# USERS GUIDE

# ECLIPSE MV/9300™ AND ECLIPSE MV/9600™ PROCESSORS REMOTE ASSISTANCE

Data General

# ECLIPSE MV/9300™ AND ECLIPSE MV/9600™ PROCESSORS

# REMOTE ASSISTANCE USER'S GUIDE

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# FOREWORD

## THE PURPOSE OF THE REMOTE ASSISTANCE USER GUIDE

Data General has integrated a Data General proprietary advanced diagnostic service, Remote Assistance, as a feature for Data General service customers using ECLIPSE MV/9000™ Series Processors.

This Remote Assistance User's Guide has been developed to acquaint you with the purpose, procedures, and processes of the Data General Field Engineering remote assistance program. Your knowledge of this program will help you get the maximum benefits of remote assistance and will help us to help you recover from problems with your processor faster and easier.

## TERMS USED IN THIS MANUAL

The terms used when discussing remote assistance may get confusing when learning about this feature. The following terms and their intended meanings are listed here to help make your reading more understandable.

- Remote: This term describes the place from where the remote tests are being run. The site is usually a support center.

  Terms such as remote user, remote console, and remote processor are used simply to specify that the user, console, and processor are located at the remote end of the connection. This rule applies to any term that the word remote precedes.

- Local: This term describes the place of the network or processor being tested. The site is where your processor is installed.

  Terms such as local console and local processor are used simply to specify that the console or processor are located at your site. This rule applies to any term that the word local precedes.

- System Console – The system console is the console connected to the TTI/TTO port of the system board. Access to the System Control Program (SCP) and to the operating system is allowed when using this console.

- User Console – The user console is the console connected to communication lines (either the system board or an expansion board). The operating system can not be brought up when using these consoles and the SCP can not be accessed.

## REMOTE ASSISTANCE CLUSTERS DIAGNOSTIC EXPERTISE

The proprietary remote assistance program allows the Customer Support Center (CSC) to respond to your processor problems quickly. The CSC establishes a telecommunications link with your processor through the phone line and the communications equipment. The communications equipment is loaned and maintained by Data General. With your knowledge and participation, diagnostic procedures are initiated. Your remote assistance engineer analyzes the operation of your processor and attempts to restore your processor without onsite service.

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If onsite service is necessary, all available information about your problem is relayed to your local field engineer to make onsite service as effective and efficient as possible. The diagnostic experts at the CSC continue to support your field engineer to resolve the problem quickly. From the start of diagnostics until the problem is solver remote assistance saves you time.

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# SECTION 1
# INTRODUCTION

This section explains the remote assistance service features, compatible modems, access levels, and security features. It also lists the documentation related to the ECLIPSE MV/9300 ™ and ECLIPSE MV/9600 ™ processors.

## 1.1 REMOTE ASSISTANCE FEATURES

The ECLIPSE MV/9300 and ECLIPSE MV/9600 processors have remote assistance and Machine Initiated (MI) calling capabilities. Remote assistance allows remote support center personnel to service your processor by operating proprietary diagnostics and isolating equipment problems remotely before visiting the customer site. The MI calling feature enables a processor to initiate a remote service call to alert support center personnel of problems it has detected. An MI call is issued if a hardware failure (hard error) or software errors are detected; software errors are thresholded and prompt an MI call when the number of errors detected exceed this threshold. The remote assistance service feature used with ECLIPSE MV/9000 Series processors is a proprietary service tool and requires a Data General field engineer to enable it.

The communications interface that provides the remote capabilities resides on the system board. This interface allows those functions normally accessible only at a local console to be used remotely, while also providing normal user activity at the local console. An autodial modem is connected to provide remote access to the local processor. The remote user can control the processor at your site by issuing remote assistance commands that control and routing traffic between the ports.

The ECLIPSE MV/9000 Series remote assistance has the following features:

- Security provided by a password and dialback dialstring. This feature protects you by allowing only authorized personnel access to your processor. You can change the password and dialstring at anytime to ensure that a remote system calling into the processor is at a preselected site.
- A bypass hardware feature that allows cabling and other basic installation procedures to be verified prior to configuration.
- A nonvolatile Random Access Memory (RAM) that stores configuration data. These include baud rates, the password, and dialstrings.
- A clock/calendar Integrated Circuit (IC) that provides the date and time after being set.

## 1.2 THE 212A INTELLIGENT MODEM

The remote assistance feature is designed to function with a 212A compatible autodial modem with a Hayes* instruction set and a CCITT V.25 bis autodial modem for international use. A modem provides full duplex transmission and reception of serial binary data at high speed.

The modem must be installed by a Data General field engineer who should refer to the Installation, Repair and Maintenance Manual for the ECLIPSE MV/9000 Series Rackmount Processors (Document Number 043-003637) for information to install the modem for remote assistance. This manual is a Data General confidential document.

* Hayes is a registered trademark of Hayes Microcomputer Products, Inc.

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## 1.3 SECURITY FEATURES OF REMOTE ASSISTANCE

To preclude the possibility of unwarranted intrusion into your processor, the remote assistance feature provides security features to safeguard the integrity of the system. There are specific remote functional commands that may only be executed by the local user, as well as commands that are unique to the remote user. Some commands may be executed by both the local and remote user.

This subsection describes the security levels and security features that are provided with the remote assistance feature.

