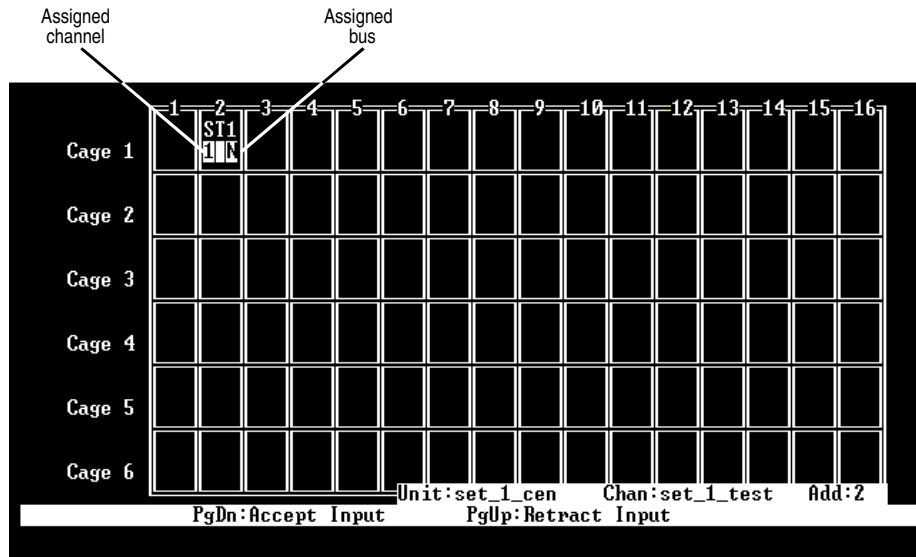
To configure SET-1 DAP bus and channel assignments:

1. From the Excalibur T-1 CSU Channel Map screen, select Unit Time Slots.

The screen shows a graphic display of a six-cage system. ST1 appears in any slot that has an Excalibur SET-1 DAP installed.

2. Position the cursor on the desired unit and select Edit.

The unit's current channel and TDM bus assignment appears beneath ST1. (See Figure 3-8.)



**Figure 3-8. Unit Time Slots Screen**

3. Enter the desired channel and bus assignment and press [PGDN].
4. Select Write.

You have the following options:

- To write the modified channel and bus assignment directly to the SET-1 DAP, select Write To Unit.
- To write the modified channel and bus assignment to the SET-1 DAP's previously assigned strap table, select Write To Table.

The Unit Time Slots screen appears.

5. Select the unit(s) you want to write the modified assignments to by moving the cursor to each unit and pressing [TAB]. You can select all units at once by selecting Select All.

A check mark appears in the slot containing a selected unit.

6. Press [PGDN].

The CMS 400 then writes the assignments to the selected unit or selected unit's strap table.

## Configuring Excalibur ISX 5300/2500 Channel Mapping

Excalibur ISX 5300/2500 channel mapping defines the unit's DS1 interface channel assignments. You can assign a DS1 channel to one of two DTE ports or to a channel on another DS1 interface (on multiple-DS1 units).

Although you can configure ISX unit channel mapping by creating and assigning an ISX 5300/2500 Channel Map (Cmap) strap table (as described earlier in this chapter), we recommend that you use the Excalibur T-1 CSU application. This application allows you to quickly define the mapping for a specified range of channels, instead of having to set each channel individually. You can then write the channel mapping to a unit or a Channel Map strap table.

---

**Note:** See the Excalibur ISX 5300 or 2500 Installation and Operation Manual for more information on ISX unit channel mapping.

---

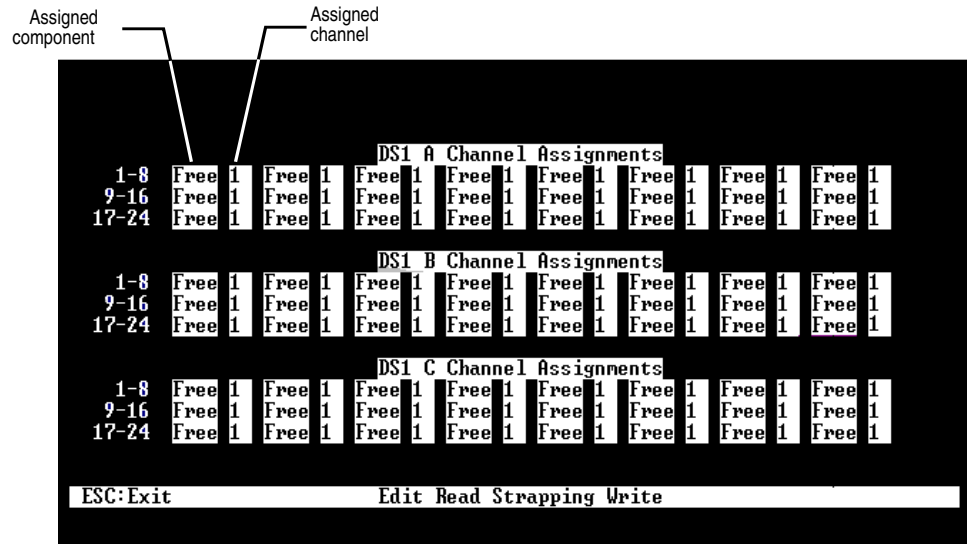
To configure Excalibur ISX 5300/2500 channel mapping, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select Excal/ISX T1 CSU Control from the adjacent menu.

The screen shows all Excalibur T-1 CSU and ISX 5300/2500 units defined in the database.

3. Position the cursor on the desired ISX unit and select Channel Map.

The CMS 400 begins reading the current channel mapping configuration from the selected unit. When it is finished, the DS1 Channel Map screen appears. (See Figure 3-9.) This screen shows the channel mapping for each of the unit's DS1 interfaces.



**Figure 3-9. Excalibur ISX 5300/2500 Channel Map Screen**

4. Select Edit.

You can now change the assignment of any DS1 channel as follows:

- To move from channel to channel, press [ENTER] or the up and down arrow keys.
- To scroll through each channel's possible assignments, press [TAB]. Possible selections are DTE1, DTE2, DS1A, DS1B, DS1C, or Free (not assigned). Possible channel selections for a DS1 are 1-24.

---

**Note:** On units with one DS1 interface, you can assign a DS1 channel to DTE 1 or DTE 2 only.

---

5. To change the assignments of a range of channels, press [F8].

A menu with the following options appears:

Free All – Allows you to free all channel assignments.

Select Range to Free – Allows you to specify a range of channels you want to free.

Select Range to Assign – Allows you to assign a range of channels on a DS1 to a specified component.

6. When all desired channel assignments are made, press [PGDN].

The CMS 400 then save the changes you made.

7. Select Write.

You have the following options:

- To write the channel mapping directly to the ISX unit, select Write To Unit.
- To write the channel mapping to a new ISX 5300/2500 Channel Map table, select Write To Table. Then select Create a New Strap Table, enter a unique name for the table, and press [PGDN].
- To write the channel mapping to an existing ISX 5300/2500 Channel Map table, select Write To Table. Then select Use An Existing Table, enter the table name, and press [PGDN].

## Configuring MD 332/334 Modems

To configure MD 332 and MD 334 modems with the CMS 400, you must use the MD 332/334 Control application. You cannot create strap tables for these modems in the same manner described earlier in this chapter.

To configure an MD 332/4 modem, you must:

1. Read current strap settings from a unit. This places the strap settings in an edit buffer.
2. Edit the strap settings in the buffer.
3. Write the edited strap settings to the unit. (You can also write the edited strap settings into a strap table.)

## Reading Straps from Unit

To read the current strap settings from a unit, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select MD332/334 Control from the adjacent menu.

The Select Unit by Criteria screen appears.

3. Enter unit information in the criteria fields. Then press [PGDN].

A graphic display of the MD 332/4 modem is displayed. (See Figure 3-10.)

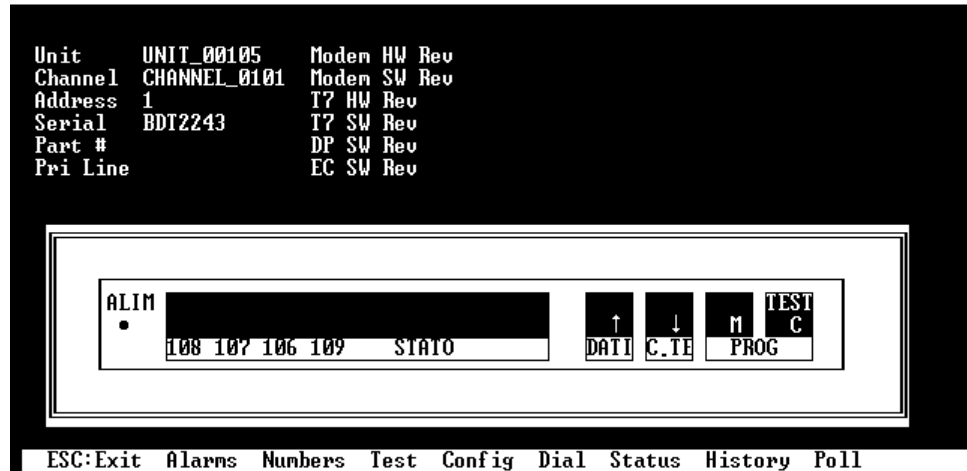


Figure 3-10. MD 332/334 Control Screen

4. Select Config.

The Configuration menu appears.

5. Select Read from Unit.

A list of the configuration items you can read appears.

6. Enter **Y** next to the items you want to read and **N** next to those you don't want to read. Then press [PGDN].

The CMS 400 then reads the specified straps from the unit.

## Editing Strap Settings

The next step is to edit the straps you just read.

1. From the Configure menu, select Edit Configuration.

A list of the parameter categories you can edit appears.

2. Select the category and press [PGDN].
3. Position the cursor on the strap(s) you want to change and press [TAB] to scroll through the possible settings.
4. Press [PGDN] to save your changes.

## Writing Straps to Units and Tables

After you've edited the straps to the settings you want, you can then write them to the unit. To do so, select **Write to Unit** from the **Configure** menu. The CMS 400 then sends the edited strap settings to the unit.

If you want to write the edited straps to a new or existing strap table, follow these steps:

1. Select **Write to Table**.
2. Select **Create A New Strap Table or Use An Existing Strap Table**.
3. At the prompt, enter the new or existing table name. Then press [PGDN].

The edited strap settings are then written into a new or existing strap table.

## Copying Profiles

The MD 332/4 modem allows you to save several sets of strap configurations, called profiles. Profiles allow you to quickly switch to an alternate configuration without having to restrap.

To copy one profile to another:

1. From the **Configure** menu, select **Copy Profile to Profile**.

You are prompted to select the profile to copy from and to. Possible options are **Factory Profile**, **User Profile 1**, **User Profile 2**, **User Profile 3**, or **Current Profile**.

2. Enter the desired profiles and press [PGDN].

## ISX5314CS Software Download Upgrade

The software download function allows you to upgrade the software on an ISX5314CS card without interrupting the operation of the card. After the new software has been sent to the target unit you can choose to reboot the target unit immediately so it starts running from the new software. Or you can choose to reboot the device at a later time. Both the main software and the DLK software can be downloaded at the same time.

An application called **ISX Upgrade** supports the software upgrades. From the **Define Users** application a privilege called **Excal/ISX T1/E1 CSU Upgrade** controls whether you have the privilege to execute ISX Upgrade. If logins are enabled on the hub a check is made to see if this privilege is enabled for the current user. If you do not have the appropriate privilege the message **Sorry! Insufficient Privilege** is displayed and the application does not execute.

The ISX upgrade application supports all ISX5312 and ISX5314 device types listed below (both standalone and central site units):

- ISX5312 Single T1
- ISX5312 Dual T1
- ISX5312 Single E1
- ISX5312 Dual E1
- ISX5314 Single T1
- ISX5314 Dual T1
- ISX5314 Single E1
- ISX5314 Dual E1

The **Excal ISX T1/E1 CSU Control** application supports spawning the ISX Upgrade application. A function called **Upgrade** can be selected from the top level view of the application (the view that appears when the application is first invoked). The legend has been broken up into two tiers and the Upgrade selection appears on the second tier.

The **ISX5010/ISX5005 Control** application supports spawning the ISX Upgrade application. A menu item called **ISX5314CS Software** is presented in the Upgrade function menu.

To do this:

1. Select Chassis View from the ISX5010/ISX5005 Control screen.
2. Select Versions from the chassis view.
3. Select Upgrade from the version screen, when a ISX5314CS card is present in the node.

The Complete Unit Upgrade menu causes the ISX Upgrade application to be spawned if there is an ISX5314CS card present in the node. In most cases ISX Upgrade is spawned after all of the ISX5010 cards are upgraded.

After you perform a software upgrade the unit type is validated to ensure that it is one of the following CMS 400 unit types:

- ISX5312 1T1/2DTE
- ISX5312 2T1/2DTE
- ISX5312 1E1/2DTE
- ISX5312 2E1/2DTE
- ISX5314 1T1/4DTE
- ISX5314 2T1/4DTE
- ISX5314 1E1/4DTE

- ISX5314 2E1/4DTE

---

**Note:** If the unit type is not one of the above the message Selected Unit Does Not Support This Function is displayed and the function is aborted.

---

The selected unit is polled to determine if it actually supports software upgrades. A jumper block is read that contains a bit which if set, indicates the unit supports software upgrades. If the bit is clear the unit does not support software upgrades. Backwards compatibility with existing product in the field is ensured because the jumper block and bit that indicate software upgrade support already exists and was previously unused. Older devices always report a value of 0 for this bit meaning they do not support software upgrades. If the target unit does not support software upgrades as indicated in the jumper block, the error message Selected Unit Does Not Support This Function is displayed and the function will be aborted.

If the target unit supports software upgrades the next screen that appears is a list of the valid download images found in the CMS 400 directory of the Hub. The download image files have a file extension of .LOD. A header and trailer within the file contains information about the software version of the file as well as the type of unit the file is for. Only those files that are found which are valid for the selected unit type are listed on the screen.

The following information is presented for each .LOD file listed:

- Filename
- Type (Main or DLK)
- Version
- Size
- Date
- Time

If no valid images are found for the target unit the error message No .LOD Files Found For Target Unit is displayed and the file list will be empty.

From the listing you can choose the file to download. The current selection is identified by a highlighted bar across a row. The up and down arrows on the keyboard can be used to move the bar to a different selection. The mouse can also be used to make a selection by moving the pointer to the desired row. If there are more than 18 files found the Page Up and Page Down keys can be used to page through the file listings.

To choose a file and proceed to the next screen do one of the following:

4. Press the enter key, click on the same row that is already highlighted and click on the Upgrade selection on the legend.

or

Press the letter U.

A find function allows you to further narrow down the file list if necessary. When you choose **Find**, a prompt appears allowing a filename to be entered. The file extension entered by you must be .LOD. If the file extension entered is not .LOD the error message File Extension Must Be .LOD is displayed and you are reprompted.

Wildcards are used to find multiple files such as: 2\_2\_\*.LOD

You can also find files located on another drive such as floppy drive A: A:2\_2\_\*.LOD

There are limitations on the use of the Find function due to limitations in the DOS calls being used to perform the file find. The function is not intended to provide a way to enter long path names to find files in any directory. Its main purpose is to find files in the local CMS 400 directory or in the root directory of a floppy drive. The total length of the filename including path cannot exceed 12 characters.

5. Choose the file to download.
6. Select the Upgrade function from the file list screen and the target unit is polled for its software versions.

The next screen that appears shows the following information:

- Unit name of target unit
- Main software revision
- DLK software revision
- Main pending software revision if any
- Filename of selected file to download
- Software revision of selected file

At this point you can choose:

- Continue with the upgrade
- Abort and return to the file list screen

If you choose to continue the next screen prompts for whether the T7 channel should be locked during the software download. Locking the channel prevents other applications from sending T7 commands on the channel while the download is in progress. Doing this helps improve the performance of the software download by minimizing the T7 traffic on the channel.

Three new T7 commands have been designed to support sending a software image to the ISX5314:

- Software Download command is used to send the file to the target unit one block at a time.

- Software Download Status command is used to status the target unit after a software download to determine if the unit successfully stored the software to flash and is able to boot from it the next time the unit is reset.
- The Software Download Abort command is used to properly abort an in progress software download.

Precautions are taken to ensure that a unit does not get left in a software download state. For example, an abort command is always sent to the target unit if the user decides to abort an upgrade. There are cases where a unit gets left in a software download state.

For example:

- Communication failure with the unit during a download.
- A CMS 400 Hub shutdown during an upgrade.

It is also possible that a legitimate software upgrade could already be in progress on the target unit should two users mistakenly try to upgrade the same unit.

To handle the cases in which a unit might already be in a software download state the first command sent to the target unit in preparation for the start of the download will be the Software Download Status command to determine if another software download is already in progress. If the device reports that another download is in progress you will be asked if the in progress download should be aborted in favor of starting a new download. If you choose to abort the in progress software download the abort command is sent to the target unit and a new session is started as explained below.

The download is started by sending the first block of the file to the target unit using the Software Download command. If the unit is able to start the download it accepts the first block as indicated in the CXS status field of the command reply.

Once the download starts a screen displays the following information:

- Filename of the file being downloaded
- Type of file being downloaded (Main or DLK)
- Software revision of the file being downloaded
- Size of the file being downloaded
- Unit name of target unit
- Bytes sent so far
- Percent complete

The bytes sent so far and the percent complete fields are updated approximately every 5 seconds.

The legend shows the following:

**ESCape: Abort Software Upgrade**

If the ESCape key is entered or if the legend is clicked using the mouse the message Activity Responding...Please Wait is displayed while the application finishes processing the current outstanding command. This is followed by the message Activity Terminated and then the message Aborting Software Upgrade while the abort command is being sent to the target unit. A final status screen appears with the status message Aborted by user appearing in the final status field. The legend shows the following:

**ESCape: Back To File List**

Until the escape key is pressed the screen continues to show the last status of the upgrade just prior to you aborting the operation. Once the escape key is pressed the application returns to the file list screen.

If a failure occurs during the upgrade the final status screen and legend appears as described above with one of the following error messages in the final status field:

**DOS file errors:**

- File not found
- Invalid file path
- No file handle available
- Access to file denied
- Invalid file access code
- Unable to read file

**T7 Communication errors:**

- Communication failure with unit
- Communication failure with EDM
- Communication failure with DDM

**Download errors reported by the unit:**

- Error, loader task not initialized
- Error, loader task locked by another task
- Error, system error
- Error, initial block of file not received
- Error, missing end of file marker
- Error, aborted by CMS
- Error, invalid embedded command
- Error, missing file header
- Error, invalid file ID header
- Error, CRC verify failed
- Error, aborted due to time-out
- Error, aborted from front panel

If the upgrade completes successfully the final status screen shows one of the following messages in the final status field:

- Ready, new DLK code successfully downloaded
- Ready, pending main code will run on reboot

On success the final status screen shows the following legend:

**ESCape:Back To File List Reboot Unit**

If you choose not to reboot the target unit the application will return to the file list screen.

To reboot the unit at a later time, so the unit can start running from the new software you will have to execute the **Initialize** application and choose the unit(s) to send the initialize command to.

If you choose to reboot the target unit the initialize command is sent to it. The unit executes the initialize command immediately and does not send a reply back to CMS. After the initialize command has been sent the application waits for 60 seconds to elapse allowing the unit to go through its boot up initialization. Then, CMS starts polling for the unit's software revisions. The unit is polled up to 3 times after the 60 second delay. During the 60 second delay a screen appears indicating that the application is delaying.

**ESCAPE: Abort Poll For Software Version**

If the escape key is entered or if the legend is clicked using the mouse the message Activity Terminated is displayed and the application returns to the file list screen. If the target unit fails to respond after the 60 second delay the message Target Device Does Not Respond will be displayed and the application returns to the file list screen. If the target unit responds to the poll for its software revisions the revisions are displayed along with the revision of the file that was downloaded. At this point you can verify whether the target unit is actually running from the new software. To return to the file list screen from here you will enter the escape key.

Events will be logged to the event log to indicate success or failure of a software upgrade as follows (class 9 codes 3 and 4 are used):

9.3 Unit Software Download Succeeded: type, version

9.4 Unit Software Download Failed: type, version

Type indicates the software type downloaded: main, DLK, and version indicates the software version.



# Chapter 4

## Monitoring

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### Overview

The CMS 400 provides extensive monitoring capabilities to help you verify network operation and detect problems. This chapter explains how to:

- Monitor unit EIA signal status
- Monitor unit analog signal levels
- Monitor multiplexer status
- Monitor ALM/RMD modem status
- Monitor CMS DCU status
- Monitor RMTS MK II status
- Monitor Excalibur DAP statistics
- Monitor ALM/RMD modem statistics
- Monitor Excalibur T-1 CSU/ISX 5300 statistics
- Monitor unit alarms
- Use serial number scanning

### Monitoring EIA Signal Status

The CMS 400 allows you to monitor the EIA signal status of your modems and digital access products. It displays the status of 14 different EIA interface signals plus the unit's operating speed. Monitoring a unit's EIA signal status can help you detect problems and troubleshoot your system.

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**Note:** Do not use this procedure to monitor the EIA signal status of a multiplexer. Instead, follow the procedure described in "Monitoring Multiplexers" later in this chapter.

---

To monitor EIA signals, follow these steps from the CMS main window:

1. Select Monitor from the Commands menu.

2. Select Monitor EIA from the adjacent menu.

The Select Unit By Criteria screen is displayed.

3. Enter information to specify the unit(s) you want to monitor and press [PGDN].

If a single unit is specified, two prompts appear:

Include Units Immediately Downstream – Allows you to monitor an entire tier if downstream units exist. If the selected unit is a remote, a connected head-of-tail unit is included. Enter **Y** or **N**.

Monitor Ports on Selected Unit – Allows you to monitor a specific port (or all ports) on multiport units. Enter the port number you want to monitor.

The Monitor EIA screen appears, showing a continuously updated, scrolling display of EIA signal statuses for the selected unit(s). (See Figure 4-1).

---

**Note:** You can also activate Monitor EIA using Network Map. Select the unit you want to monitor and select MON from the second option line. Note that you are not prompted to include downstream units when activating Monitor EIA this way.

---

Time	Address	Speed	TxD		CTS		RxC		DCD	DSR		DBU	ALB
			TxC	RTS	DTR	RxD	SQL	DTE		DLB			
16:42:03	2	9600	T	.	.	.	T	*	T	T	T	T	.
16:42:12	51	9600	.	T	.	.	.	T	.	T	.	T	.
16:42:20	2	9600	T	.	.	.	T	.	T	T	T	T	.
16:42:27	51	9600	.	T	.	.	.	T	.	T	.	T	.
16:42:35	2	9600	T	.	.	.	T	.	T	T	T	T	.
16:42:42	51	9600	.	T	.	.	.	T	.	T	.	T	.
16:42:51	2	9600	T	.	.	.	T	.	T	T	T	T	.
16:42:57	51	9600	.	T	.	.	.	T	.	T	.	T	.

ESC: Previous Screen      Tab: Show Unit Name / Address      Space: Pause  
 Activity In Progress

Figure 4-1. Monitor EIA Screen

Table 4-1 defines each field in the display.

**Table 4-1. Monitor EIA Field Descriptions**

<b>Field</b>	<b>Description</b>														
Time	Indicates the time the unit was monitored.														
Address	Identifies the unit address.														
Speed	Indicates the unit's current operating speed.														
Signals	<p>Indicates the status of the following EIA signals:</p> <table> <tbody> <tr> <td>TxC (Transmit Clock)</td> <td>DCD (Data Carrier Detect)</td> </tr> <tr> <td>TxD (Transmit Data)</td> <td>SQL (Signal Quality)</td> </tr> <tr> <td>RTS (Request-to-Send)</td> <td>DSR (Data Set Ready)</td> </tr> <tr> <td>CTS (Clear-to-Send)</td> <td>DTE (DTE Power)</td> </tr> <tr> <td>DTR (Data Terminal Ready)</td> <td>DBU (Dial Backup)*</td> </tr> <tr> <td>RxC (Receive Clock)</td> <td>DLB (DTE Loopback)</td> </tr> <tr> <td>RxD (Receive Data)</td> <td>ALB (Analog Loopback)</td> </tr> </tbody> </table> <p>Possible status indications are T (true or on), • (false or off), and * (in transition).</p>	TxC (Transmit Clock)	DCD (Data Carrier Detect)	TxD (Transmit Data)	SQL (Signal Quality)	RTS (Request-to-Send)	DSR (Data Set Ready)	CTS (Clear-to-Send)	DTE (DTE Power)	DTR (Data Terminal Ready)	DBU (Dial Backup)*	RxC (Receive Clock)	DLB (DTE Loopback)	RxD (Receive Data)	ALB (Analog Loopback)
TxC (Transmit Clock)	DCD (Data Carrier Detect)														
TxD (Transmit Data)	SQL (Signal Quality)														
RTS (Request-to-Send)	DSR (Data Set Ready)														
CTS (Clear-to-Send)	DTE (DTE Power)														
DTR (Data Terminal Ready)	DBU (Dial Backup)*														
RxC (Receive Clock)	DLB (DTE Loopback)														
RxD (Receive Data)	ALB (Analog Loopback)														

## Monitoring Analog Levels

The CMS 400 allows you to monitor the analog signal levels of leased access products that support analog parameter monitoring. This feature gives you real-time measurements that are continuously updated.

