

TB200

Local Exchange Gateway Configuration Guide



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Preface



AUDIENCE

This guide is prepared for technicians who are responsible for the installation of Tollbridge equipment, and who are thoroughly familiar with the network topology in which the TB200 Gateway is expected to operate.

INTRODUCTION

This guide provides detailed technical information and procedures to insure successful installation and operation of the TB200.

This guide is intended for technicians or system administrators who are responsible for:

- Performing initial software configuration upon completion of hardware installation
- Monitoring the TB200
- Downloading software

CONVENTIONS

This section describes the conventions used to delineate specific types of information throughout TollBridge Technologies user guides.

Symbols

Symbols denote text that requires special attention. The information contained alongside a symbol corresponds to one of four levels of severity:



NOTE: Follow guidelines in this, or the previous, paragraph to use the TollBridge Technology product more effectively.



CAUTION: Follow guidelines in this, or the previous, paragraph to avoid equipment damage or faulty application.



WARNING: Follow the instructions in this, or the previous, paragraph to avoid personal injury.

Typography

Tollbridge manuals delineate the names of files, commands, and actions by using the fonts and typefaces described in the following table:

Typeface or Symbol	Purpose	Example
Courier Font AaBbCc123	The names of commands, files, and directories, as well as on-screen computer output.	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>machine_name%</code> You have mail.
Courier Font, Bold AaBbCc123	The input you provide, as contrasted with on-screen computer output.	<code>machine_name%</code> su
	Keystrokes that you must provide to use the application.	Press Ctrl-L to refresh the screen.
<i>Palatino Font, Italic AaBbCc123</i>	Command-line placeholder that you replace with a real name or value.	To delete a file, type rm filename
	Book titles, new words or terms, or words that need to be emphasized.	Refer to Chapter 6 in the <i>User Guide</i> . These are called <i>class</i> options. You <i>must</i> be logged in as root to access this directory.
▼ Zapf Dingbats Font	Symbol that denotes a single-step procedure or task. Procedures requiring more than one task are numbered.	



Typeface or Symbol	Purpose	Example
Palatino Font, Bold Blue, Underscore AaBbCc123	Hyperlinks in the table of contents. When viewing the Portable Document Format (PDF) version of the user guide, you can click on one of these to jump directly to the selected subject matter.	
Palatino Font, Blue AaBbCc123 or AaBbCc123	Hyperlinks throughout general text.	
Helvetica Bold	Denotes actual markings on front or back panels.	Attach the cable to the TERMINAL port



TOLLBRIDGE CUSTOMER CARE

If you should experience difficulty with the setup and/or operation of your Tollbridge equipment, the Customer Care staff can assist you at any time.

Telephone	(408) 585-2198 (888) 561-7647
FAX	(408) 585-2101
Email	support@tollbridgetech.com
Internet	www.tollbridgetech.com

Before you place a call for help, use the form provided at the end of this Preface to assemble the information that your technical support representative is likely to request.

RETURNING A UNIT

To ensure proper credit for replacement parts issued, please return damaged or defective parts and equipment to Tollbridge Technologies in a timely manner. Follow the details listed below:

- 1. Please use the Pre-Paid FedEx Air Bill provided to return the damaged or defective part to Tollbridge Technologies**
- 2. After removing the replacement unit, re-use this container to return the product**
- 3. Peel and place the RMA# label provided on the exterior of the container**
- 4. Include a copy of your SHIPPER document within the container**
- 5. Fill in the section of the provided FedEx Air Bill with the following information:**

SECTION 1 – FedEx Air Bill

Sender's Name

Phone #

Company Name

Address, City, State, Zip

SECTION 2 – FedEx Air Bill

Total Packages

Total Weight



-
- 6. Place Air Bill in FedEx pouch provided**
 - 7. Peel and place the FedEx pouch provided to the exterior of the container**



NOTE: Do not cover the TollBridge Technologies RMA Label



TB200 GATEWAY

The TB200 Gateway shown in [Figure 1-1](#) is designed for Competitive Local Exchange Carrier (CLEC) and Central Office (CO) applications, cable and wireless. Coupled with the TB50 IAD or the TB55 IAD, which is installed as Customer Premise Equipment (CPE), it provides an IP voice over Broadband solution.



Figure 1-1 TB200 Gateway

The TB200 Gateway supports the following:

- One Interface Group (IG)
- One DS3 (broadband) interface
- Up to 28 DS1 (switch) interfaces

- Up to 668 DS0s (concurrent calls)
- Up to 2048 configured lines (call reference values)

Also, the following broadband networks are supported:

- Synchronous digital subscriber line (SDSL)
- Asynchronous digital subscriber line (ADSL)
- Wireless
- Cable
- T1
- Digital Signal level 1 (DS1) connections for all major CLASS 5 switches

This chapter provides the steps to establish a voice path connection between the TB200 and a CPE (TB50 IAD, TB55 IAD).



NOTE: a *CPE* is also referred to as *IAD*.

OVERVIEW

Following are the minimum required steps to establish connectivity between TB200 and IAD.

- 1. Initial Log On**
- 2. Define IP Address, Subnet Mask and Default Router**

Defining the IP addresses requires access to the command line interface (CLI). The CLI can be accessed via both serial and Telnet connections. The initial log on requires a serial connection. Up to five (5) Telnet sessions are supported.
- 3. Assign IP Address to the DS3 Port**
- 4. Configure an IG for the TB200**
- 5. Configure a TB200 to CPE Voice Communication Path**
- 6. Define the CPE**
- 7. Assign CRVs**

REQUIREMENTS

Site Preparation

- IAD (TB50, TB55) installed and configured (the default router configuration supports TB50):
 - IP address set on the CPE
 - IP mask set on the CPE
 - CPE identification number assigned
 - Virtual path identifier (VPI) virtual circuit identifier (VCI) values of the permanent virtual circuit (PVC) that terminates on the TB200. Your system administrator can identify these values.
- TB200 installed and operational.
- The following addresses must be defined (data services or your system administrator can provide this information):
 - IP address for Administration module
 - Subnet mask for Ethernet interface
 - Router address
- For the IG (interface group)
 - The Class 5 switch the TB200 will interface to. Currently (Release 1.4), TB200 is compliant with Lucent 5E, and Nortel DMS10, DMS100, and DMS500.
 - Identify which DS1s that will function as primary and secondary DS1s: An IG can have up to 28 DS1s but requires a minimum membership of two — one primary and one secondary.
 - Identify how many DS1s will be assigned to the IG
- Username (optional)
- Password

Required Tools

- One PC (personal computer) or terminal for software configuration
- One DB-9 female-to-female serial cable to connect a PC or terminal to the serial port of the TB200

CONFIGURATION

Initial Log On

Initial log on requires a serial connection to a DB-9 port, COM1, which is located on the front of the Administration module. A PC port typically requires a cable with a female DB-9 connector. However, terminal connections can vary, requiring either a DB-9 or DB-25 connector, male or female.



NOTE: After an IP address is assigned, the system can be accessed via Telnet connection.

1. **Verify the wiring of the serial cable is correct. See [Figure 2-1](#).**
2. **Serial cable options between a TB200 and a PC or terminal are shown in [Figure 2-1](#).**
3. **Connect the personal computer (PC) running a terminal emulation program or the terminal to the serial port (COM1) of the TB200 Administration module with a straight-through cable.**

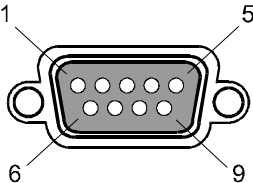
Pin Assignment	Pin Number	Switch Signal
	1	Not Used
	2	TXD (output)
	3	RXD (input)
	4	Not Used
	5	GND
	6	Not Used
	7	CTS (input)
	8	RTS (output)
	9	Not Used

Figure 2-1 TB200 Serial port pinouts

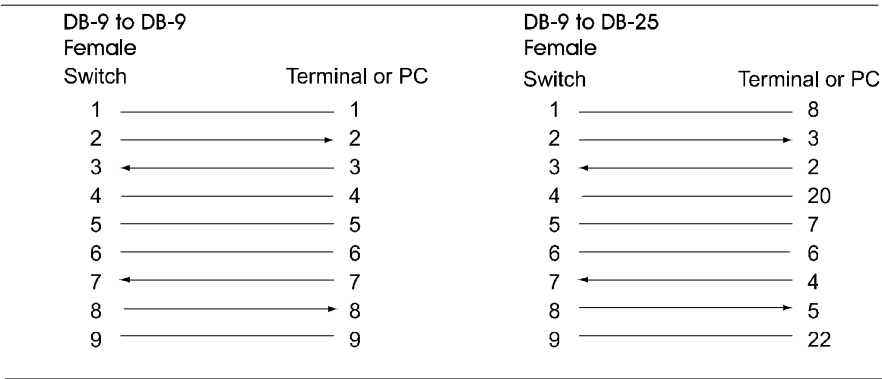


Figure 2-2 Serial Port Pin Assignment

1. Set the parameters of the PC or the terminal:

Baud: 9600 bps

Data bits: 8

Parity: None

Stop bits: 1

Flow control: None

When connectivity to TB200 is established, you are prompted for a password and user ID:

username:

password:



NOTE: The username can be any value. The default password is **ok**.

After correctly entering password and user ID, a prompt appears:

>



NOTE: The appearance of the prompt can vary.

Define IP Address, Subnet Mask and Default Router

Define the IP address, subnet mask, and default router address. To do so, enter the commands `set ipaddr`, `set ipmask`, and `set iprtr`. The interface must be through the Ethernet. An example follows.



NOTE: The addresses shown below (such as 193.53.3.1) are only examples. Enter the correct addresses that data services provided.

```
> set ipaddr eth 1-1-f-1 193.54.3.1
> set ipmask eth 1-1-f-1 255.255.255.0
> set iprtr eth 1-1-f-1 193.10.6.9
```

Additional information follows.

```
> set ipaddr <ifType> [ifId] <ipAddr>
> set ipmask <ifType> [ifId] <ipMask>
> set iprtr <ifType> [<ifId>] <ipAddr>
```

where:

ifType: The type of interface that an IP address is being assigned.

ifId: The physical location of the interface, <shelf>-<slot>-<fbIndicator>-<port>.

ipAddr: The IP address assigned to the interface.

For detailed information, see [“set ipaddr” on page B-20](#), [“set ipmask” on page B-21](#), [“set iprtr” on page B-22](#).