### 1.3.1 Access Levels

There are three levels of access which describe the authorization level you have given a remote user; none, limited, and full:

- NONE — Remote port is unable to connect to the host processor or user port and cannot change any of the configuration data. The local user is able to change the password, dialstring, and configuration data.
- LIMITED — Remote port is able to connect the host processor IAC port or communicate with the user terminal. The remote user is unable to change any of the configuration data. The local user cannot change the password, dialstring, or configuration data.
- FULL — Remote port can connect to both port/pairs of the host processor. Remote user can change the configuration parameters. The local user cannot change the password or dialstring.

### 1.3.2 Primary Security Features

The primary remote assistance security features available to the local user are the password, callback dialstring, and MI dialstring:

- PASSWORD – The local user can select one password of up to 40 characters to be stored in the nonvolatile RAM memory. The remote user must match this password in order to establish a modem port connection and subsequent access to the local host system.
- CALLBACK DIALSTRING – The local user can opt to store up to three callback dialstrings of up to 40 characters in nonvolatile RAM memory. When this security feature is used, remote sessions can be established only from a mutually known telephone number which is agreed on during installation.

  When programming a dialstring, the local user specifies a fragment of the dialstring (by using angled brackets) that must be entered by the remote user for a connection to be allowed. These dialstrings are used to determine if a remote call made to the processor is from an authorized site. If the dialstring fragment does not match one of the three stored in nonvolatile RAM memory, the connection is not allowed.
- MI DIALSTRING – An MI dialstring of up to 40 characters can be stored at the local processor. This dialstring is also stored in nonvolatile RAM memory. This dialstring is used to establish a connection with the remote site when the local system detects a hard error, or soft errors that exceed the failure threshold.

The local user selects the password or callback dialstrings to enable a specific security routing each time the modem automatically answers an incoming call. Incoming passwords and telephone number(s) are verified against the password and telephone numbers stored in nonvolatile RAM memory. Maximum security is afforded to the local user who chooses to use both the password and the telephone dialback dialstring option as the incoming call security routine is always generated.

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## 1.4 RELATED DOCUMENTS

This subsection lists the documents related to the ECLIPSE MV/9000 Series processors.

**Table 1-1. Related Manuals**

| DOCUMENT NUMBER | TITLE |
|---|---|
| 043-003637 | Installation, Repair and Maintenance Manual for the ECLIPSE MV/9300 and ECLIPSE MV/9600 Rackmount Processors (This manual is a Data General confidential document for authorized service personnel use only, contains modem information.) |
| 014-001854 | Using the ECLIPSE MV/9000 Series System Control Program (SCP) |
| 014-001853 | Configuring Your ECLIPSE MV/9000 Series Computer System |

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# SECTION 2
# OPERATING THE REMOTE ASSISTANCE FEATURE

This section contains information to operate the remote assistance feature.

**CAUTION**

If a problem is encountered with the ECLIPSE MV/9000 Series processor that may require remote support, DO NOT TURN OFF AND TURN ON the processor unless absolutely necessary. Removing the power may not allow subsequent use of remote support.

## 2.1 MODES OF OPERATION

The operating modes are determined by commands issued at the system console in the System Control Program mode; this mode is indicated with the Scp-Cli/Jp0> prompt. Depending on the access level allowed at the local console, a remote operator may also be able to issue commands. Refer to Using the ECLIPSE MV/9000 Series System Control Program (SCP) (Document Number 014-001854) for information about the commands used with the SCP.

The commands used for the remote assistance feature consist of a single character (upper or lower case) preceded by a CMD-BREAK. Hold down the CMD Key while pressing the BREAK Key, then release both keys. When both keys are released, the prompt *** Syscon BREAK *** or *** Remote BREAK *** is displayed depending on whether the command is issued at the system console or remote console. These prompts indicate that the console is ready to accept a single letter remote assistance command.

## 2.2 OPERATING PROCEDURES

This subsection explains how to start the processor and enter a password and the dialstrings needed to use the remote assistance feature.

### 2.2.1 Power-up Sequence

Two power-up sequences are used to start the ECLIPSE MV/9000 Series processors; one is used during installation to start the processor for the first time, and the other is used to start the processor each time thereafter.

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1. Initializing Power-up Sequence – This sequence initializes various parameters needed to operate remote assistance as well as initialize the modem. A Data General field engineer must initialize the modem after it is installed. The following parameters are initialized during this procedure:

   - Password is set to null.
   - Dialstrings are set to null and the callback feature is disabled.
   - IAC/USER baud rate is set to 9600 baud.
   - Modem baud rate is set to 1200 baud.
   - Modem is initialized and set to auto answer mode.

2. Normal Power-up Sequence – This sequence is performed during each successive power up. The modem is issued a series of commands to initialize it, enabling it to the auto answer mode.The following is displayed when the self test completes without detecting an error.

```
** POWER UP TESTING COMPLETED **

Scp-Cli/Jp0>

*** Initialize Modem ***

*** Done! ***

Scp-Cli/Jp0>
```

### 2.2.2 Entering A Password and Dialstrings

When the ECLIPSE MV/9000 Series remote assistance feature is first enabled, the password and dialback dialstring are set to nulls and remote calls will be accepted by the system. The remote user does not need to enter a password or correct dialback dialstrings. To get the security benefits of a password and a dialback dialstring, use the following procedure:

**NOTE**

The remote access level must be set to none (subsection 3.2.10) for these commands to be recognized.