To monitor analog levels, follow these steps from the CMS main window:

1. Select Monitor from the Commands menu.
2. Select Monitor Analog from the adjacent menu.

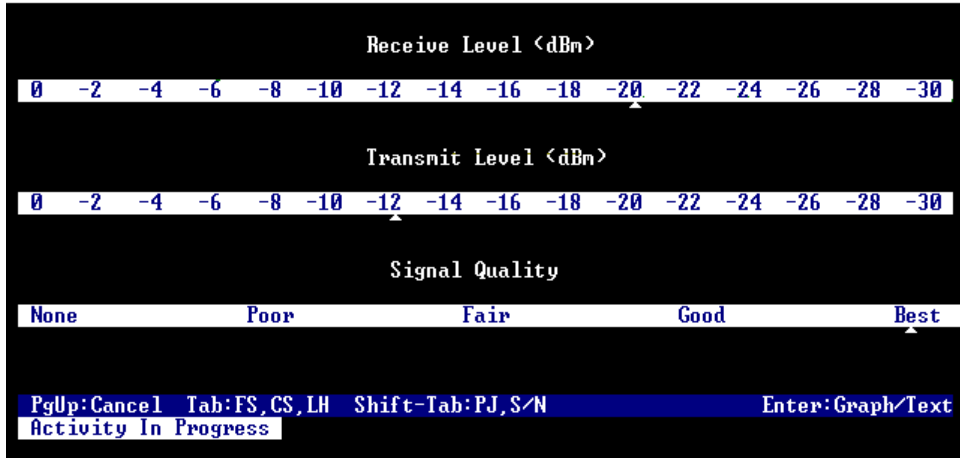
The Select Unit By Criteria screen is displayed.

3. Enter information to specify the unit(s) you want to monitor and press [PGDN].

If a single unit is specified, the following prompt appears:

Include Units Immediately Downstream – Allows you to monitor an entire tier if downstream units exist. If the selected unit is a remote, a connected head-of-tail unit is included. Enter **Y** or **N**.

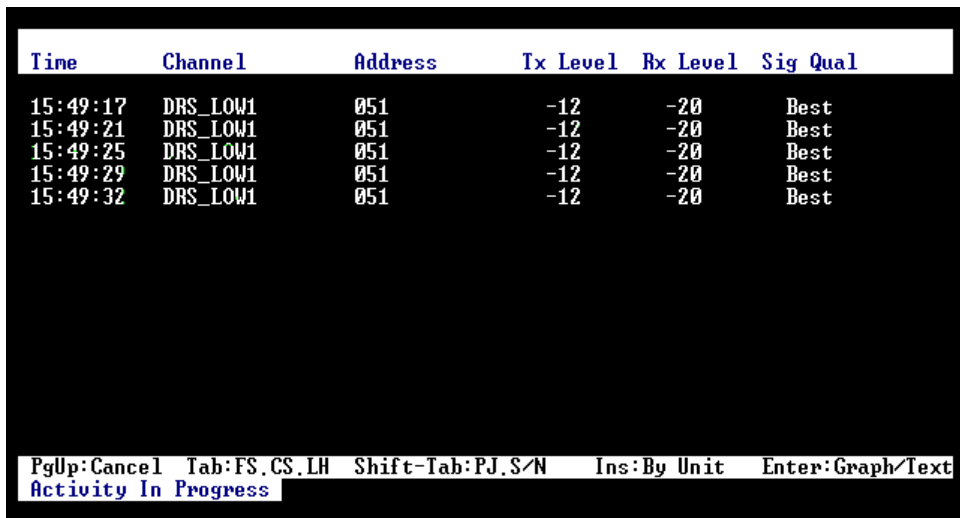
The first Monitor Analog screen appears, showing the receive level, transmit level, and signal quality. If you selected one unit to monitor, the graphic display appears. (See Figure 4-2.) An arrow indicates the current level, which is updated every few seconds. The graphs indicate the user-defined acceptable range in green, the unacceptable range in red. (If you selected multiple units to monitor, the screen shows a text display.)



**Figure 4-2. Monitor Analog Screen – Graphic Format**

4. To toggle between the graphic display and the text display, press [ENTER].

The text display appears. (See Figure 4-3.)



**Figure 4-3. Monitor Analog Screen – Text Format**

5. To display the second Monitor Analog screen, press [TAB]. This screen shows the frequency shift, clock slew, and line hits.

To display the third Monitor Analog screen, press [SHIFT] [TAB]. This screen shows the phase jitter and signal-to-noise ratio.

---

**Note:** Certain products, such as the Excalibur DAPs, only support the monitoring of transmit level, receive level, and signal quality.

---

6. To exit, press [PGUP].

## Monitoring Multiplexers

The CMS 400 allows you to monitor the operating status of statistical and TDM multiplexers. You can monitor the EIA signal status of each port and aggregate interface. You can also display port, aggregate link, and integral modem statistics.

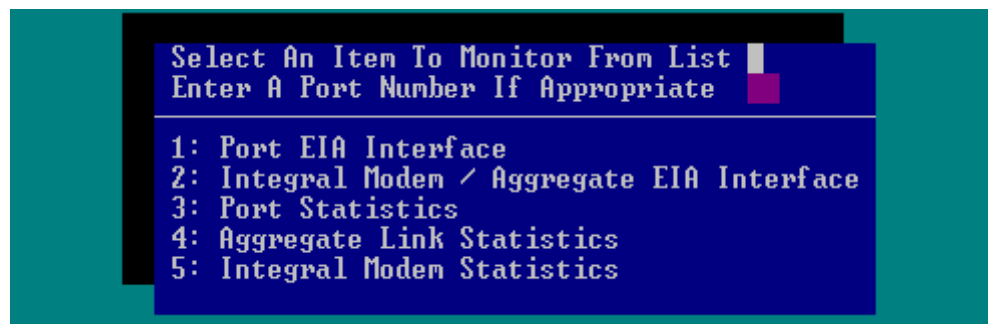
To monitor a multiplexer, follow these steps from the CMS main window:

1. Select Monitor from the Commands menu.
2. Select Monitor Multiplexer from the adjacent menu.

The Select Unit by Criteria screen appears.

3. Enter information to identify the multiplexer you want to monitor and press [PGDN].

The Monitor Multiplexer menu is displayed. (See Figure 4-4.)



**Figure 4-4. Monitor Multiplexer Menu**

4. Enter the number corresponding to the item you want to monitor. If you select 1 or 3, you must also enter a port number (1-32). Then press [PGDN].
  - If you selected 1, the EIA signal status of the selected port appears. (See Figure 4-5.) Possible status indications are T (true or on), • (false or off), and \* (in transition).
  - If you selected 2, the EIA signal status of the integral modem or one or both aggregate interfaces appears.
  - If you selected 3, the accumulated statistics for the selected port and other ports on the same board appear. (See Figure 4-6.) Press [PGDN] if you want to reset the statistics. Press the up or down arrow to display statistics for the next or previous board.
  - If you selected 4, the accumulated aggregate link statistics appear. Press [PGDN] if you want to reset the statistics.
  - If you selected 5, the accumulated integral modem statistics appear. Press [PGDN] if you want to reset the statistics.

See the particular multiplexer manual for more information about the displayed statistics.

Multiplexer EIA Interface For Channel XCAL_192_MUX Unit 1 Port 1								
Time	Busy	RTS	DTR	FC	RI	DCD	DSR	CTS
09:52:15	.	.	.	.	.	T	T	.
09:52:16	.	.	.	.	.	T	T	.
09:52:22	.	.	.	.	.	T	T	.
09:52:24	.	.	.	.	.	T	T	.
09:52:27	.	.	.	.	.	T	T	.
09:52:30	.	.	.	.	.	T	T	.
09:52:33	.	.	.	.	.	T	T	.

Any Key: Cancel

Activity In Progress

**Figure 4-5. Multiplexer Port EIA Signal Status Screen**

Monitor Multiplexer Port Statistics				
Port Number	Percent Of Channel Utilization	Number Of Flow Controls	Input Buffer Overflows	Peak Channel Utilization
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0

PgDn: Repoll PgUp: Cancel Down Arrow: Next Board Up Arrow: Prior Board

Figure 4-6. Multiplexer Port Statistics Screen

## Monitoring ALM/RMD Modems

The CMS 400 allows you to obtain detailed status information about ALM and RMD series standalone modems. You can monitor the active EIA signals, operating speed, transmit and receive levels, signal quality, and a variety of performance statistics.

To monitor ALM/RMD modem status, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select RMD3222/ALM Control from the adjacent menu.
3. Select Monitor Unit.

The Select Unit By Criteria menu is displayed.

4. Enter information to specify the unit you want to monitor and press [PGDN].

If the selected unit is a central, you are prompted to include the remote as well. Enter **Y** or **N**, and press [PGDN].

If you enter **Y**, another Select Unit By Criteria menu is displayed. Enter information to specify the remote unit you want to monitor.

The screen then displays the current status of the selected unit(s). (See Figure 4-7.) For information on the different status fields, refer to the appropriate modem manual.

	<b>Central</b>	<b>Remote</b>
Time	10:25:31	
Unit Name	UNIT_00088	
Throughput	0	
Packet Errors	0	
Packet Size	0	
Packets Sent	0	
Echo In msec	0	
Echo In Hz	0.0	
Freq Offset In Hz	0	
Speed	idle	
Rate	38400	
Mode	Offline	
Tx Level In dBm	9	
Rx Level In dBm	<DCD	
Signal Quality	0	
Signals Active	CTS DSR DTR	

Figure 4-7. Unit Status Screen

## Monitoring CMS DCU

The CMS 400 allows you to monitor the current operating status of a CMS DCU. You can monitor the following status items for each port: mask on/off, RTS activity, streaming, and DTE power.

To monitor CMS DCU status, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select DCU Control from the adjacent menu.

The Select Unit By Criteria menu is displayed.

3. Enter information to specify the unit you want to monitor and press [PGDN].
4. Select Display Status.

The DCU Status screen appears. (See Figure 4-8.)

DCU Status For Channel DCUA_P07		Unit 51		
Port	Masked Off	RTS Active	Streaming	DTE Power
1	N	N	N	N
2				
3				
4				
5				
6				
7				
8				

Figure 4-8. DCU Status Screen



## Defining Statistics Interval

The DAPs can store up to 24 intervals of line statistics. You can set the statistics gathering interval from 1 minute to 99 days. The default interval is 1 hour.

To define the statistics gathering interval, follow these steps from the CMS main window:

1. Select Monitor from the Commands menu.
2. Select Request Statistics from the adjacent menu.
3. Select Excalibur DAP/BRI2000.

The Statistics Operations menu appears.

4. Select Set Parameters.

The Select Unit By Criteria screen appears.

5. Enter information to specify the DAP and press [PGDN].

The CMS 400 displays the unit's current statistics interval.

6. Enter the desired interval and press [PGDN].

---

**Note:** Changing the statistics interval clears all stored statistics and starts a new statistics interval.

---

## Retrieving Statistics from Unit

The CMS 400 allows you to retrieve a DAP's stored line quality statistics for displaying and/or storing in a file. To do so, select Fetch Statistics From Unit from the Statistics Operations menu.

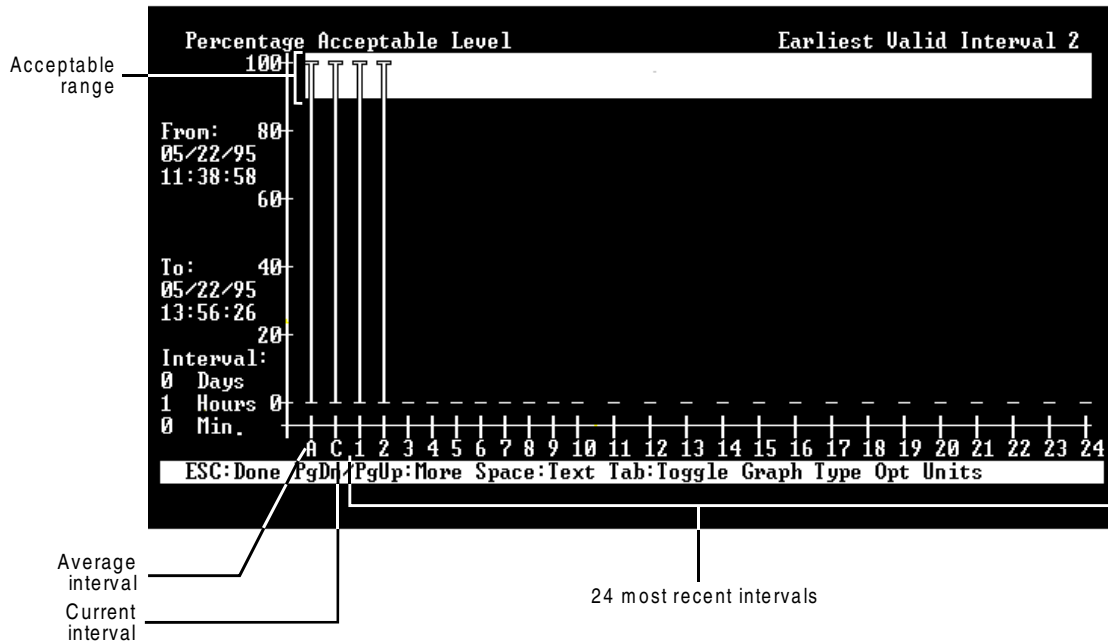
The CMS 400 retrieves the statistics from the unit. When it is finished, it displays Press any key to continue.

## Displaying Retrieved Statistics

To display the statistics you retrieved:

1. From the Statistics Operations menu, select Display Statistics.

The CMS 400 displays the retrieved statistics in a graphic format. (See Figure 4-10.) The shaded area spanning the top of the display indicates the user-defined acceptable range for the statistic. The numbers across the bottom indicate the interval number. The letter A represents the average value of all intervals. The letter C represents the current incomplete interval.



**Figure 4-10. Excalibur DAP Statistics Display – Graphic Format**

2. While viewing statistics, you have the following options:

- To view the next statistic screen, press [PGDN].
- To view the previous statistic screen, press [PGUP].
- To toggle between the graphic display and a text display, press the space bar. Figure 4-11 shows the text display.
- To toggle between graph types in the graphic display (vertical bar or asterisk), press [TAB].
- To toggle between text formats in the text display (percentage of availability or seconds of unavailability), press [TAB].
- To change the thresholds that define the acceptable range displayed on the screen, select Opt. You can set the percentage threshold from 0 to 100 and the error count threshold from 0 to 300. You can also enable or disable the thresholds.

- To display all units from which the statistics were gathered, select Units.
3. When you are done viewing the statistics, press [ESC].

Seconds Condition Was Active		Interval 0 days 1 hrs 0 min			
From 05/22/95 10:12:49		To 05/22/95 10:29:41			
		Earliest Valid Interval 0			
Level	DDS	Signal	Level	DDS	Signal
Avg	0	0	12	0	0
Now	0	0	13	0	0
1	0	0	14	0	0
2	0	0	15	0	0
3	0	0	16	0	0
4	0	0	17	0	0
5	0	0	18	0	0
6	0	0	19	0	0
7	0	0	20	0	0
8	0	0	21	0	0
9	0	0	22	0	0
10	0	0	23	0	0
11	0	0	24	0	0

ESC: Done PgDn/PgUp: More Space: Graph Tab: Toggle Percentages/Seconds Units

Figure 4-11. Excalibur DAP Statistics Display – Text Format

## Storing Statistics to File

The CMS 400 allows you to store the statistics you retrieved in a statistics file. You can then view the stored statistics at a later date to analyze your digital line quality.

To store the retrieved statistics, select **Store Results to File** from the **Statistics Operations** menu. When the statistics are stored, the screen displays **Activity Completed**.

## Displaying Stored Statistics

To display the statistics stored in the statistics file:

1. From the **Statistics Operations** menu, select **Fetch Results From File**.

A screen appears showing the total number of statistics entries and allowing you to select the entries you want to see.

2. If desired, enter criteria specifying the entries you want to see. You can specify a starting number, date and/or time range, or a specific central or remote unit. If you leave these fields blank, you will see all stored statistics. Then press [PGDN].

The screen displays the first statistics entry number along with the date and time it occurred.

3. To view the statistics entry, press [ENTER].

The screen displays the statistics in a graphic format. You can now view these statistics in the same manner described in “Displaying Retrieved Statistics.”

## Deleting Statistics File

To delete the statistics file, select **Delete Result File** from the Statistics Operations menu. A warning appears alerting you that all statistics entries will be deleted. If you are certain you want to delete the file, enter **Y**.

## Resetting Unit Statistics

To reset a unit’s stored statistics, select **Reset Statistics** from the Statistics Operations menu. The selected unit then starts a new statistics interval.

## Modifying Excalibur DAP Poll Table

The CMS 400 allows you to add or remove remote units from a central Excalibur DAP’s multidrop poll table. This table contains the T7 addresses of all remote drops to be polled. Changes to the poll table cause the central DAP to resynchronize the circuit using the unit addresses in the new table.

---

**Note:** This feature is available only for Excalibur DAPs with Phase 3 firmware.

---

To modify a DAP poll table:

1. From the Statistics Operations menu, select **Manage Poll Table**.

The Manage Poll Table screen appears. (See Figure 4-12.) This table contains boxes representing the 255 possible T7 addresses. The letter in the box indicates whether the associated address is polled. When the table first appears, all boxes are set to N (not polled).

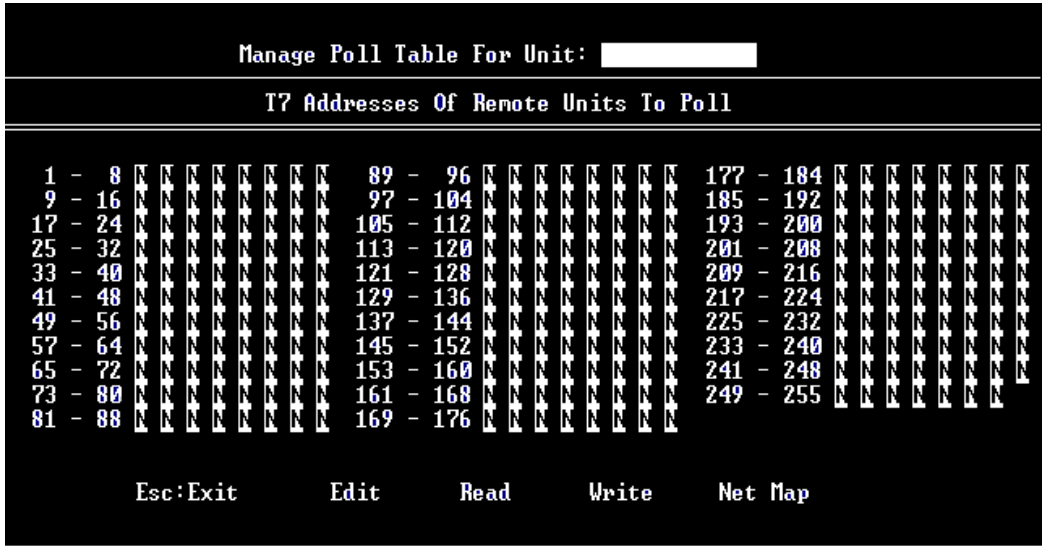


Figure 4-12. Manage Poll Table Screen

2. Select Read.

The Select Unit By Criteria screen appears.

3. Enter information to specify the unit you want to read from. Then press [PGDN].

---

**Note:** The unit you select must be defined in the database as a central. If you select a remote unit, an error message appears.

---

The CMS 400 then reads the current poll table from the selected unit. When it is finished, it updates the screen.

4. Select Edit.

You can now add or delete a unit address from the poll table as follows:

- To add a unit address to the table, enter **Y** in the appropriate box.
- To delete a unit address from the table, enter **N** in the appropriate box.
- To move from box to box, press [ENTER] or the up and down arrow keys.

5. When all changes are made, press [PGDN].

The CMS 400 then saves the changes you made.

6. Select Write.

The Select Unit By Criteria screen appears.

7. Enter information to specify the unit you want to write to. Then press [PGDN].

The CMS 400 then sends the updated poll table to the selected unit.

## Monitoring ALM/RMD Modem Statistics

The CMS 400 automatically collects statistics from standalone ALM and RMD series modems and stores them in a statistics file (STAT3222.DAT). (The unit must have Fetch Statistics enabled in its unit record; print is not a valid option.)

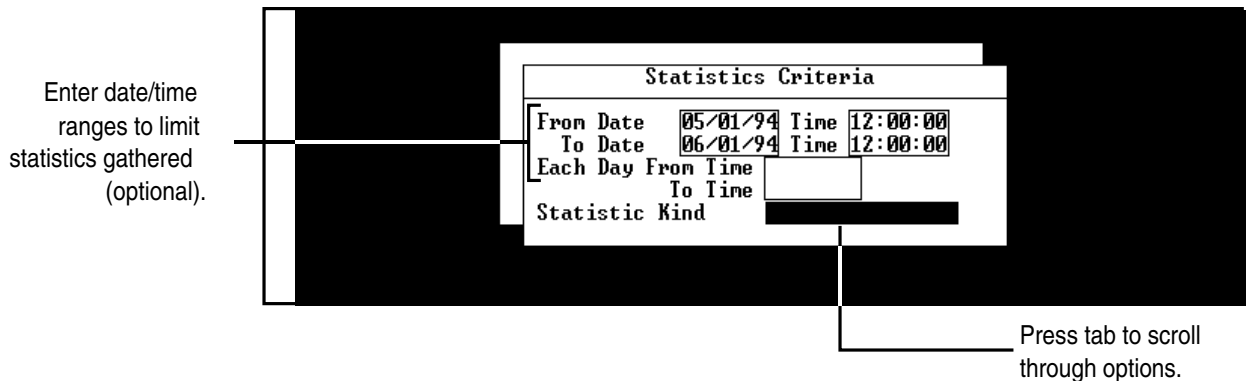
To display or print these statistics, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select RMD3222/ALM Control from the adjacent menu.
3. Select Display Statistics.

The Select Unit By Criteria menu is displayed.

4. Enter information to specify one or more units that you want to obtain statistics for, and press [PGDN].

The Statistics Criteria screen is displayed. (See Figure 4-13.)



**Figure 4-13. Statistics Criteria Screen**

5. If you want to specify date and/or time ranges for the statistics retrieved, type those dates and/or times in the From Date, To Date, and Time fields.
6. If you want to specify daily time ranges for the statistics retrieved, type those times in the Each Day From Time and To Time fields.

- If you want to obtain only a certain kind of statistic, enter the type in the Statistic Kind field. Press [TAB] to scroll through the options: Test Complete, Call, Timed Update, and Incomplete Call.

---

**Note:** Steps 5-7 are optional. If you leave the fields blank, the CMS 400 will retrieve all filed statistics.

---

- Press [PGDN].

You are prompted to select where you want the statistics sent.

- Select one of the following options: None (cancels operation), Screen, Hub Printer, Station Printer, or Disk File.

If you select Disk File, you must then enter a file name with an .REP extension.

---

**Note:** If you choose to send statistics to a file, you can view them using the File Report function. See Chapter 6 in the *CMS 400 User's Guide* for instructions.