NOTE: Data services provides the IP address, subnet mask, and default router address.

Assign IP Address to the DS3 Port

Define an IP address to the voice path interface. To do so, enter the command `set voicepath`. An example follows.



NOTE: The addresses shown below (such as 193.54.3.1) is only an example. Enter the correct address that data services provided.

```
> set voicepath 1 193.54.3.1
```

Additional information follows.

```
set voicepath <vPathId> <vPathType> <ifType> <ifId> <vpi:vci>
  [<encapType>] [<voiceCardId>] [<ipAddr>]
```

where:

vPathId: Refers to a unique identification number for a voice communication path.

vPathType: The underlying mechanism providing the communication path.

voiceCardId: Defines which Voice module will terminate the VCC.

ifId: Refers to the physical location of the interface .

vpi:vci: Defines the VPI and VCI values of the PVC.

encapType: Refers to the encapsulation type used on the PVC.

ipAddr: The IP address of the voice path. If not specified, the IP address is identified with the identified interface: <ifType><ifId>

For detailed information, see [“set voicepath” on page B-61](#).

Configure an IG for the TB200

- There are three components to configure an IG (Interface Group): Assign CRV that map the CLASS 5 switch lines to CPE analog lines
- Add DS1s to the IG (Optional)
- Assign CRV that map the CLASS 5 switch lines to CPE analog lines

Create an IG

To create an IG, the physical location of the primary and secondary DS1s must be defined. The logical location must also be defined for the secondary DS1.

Physical location refers to the shelf, slot and port designation on the TB200. The logical location (`secIgLineId`) refers to which CO switch the DS1s (1 to 28) are allocated.

The primary DS1 is, by default, always assigned to line 1. The secondary DS1 can be assigned to reside on any of the remaining logical lines, 2 to 28.

To create a new IG that has its primary DS1 on shelf 1, slot 5, port 1 and its secondary DS1 on shelf 1, slot 5, port 2, terminates on a Lucent DMS100 and has alarms enabled, enter:

```
> set gr303ig dms100 gr303 enable 1-5-1 28 1-5-2
```

By default, the DS1 designated as primary carries the EOC and TMC management control data on two of its 24 DS0s. The remaining 22 DS0s are available for data.

Two DS0s are also reserved on the secondary DS1 for EOC and TMC management data.

Additional information follows:

```
> set gr303ig <igId> [igName] <switchType> <alarmReport>  
  <alarmEnable> <priDs1Id> <secIgLineId> <secDs1Id>
```

where:

switchType: Identifies the type of class 5 switch connected at the other end of the IG.

alarmReport: Defines the alarms that are reported for the IG.

alarmEnable: Enables or disables the reporting of alarms for the specified IG(s).

priDs1Id: Identifies the physical location of the primary DS1.

secIgLineId: Refers to the logical line number in the IG that is assigned to the secondary DS1.

secDs1Id: Identifies the physical location of the secondary DS1.

igId: Refers to a unique identifier for an IG, assigned when the IG is created using *set gr303ig*.

igIdRange: Refers to a range of IG numbers.

`igIdRange = <igId..igId>`.

igName: Identifies an IG by a user-specified name.

* : Wildcard operator, all possible values.

For detailed information, see “set gr303ig” on page B-52.

For information about modifying an existing IG, see “set gr303ig” on page B-52.

Add DS1s to the IG

Up to 28 DS1s can be assigned to an IG. Two of the 28 DS1s, the primary and secondary DS1s, which were defined as members when the IG was created.

Both a physical and logical assignments are defined.

To add four fully operational DS1s from the DS1 module in slot 6 to an IG, enter:

```
> set igdsl 1-6-1..4 unlocked
```

Additional information:

```
set ds1 {<ds1Id> | <ds1IdRange> | {<igId> | <igName>} {<igLineId> |
<igLineIdRange>} }...[<frameType>] [<lineCode>] [<loopbackType>]
[{{dsx <lineLength>} | {t1 <attenLevel>}}][<adminState>]
```

where:

ds1Id: Refers to the DS1 that is to be modified. ds1Id = <shelf>-<slot>-<fbindicator>-<port>.

<shelf> = <1 to 3>

<slot> = <2 to 8, 11 to 17>

<fbindicator> = where "b" refers to the back module.

<port> = <1 to 4>

ds1IdRange: Refers to a range of DS1s. ds1IdRange = <ds1Id..ds1Id>

igId: Refers to a unique identifier for an IG, assigned when the IG is created using the *set gr303ig...* command. Possible values are 1 to 50.

igId = <1 to 50>

igName: Identifies an IG by a user-specified name. A double-quoted text string of up to 32 alphanumeric characters can be used.

igName = <" text string">.

igLineId: Refers to a specific number within an IG. Possible line number values are 1 to 28.

igLineId: <1 to 28>

igLineIdRange: Refers to a range of IG line numbers. Possible line number (igLineId) values are 1 to 28.

igLineIdRange: <1 to 28..1 to 28>

frameType: Refers to the type of framing being used on the line. Possible values are: sf, esf (default value).

frameType: <sf | esf>.

lineCode: Refers to the type of bit coding being used on the line. Possible values are b8zs (default value) and ami. lineCode: <b8zs | ami>.

leq <value>: Indicates the length of the line, in feet, required to adjust the line equalization. Possible values are 0 (default value) to 655.

loopbackType: Indicates the type of loopback to be used for the line. Allowed values:

noloopback

looline

loopframer>

dsx: Controls the transmit LBO function that can provide.

lineLength: additional transmit signal strength above the nominal setting based on the length of the cable. The line length can be in the range of 0-655 feet.



NOTE: The default operating mode of the T1 is “dsx134” (eg, 134 ft).

t1: Controls the transmit LBO function that can provide <attenLevel> additional transmit signal attenuation below the nominal setting. The amount of attenuation is specified via the parameter <attenLevel>. Values allowed for attenLevel:

0: 0.0 dB of attenuation

1: 7.5 dB of attenuation

2: 15.0 dB of attenuation

3: 22.5 dB of attenuation

adminState: Controls the administrative state of the DS1 interface.
Values allowed:

unlocked: The normal operating state of the DS1, where the services provided by the interface are available for use and alarms will be generated when detected (creation default value).

locked: The services provided by the interface are no longer available, all current alarms associated with the interface will be cleared, and all future alarms will be suppressed.

For more information, see [“set igds1” on page B-56](#).



NOTE: To modify a configuration of DS1s excluding the primary and secondary DS1s, use `set ds1` (see [“set ds1” on page B-47](#))

Configure a TB200 to CPE Voice Communication Path

A path needs to be established to support data communication between the TB200 (carrier) and TB50 IAD (CPE) equipment. Each path is assigned a unique number, which can be used as a reference point in other commands.

Defining the voice path requires the virtual path identifier (VPI) and virtual circuit identifier (VCI) values of the permanent virtual circuit (PVC) that terminates on the TB200. Data services can identify these values.

To establish a path between the TB200 and a TB50 IAD, enter:

```
> set voicepath 1 pvc 0:77 ds3 1-9-b-1 routed 1-2-f
```

Additional information:

```
set voicepath <vPathId> <vPathType> <interfaceName> <interfaceLoc>
  <vpi:vci> [<encapType>][<voiceCardId>]
```

where:

vPathId: Refers to a unique identification number for a voice communication path.

vPathType: The underlying mechanism providing the communication path. `vPathType = <PVC>`.

vPathIdRange: Defines a range of vPathIds. <vPathIdRange> = <vPathId-vPathId>.

voiceCardId: Defines which Voice module will terminate the VCC.

cardId: Indicates the module that is to be queried.

cardIdRange: Indicates a range of modules on the same shelf. (Currently, TB200 supports one shelf.)

ifType: Refers to the type of interface that is being assigned.

ifId: Refers to the physical location of the interface.

vpi:vci: Defines the VPI and VCI values of the PVC.

encapType: Refers to the encapsulation type used on the PVC.

ipAddr: The IP address of the voice path.

*: Wildcard operator, represents all voice paths in a command.

To modify a voice path it must be replaced: delete the existing voice path, then create a new one. To delete the voice path, all of the CPEs and CRVs associated with that voice path must also be deleted.

For more information, see [“set voicepath” on page B-61](#).



NOTE: Voice paths correspond to VPI:VCI. Multiple IADs can communicate using a single voice path if the network topology supports it.

Define the CPE

Each CPE (such as TB55 IAD) must be defined locally on the TB200. The required parameters are the IP address of the CPE

An example follows:

To create and configure parameters for a new CPE identified as '100', with an IP address of 192.53.4.2 to communicate on voice path 5, enter:

```
> set cpe 100 TB50 192.53.4.2 5 disable_data voice_tos learning
data_rtr 193.55.5.59
```

Additional information follows:

```
set cpe [<cpeId>] <cpeType> <ipAddr> <vPathId> [voice_tos
<tosField>] [data_tos <tosField>] [upstream <kbps>] [downstream
<kbps>] [<dataPortCtl>] [<dataShaping>] [data_rtr <ipAddr>]
[<bridgeMode>]
```

where:

cpeId: Assigns a number to a CPE.

bridgeMode: The bridging mode of the CPE data port.

cpeType: The type of CPE that is being defined.

data_rtr <ip addr>: The IP address of the router accessible from the CPE data port.

ipAddr: Indicates the IP address of the CPE. ipAddr = <aa.bb.cc.dd>.

vPathId: Defines the voice communication that the CPE (such as the TB50 IAD) uses in communicating with the TB200.

data_tos: The Type of Service (TOS) value for packets transmitted on the CPE data port.

dataPortCtl: Enables or disables a data port on a CPE.

dataShaping: Enables or disables shaping of the data packet stream on the data port on the CPE.

downstream: The maximum rate, in kbps, the CPE can receive in the downstream direction.

upstream: The maximum rate, in kbps, the CPE is allowed to transmit in the upstream direction.

voice_tos: Indicates the TOS value for packets transmitted on the CPE voice port.

* : wildcard

EXAMPLE: To create and configure parameters for a new CPE identified as '100', with an IP address of 192.53.4.2 to communicate on voice path 5, enter:

```
> set cpe 100 TB50 IAD 192.53.4.2 5 disable_data voice_tos
learning data_rtr 193.55.5.59
```

For more information, see [“set cpe” on page B-41](#).