1. At the system console, enter the CMD-BREAK A command.
2. Select a password and enter it at the password prompt (refer to subsection 3.2.1 for details.)
3. Enter the CMD-BREAK J command.
4. You can set up to three dialback dialstrings and one MI call dialstring. Set the desired dialstring(s) (refer to subsection 3.2.7 for details.)

## 2.3 REMOTE CONNECT SEQUENCE

A remote call differs from the MI call in that it is initiated by a remote user, not by the local processor. To establish a remote call, the remote user must enter the password and dialback dialstring that was programmed and agreed on during installation. Incoming passwords and dialstring fragments are verified against the password and dialback dialstring stored in nonvolatile memory.

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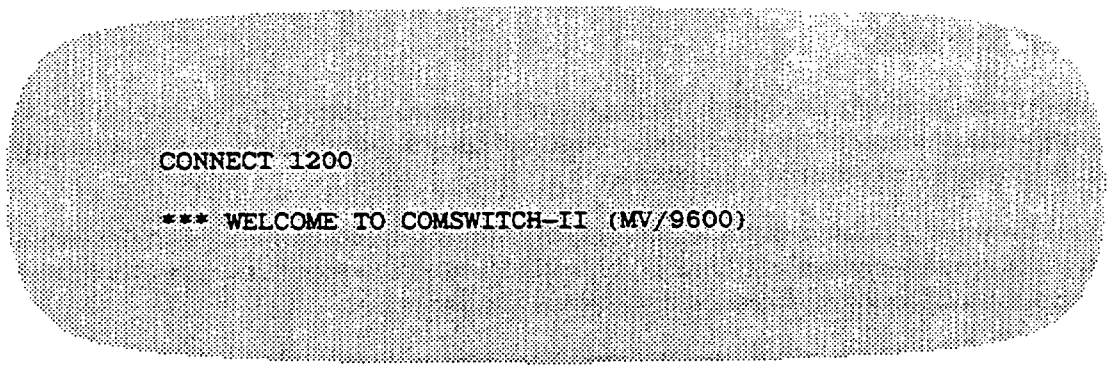
Subsection 2.3.1 explains the remote connect sequence when the dialback dialstrings are programmed during the initial setup. Subsection 2.3.2 explains the remote connect sequence when the dialback dialstring is not programmed during initial setup.

### 2.3.1 Remote Connect Sequence With Dialback Dialstrings Programmed

This subsection explains the remote connect sequence when you have programmed dialback dialstrings into nonvolatile RAM memory. Incoming passwords and dialstring fragments are verified against the password and dialstrings stored in nonvolatile RAM memory in the following manner:

1. The remote user issues a call to the local processor.
2. The modems establish a link. The message "CONNECT 1200" is displayed.
3. The local processor prompts the remote user to enter a password, a dialback dialstring fragment, and if necessary, an extension. The remote user must enter the correct password, the fragment of the dialstring that was agreed on during initialization, and the correct extension if one was specified. The dialstring fragment is specified by entering it in angle brackets when programming the dialback dialstring.
4. The local processor checks the received dialstring fragment against each of the three dialback dialstrings stored in nonvolatile RAM memory. If both the password and dialstring fragment are matched, the local processor dials the full dialback dialstring that matched the dialstring fragment received and appends the extension if one was given.
5. The modems establish a new link and the host displays the following:




The remote mode is set to NONE, and the host is ready to receive remote commands from the remote user.

If the remote user enters a password or dialstring fragment that do not agree with the data stored in nonvolatile RAM memory, the modem disconnects and an error message with time and date information is displayed on your console. Security penetration is only possible if you permit it.

### 2.3.2 Remote Connect Sequence Without Dialback Dialstrings Programmed

The dialback is disabled if no dialback dialstrings are entered during initial setup, or if all three dialback dialstrings are erased. Dialback dialstrings are erased by entering NEWLINE at the dialstring entry prompt. The following sequence occurs when the dialback feature is disabled:

1. The remote user initiates a call to the local processor.
2. The modems establish a link. The message CONNECT 1200 is displayed.

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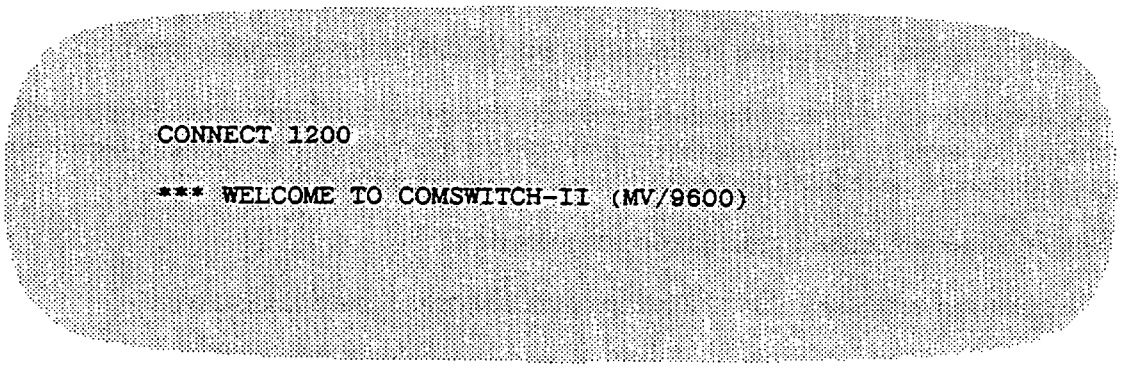
3. The local processor requests a password from the remote user.