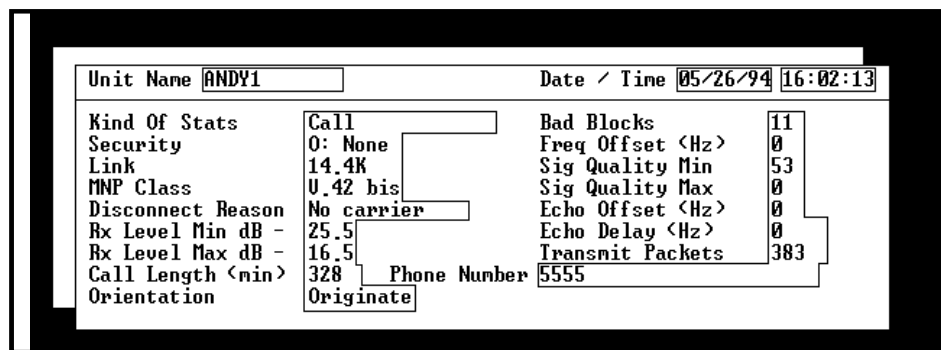
---

- Press [PGDN].

The CMS 400 then searches the statistics file for statistics that meet the specified unit, date, and time criteria. When it finds a statistic that meets the criteria, it sends it to the screen, printer, or designated file.

The statistics displays are different for different types of statistics. Figure 4-14 shows a typical Call statistics display.

- To continue searching the file for more statistics, press [PGDN].



**Figure 4-14. Typical Call Statistics Display**

## Monitoring T-1 CSU and ISX 5300/2500 Statistics

The Excalibur T-1 CSU and ISX 5300/2500 series units have an ESF Diagnostic Monitoring feature that allows you to monitor T-1 circuit performance without interrupting normal operation. The CMS 400 allows you to view the local, telco, and network error statistics for the current 15-minute interval and for the last 24 hours of 15-minute intervals.

---

**Note:** See the Excalibur T-1 CSU or ISX 5300/2500 manual for more detailed information on the statistics you can monitor.

---

### Displaying Unit Statistics

To retrieve and display Excalibur T-1 CSU or ISX 5300/2500 statistics, follow these steps from the CMS main window:

1. Select Monitor from the Commands menu.
2. Select Request Statistics from the adjacent menu.
3. Select Multiplexers/CSU.

The Statistics Operations menu appears.

4. Select Fetch From Unit and Display.

The Select Unit By Criteria screen appears.

5. Enter information to specify the unit you want statistics from. Then press [PGDN].

The following prompt appears:



```
Retrieve The Local Statistics From DS1 A
Retrieve And Save To Result File First Y
```

6. Enter the type of statistics you want to retrieve (local, telco, or network) and the DS1 interface you want them from. If you want to save the statistics in a file, enter **Y** at the last prompt.
7. Press [PGDN].

The CMS 400 displays the selected statistics. Figure 4-15 shows a typical statistics display.

Time	COFA	CRC6	ES	UAS	SES	BES	LOFC	CSS	BPU	FBE
Past 24 Hrs	0	0	0	0	0	0	0	0	0	0
This 15 Min	0	0	0	0	0	0	0	0	0	0
00H 15M Ago	0	0	0	0	0	0	0	0	0	0
00H 30M Ago	0	0	0	0	0	0	0	0	0	0
00H 45M Ago	0	0	0	0	0	0	0	0	0	0
01H 00M Ago	0	0	0	0	0	0	0	0	0	0
01H 15M Ago	0	0	0	0	0	0	0	0	0	0
01H 30M Ago	0	0	0	0	0	0	0	0	0	0
01H 45M Ago	0	0	0	0	0	0	0	0	0	0
02H 00M Ago	0	0	0	0	0	0	0	0	0	0
02H 15M Ago	0	0	0	0	0	0	0	0	0	0
02H 30M Ago	0	0	0	0	0	0	0	0	0	0
02H 45M Ago	0	0	0	0	0	0	0	0	0	0
03H 00M Ago	0	0	0	0	0	0	0	0	0	0
03H 15M Ago	0	0	0	0	0	0	0	0	0	0
03H 30M Ago	0	0	0	0	0	0	0	0	0	0

Viewing Telco Statistics For DS1 A Fetched On 06/21/95 At 13:43:28  
 ESC: Cancel PgUp: Previous Page PgDn: Next Page

Figure 4-15. Excalibur T-1 CSU and ISX 5300/2500 Statistics Display

8. While viewing the statistics screen, you have the following options:
  - To view the next statistic screen, press [PGDN].
  - To view the previous statistic screen, press [PGUP].
  - To exit the display, press [ESC].

## Storing Statistics in a File

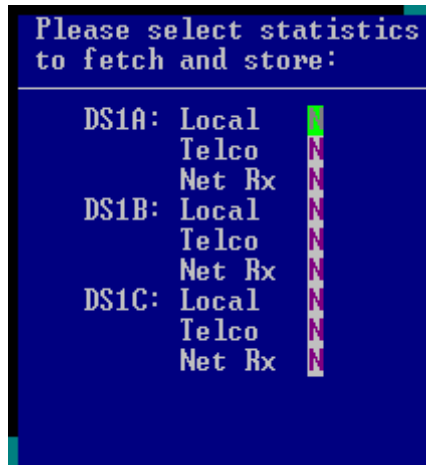
The CMS 400 allows you to retrieve several types of statistics from several DS1 interfaces and store them as one entry in the statistics file.

1. From the Statistics Operations menu, select Fetch from Unit and Store to File.

The Select Unit By Criteria screen appears.

2. Enter information to specify the unit you want statistics from. Then press [PGDN].

The following prompt appears:



3. Enter **Y** next to each type of statistic you want to retrieve and store.

The CMS 400 then retrieves the selected statistics and stores them in the statistics file.

## Displaying Filed Statistics

To display statistics stored in the statistics file:

1. From the Statistics Operations menu, select Fetch from File and Display.

A screen appears showing the total number of statistics entries and allowing you to select the entries you want to see.

2. If desired, enter criteria specifying the entries you want to see. You can specify a starting number, date and/or time range, or a specific central or remote unit. If you leave these fields blank, you will see all stored statistics entries. Then press [PGDN].

The screen displays the first statistics entry number along with the date and time it occurred.

3. To view the statistics entry, press [ENTER].

## Deleting Statistics File

To delete the statistics file, select Delete Result File from the Statistics Operations menu. A warning appears alerting you that all statistics entries will be deleted. If you are certain you want to delete the file, enter **Y**.

## Resetting Unit Statistics

To reset a unit's stored statistics, select **Reset Statistics in Unit** from the **Statistics Operations** menu. The selected unit then starts a new statistics interval.

## Monitor Multiplexer

The CMS 400 allows you to monitor the operating status of ISX 5005/5010 trunks and ports.

## Monitoring a Trunk

This procedure allows you to monitor trunk status.

1. Display the chassis as previously described.
2. Select Trunks.

The status of trunk 1 is displayed. (See Figure 3-3.) To select a different trunk, press [TAB] or 1, 2, 3, 4.

This screen displays detailed status information for the selected trunk. Refer to the appropriate ISX multiplexer manual for explanations of these status conditions.

3. Select Interface.

The screen displays the EIA signal status for the selected trunk. (See Figure 4-16.) Table 3-1 defines the fields in the display.

Access Mux Control: Unit acc\_mux\_1

Status Of Trunk 1 : Bristol      At 14:27:45

Trunk Mo Trunk St Supervis	Time	Trunk	Primary				Alternate							
			RTS	DTR	CTS	DCD	C	I	RTS	DTR	CTS	DCD	C	I
Current	14:28:56	3	.	T	.	T	.	.	.	.	.	.	.	.
Rx Packe	14:28:58	4	.	T	.	T	.	.	.	.	.	.	.	.
Tx Packe	14:29:00	1	.	T	.	T	.	.	.	.	.	.	.	.
Trunk Re	14:29:02	2	.	T	.	T	.	.	.	.	.	.	.	.
Test Sta	14:29:04	3	.	T	.	T	.	.	.	.	.	.	.	.
ISDN Sta	14:29:06	4	.	T	.	T	.	.	.	.	.	.	.	.
ISDN Cal	14:29:08	1	.	T	.	T	.	.	.	.	.	.	.	.
Last CLI	14:29:10	2	.	T	.	T	.	.	.	.	.	.	.	.
DLC Restor	14:29:12	3	.	T	.	T	.	.	.	.	.	.	.	.
Alternate	14:29:14	4	.	T	.	T	.	.	.	.	.	.	.	.
DLC No Clock	14:29:16	1	.	T	.	T	.	.	.	.	.	.	.	.

Any Key:Cancel

Figure 4-16. ISX 5010 Trunk EIA Status Screen

Table 4-2. ISX 5010 Trunk EIA Status Field Descriptions

Field	Description
Time	Indicates the time that the unit was monitored.
Trunks	Identifies the trunk(s) being monitored.
Primary and Alternate Signals	<p>The following signals are marked "T" for True, "." for False, and "*" for In Transition:</p> <p>RTS/C (Request To Send/Control*)      DTR (Data Terminal Ready)</p> <p>CTS/I (Clear To Send/Indicate*)      DCD (Data Carrier Detect)</p> <p>DSR (Data Set Ready)      DSRI (Data Set Ready Interface)</p> <p>TxD (Transmit Data)      RxD (Receive Data)</p> <p>TxC (Transmit Clock)      RxC (Receive Clock)</p> <p>DSR (Data Set Ready Signal)</p>

\* The Control and Indicate signals are valid for X.21 only.

## Monitoring a Port

This procedure allows you to view a port's EIA signal status.

1. Display the chassis as previously described.
2. Position the cursor on the card slot and select Zoom.

The port level screen is displayed.

3. Select Interface.

The screen displays the EIA signal status for the selected port. If you selected a data card port, the screen appears as shown in Figure 3-6. Table 3-2 defines the fields in the display.

If you selected a voice or LBRV card port, the screen appears as shown in Figure 4-17. Table 4-4 defines the fields in the display.

Access Mux Control: Unit acc_mux_1															
Status Of Card 3 : Data Card												At 13:17:15			
Time	Port	C	I	RTS	CTS	DTR	DSRS	DCD	CTS	DSR	DSRI	TxD	RxD	TxC	RxC
13:19:09	7	.	.	.	I	.	I	.	I	.	I	*	*	*	*
13:19:11	8	.	.	.	I	.	I	.	I	.	I	*	*	*	*
13:19:13	1	.	.	.	I	.	I	.	I	.	I	*	*	*	*
13:19:15	2	.	.	.	I	.	I	.	I	.	I	*	*	*	*
13:19:17	3	.	.	.	I	.	I	.	I	.	I	*	*	*	*
13:19:19	4	.	.	.	I	.	I	.	I	.	I	*	*	*	*
13:19:21	5	.	.	.	I	.	I	.	I	.	I	*	*	*	*
13:19:23	6	.	.	.	I	.	I	.	I	.	I	*	*	*	*
13:19:25	7	.	.	.	I	.	I	.	I	.	I	*	*	*	*
13:19:27	8	.	.	.	I	.	I	.	I	.	I	*	*	*	*
13:19:29	1	.	.	.	I	.	I	.	I	.	I	*	*	*	*

Any Key:Cancel

Figure 4-17. ISX 5010 Data Card Port EIA Status Screen

Table 4-3. ISX 5010 Data Card Port EIA Status Field Descriptions

Field	Description
Time	Indicates the time that the unit was monitored.
Data Card Port	Identifies the data card port being monitored.

**Table 4-4. ISX 5010 Data Card Port EIA Status Field Descriptions (Continued)**

Field	Description
Signals	The following signals are marked "T" for True, "•" for False, and "*" for In Transition:
RTS (Request To Send)	CTSI (Clear To Send Interface)
DTR (Data Terminal Ready)	DSRS (Data Set Ready Signal)
DCD (Data Carrier Detect)	CTS (Clear To Send)
DSR (Data Set Ready)	DSRI (Data Set Ready Interface)
TxD (Transmit Data)	RxD (Receive Data)
TxC (Transmit Clock)	RxC (Receive Clock)
C (Control; valid for X.21 only)	I (Indicate; valid for X.21 only)

Access Mux Control: Unit ISX5010 1

Status Of Card 3 : LBRU Card      At 08:28:51

Status	Time	Port	E-Lead	M-Lead	Last-Digit	Error
1 Connecte	08:29:03	2	OFFHOOK	onhook	3	p 0
2 Connecte	08:29:05	1	OFFHOOK	onhook	3	p 0
3	08:29:07	2	OFFHOOK	onhook	3	
4						
5	08:29:09	1	OFFHOOK	onhook	3	
6	08:29:11	2	OFFHOOK	onhook	3	
7						
8	08:29:13	1	OFFHOOK	onhook	3	
	08:29:15	2	OFFHOOK	onhook	3	
	08:29:17	1	OFFHOOK	onhook	3	
	08:29:19	2	OFFHOOK	onhook	3	

Any Key:Cancel

**Figure 4-18. ISX 5010 Voice/LBRV Card Port Signals**

**Table 4-5. ISX 5010 Voice/LBRV Card Port Signal Field Descriptions**

Field	Description
Time	Indicates the time that the unit was monitored.
Port	Identifies the Voice or LBRV card port being monitored.
E-Lead	Indicates the status of the E (ear) lead: on-hook or off-hook.
M-lead	Indicates the status of the M (mouth) lead: on-hook or off-hook.
Last Digit	Identifies the last digit of the Voice or LBRV Card being monitored.

## Displaying Stored Alarms

Most leased access products alert you to irregular conditions by issuing alarms. The CMS 400 displays these alarms as they occur. It then stores them in an alarm queue, with the most recent one last. Many leased access products also contain an alarm buffer that stores alarms issued by that unit.

The CMS 400 Display Alarms function (under the Monitor menu) allows you to view alarms stored in the CMS 400 alarm queue. The Request Alarms function allows you to view alarms stored in the unit's alarm buffer. See Chapter 6 in the *CMS 400 Reference Manual* for instructions about using these functions.

## Adding and Modifying Alarm Definitions

To add or modify alarm definitions, follow these steps:

1. Select Define Alarms from the Database menu.

A list of the current alarm definitions appears.

2. To add a new alarm definition, select Add.

To modify an existing alarm definition, use  $\uparrow$  or  $\downarrow$  to highlight the desired definition, and select Modify.

The Define Alarms screen appears.

3. Enter the following information for each alarm:

**Alarm Type** - Enter the desired alarm's 3-letter abbreviation. You can press Tab to scroll through all possible alarms.

**Unit Criteria** - Enter any of the following criteria to limit the scope of the alarm definition: Unit Type, Unit Name, Protocol, Channel, or Group.

**Alarm Actions** - Specify the action you want the CMS 400 to take when it receives the specified alarm type. The selectable actions depend on the alarm type and unit type specified:

- **Alarm to Cancel** - Selectable for all alarm and unit types. Enter the 3-letter abbreviation of the alarm type you want the CMS 400 to cancel. You can also select All, which causes the CMS 400 to cancel all alarms for the unit.
- **Alarm to Report As** - Selectable only if the Alarm Type is EXT and the Unit Type is ISX 5010. The only option you can select is POF. This causes the CMS 400 to report an incoming ISX 5010 External alarm as a Power Fail alarm.
- **Alarm to Execute** - Selectable only if the Unit Type is ISX 5010 or ISX 5314 and a valid alarm type for that unit is entered. The only option you can select is Activate Relays Option 1. This causes the CMS 400 to activate the alarm relays on the ISX 5314 CS unit when it receives the specified alarm. See Automatic ISX 5314 Relay Activation.

The following are the valid ISX 5314 and ISX 5010 alarm types you can select to cause the ISX 5314 relays to be activated.

#### ISX 5314

Clock Tolerance Failure (CLK)  
 Red (RED)  
 Yellow (YEL)  
 Blue (BLU)  
 Loss Of Signal (LOS)  
 Controlled Slip (CSL)  
 Errored Seconds (SEC)  
 Bipolar Violation (BPV)

#### ISX 5010

External (EXT)  
 Node Software Failure (INT)  
 Option Card Memory Failure (INT)  
 Option Card Failure (INT)  
 NVRAM/Database Failure (INT)  
 Backplane/Dual Port Failure (INT)  
 Software/Config Incompatible (INT)  
 Trunk Lost (SRQ)  
 Alternate DLC Unavailable (SRQ)  
 Main DLC Unavailable (SRQ)

4. Select PGDN to save the alarm definition.

## Automatic ISX 5314 Relay Activation

The Define Alarms application enables you to define alarms that will cause the CMS 400 to activate the alarm relays on an ISX 5314 central site (CS) unit. When the CMS 400 receives a specified alarm from a central ISX 5010 or ISX 5314 CS unit, it sends a command to activate relay 1 on the ISX 5314. When it receives a specified alarm from a remote ISX 5010 or ISX 5314 CS unit, it sends a command to activate relay 2 on the ISX 5314 CS.

The CMS 400 uses the following rules to determine the correct ISX 5314 central site unit to send the relay activation command to:

- If a central ISX 5010, remote ISX 5010, or remote ISX 5314 CS unit sent the alarm, the CMS 400 sends the relay activation command to the central ISX 5314 CS unit that is on the same T7 channel as the alarming unit.
- If a central ISX 5314 CS sent the alarm, the CMS 400 sends the relay activation command back to the same unit.

For this scenario to work properly, the units must be entered into the CMS 400 database as follows:

- In the Network Map application, each ISX 5314 CS unit and its associated remote ISX 5314 CS unit must be defined with an upstream/downstream relationship (i.e., in the map, a central ISX 5314 CS appears on the left and the associated remote ISX 5314 CS appears to the immediate right).
- In the Network Map application, each ISX 5010 unit and its associated remote ISX 5010 unit must be defined with an upstream/downstream relationship (i.e., in the map, a central ISX 5010 appears on the left and the associated remote ISX 5010 appears to the immediate right).
- A T7 channel must have only one central ISX 5010, one remote ISX 5010, one central ISX 5314 CS, and one remote ISX 5314 CS defined on it.

## Deleting Alarm Definitions

To delete alarm definitions, follow these steps:

1. Select Define Alarms from the Database menu.

The Define Alarms screen is displayed.

2. Use the arrow keys to select an alarm definition entry.
3. Select **Delete** to delete the currently-highlighted entry.

---

## Serial Number Scanning

The CMS 400 can perform several operations based on a unit's serial number. These procedures are available only for units that support serial number scanning.

### Finding Units by Serial Number

The CMS 400 allows you to find a specific unit by entering its serial number. Follow these steps from the CMS main window:

1. Select Monitor from the Commands menu.
2. Select Serial Number Scan from the adjacent menu.
3. Select Find Unit by Serial Number.

The Select Unit By Criteria screen appears.

4. Enter the serial number and press [PGDN].

The CMS 400 displays the unit name, channel name, and address of the unit with the specified serial number.

### Requesting Unit Serial Number

The CMS 400 allows you to request a unit's serial number, part number, and hardware/software revision levels by entering its unit name or address.

1. From the Serial Number Scan menu, select Request Unit Serial Number.

The Select Unit By Criteria screen appears.

2. Enter the unit's name or address and press [PGDN].

The CMS 400 displays the unit's serial number, part number, and hardware/software revision levels.

### Set Address by Serial Number

The ALM 3223, ALM 3239, and CMS 6424 allow you to use the CMS 400 to download the unit's address. For this feature to work, each unit's serial number and address must be defined in the CMS 400 database. (See "Adding Units" in Chapter 2.)

To download the defined address to the unit:

1. From the Serial Number Scan menu, select Set Address by Serial Number.

The Select Unit by Criteria screen appears.

2. Enter information to specify the unit(s) whose address you want to set. Then press [PGDN].

The CMS 400 locates the unit by its serial number and then downloads the address defined in the database.

# Chapter 5

## Unit Control

---

### Overview

The CMS 400 allows you to control the operation of any leased access unit in your network. This chapter explains how to:

- Initialize units
- Squelch units
- Control unit I/O bits
- Control unit speeds
- Control ALM/RMD modem dial operations
- Control MD 332/334 modem dial operations
- Control units using front panel emulation
- Send call messages to units
- Control CMS DCU units
- Control RMTS MK II units
- Control Excalibur/ISX T1 CSU units

### Initializing Units

The CMS 400 allows you to perform a hardware reinitialization on a unit. This disconnects active dial backup connections and ends any tests in progress. Squelched units are again allowed to transmit normally. Unit option settings remain unchanged.

---

**Note:** This feature is available for T7-compatible units only. To initialize an ALM/RMD series modem, see “Resetting ALM/RMD Modems.”

---

To initialize a unit, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select Initialize Unit from the adjacent menu.

The Select Unit By Criteria screen appears.

3. Enter information to specify the unit(s) you want to initialize and press [PGDN].

A warning message appears.

4. If you are certain you want to initialize the unit(s), enter **Y**.

The selected unit is reinitialized.

## Resetting ALM/RMD Modems

The CMS 400 provides two ways to reset your ALM/RMD series modems:

- **Soft Reset** – Restarts the modem without changing its option settings. Disconnects active dial connections and ends any tests in progress.
- **Factory Reset** – Restarts the modem and returns it to its factory default configuration. Disconnects active dial connections and ends any tests in progress.



---

**Caution:** The factory reset returns all options, including unit address, to their default settings. You must reconfigure the unit's address before you can begin managing it again.

---

1. Select WAN Control from the Commands menu.
2. Select RMD3222/ALM Control from the adjacent menu.
3. Select Reset Unit.

The Select Unit By Criteria screen is displayed.

4. Enter information to specify the unit(s) you want to reset, and press [PGDN].
5. Select Soft Reset or Factory Reset.

The selected unit is then reset.

## Squelching Units

The CMS 400 allows you to squelch a unit, preventing it from transmitting. This feature is useful in multidrop applications in which you suspect that a remote unit is streaming, preventing other drops from transmitting.

---

**Note:** This procedure does not apply to RMD/ALM series modems.

---

To squelch a unit, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select Squelch Unit from the adjacent menu.

The Select Unit By Criteria screen appears.

3. Enter information to specify the unit(s) you want to squelch and press [PGDN].

The selected unit is then squelched.

---

**Note:** If the selected unit is an Excalibur DAP equipped with the IDBU option, you are prompted to select which component to squelch (IDBU or DSU).

---

To return a squelched unit to a normal operating state, refer to “Returning Units to Normal.”

## Returning Units to Normal

The Return to Normal feature allows you to return a unit to a normal operating state. Tests are ended, alarms are reset, and squelched units are again allowed to transmit. This feature does not affect the dial status of a unit.

---

**Note:** This procedure does not apply to RMD/ALM series modems.

---

To return a unit to normal, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select Return to Normal from the adjacent menu.

The Select Unit By Criteria screen appears.

3. Enter information to specify the unit(s) you want to return to normal and press [PGDN].

The selected unit is then returned to normal.

---

**Note:** If the selected unit is an Excalibur DAP equipped with the IDBU option, you are prompted to select which component to return to normal (IDBU or DSU).

---

## Controlling Unit I/O Bits

The CMS 400 allows you to monitor and control units equipped with the Control Bits option (such as the CMS 800 and Model 42 AMM). See the particular product manual for descriptions of the different control bit settings.

To use this feature, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select Bit I/O Control from the adjacent menu.

The Select Unit By Criteria screen appears.

3. Enter information to specify the unit you want to control and press [PGDN].

You are prompted to enter a strap table name.

4. If desired, enter the name of a previously defined Bits strap table. (See “Manually Defining a Strap Table” in Chapter 2 for more information.) Then press [PGDN].

The Bit I/O Control screen appears. (See Figure 5-1.) If you specified a strap table name, this screen includes up to 16 predefined bit configurations, each with a short description.