Assign CRV

Each TB50 IAD analog line must be mapped to a line terminating on the CO switch.

EXAMPLE: To assign a CRV (Call Reference Value) of 1024 (on IG 1) to the eighth analog line of a TB50 IAD (with a *cpeId* of 5) enter:

```
> set crv 1 5 8 1024
```

Additional information:

Each carrier switch has up to 2,048 [(28 DS1s X 24 channels/DS1) x 3.05 oversubscription] possible lines to which the eight (8) analog lines of the TB50 IAD can be mapped. The CRV assigned to the analog line represents a line number (2-2048) terminating on the CO switch. CRV of 1 is reserved for the primary DS1.

```
set crv <igId | igName> <cpeId> <lineNo | lineNoRange> <crvVal>
```

where:

cpeId: Refers to a unique number assigned to a TB50 system. Possible values are between 1 and 2,000.

igId: Refers to a unique identifier for IG. Possible values are 1 to 50.

igName: Identifies an IG by a user-specified name.

lineNo: Refers to a specific analog line of a TB50. Possible values are 1 to 8.

lineNoRange: Refers to a range of analog lines.

crvVal: Indicates a specific line on the CO switch that is mapped to a specific analog line (*lineNo*) on a TB50. Possible values are 1 to 2,048.

For more information, see [“get crv” on page B-43](#).

VERIFY CONNECTIVITY BETWEEN TB200 AND IAD

Verify connectivity between the TB200 and TB50 IAD with the **ping** command:

To verify connectivity to a TB50 IAD with a *cpeId* of 15 on analog line 5, enter:

```
> ping cpe 15 voiceping 5
```

```
192.53.5.59 is alive
```

Additional information:

ping cpe <cpeId> [voiceping <lineNo> [<loopback>] [<time>]]>

where:

cpeId: Refers to a unique system identifying number. Possible values are 1 to 2000. *cpeId* = <1 to 2000>.

voiceping: Initiates TollBridge's proprietary voiceping parameter

lineNo: Refers to a specific analog line on the CPE. Possible values are 1 to 8. This must be specified when the *voiceping* is in use.

line no = <1 to 8>.

loopback: Indicates the loopback to be used for the voiceping. *time*: Specifies the length of time (in seconds) for the voiceping parameter. Options are from 3 seconds (default) to 2,147,483,647 seconds.

For more information, see [“ping” on page B-26](#)

System upgrade should be performed remotely by TollBridge Technologies Customer Care Support team, who can be contacted at 1-888-561-7647.

If upgrading must be done at the customer site, instructions are provided. To do so, you will need the IP address of the TFTP server, and the names of the files to download. The requirements to upgrade to software release 1.4 are listed in this chapter.

For assistance, contact TollBridge Technologies Customer Care Support Team: 1-888-561-7647.

OVERVIEW

Each TB200 has one configuration file and three module-specific software images for the Administration, Switch and Voice modules. The configuration file is found on the Administration module only.

Two different storage locations for images exist on each module and CPE, although only one is active at any time. This dual storage capability allows the user either to have redundant images for additional booting reliability or to preserve one software image while testing another.

By default, the primary image becomes active upon reload.



NOTE: The information and the instructions are valid for CLI version 1.4.

UPGRADING IMAGE OR CONFIGURATION FILES

The Administration, Switch and Voice modules each have system and boot image files resident. Each system image is additionally allocated two separate storage locations (such as 1 or 2) on each of the three modules.

When either a new boot or switch image is downloaded, it is downloaded into the inactive storage location: The inactive image is overwritten. The new image remains inactive until it is made active via the `set activeimg` command.

The Administration module is the only module that stores the configuration file.

Upgrading software images involves the following steps:

- “Step 1: Define the TFTP Server” on page 3-2
- “Step 2: Define the Image or Configuration File Name” on page 3-3
- “Step 3: Download the Image or Configuration File” on page 3-3
- “Step 4: Set the Newly Downloaded Image as the Active Image” on page 3-5
- “Step 5: Reset the Module” on page 3-7

STEP 1: DEFINE THE TFTP SERVER

The TFTP server must be defined before downloading an image or configuration file to a TB200. To do so, use the following CLI command:

```
set tftpsrvr <ipAddr>.
```

To check if the IP address of the TFTP server has already been configured, enter:

```
> get tftpsrvr
```

For more information, see “[get tftpsrvr](#)” on page B-33.

TB200 is configured with the IP address of the TFTP server that stores and download configuration and image files. Once configured, it is not necessary to enter the specific TFTP IP address; the address is stored and internally referenced for all image and configuration file downloads.

EXAMPLE: To enter the IP address (193.54.4.3) of the selected TFTP server, enter:

```
> set tftpsrvr 193.54.4.3
```




NOTE: The name of the file to be downloaded is specified with the `set tftpfile` command, while the download itself is activated with `set imgload` (see “[set imgload](#)” on page B-18).

Step 2: Define the Image or Configuration File Name

Specify the name of the system or configuration file to download from the TFTP server.

A different image is loaded on the Administration, Switch and Voice modules and the CPE. Each has a distinct image; each image file must be declared independently with the `set tftpfile` command.

```
set tftpfile <fileName>
```

EXAMPLE: To declare the file named `test` that will be downloaded, enter:

```
> set tftpfile test
```

For more information, refer to “[set tftpfile](#)” on page B-32.

Step 3: Download the Image or Configuration File

Once the TFTP server IP address and file to be downloaded are defined, download the image or the configuration file.

Each module (Administration, Switch and Voice) and CPE has a separate and distinct image. The TB200 will not allow an incorrect image type to be downloaded to the incorrect module or to a CPE in error. For example, a switch image will not be allowed to download to a Voice or Administration module.

To download a system image file or a configuration file, use the command `set imgload`:

```
set imgload {<cardId> | <cardIdRange> <cpelId>} <imgType>
```

For detailed information, see “[set imgload](#)” on page B-18.

Following are examples of downloading files: Download an Image File;
Download a Configuration File.

Download an Image File

An image can be downloaded to single or multiple cards on the same shelf, or simultaneously to all cards within the chassis.

The new file is downloaded into the inactive storage location on the module; the existing code in that storage location is overwritten.



NOTE: The name of the file to download is specified via the *set tftpfile* command, which must be done before applying *set imgload* (see “[Step 2: Define the Image or Configuration File Name](#)” on page 3-3).

EXAMPLE 1: To initiate a download of the system image from the TFTP server to a specific card (e.g. 1-4-f) on the TB200, enter:

```
> set imgload 1-4-f system
```

```
Image downloaded successfully
```

EXAMPLE 2: To initiate a download of the system image from the TFTP server to a specific card range on the same shelf, (e.g. cards in slots 4 through 8 on shelf 1) on the TB200, enter:

```
> set imgload 1-4-8..f system
```

```
Image downloaded successfully
```

EXAMPLE 3: To initiate a download of the system image from the TFTP server to all cards in a chassis (e.g. slots 2 to 8 on all shelves), enter:

```
> set imgload *-2-8..f system
```

```
Image downloaded successfully
```

EXAMPLE 4: To initiate a download of the system image from the TFTP server to a CPE identified as 59, enter:

```
> set imgload 59 system
```

```
Image downloaded successfully
```



NOTE: If a card or CPE ID or range is not specified in the command by default, the system running the CLI will be modified. You can determine the current software version installed by using the CLI command, **get swver**.

Download a Configuration File

The configuration file is downloaded to and processed by the Administration module. There is no need to define the destination module because by default it will always download to slot 1 which is reserved for the Administration module.



NOTE: In the case of a system with multiple Administration modules, the module that is running the CLI will be the destination for new downloads.

EXAMPLE: To initiate a download of the configuration file to the Administration module, enter:

```
> set cfgload
```

Configuration file downloaded successfully.

Step 4: Set the Newly Downloaded Image as the Active Image

Each module or CPE can have two images stored on it simultaneously. However, only one image can be active at a time. The active image is the image that is executed when a system reset occurs. The inactive image is overwritten during a software download.

When either a new boot or switch image is downloaded, it is downloaded into the inactive storage location. This new image will remain inactive until it is made active with the **set activeimg** command.

The command to activate an image file:

```
set activeimg {<cardId> | <cardIdRange> | <cpeID> | *}  
<flashImgNo>
```

For details, see [“set activeimg” on page B-8](#).

To view current active image files:

```
get activeimg {<cardId> | <cardIdRange> | <cpeID> | *}.
```

For details, see [“get activeimg” on page B-8](#).

Examples follow: Define an Image as Active; Review Image Assignments.

Define an Image as Active

EXAMPLE 1: To define an image (e.g. 2) as active image for a specific card (e.g. shelf 1, card 7), enter:

```
> set activeimg 1-7-f 2
```

EXAMPLE 2: To define the second storage location as the active image on a CPE identified as 5, enter:

```
> set activeimg 5 2
```

EXAMPLE 3: To define the second storage location on all cards and all shelves as the active image, enter:

```
> set activeimg *-*-* 2
```



NOTE: If a card or CPE ID or range is not specified in the command, by default, the system running the CLI will be modified.

Review Image Assignments

EXAMPLE 1: To determine the active image for a range of cards (e.g. cards 1 to 5) on a shelf (e.g. shelf 1), enter:

```
> get activeimg 1-*--f
```

```
LocationActive Image No
```

```
1-1-f 1
```

```
1-2-f 2
```

```
1-3-f 1
```

```
1-4-f 2
```

```
1-5-f 2
```

EXAMPLE 2: To determine which of the two storage locations is active for a range of CPEs from 5 to 250, enter:

```
> get activeimg 5..500
```

Step 5: Reset the Module

After the new image or configuration file is downloaded, configure that file as the active image: cut in the change by resetting the appropriate module or CPE. Two types of resets are supported: **coldstart** and **factory reset**. For configuration, use **coldstart**.

```
set reset [{{<cardId> | <cardIdRange>}...} | {{<cpelId> | <cpelIdRange>}...}] <resetType>
```

For more information, refer to “[set reset](#)” on page B-27.

EXAMPLE 1: To reset all installed cards at once via hardware, enter:

```
> set reset *-*-* coldstart
```

EXAMPLE 2: To reset card 2 on shelf 2 to activate the new image, enter:

```
> set reset 2-2-f coldstart
```

EXAMPLE 3: To reset CPE 5 to its initial factory setting, enter:

```
> set reset 5 factory
```

IDENTIFY CURRENT IMAGE AND CONFIGURATION FILES

Before downloading a new image or configuration file, the current image file on the TB200 can be checked.