4. If the password matches the following is displayed:




**NOTE**

If you have an ECLIPSE MV/9300, the message on the screen will reflect that information.

The remote mode is set to NONE and the local processor is ready to receive remote assistance commands from the remote user.

If the password does not not match, the local processor disconnects the modem link.

## 2.4 REMOTE MODES

There are three modes in which the remote user can opt to operate; User Mode, System Mode, and Mode None. Only the remote user can switch between these three modes; however if you set the access level to none, the remote console is forced into remote mode none.

User mode and system mode are used to connect the remote user to the local computer port and allow the remote user to operate your system remotely. This ability is helpful when the remote user needs to operate tests on your system. Mode none discontinues access to the system and user ports.

Use of these modes depends on what access level the local console allows. Not all of these modes can always be issued by the remote user. The degree to which the remote user can operate the local console depends on which mode is being used.

### 2.4.1 System Mode

The remote system mode connects the remote console to the local TTO/TTI computer port. This mode allows the remote user to have system console abilities, which allows access to the SCP. The access level must allow full access in order for the remote user to access this mode. This mode is accessed with the CMD-BREAK M command and can only be issued at the remote console. Refer to subsection 3.2.8 for details about this command.

### 2.4.2 User Mode

The user mode connects the remote console to the local IAC computer port. This mode gives user console capabilities to the remote user. The SCP can not be accessed in this mode. The local console must be set to allow either full or limited access level for the remote user to access this mode.

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Your user console is forced into read-only ability when the remote console is in this user mode. The CMD-BREAK U command issues this mode and can only be issued at the remote console. Refer to subsection 3.2.12 for details about this command.

### 2.4.3 Mode None

Mode none disconnects the remote terminal from the local computer ports. This mode can be accessed only from the remote console regardless of the access level allowed. However, if the remote access level is set to none, this is the only mode allowed. Mode none limits the abilities of the remote user to check status, view the help screen, and end a remote session. This mode is accessed with the CMD-BREAK N command. Refer to subsection 3.2.9 for details about this command.

## 2.5 MACHINE INITIATED CALLS

Machine initiated calls are issued when the local processor detects a hardware failure (hard error) or when a specific number of software errors are detected; software errors are thresholded and an MI call is issued when the number of errors exceed the preprogrammed threshold number. MI calls relay the error information to the remote front end processor to alert remote support center personnel of the problem. The MI feature is enabled when the MI dialstring is programmed with the CMD-BREAK J command; refer to section 3.2.7 for complete details about this command. If an MI dialstring is not programmed, it is set to null and the MI feature can not be used.

When an MI call is initiated, the local processor sends a packet of information to the remote front end processor. No information is displayed on the local terminal that indicates an MI call is in process; however all MI call attempts are recorded in the error log. The error log records the date and time the MI call was attempted and it records whether or not the MI call was successful.

MI calls are acknowledged by remote support center personnel who will telephone you to alert you of the MI call and to ask permission to make a remote connection to your processor so that remote service can be performed.

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# SECTION 3
# REMOTE ASSISTANCE COMMANDS

This section contains information to operate remote assistance commands used to operate the remote assistance feature. Some of these commands can be used by either you or the remote user; however, not all commands can be used by both.

The operating modes are determined by commands issued at the system console in the System Control Program (SCP) mode; this mode is indicated with the Scp-Cli/Jp0> prompt. Depending on the access level allowed at the local console, a remote operator may also be able to issue commands. Refer to Using the ECLIPSE MV/9000 Series System Control Program (SCP) (Document Number 014-001854) for information about the commands used with the SCP.

## 3.1 COMMANDS FORMAT

Remote commands consist of a CMD-BREAK function followed by a single character (upper or lower case). All responses generated by the remote assistance commands are bracketed by *** to easily differentiate the responses from normal traffic. Press and hold the CMD key while pressing the BREAK Key, then release both keys. The single letter remote assistance command is then ready to be entered. When the CMD-BREAK is detected, the prompt *** Remote BREAK *** or *** Syscon BREAK *** is displayed depending on whether the command is issued from the remote console or local system console.

If the letter following the CMD-BREAK is one reserved as a remote assistance command, the name of the command is displayed with the date and time:

```
*** command name ***
*** mm/dd/yy   hh:mm:ss ***
```

If the letter following the CMD-BREAK is not a remote assistance command, the response is:

```
*** ??? ***
```

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## 3.2 REMOTE ASSISTANCE COMMANDS