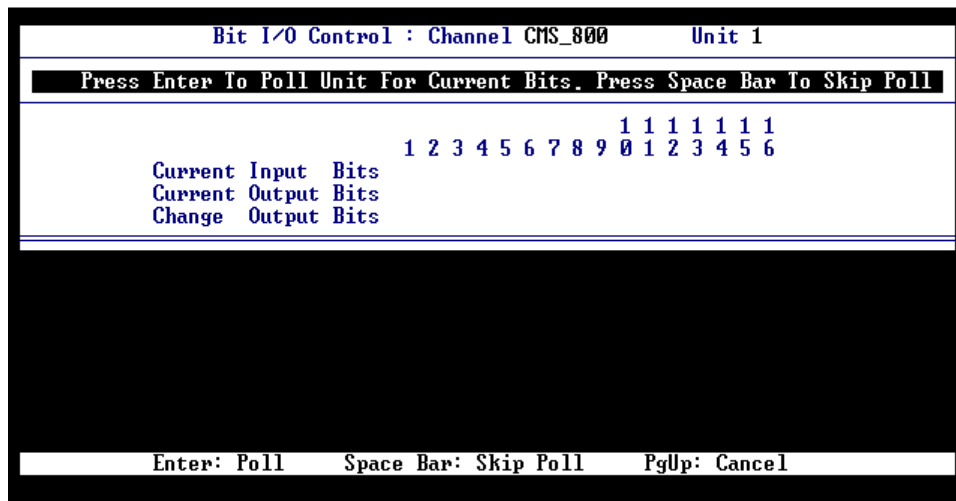


Figure 5-1. Bit I/O Control Screen

5. To poll the unit for its current control bit settings, press [ENTER].

The unit's current input and output bit settings are displayed.

Follow Step 6 if you specified a strap table name. Skip to Step 7 if you didn't.

6. Enter the number of a predefined bit configuration (1-16) and press [PGDN].
7. Set each bit in the Change Output Bits row to the desired setting (1 or 0). Use the up and down arrow keys to move from bit to bit. When the desired bit settings are displayed, press [PGDN] to send them to the unit.

## Controlling Unit Speeds

The CMS 400 allows you to change the operating speed of your leased access units. To do so, you can do either of the following:

- Read the current speeds from a unit, make desired changes, and then write the changes to the unit.
- Read the current speeds from a strap table, make desired changes, and write the changes to the unit or the strap table.

---

**Note:** The Speed Control function is not available for RMD/ALM series modems, CMS DSU 1500 series units, and CMS DSU 500RD series units.

---

## Reading Speeds from Units

To change speeds by reading the current speeds from a unit, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select Speed Control from the adjacent menu.

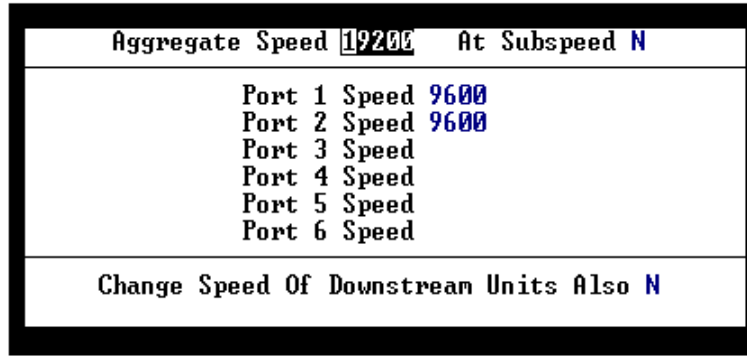
The Speed Control menu appears.

3. Select Read Speeds from Unit.

The Select Unit By Criteria screen appears.

4. Enter information to specify the unit you want to read speeds from. Then press [PGDN].

The Speed Control screen appears. For most types of modems and DSUs, the screen appears as shown in Figure 5-2. This screen shows the unit's current aggregate and port speeds. The At Subspeed field indicates whether the current aggregate speed is less than the unit's maximum speed (Y/N).



**Figure 5-2. Speed Control Screen**

---

**Note:** Excalibur DAP Model B units have a unique Speed Control screen. Refer to “Changing Speeds of Excalibur DAP Model B” for instructions.

---

5. Enter desired speed changes as follows:
    - Press [TAB] to scroll through possible speeds.
    - Press [ENTER] or up and down arrows to move between fields.
  6. If you want the speed changes sent to downstream units (when you write them to the unit), enter **Y** in the bottom field.
  7. Press [PGDN].
  8. Select Write Speeds to Unit.
- The Select Unit By Criteria screen appears.
9. Enter information to specify the unit you want to write the speeds to. Then press [PGDN].

The CMS 400 sends the speed changes to the selected unit.

## Changing Speeds of Excalibur DAP Model B

The Speed Control screen for Excalibur DAP Model B units differs from other leased access units. It allows you to change the unit's channel name, channel speed, port assignments, and dial backup speeds.

To change speeds of an Excalibur DAP Model B unit:

1. Follow Steps 1-4 from the previous section to read the current speeds from the unit.

The Speed Control screen appears. (See Figure 5-3.) The top two rows show the current channel names and speeds. The bottom two rows show the channel and speed currently assigned to each port. The S or A next to the port speed indicates the protocol setting: synchronous or asynchronous.

Channel Configuration						
	Chan 1	Chan 2	Chan 3	Chan 4	Chan 5	Chan 6
Name	C1	C2	C3	C4	C5	C6
Speed	12000	7200	4800	7200	7200	7200
Usable Aggregate Speed = 52800					Unit Is On The	
Current Port Configuration					Dedicated Line	
	Port 1	Port 2	Port 3	Port 4	Port 5	Port 6
Channel	Chan 1	Chan 2	Chan 3	Chan 4	Chan 5	Chan 6
Speed	12000 S	7200 S	4800 S	7200 S	7200 S	7200 S
Change Speed Of Downstream Units Also [Y] < If Y PgDn For Options >						
PgDn: Dial Backup Screen			PgUp: Prior Screen			

**Figure 5-3. Speed Control Screen – Excalibur DAP Model B**

2. Enter desired changes as follows:
  - Press [ENTER] or up and down arrows to move between fields.
  - Press [TAB] to scroll through possible options in each field.
  - To change a channel name, type a new name in the desired channel name field.

---

**Note:** For detailed information about Excalibur DAP channel and port speeds, refer to the appropriate Excalibur DAP manual.

---

3. If you want the speed changes sent to downstream units (when you write them to the unit), enter **Y** in the bottom field.
4. Press [PGDN].

The Dial Restoral Speed Configuration screen appears.

5. If you want to change the dial backup speeds, enter the new speeds. (This applies only to units equipped with Analog IDBU with the Full Multiport Restoral feature.) Then press [PGDN].

If you entered **Y** in the Change Speed of Downstream Units field (Step 3), several options are now displayed. Enter your selections and press [PGDN].

6. Follow Steps 8 and 9 from the previous section to write the changes to the unit.

## Reading Speeds From Table

To change a unit's speed by reading speeds from a strap table, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select Speed Control from the adjacent menu.

The Speed Control menu appears.

3. Select Read Speeds from Table.
4. Enter the strap table name and press [PGDN].

The screen displays Speed Data Now in Edit Area.

5. Select Edit Speeds in Buffer.
6. Enter desired speed changes in the manner described in the previous two sections (depending on the type of unit).
7. Select Write Speeds to Unit.
8. Enter the unit you want to send the speed changes to and press [PGDN].

The CMS 400 then sends the speed changes to the selected unit.

Follow the remaining steps if you want to write the speed changes to a new or existing strap table.

9. Select Write Speeds to Table.
10. Select Create a New Strap Table or Use an Existing Strap Table.
11. Enter the new or existing table name. Then press [PGDN].

The CMS 400 then writes the speed changes into a new or existing strap table.

## Controlling ALM/RMD Modem Dial Operations

The CMS 400 allows you to store telephone numbers, originate calls, and disconnect calls for ALM and RMD series modems.

### Storing Phone Numbers

To display and modify the telephone numbers stored in an ALM/RMD modem, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select RMD3222/ALM Control from the adjacent menu.
3. Select Set Phone Numbers.

The Select Unit By Criteria screen is displayed.

4. Enter information to specify the desired unit and press [PGDN].

The screen displays the phone numbers stored in the selected unit's first 10 dial cells (0-9). (See Figure 5-4.) RMD series modems support 10 dial cells, while ALM series modems support 50.

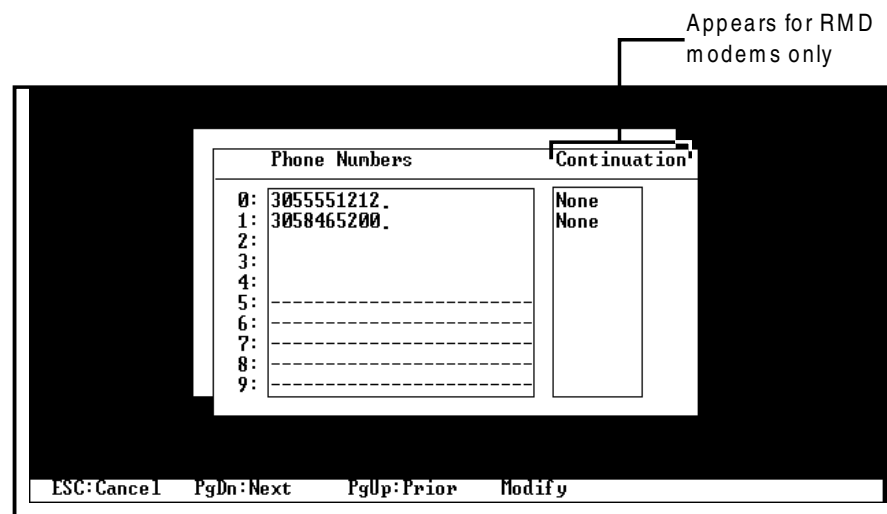


Figure 5-4. Phone Number Screen

5. To store additional numbers or modify currently stored numbers, select Modify.

6. Enter the phone number(s) in the desired dial cell(s).

You can enter up to 24 characters in an RMD modem cell, and up to 36 characters in an ALM modem cell. Use the ↓ and ↑ keys to move between cells.

RMD modems allow you to continue lengthy phone numbers from one cell to the next. To continue a phone number, enter **To # X** in the first cell's Continuation field. Then enter **From # X** in the continuing cell's Continuation field.

7. Press [PGDN] to store your changes.

- To display the next 10 dial cells (ALM modems only), press [PGDN] again.
- To exit this function, press [ESC].

## Originating Dial-Up Calls

To command an ALM/RMD modem to place a dial-up call:

1. From the RMD3222/ALM Control menu, select Initiate Dial.

The Select Unit By Criteria screen is displayed.

2. Enter information to specify the unit you want to place the call and press [PGDN].

If the selected unit is an ALM series modem, the Dial screen shown in Figure 5-5 appears. If the selected unit is an RMD series modem, the Dial screen shown in Figure 5-6 appears.

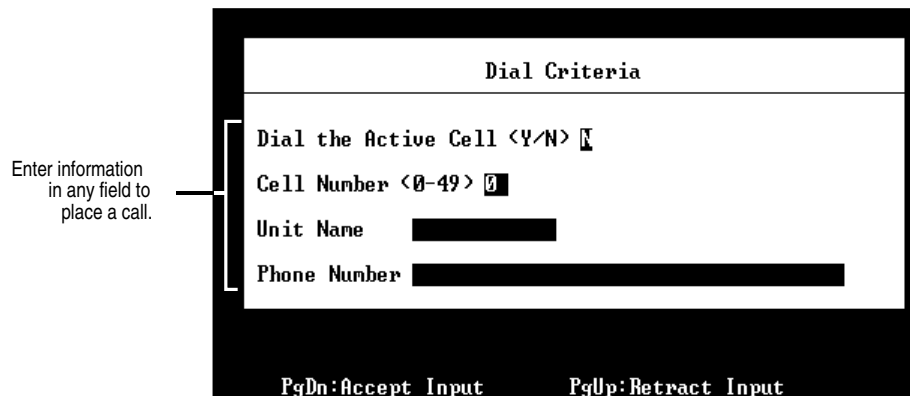
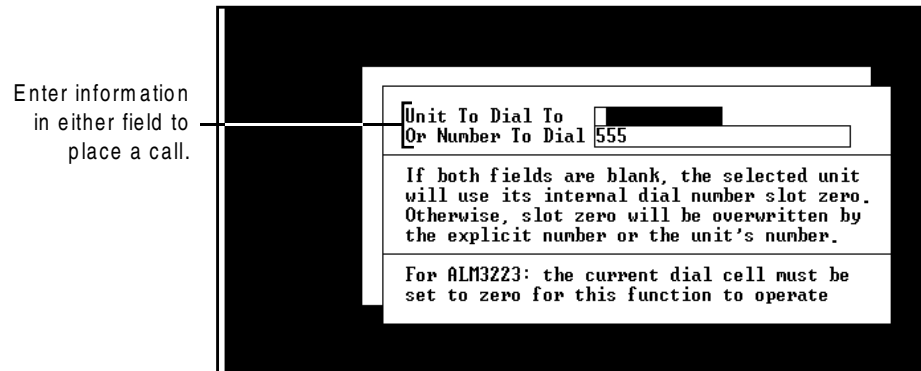


Figure 5-5. ALM Modem Dial Screen



**Figure 5-6. RMD Modem Dial Screen**

3. Specify the phone number you want to dial. You can do this in the following ways:
  - Enter **Y** in the Dial the Active Cell field. (Available for ALM modems only.) This causes the modem to dial the phone number stored in its currently active cell. (See the appropriate modem manual for instructions about activating a dial cell.)
  - Enter a dial cell number. (Available for ALM modems only.) This causes the modem to dial the phone number stored in that cell. (See previous section.)
  - Enter the name of the unit you want to call. The unit must have a receive phone number defined in its unit record (DL1: Rx field).
  - Enter the phone number you want to dial.
4. Press [PGDN].

The CMS 400 then commands the modem to place the call. The screen displays **Activity in Progress** while the call is being made. When the connection is successfully established, the screen displays **Activity Completed**.

## Disconnecting Calls

To disconnect a call:

1. From the RMD3222/ALM Control menu, select **Terminate Dial**.
2. Enter information to specify the unit you want to disconnect and press [PGDN].

## Controlling MD 332/334 Dial Operations

The CMS 400 allows you to store telephone numbers, originate calls, and disconnect calls for the MD 332 and MD 334 modems.

### Storing Phone Numbers

The MD 332/4 modem can store up to 20 phone numbers for placing dial-up calls and up to 20 phone numbers for the security callback feature.

To display and modify these stored phone numbers, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select MD332/334 Control from the adjacent menu.

The Select Unit By Criteria screen appears.

3. Enter information to specify the modem and press [PGDN].

A graphic display of the MD 332/4 modem appears.

4. Select Numbers.
5. To display and modify the stored phone numbers used to dial calls, select Manage Phone Numbers.

To display and modify the stored security callback phone numbers, select Manage Callback Numbers. (See the MD 332/4 manual for more information on this feature.)

6. You can now display and modify stored phone numbers using the following options:

**Read from Unit** – Reads the phone numbers currently stored in the unit and places them in an edit buffer.

**Read from Table** – Reads the phone numbers from a specified table and places them in an edit buffer.

**Edit Configuration** – Allows you to make changes to the phone numbers in the edit buffer.

**Write to Unit** – Sends the edited phone numbers to the unit.

**Write to Table** – Writes the edited phone numbers into a specified table.

## Originating Dial-Up Calls

To command an MD 332/4 modem to place a dial-up call:

1. From the MD 332/4 Control screen, select Dial.
2. You can now select one the following options from the Dial menu:

**Place Dial-Up Call** – Allows you to place a standard dial-up call to another modem.

**Place Backup Call** – Allows you to place a dial-up call that will provide backup for a failed dedicated line.

**Call For CMS** – Allows you to place a dial-up call to another modem for the purpose of controlling it through CMS.

3. Enter the directory number (storage location of phone number), unit name, or specific phone number you want to call. (When placing a backup call, you can enter the directory number only.)
4. Press [PGDN].

The CMS 400 then commands the modem to place the specified call.

## Switching to Dedicated Lines

The CMS 400 allows you to switch an MD 332/4 modem from the dial-up lines back to the dedicated lines. To do so, select **Switched to Dedicated** from the Dial menu.

## Disconnecting Calls

To disconnect a call, select **Clear Call/Disconnect Backup** from the Dial menu. The CMS 400 then commands the modem to disconnect the dial-up call.

## Using Front Panel Emulation

The CMS 400 allows you to use front panel emulation to control ALM/RMD series modems and all types of Excalibur devices. Front panel emulation allows you to control a unit as if you were sitting at its front panel. The screen shows you a graphic representation of the unit's front panel. You can "press" buttons using the keyboard or a mouse. You can view the front panel screen as it changes to a new display.

### Using ALM/RMD Modem Front Panel

To use ALM/RMD modem front panel emulation, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select RMD 3222/ALM Control from the adjacent menu.
3. Select Front Panel Access.

The Select Unit by Criteria screen appears.

4. Enter information to specify the unit you want to control and press [PGDN].

The screen displays a graphic representation of the selected unit's front panel. (See Figure 5-7.)

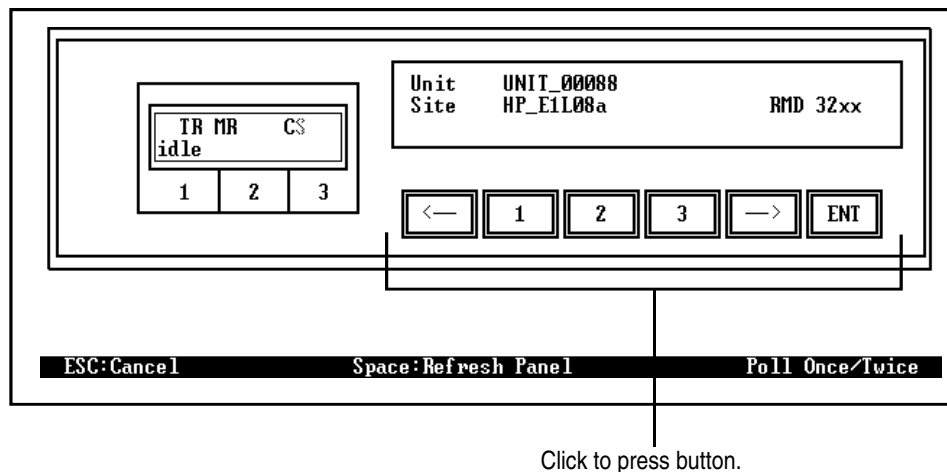


Figure 5-7. ALM/RMD Modem Front Panel Emulation Screen

Before you start controlling the front panel, select Poll Once/Twice to specify how many times the CMS 400 polls the unit after you send it a command. The proper setting depends on the type of modem you're controlling. Select Once for ALM series modems, Twice for RMD series modems. Selecting Poll Once/Twice toggles between these two settings.

You can "press" a front panel button in two ways: 1) click on the button with a mouse, or 2) press the matching keyboard key: ←, 1, 2, 3, →, [ENTER]. After you press a button, the screen displays Activity in Progress. Do not press another button until this message disappears and the LCD is updated. You cannot queue up subsequent commands while a command is being sent and processed.

## Using Excalibur Front Panel

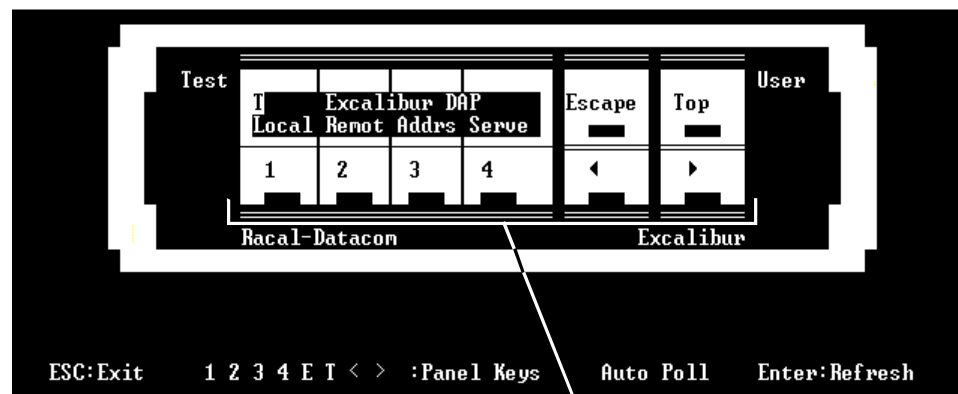
To use front panel emulation for an Excalibur unit (DAP, modem, ISX multiplexer, etc.), follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select Excalibur Front Panel from the adjacent menu.

The Select Unit By Criteria screen appears.

3. Enter information to specify the unit you want to control and press [PGDN].

The screen displays a graphic representation of the selected unit's front panel. (See Figure 5-8.)



Click to press button.

**Figure 5-8. Excalibur Front Panel Emulation Screen**

Before you start controlling the front panel, select Auto Poll. This allows you to set the rate (in seconds) at which the CMS 400 automatically polls the unit for its current display data. You can also turn unit polling on or off.

You can "press" a front panel button in two ways: 1) click on the button with a mouse, or 2) press the matching keyboard key: 1-4, ←, →, E (Escape), and T (Top). After you press a button, the screen displays Retrieving Display Data. Do not press another button until this message disappears and the screen is updated. You cannot queue up subsequent commands while a command is being sent and processed.

## **Sending Call Messages**

The CMS 400 allows you to send coded messages to units that support the Call feature. With this feature, you can enter up to 10 numerical codes into the CMS 400, each signifying a previously agreed upon message. The CMS 400 then sends the code to the selected unit, where it appears on the front panel screen. This feature allows you to communicate with remote personnel without making costly telephone calls.

To send a call message, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select Call Unit from the adjacent menu.

The Select Unit By Criteria screen appears.

3. Enter information to specify the unit you want to call and press [PGDN].
4. Enter the code number (0-9) you want to send and press [PGDN].

The CMS 400 then sends the message to the specified unit.

## **Controlling CMS DCU**

The CMS 400 allows you to control the mask state of each CMS DCU port. It also allows you to enable/disable front panel control. When the front panel is disabled, it cannot be used to modify the unit's configuration.

1. Select WAN Control from the Commands menu.
2. Select DCU Control from the adjacent menu.

The Select Unit By Criteria screen appears.

3. Enter information to specify the CMS DCU you want to control and press [PGDN].

4. Select Control Ports and Front Panel.

The DCU Control screen is displayed.

5. To mask a port, enter **Y** next to the desired port number. To unmask it, enter **N**.

To disable the front panel, enter **Y** in the Front Panel Masked field. To enable it, enter **N**.

6. Press [PGDN].

The CMS 400 sends the changes to the CMS DCU.

## Controlling RMTS MK II

The CMS 400 allows you to control the operation of an RMTS MK II switch.

1. Select WAN Control from the Commands menu.
2. Select RMTS Control from the adjacent menu.

The Select Unit By Criteria screen appears.

3. Enter information to specify the RMTS MK II you want to control and press [PGDN].

A menu of control options appears. See Table 5-1 for descriptions.

4. Select the desired control option and press [PGDN].

The CMS 400 sends the command to the RMTS MK II.

**Table 5-1. RMTS MK II Control Options**

<b>Control Option</b>	<b>Description</b>
Switch to Spare	Places modem designated as Spare on-line.
Switch to Primary	Places modem designated as Primary on-line.
Drop Carrier of Spare	Inhibits the outbound carrier of the spare modem.
Drop Carrier of Primary	Inhibits the outbound carrier of the primary modem.

**Table 5-1. RMTS MK II Control Options (Continued)**

<b>Control Option</b>	<b>Description</b>
Raise Carrier of Spare	Restores the outbound carrier of the spare modem.
Raise Carrier of Primary	Restores the outbound carrier of the primary modem.
Answer Phone if Carrier Received	Configures unit to answer an incoming dial backup call even if there is still carrier on the dedicated line.
Ignore Phone if Carrier Received	Configures unit to ignore an incoming dial backup call if there is still carrier on the dedicated line.
Disable T7 Transmitter	Squelches T7 communication on the active modem.
Enable T7 Transmitter	Restores T7 communication on the active modem.

## Excalibur/ISX T1/E1 CSU Control

This function provides the ability to configure the channel mapping of an Excalibur T1/E1 CSU and the bus and time slot assignments of Excalibur SET1 DAPs.

To invoke Excalibur CSU Control:

1. Choose WAN Control from the CMS 400 Main menu bar.
2. Select Excalibur/ISX T1/E1 CSU Control.

The Excalibur T1/E1 CSU cages are displayed.

Upon invocation the function comes up in the "All Units" view showing each of the T1/E1 CSU units that are defined in the database. Each unit is shown as a box with the name of the unit displayed in the middle of the box. If the box is displayed in green there are no alarms in the CMS 400 alarm queue for the unit, if the box is displayed in red there is at least one alarm in the CMS 400 alarm queue for the unit.