Image Identification

To retrieve the version number of either of the two software images stored on a card you can use the **get swver** command:

```
get swver <cardId> <cardIdRange> <flashingImgNo>
```

For more information, see “[get swver](#)” on page B-30.

EXAMPLE: To determine the version of software stored in the secondary storage location for a given card (e.g. 1-8-f), enter:

```
> get swver 1-8-f 2
```

```
LocationActive Image NoSoftware Version
```

```
1-8-f 2 1.2.3
```

Configuration File Identification

To see the file name that was defined the configuration, use the `get tftpfile` command:

```
> get tftpfile
```

For detailed information, see “[tftpfile \(set tftpfile, get tftpfile\)](#)” on page [B-31](#).

This chapter provides a summary of CLI commands that review statistics and configuration details, and diagnostic tests that can be performed.

Information is primarily accessed by CLI `get` commands. For detailed descriptions of the commands summarized below, see [Appendix B, “CLI Commands.”](#)

REVIEW CONFIGURATIONS

Query the TB200 via CLI commands to view the following information:

System Details

List and location of installed modules and ports and configured CPEs

- [“get equip” on page B-16](#)

System name, location and contact

- [“set system” on page B-31](#)

System date and time

- [“get date” on page B-16](#)
- [“get time” on page B-33](#)

Length of time system has been operating:

- [“get uptime” on page B-35](#)

IP, MAC and Subnet Mask Addresses

IP address and subnet mask of the Ethernet interface on the administration module:

- [“get ipaddr” on page B-20](#) (eth)
- [“get macaddr” on page B-25](#) (eth)

IP and MAC address of the voice path

- [“get ipaddr” on page B-20](#)

IP address of the default router:

- [“get ipaddr” on page B-20](#)

Interface Group Details

Configuration summary of defined IG(s)

- [“get gr303ig” on page B-54](#)

The IG summary will identify the secondary DS1, the DS1 that is transmitting EOC and TMC data and the DS1 membership.

Voice Path, Voice Module and Analog Line Details

Review details about the communication path between the TB200 and a TB50:

- [“get voicepath” on page B-61](#)

Balance of traffic (load) being handled by each voice module

- [“get loading” on page B-23](#)

Configuration details of the DS1 module(s)

- [“get ds1” on page B-47](#)

Configuration details of the TB50 analog lines:

- [“get analogline” on page B-38](#)

Identify call reference values assigned to analog lines:

- [“get crv” on page B-43](#)

DS3 Details

Configuration details for the DS3:

- [“get ds3” on page B-50](#)

Attached Equipment Details

Voice path indicator and IP address details for attached CPE (TB50):

- [“get crv” on page B-43](#)

TFTP and Image and Configuration File Details

IP address of TFTP server which stores additional image and configuration files

- “get tftpsrvr” on page B-33

Configuration file name(s) stored on the TFTP server

- “get tftpfile” on page B-32

Storage location of active image on a module or CPE:

- “get activeimg” on page B-8

Software version installed on the administration module or CPE

- “get swver” on page B-30

REVIEWING STATISTICS

Review reported alarms:

- “get alarm” on page B-11

DIAGNOSTIC TESTS

Review loopback status on a DS3:

- “history (set history, get history)” on page B-54

This chapter provides an overview of the alarms provided on the TB200 Local Exchange Gateway.

ALARM DEFINITIONS

Alarms are reported for the all modules supported on the TB200, except the power supply module and the fan assemblies.

The TB200 supports three types of user-assignable alarms: critical, major and minor alarms.

A **critical alarm** indicates that a severe, service-affecting condition exists on the system: a total failure of the TB200; all continuity to the Class 5 switch is lost; assigned customers are out of service. A critical alarm requires immediate action.

A **major alarm** indicates that a service-affecting condition exists: DS3 and DS1 outages; TMC failed (DS0); EOC failed (DS0). Prompt maintenance response is required. For IDLC systems, a major alarm shall be generated for equipment failures or fault conditions that cause the equivalent of 24 or more customer lines to be out of service.

A **minor alarm** indicates that a non-service affecting condition exist that affects service to few customer lines, such as:

- Failure of duplicated equipment
- Degradation of call capacity
- Failure of non-call related equipment such as test equipment
- Condition exists that affects 2 to 23 customers, which can be due to a failed CPE.

ALARM LOG

Up to 256 alarm entries can be stored in a customer accessible log: The log is "rolled over" so that the most current entries are available. All or specific module alarms can be viewed with the `get alarm` CLI command.

Alarms can be cleared from the console with the `del alarm` CLI command.

Alarm entries in the alarm history note the date, time, location and severity of the alarm when it was set as well as when it was cleared.

ALARM REPORTING

In reporting and clearing alarms, the following guidelines will be followed for the TB200:

- An alarm is reported 2.5 seconds after its detection.
- An alarm is cleared when it is not detected for a period of 10 seconds.
- Alarms reported will be the same on the active and standby administration modules.
- A card failure is reported when the administration module is unable to communicate with the card for five (5) seconds.

DS1 Alarms

The TB200 supports the following DS1 alarms: loss of signal (LOS), loss of frame (LOF), alarm indication signal (AIS) and bit error rate (BER). The port LED illuminates green when not in a LOS, LOF, AIS, BER or yellow alarm state. For example, to retrieve reported and cleared DS1 alarm entries enter:

```
> get alarm DS1
```

Condition	Time,	Date,	Type,	Location,	Alarm,	Severity,	State
ALARM SET:	09:58:54,	9/3/1999,	DS1,	1-6-b-1,	LOS,	MAJ,	SA
ALARM SET:	09:58:54,	9/3/1999,	DS1,	1-6-b-1,	LOF,	MAJ,	SA
ALARM SET:	09:58:54,	9/3/1999,	DS1,	1-6-b-1,	AIS,	MAJ,	SA
ALARM SET:	09:59:01,	9/3/1999,	DS1,	1-6-b-1,	BER,	MAJ,	SA
ALARM CLEAR:	09:58:54,	9/3/1999,	DS1,	1-6-b-1,	LOS,	MAJ,	SA
ALARM CLEAR:	09:58:54,	9/3/1999,	DS1,	1-6-b-1,	LOF,	MAJ,	SA
ALARM CLEAR:	09:58:54,	9/3/1999,	DS1,	1-6-b-1,	AIS,	MAJ,	SA
ALARM CLEAR:	09:59:01,	9/3/1999,	DS1,	1-6-b-1,	YEL,	MIN,	SA
ALARM CLEAR:	09:59:01,	9/3/1999,	DS1,	1-6-b-1,	BER,	MAJ,	SA

DS3 Alarms

The TB200 supports the AIS. The LOS LED on the DS3 Module illuminates red when an LOS alarm is reported. For example, to see reported and cleared DS3 alarm entries enter:

```
> get alarm ds3
```

Condition	Time,	Date,	Type,	Location,	Alarm,	Severity,	State
ALARM SET:	09:58:54,	9/3/1999,	DS3,	1-9-b-1,	AIS,	MAJ,	SA
ALARM CLEAR:	09:58:54,	9/3/1999,	DS3,	1-9-b-1,	AIS,	MAJ,	SA

Equipment Alarms

The TB200 supports the FAIL equipment alarm for the administration, switch, voice, DS1 and DS3 modules. For example, to retrieve reported and cleared equipment alarm entries enter:

```
> get alarm equip
```

Condition	Time,	Date,	Type,	Location,	Alarm,	Severity,	State
ALARM SET:	10:09:10,	9/3/1999,	SWITCH,	1-9-f,	FAIL,	MAJ,	SA
ALARM SET:	10:09:10,	9/3/1999,	VOICE,	1-6-f,	FAIL,	MAJ,	SA
ALARM SET:	10:18:39,	9/3/1999,	DS1,	1-6-b,	FAIL,	MAJ,	SA
ALARM SET:	10:16:41,	9/3/1999,	DS3,	1-9-b,	FAIL,	MAJ,	SA
ALARM SET:	10:16:41,	9/3/1999,	ADMIN,	1-1-f,	FAIL,	MIN,	NSA
ALARM CLEAR:	10:09:10,	9/3/1999,	SWITCH,	1-9-f,	FAIL,	MAJ,	SA
ALARM CLEAR:	10:09:10,	9/3/1999,	VOICE,	1-6-f,	FAIL,	MAJ,	SA
ALARM CLEAR:	10:18:39,	9/3/1999,	DS1,	1-6-b,	FAIL,	MAJ,	SA
ALARM CLEAR:	10:16:41,	9/3/1999,	DS3,	1-9-b,	FAIL,	MAJ,	SA

CPE Link Alarms

The TB200 supports the LINK DOWN (datalink failure) CPE link alarm. For example, to see reported and cleared CPE alarm entry enter:

```
> get alarm cpe
```

Condition,	Time,	Date,	Type,	Location,	Alarm,	Severity,	State
ALARM SET:	10:09:10,	9/3/1999,	CPE,	001,	LINK DOWN,	MIN,	SA
ALARM CLEAR:	10:09:10,	9/3/1999,	CPE,	001,	LINK DOWN,	MIN,	SA

Interface Group Alarms

The TB200 supports the following interface group alarms: interface group failure (IG-FAIL), primary TMC failure (PRI-TMC-FAIL), secondary TMC failure (SEC-TMC-FAIL), primary EOC failure (PRI-EOC-FAIL), and secondary EOC failure (SEC-EOC-FAIL).