Use of the commands depend on the command, local access level, remote access level, and the console from where the command is issued. Not all commands are valid at all consoles and not all commands are valid at all access levels or modes. Issue a CMD-BREAK H command to list the commands. Table 3-1 lists the commands, the consoles, and access levels at which each command can be used. The following subsections describe each command:

| | | |
|---|---|---|
| 3.2.1 | CMD-BREAK A - | Password VIEW/CHANGE |
| 3.2.2 | CMD-BREAK B - | Send BREAK |
| 3.2.3 | CMD-BREAK C - | Conversation Mode ON/OFF |
| 3.2.4 | CMD-BREAK D - | Local Console ENABLE/DISABLE |
| 3.2.5 | CMD-BREAK E - | End Session |
| 3.2.6 | CMD-BREAK H - | HELP |
| 3.2.7 | CMD-BREAK J - | Dial String VIEW/CHANGE |
| 3.2.8 | CMD-BREAK M - | Remote Mode - SYSTEM |
| 3.2.9 | CMD-BREAK N - | Remote Mode - NONE |
| 3.2.10 | CMD-BREAK Q - | Access Level VIEW/CHANGE |
| 3.2.11 | CMD-BREAK R - | Local Console Read-only ON/OFF |
| 3.2.12 | CMD-BREAK U - | Remote Mode - USER |
| 3.2.13 | CMD-BREAK V - | Configuration VIEW/CHANGE |
| 3.2.14 | CMD-BREAK ? - | Status |
| 3.2.15 | CMD-BREAK Z - | RESET Modem |

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Table 3-1. Remote Assistance Functional Commands

| COMMAND | DESCRIPTION | VALID ACCESS LEVEL LOCAL CONSOLE | VALID ACCESS LEVEL REMOTE CONSOLE |
|---|---|---|---|
| A | Password View/Change | N | N/A |
| B | Send BREAK | N/A | L, F |
| C | Conversation Mode | N, L, F | N, L, F |
| D | Local Console Disable/Enable | F | N/A |
| E | END Session | N, L, F | N, L, F |
| H | HELP | N, L, F | N, L, F |
| J | Dial String View/Change | N | N/A |
| M | Remote Mode - System | N/A | F |
| N | Remote Mode - None | N, L, F | N, L, F |
| Q | Access Level View/Change | N, L, F | N/A |
| R | Local Console Read-Only On/OFF | F | F |
| U | Remote Mode - User | N/A | L, F |
| V | Configuration View/Change | N | F |
| Z | Reset Remote Modem | N | F |
| ? | Status | N, L, F | N, L, F |

Where: N = No access, L = Limited access, and F = Full access
N/A = Not Applicable

## 3.2.1 CMD-BREAK A - Password VIEW/CHANGE

This command is valid only at the local system console and can only be accomplished when remote access is set to None. The following is displayed if the command is issued at the system console:

```
Scp-Cli/Jp0>
*** Syscon BREAK ***
*** Password VIEW/CHANGE ***
*** mm/dd/yy    hh:mm:ss ***
*** Password:   [XXXXX] ***

*** Exit (0), or Password Change (1)? ***
```

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The first line of this command is *** Password VIEW/CHANGE ***; Enter 1 and the following is displayed:

```
*** Enter New Password:  ***
```

Enter the password of your choice, no longer than 40 characters, and press <NEW LINE> or <CR>. The following is displayed to verify the change:

```
*** Done! ***
*** Password: [XXXXXX]

*** Exit (0), or Password Change (1)? ***
```

The password must be entered within 20 seconds or a *** TIMEOUT *** message is displayed indicating that the present password remains in effect. You must issue this command again to change the password. The password is stored in nonvolatile RAM. Enter 1 to make a further change, or 0 to exit. The Scp-Cli/Jp0> prompt is displayed when you exit.

NOTE

It is possible to enter a null password by pressing <NEW LINE> or <CR> at the *** Enter New Password *** prompt without entering a password. If no password is entered, the security feature is defeated since the caller does not need a password to access the system. The remote user receives a password prompt, but only needs to enter <NEW LINE> or <CR> to access your system.

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If this command is attempted by the remote user, the following error message is displayed:

```
*** Invalid Command for this Port ***
```

If the command is issued while in any access level other than none, the following error message is displayed; you must change the access level if you want to change the password:

```
*** Invalid Command at this Access Level ***
```

### 3.2.2 CMD-BREAK B - Send BREAK

This command is valid only at the remote console when the remote console is in system mode. This command sends a BREAK to the CPU port which forces processor into the SCP mode; the Scp-Cli/Jp0> prompt is displayed.

Normally, the BREAK Key issued at the remote console is read as a remote assistance command precursor and does not bring the system into the SCP mode. The response to this command at the remote console is:

```
*** Remote BREAK ***
*** Send BREAK ***
*** mm/dd/yy  hh:mm:yy ***

Scp-Cli/Jp0>
```

### 3.2.3 CMD-BREAK C - Conversation Mode ON/OFF

This command is valid at the local console or the remote console. Conversation mode allows the remote user to communicate directly with you. Data input at either terminal is echoed on the console at the other site. None of this information is forwarded to the connected computer port. Any data transmitted by the processor is suspended until conversation mode is terminated.

When both sites are communicating in this mode, an end of conversation signal must be agreed on by the users at both sites (such as a NEWLINE, or "Done" message) so that each will know when the other is waiting for a response. If both users type simultaneously, the characters input by both users will echo to both screens on the same line. This will get confusing when the characters of a conversation interrupt the message trying to be communicated. You must press NEWLINE to end a line of communication.

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The command toggles between on and off. If the command is issued when conversation mode is off, conversation mode is turned on; if this mode is on, it will be turned off. The following commands also turn conversation mode off: CMD-BREAK E (end remote session), CMD-BREAK N (enter none mode), and CMD-BREAK U (enter user mode).