The following sub-functions can be selected from the "All Units" view:

<b>ESC</b>	Cancel the function
<b>Alarms</b>	Display the alarms for the unit either from the CMS 400 alarm queue or directly from the unit.
<b>Chan Map</b>	The channel mapping of the selected unit can be read or written and the time slot and bus assignments of Excalibur SET1 DAPs can be read or written. There will be either 30 or 31 channels per CSU, depending on whether signaling is enabled or disabled. See below for more details.
<b>Find</b>	Find a T1/E1 CSU unit in the database and move the cursor to that unit.
<b>Net Map</b>	Display the selected unit in the Network Map.
<b>Poll</b>	Polls the selected unit to verify T7 communications.
<b>Straps</b>	Provides access to the Define Strap or the Strap Unit functions.
<b>Backup</b>	Enables you to initiate a dial backup for units equipped with the External Dial Backup option.
<b>Relays</b>	Enables you to manually control the alarm relays on an ISX 5314 central site unit.

When the channel map sub-function is invoked the "DS1" channel map view is displayed. This view shows the channel mapping for the 3 DS1 lines. When invoked for the first time, "free" will be displayed for all channels.

The following sub-functions can be selected from the channel map sub-function:

<b>ESC</b>	Return to the "All Units" view
<b>Tab</b>	Toggle the view between "DS1" and "TDM". The TDM view displays the channel mapping of TDM Bus A and TDM Bus B.

<b>Edit</b>	The channel mapping can be edited, use the Shift F8 key to toggle between the "DS1" and "TDM" views while in the edit mode. Use the F8 key to make multiple channel assignments or to clear all assignments.
<b>Read</b>	Read the current mapping from the selected T1/E1 CSU or from a strap table.
<b>Unit Time Slots</b>	The time slot assignment and bus assignment of Excalibur SET1 DAPs can be read and written.
<b>Write</b>	Write the channel mapping to the selected T1/E1 CSU or to a strap table.

When the unit time slots sub-function is selected the "All Cages" view will be displayed. All of the Excalibur SET1 DAPs that are associated with the selected T1/E1 CSU unit will be displayed in their respective cages and slots. A previously defined "Excal T1/E1 CSU Unit" or "Excalibur CC" table must have been defined and associated with the selected T1/E1 CSU in the "Unit Table" field in Network Map. This table contains the names of all of the Excalibur SET1 DAPs that are associated with the selected T1/E1 CSU. The user is responsible for creating this table and entering the units into the table, it is not done automatically.

For each of the units displayed in a slot, the text will appear with a white foreground and a red background if there is at least one alarm in the CMS 400 alarm queue for the unit. If there are not any alarms in the alarm queue, the text will appear with a green foreground and a black background.

The following sub-functions can be selected from the unit time slots sub-function:

<b>Escape</b>	Return to the channel map sub-function
<b>Edit</b>	Edit the time slot and bus assignment for an Excalibur SET1 DAP.
<b>Poll</b>	Poll the selected unit to verify T7 communications.
<b>Read</b>	Read the time slot and bus assignments of the selected units either directly from the units or from existing strap tables
<b>Strapping</b>	Provides access to the Define Strap or the Strap Unit functions.
<b>Write</b>	Write the time slot and bus assignments of the selected units either to the units or to strap tables.
<b>Zoom</b>	Display detailed database information for the selected unit and retrieve the unit's serial number, part number, and hardware/software revision.

## Excalibur/ISX T1/E1 CSU -- Channel Map Operations

When Channel Map is chosen from the "All Units" view of the Excalibur T1/E1 CSU Control operation, the DS1 view is displayed. This view shows the channel mapping for the three DS1 lines. When invoked for the first time, the display will show "free" for all channels.

The following operations are available in this view:

- Toggling between TDM Bus and DS1 Views
- Modifying Channel Mapping
- Reading Channel Mapping from a T1/E1 CSU
- Writing Channel Mapping to a T1/E1 CSU
- Displaying the Channel and Bus Unit Time Slots
- Modifying the Unit Time Slots of a SET1 DAP or Modem
- Polling a T1/E1 CSU
- Reading the Unit Time Slots from a Strap Table
- Strapping Unit Time Slots
- Writing Channel and Bus Assignments to a Unit or Unit's Strap Table

## **Toggling between TDM Bus or DS1 Views**

When the Channel Map operation is invoked, the "DS1" view is displayed. This view shows the channel mapping for the three DS1 lines.

To view the channel mapping for each of the two TDM Busses, press TAB.

To redisplay the DS1 view, press TAB again.

## **Modifying Channel Mapping of DS1 lines or TDM busses**

To modify the channel mapping of the DS1 lines or the TDM busses:

1. Select the DS1 or TDM Bus view by pressing TAB to toggle between the two.
2. Select **E**dit and each channel of a component (a component is a TDM bus or a DS1 line) can be assigned to a channel of the same component or another component.

A typical scenario for channel mapping might be that a SET1 DAP is to be connected to Channel 1 of a DS1. To make this connection you must decide which TDM bus and channel to assign Channel 1 of the DS1 to. The SET1 DAP in turn must be connected to the same TDM bus and channel.

While in edit mode, the current channel being edited is displayed at the top left corner of the window. The component assignment for the channel can be one of the following: TDMA, TDMB, DS1A, DS1B, and DS1C. The assigned channel for the selected component can be 1-64 for TDM components and 1-24 for DS1 components.

While in edit mode, also, the current view can be toggled between TDM and DS1 by entering SHIFT-F8. Default selections can be made by entering F8 and selecting the desired defaults.

3. Select Clear All.

All assignments are cleared for all components.

4. Select Range.
5. Enter a range of channels from a component to be assigned to another component.
6. Press PGDN to accept any changes that are made while in the edit mode. The function verifies the assignments just made to ensure that there are not any conflicting assignments. If there are conflicts, an error message is displayed and the conflicting assignments are highlighted.

## Reading Channel Mapping from a T1 CSU

To read a channel from a T1/E1 CSU or from a previously defined strap table:

1. Select the DS1 or TDM Bus view by pressing TAB to toggle between the two.
2. Select **Read**.
  - If you select Read From Unit, the selected Excalibur T1/E1 CSU is polled for its channel mapping.
  - If you select Read From Table, the selected name of the strap table to read must be selected by you. The default selection is the last table selected or, if being invoked for the first time, the channel map table that is assigned to the unit's "Channel Table" field in Network Map.

## Writing Channel Mapping to a T1 CSU

To write channel mapping to a strap table or to a T1/E1 CSU:

1. Select the DS1 or TDM Bus view by pressing TAB to toggle between the two.
2. Select **Write**.
  - If you select Write To Unit, the channel mapping is sent to the T1/E1 CSU.

- If you select Write To Table, select the strap table to write the mapping to. An existing table can be selected. The default is the last table selected. If it is being invoked for the first time, the channel map table that is assigned to the unit's "Channel Table" field in Network Map is used. If a new table is selected you must assign a name to the new table that is to be created.

## Displaying the Channel and Bus Unit Time Slots

You have the capability to read, write, and edit the channel and bus assignments of SET 1 DAPs and modems that are associated with the selected T1/E1 CSU. A previously defined "Excal T1/E1 CSU Unit" table or a "Excalibur CC" table must have been assigned to the "Unit Table" field of the selected T1/E1 CSU unit using Network Map. This table contains the names of all of the SET1 DAPs and modems that are associated with the selected T1/E1 CSU. This table must be created manually using Define Strap.

1. Select the DS1 or TDM Bus view by pressing TAB to toggle between the two.
2. Select Unit Time Slots.

The unit table is read and the "All Cages" view is displayed showing the cage and slot of each of the SET1 DAPs and modems. If there is an alarm in the alarm queue for a unit the text in the slot for the unit will appear with a white foreground and a red background. If there are no alarms in the alarm queue the text for the unit will appear with a green foreground and a black background.

## Modifying the Unit Time Slots of a SET1 DAP or Modem

From the DS1 view:

1. Select Unit Time Slots.

The unit table is read and the "All Cages" view is displayed.

2. To select a unit, move the cursor to the desired unit by using the arrow keys or click on the desired unit using the mouse. A second mouse click on the same unit automatically invokes the edit mode for the unit. For SET1 DAPs two prompts are opened when the edit operation is selected. The first prompt is for entering the channel assignment, the second is for entering the bus assignment.

For modems, four prompts are opened, the first two are for the channel and bus assignment of modem sub-device one and the second two are for the channel and bus assignment of modem sub-device two. A typical example of how the channel and bus assignments can be configured is as follows:

Assume that a SET1 DAP is to be connected to Channel 1 of DS1 A.

You must decide which TDM channel and bus is going to be used to connect the SET1 DAP to DS1 A. After making this decision edit the DAP's channel and bus assignment to reflect the chosen channel and bus and then write these changes to the unit. You will assign Channel 1 of DS1 A to the same TDM bus and channel that the DAP was assigned to by returning to the T1/E1 CSU channel mapping operation and editing Channel 1 of DS1 A and then write those changes to the T1/E1 CSU.

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**Note:** Only one unit can be edited at a time.

---

3. Press PGDN to save the changes.

## Polling a T1 CSU Unit

Polling verifies basic T7 communication with the selected unit. From the DS1 views:

1. Select **Unit Time Slots**.

The unit table is read and the "All Cages" view is displayed.

2. Select **Poll**.

The poll operation sends a DSM (Dump Stored Maydays) T7 command to the selected unit to verify basic T7 communication with the unit.

The message: "Target Unit Responds" or "Target Unit Does Not Respond" is displayed.

## Reading the Unit Time Slots from a Strap Table

Channel and bus assignments can be read from a unit's strap table or they can be read directly from the unit.

From the DS1 view:

1. Select **Unit Time Slots**.

The unit table is read and the "All Cages" view is displayed.

2. Select **Read** and a selection screen is displayed.

3. Select **Read From Unit** or **table** and choose which units to perform the operation on.

This is done by moving the cursor to a unit and pressing TAB. When a unit is selected, a checkmark is displayed in the slot that contains the unit.

A selected unit can be de-selected by pressing TAB a second time.

- Choose **Select All** and all units are selected.
  - Select **Clear All** and all units are de-selected.
4. Press PGDN to start the operation for the selected units. The status of the operation for the units are displayed on the screen as the operation executes.

---

**Notes:** When reading the assignments from a table the selected unit must have a strap table already defined and assigned to its "Strap Table" field in Network Map.

Channel and bus assignments can only be read from a modecs strap table, they cannot be read from the modem directly by this application.

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## Strapping the Unit Time Slots

From the Channel Map operation, you can invoke the Define Strap function which allows you to add, modify, delete, and list strap tables. You may also invoke the Strap Unit function, which allows you to read straps from a unit or table, edit straps, and write straps to a unit or table.

From the DS1 view:

1. Select **Unit Time Slots**.

The unit table is read and the "All Cages" view is displayed.

2. Select **Strapping**.

The strap screens are displayed.

## Writing Channel and Bus Assignments to a Unit or Unit's Strap Table

Channel and bus assignments can be written to a unit's strap table or they can be written directly to the unit.

From the DS1 view :

1. Select **Unit Time Slots**.

The unit table is read and the "All Cages" view is displayed.

2. Select **Write**.

3. Select Write To Unit or table. You must choose which units to perform the operation on. This is done by moving the cursor to a unit and pressing TAB. When a unit is selected, a checkmark is displayed in the slot that contains the unit. A selected unit can be de-selected by pressing TAB a second time.
  - Choose **Select All** and all units are selected.
  - Select **Clear All** and all units are de-selected.
4. Press PGDN to start the operation for the selected units. As the operation executes, the status of the units are displayed.

---

**Notes:** When writing the assignments to a table the selected unit must have a strap table already defined and assigned to its "Strap Table" field in Network Map.

Channel and bus assignments can only be written to a modem's strap table, they cannot be written to a modem directly by this application.

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## Manually Controlling ISX 5314 Alarm Relays

The ISX 5314 central site (CS) unit has two alarm relays that provide an alarm indication to an external alarm indication device. You can create alarm definitions that cause the CMS 400 to automatically activate these relays when it receives certain alarms. See Define Alarms.

To view the status of these relays or to manually turn them on or off, follow these steps:

1. From the Excalibur/ISX T1/E1 CSU main screen, select Relays from the second tier of the bottom legend.

The status (On or Off) of each relay appears.

2. To change the current setting of a relay, use the arrow keys to highlight the desired relay, and press PGDN.

## Excalibur T1 CSU -- Find Operation

The Find operation gives you the ability to locate a T1/E1 CSU unit in the database. It is useful if there are more than 15 units defined (each page of the All Units View displays up to 15 units).

When Find is selected from the Excalibur T1/E1 CSU cage view, the standard Unit Criteria Selection screen is displayed.

Enter the Excalibur T1/E1 CSU unit you want to display and press PGDN.

## Excalibur T1 CSU -- Alarms Operation

The Alarms operation retrieves the current alarms for the selected unit either from the unit or from the CMS 400 alarm queue. If the box that represents a T1/E1 CSU unit is shown in green, there are no alarms in the CMS 400 alarm queue for that unit. If the box is shown in red, there is at least one alarm in the alarm queue for that unit.

When Alarms is chosen, a selection screen is displayed:

- If you select Retrieve Alarms From Unit, the Request Alarms function is displayed.
- If you select Retrieve Alarms From Alarm Queue, the Display Alarms function is displayed.

When in the All Units view, the display will update automatically if the alarm status of a unit changes.



# Chapter 6

## Dial Backup

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### Overview

Dial backup restores communications when a dedicated line fails. The CMS 400 allows you to control dial backup for an entire network of leased access units from a central location. This chapter explains how to use the following CMS 400 dial backup control applications:

- **Dial Backup Control** – Controls dial backup operation for modems connected to auto-answer dial backup devices such as the Model 122 Registered Automatic Line Adapter (RALA). This application also controls dial backup for Omnimode modems equipped with the Integral Dial Backup (IDBU/4) option.
- **Excalibur Dial Backup** – Controls dial backup operation for Excalibur modems and DAPs equipped with the Integral Dial Backup (IDBU) option.
- **CMS 700 Control** – Controls dial backup operation for the CMS 700 Remote Dial System (RDS).
- **Delta Plus Dial Backup** – Controls dial backup operation for Delta Plus modems.

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**Note:** For instructions on using the Alpha IV Dial Backup application, refer to the Alpha IV manual. For instructions about using the Excalibur DRS Control application, refer to the Excalibur Dial Restoral System manual.

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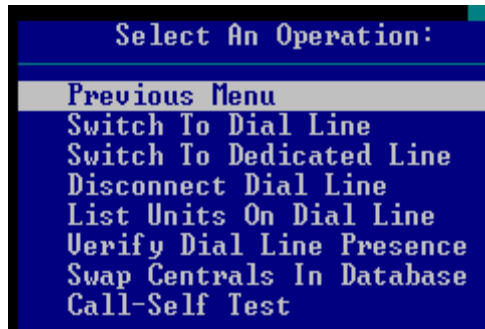
### Dial Backup Control

The Dial Backup Control application allows you to control dial backup operation for modems connected to external auto-answer dial backup devices such as the Model 122 RALA. It also controls dial backup for Omnimode modems equipped with the IDBU/4 option. The Omnimode IDBU/4 option must be configured for CMS Answer Mode to be controlled by this application.

Follow these steps from the CMS main window:

1. Select Restoral from the Commands menu.
2. Select Dial Backup Control from the adjacent menu.

The Dial Backup Control menu appears. (See Figure 6-1.)



**Figure 6-1. Dial Backup Control Menu**

4. You can now select any of the following options:

**Switch to Dial Line** – Switches a specified unit from the dedicated line to an active dial line. If the dial line is not active, the unit remains connected to the dedicated line.

**Switch to Dedicated Line** – Switches a specified unit from the dial line back to the dedicated line.

**Disconnect Dial Line** – Disconnects the dial line.

**List Units on Dial Line** – Displays units in the CMS 400 database that are currently in dial backup.

**Verify Dial Line Presence** – Commands the Omnimode IDBU/4 option to take the dial lines off-hook and check for a dial tone. This test can be run only during dedicated line operation.

**Swap Centrals in Database** – Allows you to move downstream units from one central unit to another in the CMS 400 database.

**Call Self-Test** – Commands the Omnimode IDBU/4 option to establish a dial line connection between its transmit and receive lines. The unit then transmits a handshake message to verify that the connection is functioning properly. This test can be run only during dedicated line operation.

## Excalibur Dial Backup

This application allows you to control dial backup operation for Excalibur modems and DAPs equipped with the IDBU option.

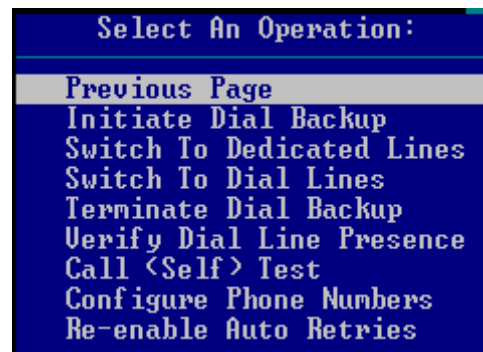
Follow these steps from the CMS main window:

1. Select Restoral from the Commands menu.
2. Select Excalibur Dial Backup from the adjacent menu.

The Select Unit By Criteria screen appears.

3. Enter information to specify the unit you want to control and press [PGDN].

The Excalibur Dial Backup menu appears. (See Figure 6-2.)



**Figure 6-2. Excalibur Dial Backup Menu**

3. You can now select any of the following options:

**Initiate Dial Backup** – Establishes a dial backup connection between two units. When you select this option, the Initiate Dial Backup screen appears. (See Figure 6-3.) To initiate the dial backup, you must enter the phone number of the unit you want to dial. (You must enter two phone numbers for Excalibur 9.6 and 19.2 units equipped with 4-wire IDBU.) You can also specify the number of retries, whether the unit switches to the dial lines after the connection is established, and whether you want to change the channel assignment of downstream units (used when dialing a unit on a different T7 channel).

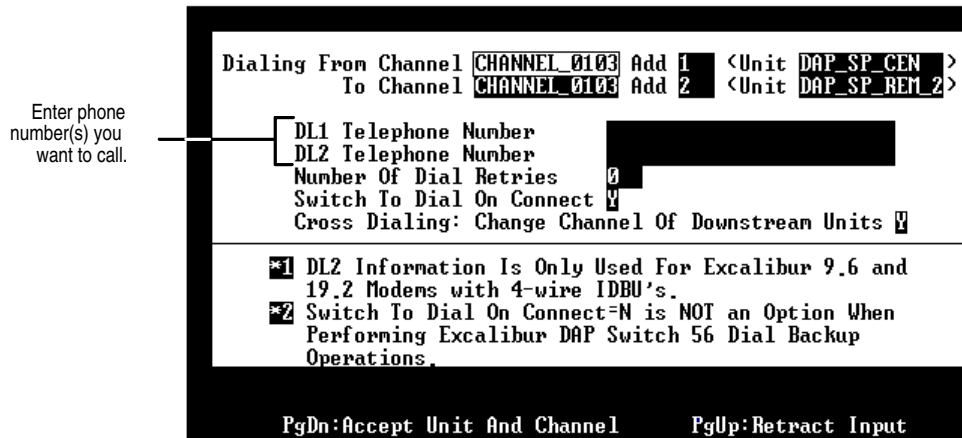


Figure 6-3. Initiate Dial Backup Screen

**Switch to Dedicated Line** – Switches unit from the dial line back to the dedicated line.

**Switch to Dial Line** – Switches unit from the dedicated line to the dial line. If the dial line is not active, the unit remains connected to the dedicated line.

**Terminate Dial Backup** – Disconnects the dial line and returns communication to the dedicated lines.

**Verify Dial Line Presence** – Commands the unit to take the dial lines off-hook and check for a dial tone. This test can be run only during dedicated line operation.

**Call Self-Test** – Commands the unit to establish a dial line connection between its transmit and receive lines. The unit then transmits a handshake message to verify that the connection is functioning properly. This test can be run only during dedicated line operation. (This test interrupts dedicated line operation when run on DAPs with Switched 56 IDBU and Phase 2 or earlier software.)

**Configure Phone Numbers** – Allows you to store a target phone number and a call self-test phone number for the unit.

**Re-enable Auto Retries** – If the automatic dial retries feature is disabled, this option re-enables it.



5. Define the fields in the table as described in Table 6-1.
6. Press [PGDN].

**Table 6-1. CMS 700 Backup Table Field Descriptions**

Field Name	Description
CMS 700 Unit	Enter the unit name, or channel and address of the CMS 700.
Central Unit	Enter the unit name, or channel and address of the unit at the head of the circuit you want to back up.
PBX Delay	Defines the delay (in seconds) after going off-hook before the CMS 700 begins dialing.
Retry	Defines the number of times you want the CMS 700 to retry a dial backup connection in case of failure. The recommended setting is 1.
Check Already In Backup	Defines whether the CMS 400 polls each remote unit to see if it is already in dial backup. If the unit is already in dial backup, the unit will be skipped. Select No if you want to skip this check.
Poll to Verify	Defines whether the CMS 400 verifies dial completion by polling the unit.
Phone Number Prefixes	Used if you are controlling two or more PBXs. Valid values are N, 1 or 2.
X-Dial: Changes Channel	Specifies whether the CMS 400 changes the channel assignment of downstream units. Select Yes if the remote unit is on a different T7 channel than the CMS 700. The CMS 400 then changes the channel assignment of downstream units to allow diagnostic communication on the newly-dialed channel.
Remote Channel If T7 Addresses Are Used	If the remote unit is on a different T7 channel than the central unit and you are identifying remote units by their T7 address (see next field), enter the remote unit's channel name.
Remotes Either By T7 Address Or By Unit Name	Enter the address or unit name of the remote units to dial. If you enter T7 addresses, the channel is assumed to be the same as the central unit, unless you specified a remote channel in the previous field.

## Initiating Dial Backup

Follow these steps to initiate a dial backup connection for a failed dedicated circuit:

1. Select Restoral from the Commands menu.
2. Select CMS 700 Control from the adjacent menu.
3. Select Establish Dial Backup.
4. Enter the name of the CMS 700 backup table you defined for this circuit. (You can press [TAB] to scroll through all defined tables.) Then press [PGDN].

The backup table appears.

5. At this point, verify whether the information in the table is valid for the backup you are initiating. Enter any required changes in the appropriate field. (See Table 6-1 for descriptions of the fields.)
6. Press [PGDN].

The CMS 700 begins dialing the remote unit(s). It retrieves the phone numbers from the unit record of each remote unit (DL1 and DL2 fields). If phone numbers are not present, you are prompted to enter them. The screen continuously updates you on the progress of the dial backup. When the dial backup connections are made, the CMS 700 switches the units to the dial-up lines.

## Disconnecting Dedicated Line

The CMS 400 allows you to disconnect the units from the dedicated lines during dial backup operation. This feature is useful if the dedicated line connection is interfering with dial backup operation.

1. From the CMS 700 Control menu, select Configure Dial Backup.

The Select Unit By Criteria screen appears.

2. Enter information to specify the CMS 700 and press [PGDN].
3. Select Disconnect Dedicated RX.

The CMS 400 then commands the units in dial backup to disconnect their receivers from the dedicated lines.

To reconnect the dedicated lines, follow the same steps, except select Reconnect Dedicated RX in Step 3.

## Displaying Units in Dial Backup

The CMS 400 allows you to display a list of all units in a CMS 700 system currently in dial backup.

1. From the CMS 700 Control menu, select Display Dial Backup.

The Display Dial Backup screen appears.

2. Enter the unit name, or channel and address of the CMS 700 and the central unit. Then press [PGDN].

The screen shows the addresses of all units currently in dial backup on the selected circuit. It also shows which Dial Access Card (DAC) each dial backup connection is made through.

## Ending Dial Backup

When the dedicated lines are restored, you can end your dial backup connections.

1. From the CMS 700 Control menu, select Discontinue Dial Backup.
2. Enter the name of the CMS 700 backup table you created for this circuit. Then press [PGDN].

The backup table appears.

3. Verify that the remote units entered in the table match those you want to end dial backup connections for. If necessary, add or delete remote units. Then press [PGDN].