EXAMPLE: To view reported and cleared IG alarm entries enter:

```
> get alarm ig
```

Condition,	Time,	Date,	Type,	Location,	Alarm,	Severity,	State
ALARM SET:	10:09:10,	9/3/1999,	IG 1,	IG FAIL,		MIN,	NSA
ALARM SET:	10:09:10,	9/3/1999,	IG 1,	PRI TMC FAIL,		MIN,	NSA
ALARM SET:	10:09:10,	9/3/1999,	IG 1,	SEC TMC FAIL,		MIN,	NSA
ALARM SET:	10:09:10,	9/3/1999,	IG 1,	PRI EOC FAIL,		MIN,	NSA
ALARM SET:	10:09:10,	9/3/1999,	IG 1,	SEC EOC FAIL,		MIN,	NSA
ALARM CLEAR:	10:09:10,	9/3/1999,	IG 1,	IG FAIL,		MIN,	NSA
ALARM CLEAR:	10:09:10,	9/3/1999,	GR-303,	IG 1,PRI TMC FAIL,		MIN,	NSA
ALARM CLEAR:	10:09:10,	9/3/1999,	GR-303,	IG 1,SEC TMC FAIL,		MIN,	NSA
ALARM CLEAR:	10:09:10,	9/3/1999,	GR-303,	IG 1,PRI EOC FAIL,		MIN,	NSA
ALARM CLEAR:	10:09:10,	9/3/1999,	GR-303,	IG 1,SEC EOC FAIL,		MIN,	NSA

Alarm Command

For detailed information about the CLI command `alarm`, see [“alarm \(set alarm, get alarm, del alarm\)”](#) on page B-9.



System Specifications

PHYSICAL & ENVIRONMENTAL

Table A-1 lists specifications for Modular Chassis and the new Integrated Chassis.

Table A-1 Chassis Dimensions, Power, Fans

Specification	Modular Chassis (Figure A-1)	Integrated Chassis (Figure A-1)
Dimensions, in	21.0 H x 17.25 W x 13.0 D in	17.5 H x 17.25 W x 12.0 D in
Dimensions, cm	53.3 H x 43.8 W x 33.0 D in	44.5 H x 43.8 W x 30.5 D in
Power, Fusing	-36 to -72 VDC, 4 power supply modules possible 8 A @ -48 VDC	Power A and Power B inputs Each fed from separate supply Fused independently 20 A @ -48 VDC
Fans	Intake and exhaust fans, modular, 1.0 A @ -48 VDC and 150 cfm exhaust	Integrated exhaust fans 1.0 A @ -48 VDC, 120 cfm exhaust



Figure A-1 TB200 Modular and Integrated Chassis

Chassis Clusters

- Three shelf clusters (achieved via STS-1c) interconnect to occupy 42 inches, including associated fan and inlet

Equipment Shelf

- Modular, 21-slot, telco rack-mounted
- NEBS-compliant equipment shelf

Operating Temperature and Humidity

- 0° to 50°C
- 5 to 95% RH, non-condensing

Regulatory Compliance

- UL 1950
- CSA 22.2 950
- FCC Part 15 Class A
- NEBS Level 3
- Earthquake zone 2 & 4
- EN55022 Class B

TB200 MODULES

Administration Module

- GR-303 Embedded Operations Channel
- CMISE agent
- TollView SNMP agent
- TollView TB50 proxy agent
- TollCraft Command Line Interface
- TollCraft web interface
- 100 baseTX management interface
- Management plane processing
- Alarm cut-off switch

Switch Module

- Terminates DS-3 and OC-3 broadband interfaces
- GR-303 Timeslot Management Channel
- Signalling plane processing

Voice Module

- Terminates data and control channels from the TB50
- DSP processors provide speech processing and echo cancellation
- Provides control for DS-1 card
- Bearer plane processing

Quad DS-1 Module

- DS1 Interface to Class 5 switch
 - 4 Span DSX-1
 - Supports SF, ESF, AMI, B8ZS

DS3 Module

- Terminates the DS-3 ATM connection
- BNC Rx/Tx interfaces
- BITS clock input

SYSTEM INFORMATION

Clocking

- Trunk, BITS and internal stratum oscillator

Packet Voice Audio Codecs

Powerful DSP complex with 3200 MIPS supports industry-leading codecs:

- G.711 PCM (64 Kbps)

- G.726 ADPCM (32 Kbps)
- G.165/168 echo cancellation with 48 ms
- echo tail
- Silencedetection/comfort noise generation

Broadband Interface

- ATM over DS-3, PVCs and soft PVCs

Class 5 Switch Interface

- Channelized DSX-1 (4 to 56 per shelf)

Bellcore GR-303 Interface

- GR-303 CORE Supplement 3
- Timeslot Management Channel (TMC)
- Embedded Operations Channel (EOC)
- Upto50 interface groups with support
- for 100,000 subscribers

Class 5 Switch Interoperability

- Lucent
- Nortel
- Siemens

Management & Configuration

- GR-303 Embedded Operations Channel (EOC) interface to EMS
- SNMP Agent v1, v2c, v3
- TollCraft command line interface
- Telnet Agent
- FTP/TFTP
- HTML Web server

- Trace Call
- Trace Route
- HP OpenView expanded views
- HP OpenView network view
- Management provisioning/partitioning

Telco reliability

- 99.995% availability for less than 2 minutes of down-time per month

Redundancy

- GR-303 path protection switching
- 1:1 Facility redundancy
- 1:1 Voice redundancy
- 1:N Power redundancy
- 1:N Trunk redundancy

CLASS AND AIN FEATURES SUPPORTED

- E-911, Directory, 800 Calling, 900 Call
- Block, Call Forwarding, Call Waiting, Call
- Forward Busy/No Answer, Three-Way-Calling,
- Speed Dialing, Warm Line, Call
- Transfer, Selective Call Rejection, Call
- Return, Call Trace, Caller ID, Caller
- ID Block, Distinctive Ringing, Auto
- Callback, etc.



NETWORK SERVICES SUPPORTED

Table 5-1 TB200 Network Services

	Loop Start	Ground Start	Loop Reverse Battery
Single Party (POTS)	✓		
Centrex lines	✓		
Local PBX trunk		✓	
Direct-out-dial		✓	✓
Direct-in-dial		✓	✓
800 service trunk		✓	
800 service line	✓		
WATS line out	✓		
WATS line 2-way	✓		



CLI Commands

This chapter provides information about the CLI commands.

- Overview
- Access the CLI
- Command Structure
- System Commands
- Provisioning Commands

OVERVIEW

The CLI is a text-based interface that configures and monitors the TB200 (TB200) and the IADs, TB50 and TB55. CLI is case-sensitive; all commands must be entered in lower case.

The CLI can be accessed via either a direct serial (DB-9) connection or a Telnet session. A telnet session requires connection to the Ethernet (RJ-45) port on the Administration module of the TB200. The Administration module is located in slot 1 of the TB200 chassis.

ACCESS THE CLI

For initial log on, the user must use a serial connection to the Administration module found in slot 1 of the TB200 to assign an IP address for the system.

Once an IP address is assigned, the user can access the CLI via Telnet by attaching to the Ethernet port found on the Administration module.

Set the terminal with the following:

- **Baud:** 9600 bps
- **Data bits:** 8
- **Parity:** None
- **Stop bits:** 1
- **Flow control:** None

Once connectivity to TB200 is established, you will be prompted for a password and user ID:

Username:

Password:



NOTE: The Username can be any value, including NULL. The default password is *ok*. Once logged on, the password can be changed with the *set password* command.

After logging in, a prompt appears:

>

You are now ready to begin basic configuration to establish a voice path between the TB200 and TB50 IAD. For specific details on installation, refer to Chapter 2: System Configuration.

COMMAND STRUCTURE

Many CLI commands require textual or numeral input as part of the command. These fields are either required or optional depending on how the information is bracketed. A CLI command example follows:

```
set analogline <cpeId | cpeIdRange> [lineNo | lineNoRange] [sigType]
[encoding] [tx <txGain>] [rx <rxGain>]
```

In this example, either `cpeId` or `cpeIdRange` must be entered; the other values are optional.

- Whenever an item is bracketed with “< >” symbols, the information requested is **required**.
- Whenever an item is bracketed with “{ }” symbols, the information requested is **required** and multiple entries may be entered if followed by three periods "...”.
- Whenever an item is bracketed with “[]” symbols, the information requested is **optional**, including items that are also bracketed in “< >.”
- Whenever two or more options are separated by a vertical bar, “|” one of those options must be entered.



NOTE: A parameter is often stated as optional if it comes with preset values and changes are only required to meet specific requirements of your network.

Help

To get help at any point, type in `h` or `help` at the prompt.

```
> h
```

Command Options

To view a list of possible `set`, `get` or `delete` commands you would enter one of the following commands:

```
> help set
```

```
> help get
```

```
> help delete
```

To find out details about a specific command, its use and syntax, enter "help" followed by the command:

```
> help set crv
```

Syntax

```
set crv {<igId> | <"igName">}<cpeId> {{<lineNo> | <lineNoRange>}  
<crvVal>}...
```

This command is used to assign one or more call reference values within an IG to one or more analog lines on a CPE.

Parameters:

igId: The unique identification number of an IG, which was obtained when the IG was created via the `set gr303ig` command.

"*igName*": The unique identification name of an IG, which was obtained when the IG was created via the `set gr303ig` command.

cpeId: The unique identification number of a CPE, which was obtained when the CPE was created via the `set cpe` command.

lineNo: An analog line number on a CPE. The numbers range from one to N, where N is a function of the type of CPE.

lineNoRange: A range of analog line numbers. The format is <lineNo>..<lineNo>, where the second line number is larger than the first (i.e., 1..8).

crvVal: The call reference value associated with an analog line on a CPE. The range of CRV numbers is from 1-2048.

EXAMPLES:

```
set crv 7 10 1 1001
set crv ig1 10 1 1001
set crv 7 10 1..8 1001
```

Identification Schemes

This section lists the identification schemes that identify shelves, slots and modules individually and as a range in various CLI commands.

Administration, Switch, Voice and Alarm Module Identification

Switch, Voice, and Administration modules can be uniquely identified by three parameters, shelf, slot and shelf location.

```
<cardId> = <shelf>-<slot>-<f | b | *>
```

For example, to identify a Switch module found in shelf 1, slot 8, front of the shelf, enter:

```
> 1-8-f
```



NOTE: The different components in the this example are separated by a dash "-", which is required when entering these values.

where:

shelf: Refers to the shelf number that contains the module. Shelf numbers range from 1 to 3, and also include the wildcard character "*", which encompasses all slots.

slot: Refers to the slot number within the shelf where the module is installed. Slot numbers range from 1 to 17, and also include the wildcard character "*", which encompasses all slots.

<f | b | *> = whether the module is a front or back module or represents all modules in the designated shelf.

f: Refers to the front of the slot of a shelf

b: Refers to the back slot of a shelf

***: Refers to both front and back slots of a shelf



NOTE: Administration modules are always located in slot 1 of a shelf. An optional, redundant Administration module can also be placed in slot 17. Voice modules can be placed in slots 2 to 8 and 11 to 17. Switch modules are placed in slots 9 or 10.