If the conversation mode is off when CMD-BREAK C is issued, the response at the commanding console is:

```
*** Conversation Mode ON/OFF ***
*** mm/dd/yy   hh:mm:ss ***
*** Conversation Mode ON ***
```

The response at the other console is:

```
*** Conversation Mode ON ***
*** mm/dd/yy   hh:mm:ss ***
```

If conversation mode is ON when CMD-BREAK C is issued, the response format is identical to the previous response shown, except that the response indicates that the conversation mode is off.

### 3.2.4 CMD-BREAK D - Local Console ENABLE/DISABLE

This command is valid only at your console when the remote mode is set to system mode. This command disables the local console. The console that is disabled with this command is still able to issue remote assistance commands.

This command operates in toggle fashion. If the local console is enabled when this command is issued, it will be disabled; if it is disabled, the console will be enabled. The following commands will also enable the local console when they are issued: CMD-BREAK E (end remote session), CMD-BREAK M (enter system mode), CMD-BREAK N (enter mode none), CMD-BREAK U (enter user mode). The local console is enabled if the carrier is undetected.

If your console is enabled when CMD-BREAK D is issued, the response is:

```
*** Local Console DISABLED/ENABLED ***
*** mm/dd/yy    hh:mm:ss ***
*** Local Console DISABLED ***
```

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The response at the remote console is:

```
*** Local Console DISABLED ***
*** mm/dd/yy    hh:mm:ss ***
```

If the local console is disabled when CMD–BREAK D is issued, the response format is identical to the previous response shown, except that the response indicates that the local console is enabled. If the command is issued from the remote console, the following is displayed:

```
*** Invalid command for this mode ***
```

### 3.2.5 CMD–BREAK E – End Session

This command is used to end the current mode and to disconnect the phone connection to or from the remote system. The response at the commanding console is:

```
*** END Session ***
*** mm/dd/yy    hh:mm:ss ***
```

The phone connection is broken. When the carrier loss is detected, the following is displayed on the local console:

```
*** Modem – OFF–LINE ***
*** mm/dd/yy    hh:mm:ss ***
```

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### 3.2.6 CMD-BREAK H - Help

This command lists all available commands and the revision of the firmware. The response at the commandir console is:

```
*** HELP ***
*** mm/dd/yy   hh:mm:ss ***
*** A - Password                    VIEW/CHANGE ***
*** J - Dial String                 VIEW/CHANGE ***
*** Q - Access-Level                VIEW/CHANGE ***
*** V - Configuration               VIEW/CHANGE ***
*** M - Remote Mode                 - SYSTEM ***
*** N - Remote Mode                 - NONE ***
*** U - Remote Mode                 - USER ***
*** C - Conversation Mode           ON/OFF ***
*** D - Local Console               DISABLE/ENABLE ***
*** R - Local Console Read-only     ON/OFF ***
*** B - Send BREAK ***
*** E - End Session ***
*** H - Help ***
*** Z - RESET Remote Modem ***
*** ? - Status ***
*** Firmware Revision XX ***
```

### 3.2.7 CMD-BREAK J - Dial String VIEW/CHANGE

This command is used to view and change the three callback dialstrings and the MI dialstring stored in nonvolatile RAM. CMD-BREAK J can be issued only at the local console, and only when the access level is none. The dialstring is the string sent to the autodial modem to dial the phone number that the caller left. The string should not contain the "ATD" prefix; the firmware adds the prefix before sending the dialstring to the modem.

The response to this command at the local console is:

```
*** Dial String VIEW/CHANGE ***
*** dd/mm/yy    hh:mm:ss ***
*** (0) Callback Dialstrings #0 [ ] ***
*** (1) Callback Dialstrings #1 [ ] ***
*** (2) Callback Dialstrings #2 [ ] ***
*** (3) MI_Call Dialstrings [XXXXXXXX] ***

*** Enter item number to change or CR/NL to Exit ***
```

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If you want to change or add a dial string, select the number of the line you want to change and press <NEWLINE> or <CR>. For example, to change the dialstring in line 0, the following is displayed:

```
*** (0) Callback Dialstrings #0 [ ] ***
*** Enter Dial String using < and > to indicate check portion ***
*** Enter New Dial String : ***
```

Enter the dial string at the prompt:

```
*** (0) Callback Dialstrings #0 [ ] ***
*** Enter Dial String using < and > to indicate check portion ***
*** Enter New Dial String : *** T366<2728>
```

The following is displayed:

```
*** Done! ***
*** (0) Callback Dialstrings #0 [T366<2728>] ***
*** (1) Callback Dialstrings #1 [ ] ***
*** (2) Callback Dialstrings #2 [ ] ***
*** (3) MI_Call Dialstrings [XXXXXXXX] ***

*** Enter item number to change or CR/NL to Exit ***
```

The dialstring may be set to nulls by inputting only a <NEWLINE> or <CR> into the selected dialstring. If the dialstring is set to nulls, the callback feature is disabled, and the caller will not be requested to leave a phone number. This disables the security feature and initial remote calls are allowed to issue remote assistance commands to your console. Your system does not verify that the call originated from an authorized site.