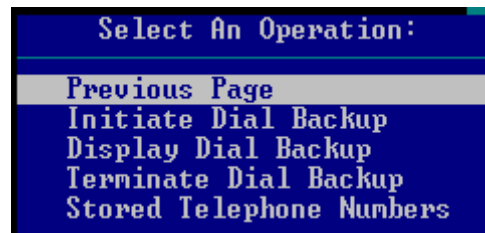
The CMS 700 then switches the selected units back to the dedicated lines and disconnects the dial backup lines.

## Delta Plus Dial Backup

This application allows you to control dial backup operation for Delta Plus modems. To use this application, follow these steps from the CMS main window:

1. Select Restoral from the Commands menu.
2. Select Delta Plus Dial Backup from the adjacent menu.

The Delta Plus Dial Backup menu appears. (See Figure 6-5.)



**Figure 6-5. Delta Plus Dial Backup Menu**

3. You can now select any of the following options:

**Initiate Dial Backup** – Establishes a dial backup connection between two units. When you select this option, the Select Target Units screen appears. To initiate the dial backup, you must specify the unit to dial from and the unit to dial to.

**Display Dial Backup** – Displays the current dial backup status of a specified unit. The status information includes dial results, dial mode, signal quality, and operating speed.

**Terminate Dial Backup** – Ends the dial backup connection of a specified unit.

**Stored Telephone Numbers** – Allows you to store up to six telephone numbers in a specified unit.

## Excalibur ISX 5312/5314 External Dial Backup

The Excalibur ISX 5312/5314 External Dial Backup feature enables you to configure one or more DTE ports to provide dial backup for the unit's dedicated DTE port(s). The dedicated DTE port(s) are connected to the DS1 line, while the backup DTE port(s) are connected to an external dial backup device, such as an ISDN terminal adapter. On the ISX 5312, the dedicated port is always DTE 1, with DTE 2 as the backup. On the ISX 5314, the dedicated ports are always DTE 1 and DTE 3, with DTE 2 and DTE 4 as the backups.

When the DS1 line fails (based on user-definable criteria), the ISX 5312/14 automatically routes data from its dedicated DTE port to the external device connected to the backup port. The external device restores communication by transmitting data over the dial backup line. (See Figure 6-6.) When the DS1 line is restored (based on user-definable criteria), the dial backup connection is ended, and communication is returned to the DS1 line. Dial backup can also be started and ended manually by entering the appropriate commands.

---

**Note:** For more detailed information on how this feature works, refer to the particular product's *Installation and Operation Manual*.

---

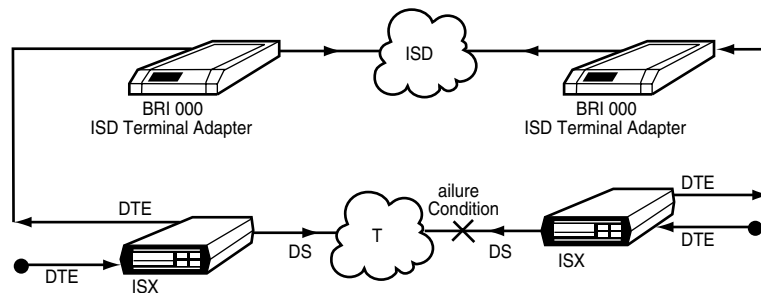


Figure 6-6. External Dial Backup

## Initiating Dial Backup Manually

To initiate a dial backup manually, follow these steps from the CMS main window:

1. Select WAN Control from the Command menu.
2. Select Excal/ISX T1 CSU Control from the adjacent menu.

The screen shows all ISX 5300/2500 units defined in the database.

3. Position the cursor on the desired ISX unit, and select Backup.

The Dial Backup menu appears.

#### 4. Select Initiate Backup.

If the unit you are placing into dial backup is an ISX 5312, the dial backup process begins.

If the unit is an ISX 5314, you are prompted to specify the port(s) you want to place into dial backup (DTE 2, DTE 4, or both). After you enter the ports, the dial backup process begins.

---

**Note:** Dial backup is possible only if at least one port is configured as a backup port. If no ports are configured for backup, a warning message appears when you initiate a dial backup.

---

## Disconnecting Dial Backup Manually

To disconnect a dial backup manually, select Terminate Dial Backup from the Dial Backup menu.

If the unit you are disconnecting from dial backup is an ISX 5312, the dial backup is ended.

If the unit is an ISX 5314, you are prompted to specify the dial backup port(s) you want to disconnect (DTE 2, DTE 4, or both). After you enter the ports, the dial backup is ended.

## Channel Mapping

If a port is configured as a backup port, it cannot be used as a destination for channel mapping. If the port is already mapped to a DS0, it cannot be configured as a backup port.



# Chapter 7

## Testing

---

### Overview

The CMS 400 lets you perform a full range of diagnostic tests on the leased access units in your network. This allows you to quickly isolate and solve network problems without any aid from remote personnel.

### Testing Modems and DSUs

The CMS 400 allows you to run the following tests on most types of modems and DSUs in your network:

- Self-test (error and poll)
- End-to-end test (error and poll)
- Analog loop test (with and without error pattern)
- Digital loop test (with and without error pattern)
- Test tone (modems only)

---

**Note:** For detailed descriptions of the individual tests and testing strategy, refer to the particular product manual.

The following procedures do not apply to ALM, RMD, and MD 332/334 modems. To test these units, refer to “Testing ALM/RMD Modems” and “Testing MD 332/334 Modems” later in this chapter.

---

### Starting Self-Tests

To start the self-tests (error or poll), follow these steps from the CMS main window:

1. Select Test from the Commands menu.
2. Select Self Test from the adjacent menu.

The Select Unit By Criteria screen appears.

3. Enter information to specify the unit you want to test and press [PGDN].

4. Select Initiate Error Test or Initiate Poll Test. (Poll tests are available for modems only.)

If you selected an error test, you must then specify the test duration in seconds. (The recommended length is 60 seconds.) If you want the test to run continuously, enter 0.

If you are running the test on an Excalibur DAP with IDBU, you must also specify the component you want to test (DSU or IDBU).

The CMS 400 then commands the unit to run the selected test. The screen shows the current test status. (See Figure 7-1.) If you want to perform other activities while the test is still running, press [PGUP].

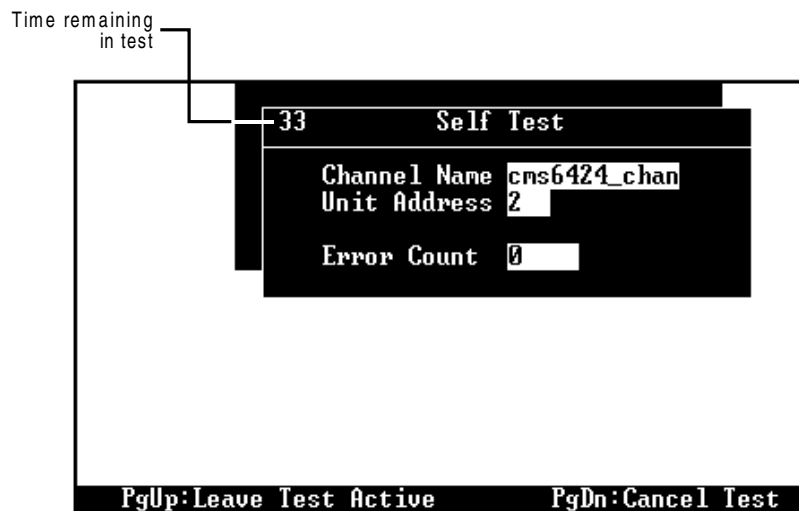


Figure 7-1. Self-Test Status Screen

## Starting End-to-End Tests

To start the end-to-end tests (error or poll):

1. Select Test from the Commands menu.
2. Select End-to-End Test from the adjacent menu.

The Select Unit by Criteria screen appears.

3. Enter information to specify the unit you want to test and press [PGDN].

4. Select Initiate Error Test or Initiate Poll Test. (Poll tests are available for modems only.)

If you selected an error test, you must then specify the test duration in seconds. (The recommended length is 60 seconds.) If you want the test to run continuously, enter 0.

If you are running the test on an Excalibur DAP, you must also specify the central unit and the port(s) you want to test.

The CMS 400 then commands the unit to run the selected test. The screen shows the current test status. If you want to perform other activities while the test is still running, press [PGUP].

## Starting Loop Tests

To start the loop tests:

1. Select Test from the Commands menu.
2. To run a loop test without an error pattern, select Loopback Unit. To run a loop test with an error pattern, select Loopback Test.

The Select Unit By Criteria screen appears.

3. Enter information to specify the unit you want to test and press [PGDN].
4. Select an analog or digital loop test.

If you are running a loop test with error pattern, you must first specify whether the loop is to occur at the remote or central unit. You must then specify the test duration in seconds. (The recommended length is 60 seconds.) If you want the test to run continuously, enter 0.

If you are running a digital loop test with error pattern on an Excalibur DAP, you must also specify the central unit and the port(s) you want to test.

The CMS 400 then commands the unit to run the selected loop test. If you are running a loop test with error pattern, the screen shows the test status. (See Figure 7-2.) If you want to perform other activities while the test is still running, press [PGUP].

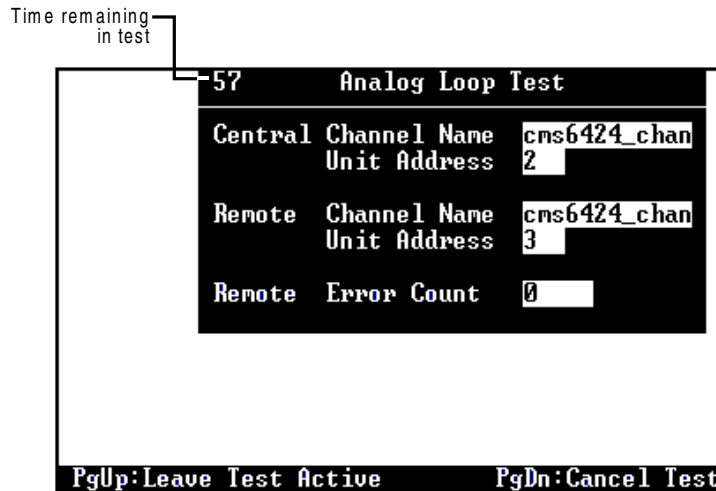


Figure 7-2. Loop Test Status Screen

## Starting Test Tone

To start the test tone on a modem:

1. Select Test from the Commands menu.
2. Select Test Tone Unit.

The Select Unit By Criteria screen appears.

3. Enter information to specify the unit you want to test and press [PGDN].
4. Select Initiate Test Tone.

The CMS 400 then commands the unit to generate a 1004 Hz test tone on the line.

5. Select Cancel Test Tone when you want to end the test.

## Monitoring Tests in Progress

If you exited from a test status screen while the test was still running, you can return to the status screen if the test is still active.

1. Select Test from the Commands menu.
2. Select the type of test you want to monitor.

The Select Unit By Criteria screen appears.

3. Enter information to specify the unit running the test and press [PGDN].
4. Select Monitor Test in Progress.

The test status screen appears.

## Ending Tests

If you specified a test duration, the test ends when the timer expires. If you specified a continuous test, you must end it manually.

1. Select Test from the Commands menu.
2. Select the type of test you want to end.

The Select Unit By Criteria screen appears.

3. Enter information to specify the unit running the test and press [PGDN].
4. Select Cancel Test in Progress.

The CMS 400 commands the unit to end the test.

---

**Note:** A timed test becomes a continuous test if you exit from the test status screen while the test is in progress.

---

## Testing RMD Modems

To test an RMD series modem, you must use the front panel emulation feature. This allows you to start a test in the same way you would at the modem front panel.

For general instructions about front panel emulation, see “Using Front Panel Emulation” in Chapter 5. For specific test procedures, as well as descriptions of the tests available with each modem, refer to the particular modem manual.

## Testing ALM Modems

The CMS 400 allows you to run the following tests on ALM series modems:

- Analog loop test
- Analog loop self-test
- Analog loop self-test with errors
- Digital loop test
- Remote digital loop test
- Remote digital loop self-test
- Modem self-test

---

**Note:** For detailed descriptions of the individual tests and testing strategy, refer to the appropriate ALM modem manual.

---

The following instructions explain how to run tests on ALM series modems that support the Test feature. To run tests on ALM modems that don't support this feature, use front panel emulation. For general instructions about front panel emulation, see "Using Front Panel Emulation" in Chapter 5.

## Starting Tests

To start tests on an ALM series modem, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select RMD 3222/ALM Control from the adjacent menu.

The RMD 3222/ALM Control menu appears.

3. Select Test Unit.

The Select Unit By Criteria screen appears.

4. Enter information to specify the unit you want to test and press [PGDN].

The Test Menu appears.

5. Select the test you want to run.

For all tests except modem self-test, a test duration prompt appears.

6. Enter the desired test duration in seconds (1-999). If you want to run the test continuously, enter 0. (Remote tests cannot be run continuously.) Then press [PGDN].

The CMS 400 commands the unit to run the selected test. If you selected an analog or digital self-test, the screen shows the current test status. (See Figure 7-3.) If you want to perform other activities while the test is still running, press [PGUP]. If you selected a test without an error count (analog loop, digital loop, or modem self-test), the screen returns to the Test menu.



Figure 7-3. ALM Test Status Screen

## Ending Tests

If you specified a test duration, the test ends when the timer expires. If you specified a continuous test, select Stop Test in Progress from the Test menu to end the test. If you ran a modem self-test, the test ends automatically after 4 seconds, and the screen displays the results.

## Retrieving Test Results

If you returned to the Test menu while an analog or digital self-test was still running, you can display the current test status (if test is still active) or display the final results by selecting Retrieve Test Results from the Test menu.

## Testing MD 332/334 Modems

The CMS 400 allows you to run the following tests on MD 332 and 334 modems

- Squelch unit
- Simulate power fail
- Analog loop test
- Analog loop + test pattern
- Digital loop test
- Remote digital loop test
- Remote digital loop + test pattern
- Test pattern
- End-to-end test

---

**Note:** For detailed descriptions of the individual tests and testing strategy, refer to the MD 332/334 modem manual.

---

## Starting Tests

To start an MD 332/334 modem test, follow these steps from the CMS main window:

1. Select WAN Control from the Commands menu.
2. Select MD332/334 Control from the adjacent menu.

The Select Unit By Criteria screen appears.

3. Enter information to specify the unit you want to test and press [PGDN].

A graphic display of the MD 332/4 modem appears.

4. Select Test.

The Test menu appears. (See Figure 7-4.)

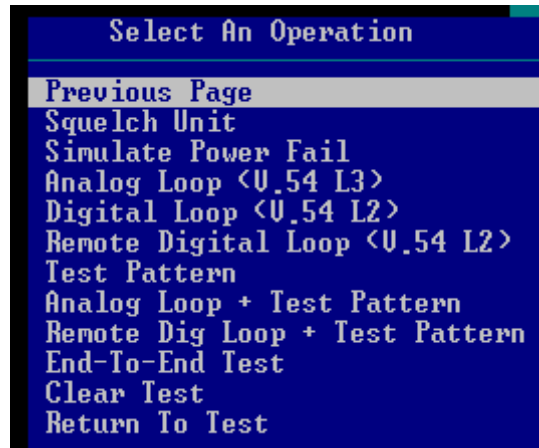


Figure 7-4. MD 332/334 Test Menu

5. Select the test you want to run.

The CMS 400 commands the unit to start the selected test.

## Ending Tests

To end an active MD 332/334 test, go to the Test menu and select Clear Test. All active tests are cleared.

## Testing Multiplexers

The CMS 400 allows you to perform several types of loop tests on multiplexers. The tests available depends on the type of multiplexer.

### Testing Omnimax Multiplexers

Follow these steps to run loop tests on Omnimax series statistical, TDM, and FT1 multiplexers:

1. Select Test from the Commands menu.
2. Select Multiplexer Diagnostics from the adjacent menu.

The Select Unit By Criteria screen appears.

3. Enter information to specify the multiplexer you want to test and press [PGDN].

The Multiplexer Diagnostics Selection screen appears. (See Figure 7-4.) The Current Tests field lists any tests that are currently running.

Current Tests:					
Component	Port 1	Local Device Channel	OMNIMUX_800	Unit	2
Test	No Test	Associated 1 Channel	OMNIMUX_800	Unit	1
		Associated 2 Channel		Unit	
		PgDn: Accept Input      PgUp: Retract Input			

**Figure 7-3. Multiplexer Diagnostic Selection Screen**

4. Enter the component you want to test in the Component field. Components consist of ports and aggregate links. The number of ports and aggregate links available depends on the multiplexer you are testing. To scroll through the possible components, press [TAB].
5. Enter the type of test you want to run in the Test field. The tests available depends on the multiplexer you are testing. To scroll through the possible tests, press [TAB]. (Refer to the particular multiplexer manual for detailed descriptions of the tests.)
6. Press [PGDN].

The CMS 400 commands the multiplexer to start the selected test. The active test is displayed in the Current Tests field.

7. To end a test, press [PGUP].
8. To view test results, press [F8].

## Testing ISX 5300/2500

Follow these steps to run loop tests on an Excalibur ISX 5300/2500 series unit:

1. Select Test from the Commands menu.
2. Select Multiplexer Diagnostics from the adjacent menu.

The Select Unit By Criteria screen appears.

3. Enter information to specify the multiplexer you want to test and press [PGDN].
4. Enter the component you want to test and press [PGDN]. Possible components are DS1 interfaces (A-C) and DTE ports (1 and 2).

The Test menu appears.

5. Select the type of test you want to run. If the selected component is a DS1 interface, you can select a local loop test only. If it is a DTE port, you can select a local loop, local V.54 digital loop, or local V.54 digital loop with errors. (See the Excalibur ISX 5300 or 2500 manual for detailed information on these tests.)

If you selected a local V.54 digital loop with errors, you must then do the following at the appropriate prompts:

- Enter the partner (far-end) unit for the test and press [PGDN].
- Enter the remote component you want to test (DTE 1 or 2) and press [PGDN].

The CMS 400 commands the ISX unit to start the selected test.

If you selected the local loop or local V.54 digital loop, the screen returns to the Test menu. To end the test, select **Cancel All Tests**.

If you selected V.54 digital loop with errors, the screen shows the current error count. To end the test, press any key.

## Testing Excalibur T-1 CSU

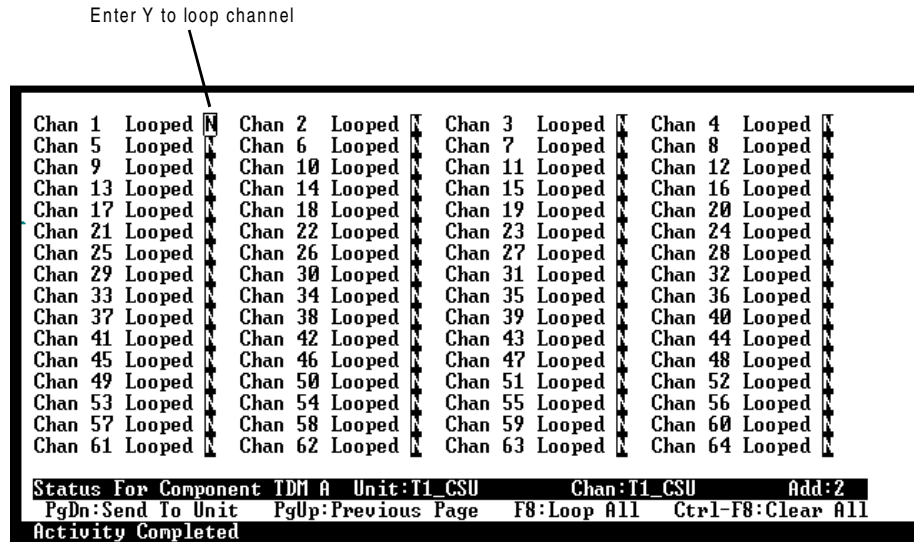
Follow these steps to run channel loopback tests on the Excalibur T-1 CSU:

1. Select **Test** from the **Commands** menu.
2. Select **Multiplexer Diagnostics** from the adjacent menu.

The **Select Unit By Criteria** screen appears.

3. Enter information to specify the multiplexer you want to test and press [PGDN].
4. Enter the component you want to test and press [PGDN]. Possible components are TDM busses (A and B) and DS1 interfaces (A-C).

The CMS 400 polls the unit for its current channel loopback status. It then displays the loopback status of all channels on the selected component. (See Figure 7-5.)



**Figure 7-4. Excalibur T-1 CSU Channel Loopback Screen**

---

**Note:** To see which channels are connected to SET-1 DAPs, go to the Unit Time Slots screen as described in “Configuring SET-1 DAP Bus/Channel Assignments” in Chapter 3.

---

5. Enter **Y** next to each channel you want to loop. Press [F8] if you want to loop all channels. Then press [PGDN].

The CMS 400 commands the T-1 CSU to loop each selected channel. To end the loop, enter **N** next to the desired channel and press [PGDN].

# Chapter 8

## Using Excalibur Chassis Application

---

### Overview

The Excalibur Chassis application enables you to view a graphic display of an Excalibur Card Carrier and the Excalibur DAPs and SET-1 DAPs it contains. From this application, you can control, configure, monitor, and test any Excalibur DAP or SET-1 DAP unit installed in an Excalibur Card Carrier. This chapter explains how to use this application.

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**Note:** Before using this application, you must configure the database. See “Configuring the Database for Excalibur Chassis Application” in Chapter 2 for instructions.

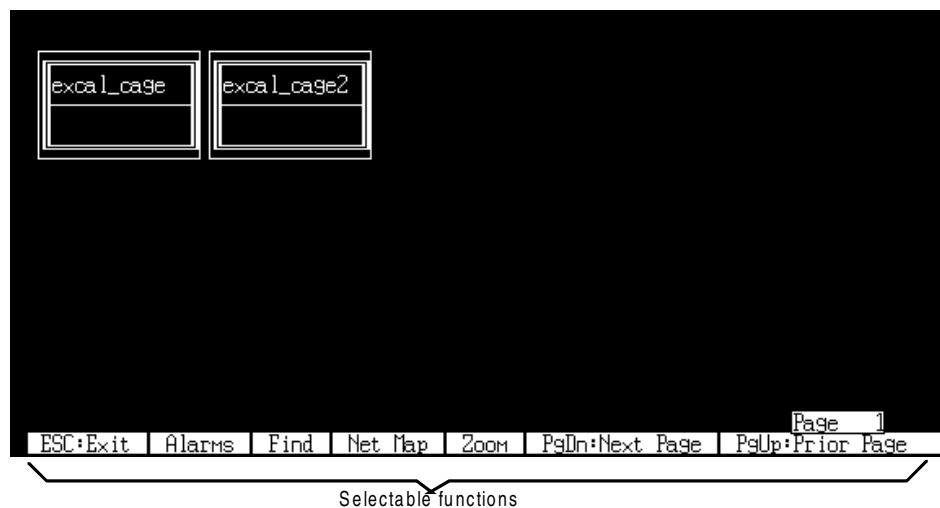
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### Starting Excalibur Chassis Application

To start the Excalibur Chassis application:

1. From the CMS main window, select Commands.
2. Select WAN Control from the pulldown menu.
3. Select Excalibur Chassis from the adjacent menu.

The Excalibur Chassis top level screen appears. This screen shows all card carriers defined in the database. (See Figure 8-1.)



**Figure 8-1. Excalibur Chassis Application - Top Level Screen**

## Top Level Status Indications

In the top level screen, the color of the card carrier indicates whether there are alarms in the CMS alarm queue for any unit installed in the card carrier.

**Green** - Indicates no alarms in alarm queue

**Red** - Indicates one or more alarms in alarm queue

## Top Level Functions

In the top level screen, a cursor appears on the currently selected card carrier. To move the cursor, click on the desired unit or press the arrow keys.

To start a function on the selected card carrier, select from the following options along the bottom of the screen:

**Alarms** - Launches the CMS 400 Display Alarms application. This application enables you to view all alarms stored in the CMS 400 alarm queue for units contained in the selected card carrier.

**Find** - Prompts you to specify a particular Excalibur Chassis unit in the database. The screen then displays that unit, with the cursor on it. This feature is useful for finding a particular unit in the database when there are multiple screens of units.