DS1 and DS3 Identification

DS1 and DS3 rear interface modules are identified by a shelf and slot indicator such as Administration, Switch and Voice modules; however, a port indicator is also indicated.

<ds1Id> = <shelf>-<slot>-<f | b>-<port>, where <port> represents a DS1 port number between 1 and 4.



NOTE: The fbindicator, options of f (front) or b (back) for the DS1 and DS3 modules is always "b" as it is a rear interface.

For example, to identify the third DS1 port on the module located in slot 7 of shelf 1, enter:

> 1-7-b-3

To identify a DS3 interface located in slot 9 of shelf 1, enter:

> 1-9-b-1



NOTE: DS1 rear interface modules are installed behind Voice front modules. DS3 rear interface modules are installed behind Switch modules.

Specifying Ranges

A number of commands allow multiple items (such as shelves, slots, lines) to be configured or reviewed at a time. This is supported by a range syntax notation which is denoted by double periods (..).

Specifying a Range of Shelves or Slots

To specify a range of shelves or slots, you would follow the same general format `<Starting Range>..<Ending Range>`. The starting range number is always smaller than the ending range number and that all items between the starting and ending range will be included.

EXAMPLE 1: To apply a CLI command for modules found in slots 2 through 8 of shelf 1, include:

```
> command 1-2..8-f.
```

EXAMPLE 2: To exclude the module in slot 5, use:

```
> command 1-2..4-f 1-6..8-f
```

Specifying a Range of Integers

Assignments to multiple fields is possible, such as assigning CRVs to a group of analog lines, with one command.

EXAMPLE: To set the CRV of 9 through 16 to lines 1 through 8, enter:

```
> set crv 9..16 1..8
```

SYNTAX SHORTCUTS

The CLI supports short command recognition. This allows the number of characters entered in a command to be shortened, provided enough of the variable is entered to differentiate it from other commands.

EXAMPLE: The full command to configure an analog line on a TB50 IAD with groundstart signaling, G.726 codec, 70 db of transmit gain, and 50 db of receive gain is shown below:

```
> set analogline 1 1 groundstart g726 tx 70 rx 50
```

The same command can be entered using a shorter command form, as shown below:

```
> s ana 1 1 gr g72 t 70 r 50
```

SAVING AND DELETING CONFIGURATION CHANGES

To permanently save configuration changes, enter the **set config** command after all configuration changes are made. By permanently saving a configuration, it becomes the configuration that is automatically referenced at reset or boot up by a TB200.

To erase the configuration file, enter the **del config** command. After erasing the configuration file, a system reset results in a system with no configuration.

SYSTEM COMMANDS

System commands control the TB200.

activeimg (set activeimg, get activeimg)

Defines an image as the active image or retrieve the name of the active image for a voice, switch or Administration module or a CPE.

Each module or CPE can have two images stored on it simultaneously; however, only one image is active at a time. The active image is the image that is executed when a system reset occurs. The inactive image is overwritten during a software download.



NOTE: Images are referred to as 1 or 2 in the command.

Syntax

```
set activeimg [{{<cardId> | <cardIdRange>}...} | {{<cpeId> | <cpeIdRange>}...}] <flashImgNo>
```

```
get activeimg [<cardId> | <cardIdRange>] | {{<cpeId> | <cpeIdRange>}...}]
```

where:

cardId: Indicates the card that is to be queried. Card entries must specify shelf, slot and location (front or back). For example, 1-7-f, refers to a card in the first shelf of a TB200, the seventh slot, at the front of the unit versus the rear of the chassis.

`<cardIdformat> = <shelf>-<slot>-<f | b>`

cardIdRange: Indicates a range of cards on the same shelf. For example, to request the uptime statistics for modules 3, 4, 5 and 6 on shelf 1, enter: 1-3-f..6.

`<cardIdRange> = <shelf>-<slot>-<f | b>..slot`

cpeID: The identification number of a CPE.

cpeIdRange: A range of CPE identification numbers.

flashImgNo: Refers to the image that is to be made active, options are "1" or "2".

`<flashImgNo> = <1 | 2>`

set activeimg

To define an image (such as 2) as the active image for a specific module (such as shelf 1, slot 7), enter:

```
> set activeimg 1-7-f 2
```

To define the second storage location as the active image on a CPE identified as 5, enter:

```
> set activeimg 5 2
```

To define the second storage location on all modules and all shelves as the active image, enter:

```
> set activeimg *-*-* 2
```



NOTE: If a module or CPE ID or range is not specified in the command by default, the system running the CLI will be modified

get activeimg

To determine which of the two storage locations is active for a range of all modules on shelf, enter:

```
> get activeimg 1-*-f
Descrip Location Active Image No
admin    1-1-f 1
voice    1-2-f 2
voice    1-3-f 1
voice    1-4-f 2
voice    1-5-f 2
```



NOTE: admin = description location; 1-1-f 1 = active image number

To determine which storage location is active for each CPE from 5 to 250, enter:

```
> get activeimg 5..250
```

alarm (set alarm, get alarm, del alarm)

Retrieves and deletes alarms for the system, or a specific DS1, DS3, CPE or IG.



NOTE: Alarms on other modules (Administration, Switch and Voice module) and power supplies are available via the *get equip* command.

Syntax

```
set alarm <alarmType> <alarm> <“critical” | “major” | “minor”>
```

```
get alarm <alarmType>
```

```
del alarm <alarmType>
```

where:

alarmType: The type of alarm Valid parameters are:

- cpe: set an alarm severity for a cpe alarm
- ig: set an alarm severity for a cpe alarm
- ds1: set an alarm severity for a cpe alarm
- ds3: set an alarm severity for a cpe alarm

equipment: retrieve only equipment alarms.
history: retrieve the system alarm history.
severity: retrieve alarm severities.
alarm: The valid parameters are related to the selected alarmType.

Values allowed for cpe alarmType:

link down: set an alarm severity for a cpe link down alarm.
hw fail: set an alarm severity for a cpe hardware fail alarm.
hw cmp: set an alarm severity for a cpe hardware compatibility alarm.
sw cmp: set an alarm severity for a cpe software compatibility alarm.

Values allowed for ig alarmType:

fail: set an alarm severity for an interface group failure.
pri tmc: set an alarm severity for a primary tmc failure.
sec tmc: set an alarm severity for a secondary tmc failure.
pri eoc: set an alarm severity for a primary eoc failure.
set tmc: set an alarm severity for a secondary eoc failure.

Values allowed for ds1 alarmType:

los: set an alarm severity for a ds1 los alarm.
lof: set an alarm severity for a ds1 lof alarm.
ais: set an alarm severity for a ds1 yellow alarm.
ber: set an alarm severity for a ds1 ber alarm.

Values allowed for ds3 alarmType:

los: set an alarm severity for a ds3 los alarm.
lof: set an alarm severity for a ds3 lof alarm.
ais: set an alarm severity for a ds3 ais alarm.
yellow: set an alarm severity for a ds3 yellow alarm.
ber: set an alarm severity for a ds3 ber alarm.

active: Refers to all active alarms on a system.

cpe: Refers to CPE link alarms.

ds1: Refers to the active DS1 alarms. Alarms reported are: loss of signal (LOS), loss of frame (LOF), alarm indication signal (AIS), bit error rate-red alarm (BER), yellow and loopback (LPBK).

ds3: Refers to the active DS3 alarms. Alarms reported are: loss of signal (LOS), loss of frame (LOF), alarm indication signal (AIS), bit error rate-red alarm (BER), remote alarm indication (RAI) and loopback (LPBK).

history: Refers to a summary of active and inactive entries in the alarm log.

ig: Refers to IG alarms. Failures of IG and the EOC and TMC channels will be reported.

set alarm

This command is used to set the alarm severity for a particular alarm.

For example, if audible alarms only occur for critical alarms, this feature allows the craft to provision the severity of the alarm as critical. This feature also allows the craft to provision the severity of an alarm as major or minor.

EXAMPLES:

```
> set alarm cpe link down major
> set alarm ig pri tmc major
> set alarm ds1 ais minor
> set alarm ds3 yellow critical
> set alarm equipment switch fail major
```

get alarm

Retrieves all active or historical alarms for the system. Alarms can be specifically displayed for DS1 and DS3 modules, CPE and IGs.

EXAMPLE 1: To view all active alarms, enter:

```
> get alarm active
GR-303, IG 1, SEC TMC FAIL, MIN, NSA
GR-303, IG 1, PRI EOC FAIL, MIN, NSA
GR-303, IG 1, SEC EOC FAIL, MIN, NSA
DS1    , 1-6-b-1, LOS, MAJ, SA
DS1    , 1-6-b-1, LOF, MAJ, SA
CPE, 025, LINK DOWN, MIN, SA
CPE, 026, LINK DOWN, MIN, SA
```

EXAMPLE 2: To view all active alarms for a DS1 module, enter:

```
> get alarm ds1
```

```
DS1      , 1-6-b-1, LOS, MAJ, SA
```

```
DS1      , 1-6-b-1, LOF, MAJ, SA
```

EXAMPLE 3: To view alarm history for the TB200, enter:

```
> get alarm history
```

```
ALARM SET:      16:37:28, 9/27/1999, DS1, 1-6-b-1, LOF, MAJ,SA
```

```
ALARM SET:      16:37:28, 9/27/1999, DS1, 1-6-b-1, LOS, MAJ,SA
```



NOTE: Alarms on the Administration, Switch and Voice module and the power supplies are available through the *get equipment* command.

del alarm

Clears all entries in the alarm log.

EXAMPLE: To delete all alarm entries in the alarm log, enter:

```
> del alarm history
```

```
Are you sure you want to perform the delete? (y/n) y
```

```
Alarm History Was Cleared.
```

backupvoice (set backupvoice, get backupvoice, del backupvoice)

Supports voice module redundancy:

Syntax

```
set backupvoice {<cardId>} [<revertTime>]} | revert
```

```
get backupvoice
```

```
del backupvoice
```

cardId: The identification number of a voice card in the system. The format is <shelf>-<slot>-<fbIndicator>, where the last field indicates if the slot is located in the front and is specified with a "f" (e.g., 1-8-b).

revertTime: Currently, this parameter is not supported as a variable. The default value is zero, and all input values for **revertTime** are interpreted as zero.

revert: The literal input, **revert**, is the command to use to revert back to the voice card that had failed, but is now operational. This will also put the backup voice card back into "standby" mode.

set backupvoice

This command is used to set up a voice card to act as a backup for all the other voice cards in the system. This command can also be used to revert back to using the voice card that originally failed once it is again operational.