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Possible error messages are:

```
*** Invalid Command for this Port ***
```

```
*** Invalid Command at this Access Level ***
```

```
*** Illegal Dial String ***
```

If a dialstring is set as T9,1 617<478 4000>, the caller must leave the number 478 4000 or 4784000 along with any extension (or any other digits) left during the initial call-in. This number and extension will be used to call back the remote user. To dial, use touchtone dialing, dial 9 (to get an outside line) and then pause and dial the rest of the number, (spaces and <> ignored). The dialstring may contain the following characters:

- Digits 0 through 9
- Characters * and #
- <space> character (used for clarity; it is ignored when compared with the phone number left by the caller and is ignored when the modem is dialing)
- @- used for automatic touchtone or pulse dialing
- ,- indicates a pause
- P- Pulse dialing
- T- Touchtone dialing
- W- Wait for dialtone (if available on the modem used)
- <- Start of portion of dialstring to match with number left by caller
- > - End of portion of dialstring to match with number left by caller.

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It is up to you and the remote user to select phone numbers, dialstrings, and what portion of the actual phone number must be matched by the remote caller. This dialstring arrangement may be setup in many different ways and can also handle remote centers with multiple operators. Two examples of how a remote support center might handle the multiple phone number follow:

Example 1:

Remote support center setup with only one number and multiple extensions:

Area code 617
Exchange 478
Number 4000

The dialstring might be then set up as:

T 8,613677, 1 617 <478 4000>,,

The remote user leaves the number 4784000 and the extension calling from. The ,, is used to cause a delay between the end of the number and the dialstring of the extension. The 613677 in this example is a fictional access code.

Example 2:

Remote support center with multiple operators having individual outside lines and common portions of the numbers:

Area code 404
Exchange 373
Number 6700 through 6799

The dialstring might be set up as:

T 1,404<373 67>

The remote user would match the 37367 string and leave the remaining two digits 00 – 99 as an extension to complete the number to be dialed.

For a complete description of modem commands, see the modem manual that was shipped with the modem.

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### 3.2.8 CMD-BREAK M - Remote Mode - SYSTEM

This command is used to connect the remote console to the local TTO/TTI processor port and can only be issued at the remote console. The command allows the remote user to have system console capabilities to command your system console. The command also enables your user console if it is disabled or in conversation mode.

In response to the CMD-BREAK M command, the following is received at the remote console and your system console.

```
*** Remote Mode - SYSTEM ***
*** mm/dd/yy   hh:mm:ss ***
```

Possible error messages:

```
*** Invalid Command for this Port ***
```

```
*** Invalid Command at this Access Level ***
```

### 3.2.9 CMD-BREAK N - Remote Mode - NONE

This command disconnects the remote console from both the system console and user console ports, but the modem link remains connected. The command can only be issued from the remote console. If the command is issued while the remote console is in user mode, your user console keyboard input will be re-enabled; remember that your user console is in read-only mode when the remote console is in user mode. This is the only remote mode available when the remote access level is set to none.

If the local system console user sets the remote access level to none, the remote console is forced into remote mode none. The remote console does not have access to either system mode or user mode, and the remote console does not echo activity seen on either console. This mode is exited by issuing the commands CMD-BREAK U, CMD-BREAK M, or CMD-BREAK E.

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The following is received on the remote console:

```
*** Remote Mode - NONE ***
*** mm/dd/yy   hh:mm:ss ***
```

## 3.2.10 CMD-BREAK Q - Access Level VIEW/CHANGE

This command is used to set the security level of the local processor by setting the access level that the processor allows remote users. The command can only be issued at the local console. The following message is displayed on the local system console when this command is issued:

```
*** Access-level VIEW/CHANGE ***
*** mm/dd/yy   hh:mm:ss ***
*** Current Remote Mode:  [NONE] ***
*** Current Access-level: [FULL] ***

*** (1)=NONE, (2)=LIMITED, (3)=FULL ***
*** Enter Choice: ***
*** Current Access-level: [NONE] ***

*** (1)=NONE, (2)=LIMITED, (3)=FULL ***
*** Enter Choice: ***
```

The first line after the date and time indicates the setting of the remote mode. This is provided for your information but cannot be changed with this command. The remote mode could be either system mode, user mode, or none mode issued with commands CMD-BREAK M, CMD-BREAK U, or CMD-BREAK N, respectively.

The following line indicates the present access level. The access level can be changed to one of the following:

- NONE — Remote port is unable to connect to the host processor or user port and cannot change any of the configuration data. The local user is able to change the password, dialstring, and configuration data.
- LIMITED — Remote port is able to connect the host processor IAC port or communicate with the user terminal. The remote user is unable to change any of the configuration data. The local user cannot change the password, dialstring, or configuration data.
- FULL — Remote port can connect to both port/pairs of the host processor. Remote user can change the configuration parameters. The local user cannot change the password or dialstring.

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### 3.2.11 CMD-BREAK R - Local Console Read-Only ON/OFF

This command is valid from the remote console when in the system mode and is used to prevent the local console from sending any data while still being able to receive output. The command is useful when automatic responses from both the local and remote consoles are interfering (ex. cursor position information). A console set to read-only by command CMD-BREAK R is still able to issue remote assistance commands.

This command toggles between read-only mode on and off. If the local console is enabled when this command is issued, it is set to read-only; if the local console is read-only, it is enabled. The following commands also enable the local console: CMD-BREAK E (end remote session), CMD-BREAK M (enter system mode), CMD-BREAK N (enter normal mode), CMD-BREAK U (enter user mode). The local console is enabled if a loss of carrier is detected also.