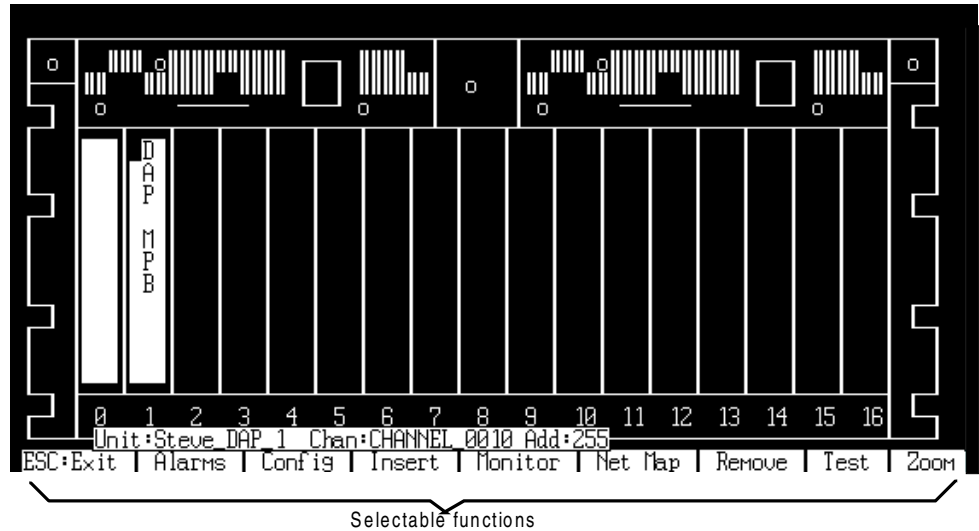
**Net Map** - Launches the Network Map application, with the cursor on the selected card carrier.

**Zoom** - Displays the chassis view screen. (See next section for details.)

## Viewing Chassis Level Screen

To view the chassis level screen, select Zoom from the top level screen. If you have not yet defined a unit table for the selected card carrier, you are prompted to enter a unit table name. (See "Defining Unit Tables" in Chapter 2 for instructions.)

The chassis level screen appears. (See Figure 8-2.) This screen shows a graphic view of an Excalibur Card Carrier. In each slot, it shows the type of unit installed. (The unit information is retrieved from the card carrier's unit table.)



**Figure 8-2. Excalibur Chassis Application - Chassis Level Screen**

## Chassis Level Status Indications

In the chassis level screen, the status of each installed unit is indicated as follows:

**Dial Backup** - If a unit is in dial backup, a << character appears in its slot.

**Test** - If a unit has a test active, a dot (•) appears in its slot.

**Alarms** - If a unit has one or more alarms in the CMS 400 alarm queue, the background color of the slot is red.

## Chassis Level Functions

In the chassis level screen, a cursor appears on the currently selected unit. To move the cursor, click on the desired unit or press the arrow keys.

To start a function on the selected unit, select from the following options along the bottom of the screen:

**Alarms** - Prompts you to Retrieve Alarms from Queue or Retrieve Alarms from Unit. If you select Retrieve from Queue, the Display Alarms application is launched, showing alarms in the CMS alarm queue for the unit. If you select Retrieve from Unit, the Request Alarms application is launched, showing the alarms stored in the unit's alarm buffer.

**Config** - Prompts you to select one of the following: Define Strap Table, Strap Unit, or Speed Control. See Chapter 3 for instructions about the Define Strap and Strap Unit applications. See “Controlling Unit Speeds” in Chapter 5 for instructions about the Speed Control application.

**Insert** - Enables you to add a unit to the card carrier's unit table. (See “Defining Unit Tables” in Chapter 2 for instructions.)

**Monitor** - Prompts you to select one of the following: Request Statistics, Monitor EIA, Monitor Analog, and Serial Number Scan. Refer to Chapter 4 for information on these applications.

**Net Map** - Launches the Network Map application, with the cursor on the selected unit.

**Remove** - Enables you to remove a unit from the card carrier's unit table. (See “Defining Unit Tables” in Chapter 2 for instructions.)

**Test** - Places the unit into a self-test.

**Zoom** - Displays the card level screen. (See Figure 8-3.) This screen shows detailed information about the unit, including its channel, address, chassis/slot numbers, part number, and hardware/software revision levels.



**Figure 8-3. Excalibur Chassis Application - Card Level Screen**

# Appendix A

## Strap Cross-Reference Tables

---

### Introduction

When configuring a product from the CMS 400 network management system, the parameter name on the CMS 400 screen may not always match the parameter name displayed on the product front panel. This appendix contains tables that cross-reference the CMS 400 strap name with the equivalent parameter name displayed on the product front panel. Each table lists the parameters appearing on a particular "page" of the CMS 400 display.

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**Note:** The CMS 400 displays several parameters that are not available on the following units. Do not change the settings of these parameters. These parameters are indicated by an "NA" in the tables.

---

### Excalibur 9.6 Straps

The following is a strap cross-reference table for the Excalibur 9.6 modem.

**Table A-1. Excalibur 9.6 Strap Display - Page 1**

<b>CMS 400 Parameter Display</b>	<b>Excalibur 9.6 Parameter (Configuration Submenu)</b>
Network Topology	Network (Modem)
Orientation	Location (Modem)
Receive Equalizer	Receive Equalizer (Modem)
Transmit Level	Transmit Level (Modem)
Transmit Equalizer	Transmit Equalizer (Modem)
Lease DCD Threshold	DCD Threshold (Modem)
Dial DCD Threshold	DCD Threshold (Dial)
DSR Normally	DSR (Modem)
DSR Off During	DSR Off in Test (Modem)

**Table A-1. Excalibur 9.6 Strap Display - Page 1 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur 9.6 Parameter (Configuration Submenu)</b>
Rx Elastic Buffer	Receive Elastic Buffer (Modem)
Hold Over	Holdover (Modem)
Answerback	Answerback (Modem)
Rx Data Clamp	Receive Data Clamp (Modem)
Primary Antistream	Antistreaming (Modem)
Training Sequence	Training Sequence (Modem)
RTS-CTS Delay	CTS Delay (Modem)
Primary RTS	RTS Control (Modem)
Rem Speed Change	Remote Speed Change (Modem)
Modem Tx Clock	Transmit Clock (Modem)
DCD On	DCD On (Modem)
Retrain Threshold	Retrain Count (Modem)
Fallback Speed	Fallback Speed (Modem)
Fallforward Thresh	Autospeed Fall Forward (Modem)
Perform Autospeed	Autospeed (Modem)
Line Loopback Gain	Loop Gain (Modem)

Table A-2. Excalibur 9.6 Strap Display - Page 2

CMS 400 Parameter Display	Excalibur 9.6 Parameter (Configuration Submenu)
Ext Clock Source	Transmit Clock (Modem) This parameter is equivalent to the Transmit Clock parameter's External Clock Source Port # option.
EIA P23 Rate Ctrl	Speed Select (Modem)
EIA P21 Usage	EIA Pin 21 (Modem or Multiport, depending on model)
Modem Sharing Port Recognition	Scanning Method (Multiport - Port Sharing)
Front Panel Access	Locks access to Config, Diags, Dial, and Remote menus. <i>(There is no equivalent Excalibur 9.6 parameter.)</i>
Soft Straps Access	Locks access to Config menu. <i>(There is no equivalent Excalibur 9.6 parameter.)</i>
Power Fail Detect	Power Fail Detection (RCP)
EIA P21 Dig Loop	EIA Pin 21 This parameter is equivalent to the EIA Pin 21 parameter's DL Disabled option.
Local Alarm Display	Local Alarm Display (RCP)
Primary Transmitter	NA
Alarm Detection	Alarm Detection (RCP)
Secondary DCD	Secondary DCD (RCP)
Front Panel Beeper	Beeper (Modem)
EIA P18 Local Loop	EIA Pin 18 is Analog Loop (Modem)

**Table A-2. Excalibur 9.6 Strap Display - Page 2 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur 9.6 Parameter (Configuration Submenu)</b>
Sec Regen Net>Dig	Analog Regeneration (RCP)
Secondary FSK	FSK Transmitter (RCP)
Sec Regen Dig>Net	Digital Regeneration (RCP)

**Table A-3. Excalibur 9.6 Strap Display - Page 3**

<b>CMS 400 Parameter Display</b>	<b>Excalibur 9.6 Parameter (Configuration Submenu)</b>
Dial B/U Initiate	NA
Auto Dial On	Automatic Dial (Dial)
Dial Signalling	Dialer (Dial)
Off-Hook Delay	Wait to Dial (Dial)
Call-Prog Signals	Call Progress (Dial)
Switch To Dial	Switch to Dial (Dial)
Auto Disconnect	Automatic Disconnect (Dial)
Dial Backup Speed	Speed (Dial)
Dial Answer Mode	Answer Mode (Dial)
Dial Line Validation	Dial Line Validation (Dial)
Call Completion Timer	Call Completion Timer (Dial)
Error Test Mode Compatibility	Compatibility (Modem)

**Table A-4. Excalibur 9.6 Strap Display - Page 4**

<b>CMS 400 Parameter Display</b>	<b>Excalibur 9.6 Parameter (Configuration Submenu)</b>
RTS Control	Port RTS Control (Multiport)
RTS-CTS Delay	Port CTS Delay (Multiport)
DSR Control	Port DSR Control (Multiport)
Modem Sharing	Port Sharing (Multiport)
Tx Clock Source	Port Transmit Clock (Multiport)
Rx Clock Source	Port Receive Clock (Multiport)
Tx RTS-DCD Sim	RTS Simulation (Multiport)
Rx RTS-DCD Sim	DCD Simulation (Multiport)

## Excalibur 19.2 Straps

The following is a strap cross-reference table for the Excalibur 19.2 modem.

**Table A-5. Excalibur 19.2 Strap Display - Page 1**

<b>CMS 400 Parameter Display</b>	<b>Excalibur 19.2 Parameter (Configuration Submenu)</b>
Fallback Speed	Fallback Speed (Modem)
Auto Upspeed	Autospeed Fall Forward (Modem)
Autospeed Control	Autospeed (Modem)
Retrain Threshold	Retrain Count (Modem)
DCD Trigger	DCD On (Modem)

**Table A-6. Excalibur 19.2 Strap Display - Page 2**

<b>CMS 400 Parameter Display</b>	<b>Excalibur 19.2 Parameter (Configuration Submenu)</b>
Location	Location (Modem)
Dig Loop Type	Remote Digital Loop (Modem)
DSR Normally	DSR (Modem)
DSR Off During	DSR Off in Test (Modem)
Data Clamp	Receive Data Clamp (Modem)
Pri Carrier	NA
Modem Tx Clock	Transmit Clock (Modem)
Port Recognition	Scanning Method (Multiport - Port Sharing)
Pri DCD Threshold	DCD Threshold (Modem)
Delay Reduction	Delay Reduction (Modem)
Tx Level in Dbm	Transmit Level (Modem)
Tx Equalizer	Transmit Equalizer (Modem)
CTS Delay	NA
Remote Speed Change	Remote Speed Change (Modem)
Retrain	Retrain Sensitivity (Modem)

**Table A-7. Excalibur 19.2 Strap Display - Page 3**

<b>CMS 400 Parameter Display</b>	<b>Excalibur 19.2 Parameter (Configuration Submenu)</b>
Auto Dial Backup	Automatic Dial (Dial)
Dial Signaling	Dialer (Dial)
Wait Before Dial	Wait to Dial (Dial)
Call Progress Signals	Call Progress (Dial)
Switch to Dial Lines	Switch to Dial (Dial)
Dial Auto Disconnect	Automatic Disconnect (Dial)
Dial Backup Speed	Speed (Dial)
Dial DCD Threshold	DCD Threshold (Dial)
Answer Mode	NA
Dial Line Validation	NA
Call Completion Timer	NA

**Table A-8. Excalibur 19.2 Strap Display - Page 4**

<b>CMS 400 Parameter Display</b>	<b>Excalibur 19.2 Parameter (Configuration Submenu)</b>
Front Panel Access	Locks access to Config, Diags, Dial, and Remote menus. <i>(There is no equivalent Excalibur 19.2 parameter.)</i>
Soft Straps Access	Locks access to Config menu. <i>(There is no equivalent Excalibur 19.2 parameter.)</i>
Transmit Squelch	Squelch Primary Transmitter (Modem)
Local Alm Display	Local Alarm Display (RCP)
Alarm Detection	Alarm Detection (RCP)
Front Panel Beeper	Beeper (Modem)
Unit is Controller	Controller (RCP)
Remote Dig Loop	This parameter is equivalent to the EIA Pin 21 parameter's DL Disabled option.
EIA P18 Ana Loop	EIA Pin 18 (Modem)
FSK Sec Carrier	NA
Power Fail Detect	Power Fail Detection (RCP)
T7 On Digital	Digital Regeneration (RCP)
T7 On Analog	Analog Regeneration (RCP)

**Table A-9. Excalibur 19.2 Strap Display - Page 5**

<b>CMS 400 Parameter Display</b>	<b>Excalibur 19.2 Parameter (Configuration Submenu)</b>
RTS Control	Port RTS Control (Multiport)
CTS Delay	Port CTS Delay (Multiport)
DSR Control	Port DSR Control (Multiport)
Modem Sharing	Port Sharing (Multiport)
Port Tx Clock	Port Transmit Clock (Multiport)
Port Rx Clock	Port Receive Clock (Multiport)
RTS Simulation	RTS Simulation (Multiport)
DCD Simulation	DCD Simulation (Multiport)

**Table A-10. Excalibur 19.2 Strap Display - Page 6**

<b>CMS 400 Parameter Display</b>	<b>Excalibur 19.2 Parameter (Configuration Submenu)</b>
Data Rate Select	Speed Select (Modem)
EIA P21	EIA Pin 21 (Modem)
Modem Ext Clock	Transmit Clock (Multiport)

## Omnimux FT1 Card Set Straps

The following is a strap cross-reference table for the Omnimux FT1 Card Set.

**Note:** When an Omnimux FT1 Parameter is given in this font: **AUTO-5**, it shows the parameter name or value as it appears on the Omnimux's LCD.

**Table A-11. Omnimux FT1 Card Set Strap Display - Page 1**

<b>CMS 400 Parameter Display</b>	<b>Omnimux FT1 Parameter</b>
Primary T1 Link	T1 Link
Secondary T1 Link	Secondary T1 Link
Line Code	Line Code
Framing Format	Framing Format
CSU Line Buildup	CSU Line Build
ESF Type	ESF Framing Format
T1 Connection	T1 Connection
T1 Timing	T1 Timing
Ext Clock Base	External T1 Clock
Ext Clock Multiplier	External N Value
Wrap T1 Clock	Wrap T1 Clock
Secondary Switch	MAN-PRI, MAN-SEC, AUTO-5, AUTO-10, AUTO-20
Mode	S, D
Tail DSU	DS1 Drop and Insert Link
Line Code	Tail Line Code

**Table A-12. Omnimax FT1 Card Set Strap Display - Page 2**

<b>CMS 400 Parameter Display</b>	<b>Omnimax FT1 Parameter</b>
Ports 1 - 4	Ports 1 - 4
Clock Source	Port Clock
Ext Base Speed	Clock
Ext Multiplier	Multiple
Bundling	Bundling
Inverted TX	Inverted TX
Inverted Data	Inverted Data
Clear Channel	Clear Channel
Initial DS0	00 through 24

**Table A-13. Omnimax FT1 Card Set Strap Display - Page 3**

<b>CMS 400 Parameter Display</b>	<b>Omnimax FT1 Parameter</b>
DS0 Allocation 1 through 24	00 through 24
DS1 Tail Available For Ports 1-4	N, Y

## Omnimux TDM Card Set Straps

The following is a strap cross-reference table for the Omnimux TDM Card Set.

**Table A-14. Omnimux TDM Card Set Strap Display - Page 1**

<b>CMS 400 Parameter Display</b>	<b>Omnimux TDM Parameter</b>
Autodetect Link Speed	Link Speed Detect
Manual Link Speed	Link Speed
Link Clock	Local Tx Clock
Satellite Buffer State	Local Satellite Enable
System Sync Clock	External Tx Clock Source
Include Channel Speed (four options listed)	Channel Speed Option (four options listed)

**Table A-15. Omnimux TDM Card Set Strap Display - Page 2  
(For Channels 1 through 16)**

<b>CMS 400 Parameter Display</b>	<b>Omnimux TDM Parameter</b>
In Sync: RI	Set RI in Sync
In Sync: CTS	Set CTS in Sync
In Sync: DCD	Set DCD in Sync
In Sync: DSR	Set DSR in Sync
Out OF Sync: RI	Set RI no Sync
Out OF Sync: CTS	Set CTS no Sync
Out OF Sync: DCD	Set DCD no Sync
Out OF Sync: DSR	Set DSR no Sync

**Table A-16. Omnimax TDM Card Set Strap Display - Page 3  
(For Channels 17 through 32)**

<b>CMS 400 Parameter Display</b>	<b>Omnimax TDM Parameter</b>
In Sync: RI	Set RI in Sync
In Sync: CTS	Set CTS in Sync
In Sync: DCD	Set DCD in Sync
In Sync: DSR	Set DSR in Sync
Out Of Sync: RI	Set RI no Sync
Out Of Sync: CTS	Set CTS no Sync
Out Of Sync: DCD	Set DCD no Sync
Out Of Sync: DSR	Set DSR no Sync

**Table A-17. Omnimax TDM Card Set Strap Display - Page 4  
(For use with Async and Universal Cards only, Channels 1 through 16)**

<b>CMS 400 Parameter Display</b>	<b>Omnimax TDM Parameter</b>
Pt Speed	Channel Speed
Clock	Local Clock Source
Orient	Local Interface Type
RTS Mode	Fast RTS
DCD Mode	DCD Extend
Data Mode	Port Mode
Data Bits	Async Data Bits
Stop Bits	Async Stop Bits

**Table A-18. Omnimax TDM Card Set Strap Display - Page 5**  
**(For use with Async and Universal Cards only, Channels 17 through 32)**

<b>CMS 400 Parameter Display</b>	<b>Omnimax TDM Parameter</b>
Pt Speed	Channel Speed
Clock	Local Clock Source
Orient	Local Interface Type
RTS Mode	Fast RTS
DCD Mode	DCD Extend
Data Mode	Port Mode
Data Bits	Async Data Bits
Stop Bits	Async Stop Bits

## CMS 6424 Straps

The following is a strap cross-reference table for the CMS 6424.

**Table A-19. CMS 6424 Strap Display - Page 1**

<b>CMS 400 Parameter Display</b>	<b>CMS 6424 Parameter (Configuration Submenu)</b>
Service	N/A
Service ( <i>Read Only</i> )	Service Selection
DDS Rate ( <i>Read Only</i> ) ( <i>Not applicable when Service = CC64</i> )	Line Rate
Autobaud	Autobaud
Transmit Clock	Transmit Clock
Rate Adaption ( <i>Read Only</i> )	Rate Adaption

**Table A-20. CMS 6424 Strap Display - Page 2**

<b>CMS 400 Parameter Display</b>	<b>CMS 6424 Parameter (Configuration Submenu)</b>
Unit Configuration	N/A
Beeper	Beeper
Contrast	Contrast

**Table A-21. CMS 6424 Strap Display - Page 3**

<b>CMS 400 Parameter Display</b>	<b>CMS 6424 Parameter (Configuration Submenu)</b>
DTE Configuration	N/A
Transmit Clock	Transmit Clock
Receive Clock	Receive Clock
DTR On	DTR Control
RTS On	RTS Control
CTS On	CTS Control
CTS Delay	CTS Delay
DSR On	DSR On
DSR Off	DSR Off
EIA Pin 21	Pin 21
Port Configuration	N/A
Protocol <i>(Only applicable if DDS rate is 19.2 and below, or if Rate Adaption = On)</i>	Protocol
Mode <i>(Only applicable if Protocol = Async)</i>	Mode
Char Len <i>(Only applicable if Protocol = Async)</i>	Character
DTE Rate	N/A

**Table A-21. CMS 6424 Strap Display - Page 3 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>CMS 6424 Parameter (Configuration Submenu)</b>
Sync With Rate Adaption ( <i>Only applicable if Protocol = Sync, and Rate Adaption = Yes</i> )	Rate
Async With Rate Adaption ( <i>Only applicable if Protocol = Async, and Rate Adaption = Yes</i> )	Rate
Async Without Rate Adaption ( <i>Only applicable if DDS Rate = 2400, Protocol = Async, and Rate Adaption = No</i> )	Rate

**Table A-22. CMS 6424 Strap Display - Page 4**

<b>CMS 400 Parameter Display</b>	<b>CMS 400 Parameter (Configuration Submenu)</b>
Diagnostic Configuration	N/A
Local Initiate	Local Diagnostic Initiator
Remote Initiate	Remote Diagnostic Initiator
Network	Network
Location	Location
Anti-Streaming	Antistreaming
RTS Mode	RTS Mode
DCD Mode	DCD Mode
Test Pattern	Pattern
V54 Detection	V.54 Detector

**Table A-22. CMS 6424 Strap Display - Page 4 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>CMS 400 Parameter (Configuration Submenu)</b>
Integration Timers	N/A
RTS	RTS Time
DCD	DCD Time
DTE	DTE Time

**Table A-23. CMS 6424 Strap Display - Page 5**

<b>CMS 400 Parameter Display</b>	<b>CMS 6424 Parameter (Configuration Submenu)</b>
Access Mode	N/A
Test	Test
Configuration	Configuration

## Excalibur Multirate DAP Straps

The following is a strap cross-reference table for the Excalibur Multirate DAP.

**Table A-24. Excalibur Multirate DAP Strap Display - Page 1**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Topology	Network (DAP)
Orientation	Location (DAP)
Personality ( <i>Read-only</i> )	Service
Interface Type	Interface (DAP)
RTS-CTS Delay	CTS Delay (DAP)
CTS Control	CTS Control (DAP)
DSR Control	DSR On (DAP)
DSR Qualified By	DSR On (DAP)*
DSR During Tests	DSR Off (DAP)
Loop Via Pin 18	EIA Pin 18 (DAP)
DTR Control	DTR Control (DAP)
EIA Pin 21	EIA Pin 21 (DAP)
Operating Range	Range (DAP)
Pri Transmitter	Squelch Primary Transmitter (DAP)
Multiport Framing	Multiport Framing (Service: DDSNI/C64NI Configuration)
Digital Loop Test	Remote Digital Loop (DAP)
Latching Loopback	Latching Loopback (DAP)

\* This parameter is equivalent to the DSR On parameter's DDS Up option.