To set up a voice card to act as the backup voice card, specify the `<cardId>` of the voice module to be used as the backup. Only a voice card with no voice paths on it can be specified as the backup.

To revert back to the voice card that failed once it is again operational, use the command **set backupvoice revert**.

EXAMPLES:

```
> set backupvoice 1-3-f
```

```
> set voicepath revert
```

Possible errors for set backupvoice `<cardId>`:

- Card Id is not a Voice card.
- Card is already active, or has configuration information on it.

Possible errors for set backupvoice revert:

- There is no backup card.
- The backup card is not in active state.

get backupvoice

This command retrieves the status of the backup voice card.

EXAMPLE:

```
> get backupvoice
```

Possible results to **get backupvoice** command:

```
backup status revert time failed failure time
```

```
1-3-f    active    manual    1-5-f    23Sep2001 23:18:51
— or —
backup   status    revert   time     failed    failure   time
1-3-f    standby   manual
— or —
backup   status    revert   time     failed    failure   time
1-3-f    not avail manual
— or —
No backup voice card configured
```

del backupvoice

This command is used to no longer use a Voice module as a spare, making it available for normal voice traffic.

If a Voice module has failed and the spare module is currently active as a replacement, the spare Voice module cannot be deleted.

EXAMPLE:

```
> del backupvoice
```

Possible errors:

- There is no backup card.
- The backup card is in active state.

cfgload (set cfgload, get cfgload)

These commands can be used to download a specified file, backup the system database, or restore the system database.

Syntax

```
set cfgload { backup | restore | <filename> }
```

```
get cfgload <filename.cfg>
```

where:

filename: Specifies the name of the user-defined CLI command script file to be download and execute.

backup: Backup the system database in non-volatile memory to a configuration file. The name of the configuration file should have already been specified in the `set tftpf` command. The name of the configuration file has a file extension of `.cfg` to avoid accidentally wiped out the system image file. The backup operation prompts the user for confirmation. If the answer is no, the backup operation is aborted.

restore: Restore the system database from the configuration to non-volatile memory. The name of the configuration file should have already been specified in `set tftpf` command. The restore operation verifies the correct file extension `.cfg`, checks for CRC errors, and compares the MAC address in the preamble with the MAC address of the TB200. If the check fails, then the user is prompted if the restore operation should be aborted or not. If yes, the operation is aborted. If everything is correct, the preamble is displayed and the user is prompted for confirmation to start the restoration. If the answer is no, then the restore operation is aborted. Otherwise, the system database is copied to non-volatile memory and the system is rebooted.

The preamble is in ASCII format. It contains the file creation date and time, the user name, IP address (if user is in a telnet session), the MAC address of the TB200, the preamble length, system configuration information from the database, such as number of interfaces, voice paths, IADs, DS1s and DS3s

EXAMPLES:

```
> set cfgload backup
> set cfgload restore
> set cfgload filename
```

```
get cfgload
```

Download the `*.cfg` configuration file from the server and display the preamble portion. Note that the configuration is not restored to the nvdata area.

EXAMPLE:

```
> get cfgload filename.cfg
```

date (set date, get date)

Sets or retrieves the current TB200 system date. The date of a system is not affected by system resets.

Syntax

set date <MM>/<DD>/<YYYY>

get date

where:

MM: Refers to the month (enter as a two-digit number)

DD: Refers to the day (enter as a two-digit number)

YYYY: Refers to the year (enter as a four-digit number)

set date

EXAMPLE: To set the system date for a TB200, to January 01, 2000, enter:

```
> set date 01/01/2000
```

get date

EXAMPLE: To retrieve and review the current system date, enter:

```
> get date
```

```
date: 01/01/2000
```

equip (get equip)

Displays modules (location, revision, state, etc.) and CPE defined on the system. Port information for modules and CPE can also be displayed.

Syntax

get equip [<modules> | <cpe> [<port>]]

where:

module: Refers to all modules within the system

cpe: Identifies all CPE configured in the system

port: Refers to either ports on a module or analog lines of a CPE. If referring to module port, the ports on the modules are listed. If referring to cpe port, POTs on the CPEs are listed.

get equip

EXAMPLE 1: To view the modules installed on a TB200, enter:

```
> get equip module
```

Description	Location	HwRev	FwRev	SwRev	admState
Admin Module	1-1-f	Not available	TB-1.4.0	TB-1.4.0	unlocked
Voice Module	1-2-f	800027-202	TB-1.4.0	TB-1.4.0	unlocked
Voice Module	1-5-f	800027-202	TB-1.4.0	TB-1.4.0	unlocked
Voice Module	1-7-f	800027-202	TB-1.4.0	TB-1.4.0	unlocked
Switch Module	1-9-f	800010-104	TB-1.4.0	TB-1.4.0	unlocked
DS1 Module	1-2-b	Not available	---	---	unlocked
DS1 Module	1-5-b	Not available	---	---	unlocked
DS1 Module	1-7-b	Not available	---	---	unlocked
DS3 Module	1-9-b	Not available	---	---	unlocked

EXAMPLE 2: To view CPEs defined for a TB200, enter:

```
> get equip cpe
```

Description	Location	HwRev	FwRev	SwRev	admState
TB50 CPE	1	800016-202	tollbridge-1.1.5	TB-1.4.0	unlocked
TB50 CPE	2	800016-202	tollbridge-1.2.0	TB-1.4.0	unlocked
TB50 CPE	3	800016-202	tollbridge-1.2.0	TB-1.4.0	unlocked
TB50 CPE	4	---	---	---	unlocked
TB50 CPE	45	800016-202	tollbridge-1.2.0	TB-1.4.0	unlocked



NOTE: If a module or CPE ID or range is not specified in the command by default, the system running the CLI will be modified.

imgload (set imgload)

Initiates download of a system image from the TFTP server to the Voice, Switch or Administration module on the TB200 or remotely to a CPE from a TB200.

An image can be downloaded to single or multiple modules on the same shelf or simultaneously to all modules within the chassis, i.e. all shelves or a single CPE.



NOTE: The name of the file downloaded is specified via the *set tftpfile* command.

NOTE: Each module (administration, switch and voice) and CPE has a separate and distinct image. The TB200 does not allow an incorrect image type to be downloaded to the incorrect module or to a CPE in error. For example, a switch image can not be downloaded to a Voice or an Administration module.

Syntax

```
set imgload [[<cardId> | <cardIdRange>] [<cpeId | cpeIdRange>]]  
<imgType>
```

where:

cardId: Indicates the card that is to receive the software download. Card entries must specify shelf, slot and location (front or back). For example, 1-7-f, refers to a card in the first shelf of a TB200, seventh slot, and at the front of the unit versus the rear of the chassis.

cardIDformat = <shelf>-<slot>-<f | b>

cardIdRange: Indicates a range of cards on the same shelf. For example, to request the uptime statistics for modules 3, 4, 5 and 6 on shelf 1, enter: 1-3-f..6.

`cardIdRange = <shelf>-<slot>-<f | b>..<slot>`.

cpeId: Identifies the CPE. This is automatically assigned by the system when a new CPE is being created. If an existing CPE is being modified, entering this information is mandatory.

cpeIdRange: The specified range of CPE identification numbers

imgType: Refers to the type of image file to be downloaded by the TFTP server, option is system.

`imgType = [<system>]`

set imgload

EXAMPLE 1: To initiate a download of the system image from the TFTP server to a specific card (such as 1-4-f) on the TB200, enter:

```
> set imgload 1-4-f system
```

```
Image downloaded successfully
```

EXAMPLE 2: To initiate a download of the system image from the TFTP server to a specific card range on the same shelf on the TB200 (such as cards in slots 4 through 8 on shelf 1), enter:

```
> set imgload 1-4-f..8 system
```

```
Image downloaded successfully
```

EXAMPLE 3: To initiate a download of the system image from the TFTP server to all cards in a chassis (such as slots 2 to 8 on all shelves), enter:

```
> set imgload *-2-f..8 system
```

```
Image downloaded successfully
```



NOTE: If a module or CPE ID or range is not specified in the command, by default, the system running the CLI will be modified.

ipaddr (set ipaddr, get ipaddr)

Configures or retrieves the IP address of an Ethernet or DS3 interface within a system. The Ethernet IP address is used by a network management station to access a TB200 or TB50 IAD for configuring or monitoring purposes. The DS3 IP address set by this command, functions as the source IP for communications between the TB200 and the IAD (TB50 or TB55).

Syntax

```
set ipaddr <ifType> <ifId> <ipAddr>
```

```
get ipaddr <ifType> <ifId>
```

where:

ifType: Refers to the type of interface that an IP address is being assigned. Options are: eth (Ethernet port) and ds3 (a DS3 port).

<ifType> = <eth | ds3>

ifId: Refers to the physical location of the interface and is specified in the following manner, <shelf>-<slot>-<fbIndicator>-<port>.

<shelf> = <1 to 3>

<slot> = < 1 to 17>

<fbIndicator> = <f | b>; where "f" = front and "b" = back

<port> = <1>

ipAddr: Refers to the IP address assigned to the interface by the system administrator. The IP address should be entered in dot notation (such as 195.5.19.59).

set ipaddr

EXAMPLE 1: To assign an IP address of 193.54.3.1 to the Ethernet port found on a Administration module found in shelf one, slot one of a TB200, enter:

```
> set ipaddr eth 1-1-f-1 193.54.3.1
```

EXAMPLE 2: To assign an IP address of 205.5.19.59 to the DS3 port found in shelf one, rear slot eight of a TB200, enter:

```
> set ipaddr ds3 1-8-b-1 205.5.19.59
```



```
get ipaddr
```

EXAMPLE: To retrieve the IP address of the local system, enter:

```
> get ipaddr eth 1-1-f-1
```

```
ipAddr: 193.54.3.1
```

ipmask (set ipmask, get ipmask)

Configures or retrieves the IP subnet mask of an Ethernet or DS3 interface.