If the local console is enabled when the CMD-BREAK R command is issued, the response at the remote console is:

```
*** Local Console Read-only ON/OFF ***
*** mm/dd/yy    hh:mm:ss ***
*** Local Console READ-ONLY ***
```

The response at the local console is:

```
*** Local Console READ-ONLY ***
*** mm/dd/yy   hh:mm:ss ***
```

If the local console is in read-only mode when the CMD-BREAK R command is issued, a similar response is issued, except the message indicates that the console is ENABLED. Possible error messages are:

```
*** Invalid Command for this Mode ***
```

```
*** Invalid Command at this Port ***
```

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### 3.2.12 CMD-BREAK U - USER

This command is used to connect the remote console to an IAC port of a local processor. It can only be issued from the remote console. This command gives user console capabilities to the remote operator and forces the local user console into read-only mode. The SCP cannot be accessed while in this mode. This command also forces the local system console to attach to the operating system that is presently running. The command enables the local console if it is disabled or in conversation mode. If the current remote mode is system mode, this command terminates it.

In response to the CMD-BREAK U command, the following is received at the remote console:

```
*** Remote Mode - USER ***
*** mm/dd/yy    hh:mm:ss ***
```

Possible error messages are:

```
*** Invalid Command for this Port ***
```

```
*** Invalid Command at this Access Level ***
```

### 3.2.13 CMD-BREAK V - Configuration VIEW/CHANGE

This command is used to view and change the parameters of the various serial I/O ports. This command allows the remote user to verify the configuration of the host processor. Some of these parameters are stored in the nonvolatile RAM with some of them being fixed. The baud rate of the IAC/USER port, the character length, and the modem type parameters can be configured using this command. The remaining information is for help purposes only. The default baud rate on the IAC/USER is 9600.

The signal protocol for the SYS/CPU ports is RS-232 with a HARD busy.

The CMD-BREAK V command can be issued from the system console and the remote console. The access level (set using CMD-BREAK Q) affects which sites are allowed to make parameter changes; the remote console must have full access.

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After a CMD-BREAK V command is issued, the following is displayed:

```
*** Configuration VIEW/CHANGE ***
*** mm/dd/yy    hh:mm:ss ***

*** CPU/SYS ***
*** Baudrate (min. 1200) - 9600 ***
*** Character length     - 8 bits ***
*** Busy                 - HARD ***
*** Signal Protocol      - RS-232 ***

*** IAC/USER ***
*** Baudrate (min. 1200) - 9600 ***
*** Character length     - 8 bits ***
*** Busy                 - HARD ***
*** Signal Protocol      - RS-422/RS-232 ***

*** MODEM ***
*** Baudrate             - 1200 ***
*** Character length     - 8 bits ***
*** Busy                 - HARD ***
*** Signal Protocol      - RS-232 ***
*** Modem type           - Hayes ***

*** (0) Exit
    (1) IAC/USER Baudrate change
    (2) Character length change
    (3) Modem type change ? ***
```

The type of modem can be changed by entering option 3. The response is:

```
*** (1) HAYES modem,  (2) CCITT modem ? ***
```

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When the type of modem is selected, for example option 2, the system console responds:

```
*** MODEM ***
*** Baudrate           - 1200 ***
*** Character length   - 8 bits ***
*** Busy               - HARD ***
*** Signal Protocol    - RS-232 ***
*** Modem type         - CCITT ***
```

The IAC/USER baud rate and character length can also be changed from the preceding menu. A *** TIMEOUT *** error message indicates that you waited too long to input a change. You must issue this command again to make the change.

### 3.2.14 CMD-BREAK ? - Status

This command indicates the current status of the remote assistance feature at the local console. After the CMD-BREAK ? command is issued, the following is displayed:

```
*** Status ***
*** mm/dd/yy   hh:mm:ss ***
*** Access Level - FULL ***
*** Modem - OFF-LINE ***

*** Local Console - ENABLED ***
```

The first line after the date and time indicates the access level allowed by the local console. The access level is set with the CMD-BREAK Q command.

The second line after the date and time indicates if the modem is online or offline. If the modem is described as being online, the remote connection is established to the host. If it is offline, there is no remote connection.

The line immediately following the modem line, blank in this example, contains the remote mode information and is only listed when the modem is indicated as being online; this line is left blank if the modem is offline. This line indicates the current remote mode; the connection arrangement between the remote port and the CPU/SYS and IAC/USERS pairs:

- NONE — Remote port is currently not patched to any of the host system ports.
- USER — Remote port is currently patched to the user console through the IAC port.
- SYSTEM — Remote port is currently patched to the TTO/TTI port (the system console port).

The last line reads enabled only when the local console is in system or user mode. The local console is enabled or disabled with the CMD-BREAK D command. Read-only mode is turned on or off with the CMD-BREAK R command, and conversation mode is turned on or off with the CMD-BREAK C command.

Keep in mind that the your system console is always in system console mode, your user console is always in user console mode, and only the remote console can switch between these two modes.

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### 3.2.15 CMD-BREAK Z, RESET Remote Modem

This command can be issued at either the local console or the remote console. This command issues a reset command to the modem, but does not initialize it to set modem parameters. The following is received when this command is issued:

```
*** MODEM RESET ***
*** dd/mm/yy    hh:mm:ss ***
*** Done! ***
```

END OF MANUAL

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