**Table A-24. Excalibur Multirate DAP Strap Display - Page 1 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Network Delay	Network Delay (DAP)
Ones-Density	Ones Density (DAP)
RTS Control	RTS (DAP)
Tx Clock	Transmit Clock (DAP)
Port RX Clock	Port Receive Clock (DAP)
Phase 3 Support Software/Hardware <i>(Read only)</i>	N/A

**Table A-25. Excalibur Multirate DAP Strap Display - Page 2**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Error Test Bits	Pattern (DAP)
Front Panel Lock	Locks access to Config, Diags, Dial, and Remote menus. (Security menu.)
Soft Straps Lock	Locks access to Config menu. (Security menu.)
Local Alarm View	Local Alarm Display (RCP)
Alarm Detection	Alarm Detection (RCP)
Beeper Control	Beeper (DAP)
Net Sec Chan Regen	Analog Regeneration (RCP)
Dig Sec Chan Regen	Digital Regeneration (RCP)

**Table A-25. Excalibur Multirate DAP Strap Display - Page 2 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
DCD Constant	DCD (DAP)
Excessive Resync Threshold	Excessive Resync Limit (Threshold)
Excessive Resync Timer	Excessive Resync Timer (Threshold)
V.13 Watchdog	N/A
RTS Mode For Events	RTS Mode (RCP)
DCD Mode For Events	DCD Mode (RCP)
Local Testing	Local Diagnostics (RCP)
Remote Testing	Remote Diagnostics (RCP)
Transmit Level	Transmit Level (Thrsh)
Receive Level	Receive Level (Thrsh)
Signal Quality	Signal Quality (Thrsh)
Diag. Compatibility	Diagnostic Compatibility (RCP)
Auto Poll Drops	Automatic Poll (DAP)
RTS Simulation/Type	RTS Simulation (DAP)
DCD Simulation/Type	DCD Simulation (DAP)

**Table A-26. Excalibur Multirate DAP Strap Display - Page 3**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Channel Name	N/A
Channel Speed	N/A

**Table A-26. Excalibur Multirate DAP Strap Display - Page 3 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Aggregate Rate	N/A
Port Assigned To	N/A
Port Speed	N/A
Protocol	Protocol (DAP)
Async Mode	Asynchronous Mode (DAP)
Async Char Length	Asynchronous Data Bits (DAP)

**Table A-27. Excalibur Multirate DAP Strap Display - Page 4**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
DTE Interface Connection	N/A
Port Is Connected To: Of Unit:	N/A
Unit Supports Super-Diagnostics ( <i>Read-Only</i> )	N/A
RTS (Use if unit does not support Super-Diagnostics)	RTS Antistreaming Timer (Thrsh)
DCD (Use if unit does not support Super-Diagnostics)	DCD Antistreaming Timer (Thrsh)
DTE Power Fail (Use if unit does not support Super-Diagnostics)	DTE Power Fail Timer (Thrsh)
RTS (Use if unit supports Super-Diagnostics)	RTS Antistreaming Timer (Thrsh)
DCD (Use if unit supports Super-Diagnostics)	DCD Antistreaming Timer (Thrsh)

**Table A-27. Excalibur Multirate DAP Strap Display - Page 4 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
DTE Power Fail (Use if unit supports Super-Diagnostics)	DTE Power Fail Timer (Thrsh)

**Table A-28. Excalibur Multirate DAP Strap Display - Page 5**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Dial Restoral (Use the following straps if unit has Analog IDBU)	N/A
Auto Dial	Automatic Dial (Dial)
Auto Dial Timer	Automatic Dial Timer (Dial)
Dialer	Dialer (Dial)
Off-Hook Delay	Wait to Dial (Dial)
Call Prog Signals	Call Progress (Dial)
Switch To Dial	Switch to Dial (Dial)
Auto Disconnect	Automatic Disconnect (Dial)
Dial DCD Thresh	DCD Threshold (Dial)
RTS Simulation	Port RTS-DCD Simulation (Dial)
DCD Simulation	Port RTS-DCD Simulation (Dial)
Backup Speed	Speed (Dial)
Answer Call	Answer Calls (Dial)
Dial Mode	Dial Mode (Dial)
Answerback	Answerback (Dial)

**Table A-28. Excalibur Multirate DAP Strap Display - Page 5 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
TX Clock Source	Transmit Clock (Dial)
TX Equalizer	Transmit Equalizer (Dial)
Line Testing	Dedicated Line Test (Dial)
Line Test Interval	Line Test Interval (Dial)
Route Sec. Channel	Route Secondary Channel (RCP)

**Table A-29. Excalibur Multirate DAP Strap Display - Page 6**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
ISDN Dial Restoral (Use the following straps if unit has ISDN IDBU)	N/A
Auto Dial	Automatic Dial (Dial)
Auto Dial Timer	Automatic Dial Timer (Dial)
Off-Hook Delay	Wait to Dial (Dial)
Call Prog Signals	Call Progress (Dial)
Switch To Dial	Switch to Dial (Dial)
Auto Disconnect	Automatic Disconnect (Dial)
RTS Simulation	Port RTS-DCD Simulation (Dial)
DCD Simulation	Port RTS-DCD Simulation (Dial)
ISDN Switch	Switch Type (Dial)
Answer Call	Answer Calls (Dial)
Dial Mode	Dial Mode (Dial)

**Table A-29. Excalibur Multirate DAP Strap Display - Page 6 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
TX Clock Source	Transmit Clock (Dial)
Line Testing	Dedicated Line Test (Dial)
Line Test Interval	Line Test Interval (Dial)
Route Sec. Channel	Route Secondary Channel (RCP)

**Table A-30. Excalibur Multirate DAP Strap Display - Page 7**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Switched-56 Dial Restoral (Use the following straps if unit has Switched 56 IDBU)	N/A
Auto Dial	Automatic Dial (Dial)
Auto Dial Timer	Automatic Dial Timer (Dial)
Call Prog Signals	Call Progress (Dial)
Auto Disconnect	Automatic Disconnect (Dial)
RTS Simulation	Port RTS-DCD Simulation (Dial)
DCD Simulation	Port RTS-DCD Simulation (Dial)
Echo Cancel	Echo Cancel Disable (Dial)
Answer Call	Answer Calls (Dial)
Line Testing	Dedicated Line Test (Dial)
Line Test Interval	Line Test Interval (Dial)
Ring Detect	Ring Detect (Dial)
Switch to Dial	Switch to Dial (Dial)

## Excalibur Multiport DAP Straps

The following is a strap cross-reference table for the Excalibur Multiport DAP.

**Table A-31. Excalibur Multiport DAP Strap Display - Page 1**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Topology ( <i>Read-only</i> )	Network (DAP)
Orientation	Location (DAP)
Personality ( <i>Read-only</i> )	Service (DAP)
Operating Range	Range (DAP)
Ext Clock Source	Transmit Clock (DAP)*
Tx Clock	Transmit Clock (DAP)
Phase 3 Support Software/Hardware ( <i>Read only</i> )	N/A
Pri Transmitter	Squelch Primary Transmitter (DAP)
Digital Loop Test	Remote Digital Loop (DAP)
Latching Loopback	N/A
Network Delay	Network Delay (DAP)
Ones-Density	N/A

\* This parameter is equivalent to the Transmit Clock parameter's External Clock Port # option.

**Table A-32. Excalibur Multiport DAP Strap Display - Page 2**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Front Panel Lock	Locks access to Config, Diags, Dial, and Remote menus. (Security menu.)

**Table A-32. Excalibur Multiport DAP Strap Display - Page 2 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Soft Straps Lock	Locks access to Config menu. (Security menu.)
Local Alarm View	Local Alarm Display (RCP)
Alarm Detection	Alarm Detection (RCP)
Beeper Control	Beeper (DAP)
Net Sec Chan Regen	Analog Regeneration (RCP)
Dig Sec Chan Regen	Digital Regeneration (RCP)
Auto Poll Drops	Automatic Poll (DAP)
Excessive Resync Timer	Excessive Resync Timer (Threshold)
DTR Control	DTR Control (DAP)
Test Pattern Type	Pattern (DAP)
DCD Constant	DCD (DAP)
Transmit Level	Transmit Level (Thrsh)
Receive Level	Receive Level (Thrsh)
Signal Quality	Signal Quality (Thrsh)
Diag. Compatibility	Diagnostic Compatibility (RCP)
Excessive Resync Threshold	Excessive Resync Limit (Threshold)
V.13 Watchdog	V.13 Watchdog (DAP)

**Table A-33. Excalibur Multiport DAP Strap Display - Page 3**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
RTS Control	RTS Control (Port)
CTS Control	CTS Control (Port)
Add 15 ms RTS-CTS Delay	CTS Delay (Port)
DSR Control	DSR Control (Port)
EIA Pin 18	EIA Pin 18 (Port)
EIA Pin 21	EIA Pin 21 (Port)
Transmit Clock	Transmit Clock (Port)
Receive Clock	Receive Clock (Port)
RTS Simulation	RTS Simulation (Port)
DCD Simulation	DCD Simulation (Port)
RTS Scanning	Scanning (Port)

**Table A-34. Excalibur Multiport DAP Strap Display - Page 4**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
RTS Anti-Streaming	RTS Antistreaming Timer (Thrsh)
DCD Anti-Streaming	DCD Antistreaming Timer (Thrsh)
DTE Power Fail	DTE Power Fail Timer (Thrsh)
Protocol	Protocol (Port)
Async Mode	Asynchronous Mode (Port)
Async Character Length	Asynchronous Data Bits (Port)
Async Speed	Speed (Channel)

**Table A-35. Excalibur Multiport DAP Strap Display - Page 5**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Aggregate Rate	N/A
Channel Name	N/A
Channel Speed	N/A
Speed At Back Rate 14.4	N/A
Speed At Back Rate 12.0	N/A
Speed At Back Rate 9.6	N/A
Speed At Back Rate 4.8	N/A
Port Assigned To	N/A
RTS Simul Dur Dial	Port RTS-DCD Simulation (Dial)
DCD Simul Dur Dial	Port RTS-DCD Simulation (Dial)

**Table A-36. Excalibur Multiport DAP Strap Display - Page 6**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
DTE Interface Connections	N/A
Port X Is Connected To: Of Unit:	N/A

**Table A-37. Excalibur Multiport DAP Strap Display - Page 7**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Dial Restoral (Use the following straps if unit has Analog IDBU)	N/A
Auto Dial	Automatic Dial (Dial)
Auto Dial Timer	Automatic Dial Timer (Dial)
Dialer	Dialer (Dial)
Off-Hook Delay	Wait to Dial (Dial)
Call Prog Signals	Call Progress (Dial)
Switch To Dial	Switch to Dial (Dial)
Auto Disconnect	Automatic Disconnect (Dial)
Dial DCD Thresh	DCD Threshold (Dial)
Route Sec. Channel	Route Secondary Channel (RCP)
Backup Speed	Aggregate Rate (Dial)
Answer Call	Answer Calls (Dial)
Dial Mode	Dial Mode (Dial)
Answerback	Answerback (Dial)
TX Clock Source	Transmit Clock (Dial)
TX Equalizer	Transmit Equalizer (Dial)
Line Testing	Dedicated Line Test (Dial)
Line Test Interval	Line Test Interval (Dial)

**Table A-38. Excalibur Multiport DAP Strap Display - Page 8**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
ISDN Dial Restoral (Use the following straps if unit has ISDN IDBU)	N/A
Auto Dial	Automatic Dial (Dial)
Auto Dial Timer	Automatic Dial Timer (Dial)
Call Prog Signals	Call Progress (Dial)
Switch To Dial	Switch to Dial (Dial)
Auto Disconnect	Automatic Disconnect (Dial)
Route Sec. Channel	N/A
Answer Call	Answer Calls (Dial)
Dial Mode	Dial Mode (Dial)
TX Clock Source	Transmit Clock (Dial)
Line Testing	Dedicated Line Test (Dial)
Line Test Interval	Line Test Interval (Dial)
ISDN Switch	Switch Type (Dial)

**Table A-39. Excalibur Multiport DAP Strap Display - Page 9**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Switched-56 Dial Restoral (Use the following straps if unit has Switched 56 IDBU)	N/A
Auto Dial	Automatic Dial (Dial)

**Table A-39. Excalibur Multiport DAP Strap Display - Page 9 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Auto Dial Timer	Automatic Dial Timer (Dial)
Call Prog Signals	Call Progress (Dial)
Auto Disconnect	Automatic Disconnect (Dial)
Echo Cancel	Echo Cancel Disable (Dial)
Answer Call	Answer Calls (Dial)
Line Testing	Dedicated Line Test (Dial)
Line Test Interval	Line Test Interval (Dial)
Ring Detect	Ring Detect (Dial)
Switch to Dial	Switch to Dial (Dial)

## Excalibur Multirate SET-1 DAP Straps

The following is a strap cross-reference table for the Excalibur Multirate SET-1 DAP.

**Table A-40. Excalibur Multirate SET-1 DAP Strap Display - Page 1**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Topology	Network (DAP)
Orientation	Location (DAP)
Pri Transmitter	Squelch Primary Tx (DAP)
Multiport Framing	Multiport Framing (Service: DDSNI/C64NI Configuration)
Digital Loop Test	Remote Digital Loop (DAP)
Latching Loopback	Latching Loopback (DAP)
Network Delay	Network Delay (DAP)
Tx Clock	Transmit Clock (DAP)
Rx Clock	Port Receive Clock (DAP)
RTS Control	RTS (DAP)
RTS Simulation/Type	RTS Simulation (DAP)
DCD Simulation/Type	DCD Simulation (DAP)
Personality ( <i>Read-only</i> )	Service
Interface Type	N/A
RTS-CTS Delay	CTS Delay (DAP)
CTS Control	CTS Control (DAP)
DSR Control	DSR On (DAP)
DSR Qualified By	DSR On (DAP)*
DSR During Tests	DSR Off (DAP)

**Table A-40. Excalibur Multirate SET-1 DAP Strap Display - Page 1 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Loop Via Pin 18	EIA Pin 18 (DAP)
DTR Control	DTR Control (DAP)
EIA Pin 21	EIA Pin 21 (DAP)

\* This parameter is equivalent to the DSR On parameter's DDS Up option.

**Table A-41. Excalibur Multirate SET-1 DAP Strap Display - Page 2**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Error Test Bits	Pattern (DAP)
Front Panel Lock	Locks access to <b>Config</b> , <b>Diags</b> , <b>Dial</b> , and <b>Remote</b> menus. (Security menu.)
Soft Straps Lock	Locks access to <b>Config</b> menu. (Security menu.)
Local Alarm View	Local Alarm Display (RCP)
Alarm Detection	Alarm Detection (RCP)
Beeper Control	Beeper (DAP)
Net Sec Chan Regen	Analog Regeneration (RCP)
Dig Sec Chan Regen	Digital Regeneration (RCP)
Excessive Resync Threshold	Excessive Resync Limit (Threshold)
Excessive Resync Timer	Excessive Resync Timer (Threshold)
V.13 Watchdog	V.13 Watchdog (DAP)

**Table A-41. Excalibur Multirate SET-1 DAP Strap Display - Page 2 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Auto Poll Drops	Automatic Poll (DAP)
RTS Mode For Events	RTS Mode (RCP)
DCD Mode For Events	DCD Mode (RCP)
DCD Constant	DCD (DAP)
Local Testing	Local Diagnostics (RCP)
Remote Testing	Remote Diagnostics (RCP)
Signal Quality	Signal Quality (Thrsh)
Diag. Compatibility	Diagnostic Compatibility (RCP)
Phase 3 Support Software/Hardware ( <i>Read only</i> )	N/A

**Table A-42. Excalibur Multirate SET-1 DAP Strap Display - Page 3**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Aggregate Rate	N/A
Channel Name	N/A
Channel Speed	N/A
Port Assigned To	N/A
Port Speed	N/A
Multiplexer Type	Mux Type (Connection)
Bus Selection	Bus (Connection)
DS0 Time Slot	Time Slot (Connection)

**Table A-42. Excalibur Multirate SET-1 DAP Strap Display - Page 3 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Cage Position	Cage Offset (Connection)

**Table A-43. Excalibur Multirate SET-1 DAP Strap Display - Page 4**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
DTE Interface Connection	N/A
Port Is Connected To: Of Unit:	N/A
Protocol	Protocol (DAP)
Async Mode	Asynchronous Mode (DAP)
Async Char Length	Asynchronous Data Bits (DAP)
RTS	RTS Antistreaming Timer (Thrsh)
DCD	DCD Antistreaming Timer (Thrsh)
DTE Power Fail	DTE Power Fail Timer (Thrsh)

**Table A-44. Excalibur Multirate SET-1 DAP Strap Display - Page 5**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Dial Restoral (Use the following straps if unit has Analog IDBU)	N/A
Auto Dial	Automatic Dial (Dial)
Auto Dial Timer	Automatic Dial Timer (Dial)
Dialer	Dialer (Dial)
Off-Hook Delay	Wait to Dial (Dial)

**Table A-44. Excalibur Multirate SET-1 DAP Strap Display - Page 5 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Call Prog Signals	Call Progress (Dial)
Switch To Dial	Switch to Dial (Dial)
Auto Disconnect	Automatic Disconnect (Dial)
Dial DCD Thresh	DCD Threshold (Dial)
RTS Simulation	Port RTS-DCD Simulation (Dial)
DCD Simulation	Port RTS-DCD Simulation (Dial)
Backup Speed	Speed (Dial)
Answer Call	Answer Calls (Dial)
Dial Mode	Dial Mode (Dial)
Answerback	Answerback (Dial)
TX Clock Source	Transmit Clock (Dial)
TX Equalizer	Transmit Equalizer (Dial)
Line Testing	Dedicated Line Test (Dial)
Line Test Interval	Line Test Interval (Dial)
Ring Detect	N/A

**Table A-45. Excalibur Multirate SET-1 DAP Strap Display - Page 6**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
ISDN Dial Restoral (Use the following straps if unit has ISDN IDBU)	N/A
Auto Dial	Automatic Dial (Dial)
Auto Dial Timer	Automatic Dial Timer (Dial)
Off-Hook Delay	Wait to Dial (Dial)
Call Prog Signals	Call Progress (Dial)
Switch To Dial	Switch to Dial (Dial)
Auto Disconnect	Automatic Disconnect (Dial)
RTS Simulation	Port RTS-DCD Simulation (Dial)
DCD Simulation	Port RTS-DCD Simulation (Dial)
ISDN Switch	Switch Type (Dial)
Answer Call	Answer Calls (Dial)
Dial Mode	Dial Mode (Dial)
TX Clock Source	Transmit Clock (Dial)
Line Testing	Dedicated Line Test (Dial)
Line Test Interval	Line Test Interval (Dial)
Route Sec. Channel	Route Secondary Channel (RCP)

**Table A-46. Excalibur Multirate SET-1 DAP Strap Display - Page 7**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Switched-56 Dial Restoral (Use the following straps if unit has Switched 56 IDBU)	N/A
Auto Dial	Automatic Dial (Dial)
Auto Dial Timer	Automatic Dial Timer (Dial)
Call Prog Signals	Call Progress (Dial)
Auto Disconnect	Automatic Disconnect (Dial)
RTS Simulation	Port RTS-DCD Simulation (Dial)
DCD Simulation	Port RTS-DCD Simulation (Dial)
Echo Cancel	Echo Cancel Disable (Dial)
Answer Call	Answer Calls (Dial)
Line Testing	Dedicated Line Test (Dial)
Line Test Interval	Line Test Interval (Dial)
Ring Detect	Ring Detect (Dial)
Switch to Dial	Switch to Dial (Dial)

## Excalibur Multiport SET-1 DAP Straps

The following is a strap cross reference table for the Excalibur Multiport SET-1 DAP.

**Table A-47. Excalibur Multiport SET-1 DAP Strap Display - Page 1**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Topology ( <i>Read-only</i> )	Network (DAP)
Orientation ( <i>Read-only</i> )	Location (DAP)
Personality ( <i>Read-only</i> )	Service (DAP)
Phase 3 Support Software/Hardware ( <i>Read only</i> )	N/A
Pri Transmitter	Squelch Primary Transmitter (DAP)
Digital Loop Test	Remote Digital Loop (DAP)
Network Delay	Network Delay (DAP)

**Table A-48. Excalibur Multiport SET-1 DAP Strap Display - Page 2**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Front Panel Lock	Locks access to Config, Diags, Dial, and Remote menus. (Security menu)
Soft Straps Lock	Locks access to Config menu. (Security menu)
Local Alarm View	Local Alarm Display (RCP)
Alarm Detection	Alarm Detection (RCP)
Beeper Control	Beeper (DAP)
Net Sec Chan Regen	Analog Regeneration (RCP)
Dig Sec Chan Regen	Digital Regeneration (RCP)

**Table A-48. Excalibur Multiport SET-1 DAP Strap Display - Page 2** (Continued)

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Auto Poll Drops	Automatic Poll (DAP)
Excessive Resync Timer	Excessive Resync Timer (Threshold)
DTR Control	DTR Control (DAP)
Test Pattern Type	Pattern (DAP)
DCD Constant	DCD (DAP)
Signal Quality	Signal Quality (Thrsh)
Diag. Compatibility	Diagnostic Compatibility (RCP)
V.13 Watchdog	V.13 Watchdog (DAP)
Excessive Resync Threshold	Excessive Resync Limit (Threshold)
Multiplexer Type	Mux Type (Connection)
Bus Selection	Bus (Connection)
Cage Position	Cage Offset (Connection)
DS0 Time Slot	Time Slot (Connection)

**Table A-49. Excalibur Multiport SET-1 DAP Strap Display - Page 3**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
RTS Control	RTS Control (Port)
CTS Control	CTS Control (Port)
Add 15 ms RTS-CTS Delay	CTS Delay (Port)
DSR Control	DSR Control (Port)
EIA Pin 18	EIA Pin 18 (Port)
EIA Pin 21	EIA Pin 21 (Port)

**Table A-49. Excalibur Multiport SET-1 DAP Strap Display - Page 3 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Transmit Clock	Transmit Clock (Port)
Receive Clock	Receive Clock (Port)
RTS Simulation/Type	RTS Simulation (Port)
DCD Simulation/Type	DCD Simulation (Port)
RTS Scanning	Scanning (Port)

**Table A-50. Excalibur Multiport SET-1 DAP Strap Display - Page 4**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
RTS Anti-Streaming	RTS Antistreaming Timer (Thrsh)
DCD Anti-Streaming	DCD Antistreaming Timer (Thrsh)
DTE Power Fail	DTE Power Fail Timer (Thrsh)
Protocol	Protocol (Port)
Async Mode	Asynchronous Mode (Port)
Async Character Length	Asynchronous Data Bits (Port)
Async Speed	Speed (Channel)

**Table A-51. Excalibur Multiport SET-1 DAP Strap Display - Page 5**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Aggregate Rate	N/A
Channel Name	N/A
Channel Speed	N/A
Dial Restoral	N/A

**Table A-51. Excalibur Multiport SET-1 DAP Strap Display - Page 5 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Speed At Back Rate 14.4	N/A
Speed At Back Rate 12.0	N/A
Speed At Back Rate 9.6	N/A
Speed At Back Rate 4.8	N/A
Port Assigned To	N/A
Dial Restoral	N/A
RTS Simulation/Type	N/A
DCD Simulation/Type	N/A

**Table A-52. Excalibur Multiport SET-1 DAP Strap Display - Page 6**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
DTE Interface Connections	N/A
Port X Is Connected To: Of Unit:	N/A

**Table A-53. Excalibur Multiport SET-1 DAP Strap Display - Page 7**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Dial Restoral (Use the following straps if unit has Analog IDBU)	N/A
Auto Dial	N/A
Auto Dial Timer	N/A
Dialer	N/A
Off-Hook Delay	N/A

**Table A-53. Excalibur Multiport SET-1 DAP Strap Display - Page 7 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Call Prog Signals	N/A
Switch To Dial	N/A
Auto Disconnect	N/A
Dial DCD Thresh	N/A
Route Sec. Channel	N/A
Backup Speed	N/A
Answer Call	N/A
Dial Mode	N/A
Answerback	N/A
TX Clock Source	N/A
TX Equalizer	N/A
Line Testing	N/A
Line Test Interval	N/A

**Table A-54. Excalibur Multiport SET-1 DAP Strap Display - Page 8**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
ISDN Dial Restoral (Use the following straps if unit has ISDN IDBU)	N/A
Auto Dial	Automatic Dial (Dial)
Auto Dial Timer	Automatic Dial Timer (Dial)
Call Prog Signals	Call Progress (Dial)

**Table A-54. Excalibur Multiport SET-1 DAP Strap Display - Page 8 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Switch To Dial	Switch to Dial (Dial)
Auto Disconnect	Automatic Disconnect (Dial)
Route Sec. Channel	Route Secondary Channel (RCP)
Answer Call	Answer Calls (Dial)
Dial Mode	Dial Mode (Dial)
TX Clock Source	Transmit Clock (Dial)
Line Testing	Dedicated Line Test (Dial)
Line Test Interval	Line Test Interval (Dial)
ISDN Switch	Switch Type (Dial)

**Table A-55. Excalibur Multiport SET-1 DAP Strap Display - Page 9**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Switched-56 Dial Restoral (Use the following straps if unit has Switched 56 IDBU)	N/A
Auto Dial	Automatic Dial (Dial)
Auto Dial Timer	Automatic Dial Timer (Dial)
Call Prog Signals	Call Progress (Dial)
Auto Disconnect	Automatic Disconnect (Dial)
Echo Cancel	Echo Cancel Disable (Dial)
Answer Call	Answer Calls (Dial)

**Table A-55. Excalibur Multiport SET-1 DAP Strap Display - Page 9 (Continued)**

<b>CMS 400 Parameter Display</b>	<b>Excalibur DAP Parameter (Configuration Submenu)</b>
Line Testing	Dedicated Line Test (Dial)
Line Test Interval	Line Test Interval (Dial)
Ring Detect	Ring Detect (Dial)
Switch to Dial	Switch to Dial (Dial)

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CMS 400 Leased Access Manager User's Guide 13D27A-7/E 6/98

Was the information in this manual presented in a logical order?

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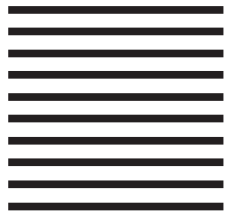
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