Syntax

```
set ipmask <ifType> [<ifId>] <ipMask>
```

```
get ipmask <ifType> [<ifId>]
```

where:

ifType: Refers to the type of interface to which an IP subnet mask is being assigned. Options are: eth (Ethernet port) and ds3 (DS3 port).
ifType = <eth | ds3>

ifId: Refers to the physical location of the interface. Card location is specified in the following manner, <shelf>-<slot>-<fbIndicator>-<port> type of interface that an IP address is being assigned.

<shelf> = <1 to 3>

<slot> = <1 to 17>

<fbIndicator> = <f | b>; where "f" = front and "b" = back

<port> = <1>

ipMask: Refers to the IP mask address assigned to the interface by the system administrator. The IP address should be entered in dot notation (such as 255.255.255.0).

```
set ipmask
```

EXAMPLE: To assign an IP subnet mask of 255.255.255.0 to an Ethernet port found on a Administration module found on shelf one, slot 1 of a TB200, enter:

```
> set ipmask eth 1-1-f-1 255.255.255.0
```

get ipmask

EXAMPLE: To retrieve the IP subnet mask of an interface, enter:

```
> get ipmask eth 1-1-f-1
```

```
ipMask: 255.255.255.0
```

iprtr (set iprtr, get iprtr)

Configures or retrieves the IP address of the default router of the TB200. The default router handles traffic that is not directly attached to the TB200.

Syntax

```
set iprtr <ifType> [<ifId>] <ipAddr>
```

```
get iprtr <ifType> [<ifId>]
```

where:

ifType: Refers to the type of interface that an IP address is being assigned. Current option: eth (Ethernet port).

<ifType> = <eth>

ifId: Refers to the physical location of the interface. Card location is specified in the following manner, <shelf>-<slot>-<fbIndicator>-<port> type of interface that an IP address is being assigned. If ifId is not specified, the default interface is the card that is running CLI.

<shelf> = <1 to 3>

<slot> = <1 to 17>

<fbIndicator> = <f | b>; where "f" = front and "b" = back

<port> = <1>

ipAddr: Refers to the IP address assigned to the interface by the system administrator. The IP address should be entered in dot notation (such as 195.5.19.59).

set iprtr

EXAMPLE: To define the default router's IP address of 193.10.6.9 for the Ethernet port found on the administration Module (such as shelf 1, slot 1), enter:

```
> set iprtr eth 1-1-f-1 193.10.6.9
```

```
get iprtr
```

EXAMPLE: To retrieve the IP address of the default router for an Ethernet interface (such as shelf 1, slot 2) on the TB200, enter:

```
> get iprtr eth 1-2-f-1
```

```
ipRtr: 193.10.6.9
```

loading (get loading)

Determines the current balance (i.e. load) of traffic that is being processed by each Voice module in a system. Specific details such as the number of voice paths, CPEs, CRVs, G.711, and G.726 lines are shown.

Syntax

```
get loading {<cardId> | <cardIdRange>... | *}
```

where:

* : Operator is a wildcard; it represents all Voice modules in the system.

cardId: Indicates the location of the module. Module entries must specify shelf, slot and location (front or back). For example, 1-7-f, refers to a module found in the first shelf of a TB200, its seventh slot and at the front of the unit versus the rear of the chassis. *cardIDformat* = <shelf>-<slot>-<f | b>

cardIdRange: Indicates a range of modules on the same shelf. For example, to specify modules 3, 4, 5 and 6 on shelf 1, enter: 1-3-f..6. *cardIdRange* = <shelf>-<slot>-<f | b>..*slot*

<shelf> = <1 to 3>

<slot> = <1 to 17>

<fbIndicator> = <f | b>; where "f" = front and "b" = back

```
get loading
```

EXAMPLE 1: To review load details for a specific Voice module (such as module 2, shelf 1), enter:

```
> get loading 1-2-f
```

```
<location>      <#vPaths>   <#CPEs>   <#CRVs>   <#G711>   <#G726>
```

```
=====
```

```
1-2-f           0             0             0             0             0
```

EXAMPLE 2: To review load details for a range of Voice modules (such as modules 2 to 8 on shelf 1), enter:

```
> get loading 1-2..8-f
```

```
<location>      <#vPaths>   <#CPEs>   <#CRVs>   <#G711>   <#G726>
```

```
=====
```

```
1-2-f           0             0             0             0             0
```

```
1-3-f           0             0             0             0             0
```

```
1-4-f           0             0             0             0             0
```

```
1-5-f           0             0             0             0             0
```

```
1-6-f           24            24            8             0             8
```

```
1-7-f           0             0             0             0             0
```

```
1-8-f           0             0             0             0             0
```

EXAMPLE 3: To review load details for all Voice modules in the system, enter:

```
> get loading *-*-*
```

```
<location>      <#vPaths>   <#CPEs>   <#CRVs>   <#G711>   <#G726>
```

```
=====
```

```
1-2-f           0             0             0             0             0
```

```
1-3-f           0             0             0             0             0
```

```
1-4-f           0             0             0             0             0
```

```
1-5-f           0             0             0             0             0
```

```
1-6-f           24            24            8             0             8
```

```
...
```

```
1-17-f          0             0             0             0             0
```

macaddr (get macaddr)

Retrieves the MAC address of an Ethernet interface on an Administration module.

Syntax

```
get macaddr <ifType> [<ifId>]
```

where:

ifType: Refers to the type of interface that an IP address is being assigned. Option is: eth. <ifType = <eth | ds3>

ifId: Refers to the physical location of the interface. Card location is specified in the following manner, <shelf>-<slot>-<fbIndicator>-<port> type of interface that an IP address is being assigned.

<shelf> = <1 to 3>

<slot> = <1 to 17>

<fbIndicator> = <f | b>; where "f" = front and "b" = back

<port> = <1>

macAddr: Refers to the MAC address for the interface.

get macaddr

EXAMPLE: To retrieve the MAC address of an Ethernet port of an Administration module (such as shelf 1, slot 1), enter:

```
> get macaddr eth 1-1-f-1
```

```
MacAddr: A0:10:7B:48:23:11
```

password (set password)

Defines a password for access to the system. Passwords can be any alphanumeric string of up to 16 characters. After the command is entered, you will be prompted to enter the new password.

The password must be set via a direct serial connection. After it is set, Telnet sessions with the correct password are supported.



NOTE: The default password at initial startup is **ok**. At the initial startup, enter **ok** to change the old password.

set password

EXAMPLE: To define a new password, enter:

```
> set password
```

```
Old Password:
```

```
New Password:
```

```
Verify New Password:
```

```
Password changed
```

ping

Verifies connectivity to another device, specifically between the TB200 and the TB50 IAD. Ping can also verify the proprietary Voiceping.

Syntax

```
ping cpe <cpeId> [voiceping <lineNo> [<loopback>] [<time>]]>
```

where:

cpeId: Refers to a unique system identifying number. Possible values are 1 to 2000. *cpeId* = <1 to 2000>.

voiceping: Initiates Tollbridge's proprietary voiceping parameter

lineNo: Refers to a specific analog line on the CPE. Possible values are 1 to 8. *line no* = <1 to 8>. This must be specified when **voiceping** is in use.

loopback: Indicates the loopback to be used for **voiceping**. The options are:

dsp: loopback at the DSP level

qslac: loopback at the QSLAC

slic: loopback at the SLIC (default)

time: Specifies the length of time (in seconds) for the voiceping parameter. Options are from 3 seconds (default) to 2,147,483,647 seconds.

ping

EXAMPLE: To verify connectivity to a TB50 IAD with a cpeId of 15, enter:

```
> ping cpe 15 voiceping 5
```

```
192.53.5.59 is alive
```

reset (set reset)

Resets a specific module or modules in the system, or resets a CPE remotely from a TB200. Two resets are supported: coldstart and factory reset.

Syntax

```
set reset [{{<cardId> | <cardIdRange>}...} | {{<cpeId> | <cpeIdRange>}...}] <resetType>
```

where:

*: Operator is a wildcard; it represents all modules.

cardId: Indicates the module that is to be reset. Card entries must specify shelf, slot and location (front or back). For example, 1-7-f, refers to a module found in the first shelf of a TB200, its seventh slot and at the front of the unit versus the rear of the chassis.

<cardIDformat> = <shelf>-<slot>-<f | b>

cardIdRange: Indicates a range of modules on the same shelf. For example, to reset modules 3, 4, 5 and 6 on shelf 1, enter: 1-3-f..6. cardIdRange = <shelf>-<slot>-<f | b>..<slot>

cpeId: Refers to a unique system identifier. Possible values are 1 to 2000. cpeId = <1 to 2000>

cpeIdRange: Refers to a range of cpeIds. In expressing a range, the start and finish cpeId values are separated by two periods, such as 2..10. Possible cpeId values are 1 to 2000. cpeIdRange = <cpeId..cpeId>.

resetType: Refers to the type of reset. Options are cold start and factory.

<resetType> = <coldstart | factory>

coldstart: Resets module via hardware.

factory: Resets the module to the default factory setting.

set reset

EXAMPLE 1: To reset all installed modules at once via hardware, enter:

```
> set reset *-*-* coldstart
```

EXAMPLE 2: To reset modules 1 through 8 on shelf 2 to the initial factory setting, enter:

```
> set reset 2-1-f..8 factory
```

EXAMPLE 3: To reset CPE 5 to its initial factory setting, enter:

```
> set reset 5 factory
```

snmp (set snmp, get snmp, del snmp)

Activates status, reviews status or deactivates SNMP monitoring of a system.

Syntax

```
set snmp {<auth> | <community> | <notifyDest>}
```

```
get * | {<auth> | <community> | <notifyDest>}
```

```
del snmp {<community> | <notifyDest>}
```

where:

auth: Specifies that an SNMP authentication notification be sent to configured management systems when there is an authentication failure. Options are yes or no.

<authNotify> = authNotify <yes | no>

community: Specifies a community that is to be used for checking access to the SNMP agent. A number of parameters make up the community definition parameter.

community = <commValue | *> <ipAddress> <access>
<maxMsgSize>

commValue: Identifies the community. Each <commValue> and IP address must be unique.

ipAddress: Defines the IP address of a management system (0.0.0.0)

access: Defines the allowed operation type. Options are read-only (RO) or read-write (RW)

maxMsgSize: Specifies the maximum message size for a response which must be in the range (484-1472)

notifyDest: Specifies a management system to which notifications are to be sent. Parameter includes noting IP address of the station as well as a community string and maximum message size.

<notifyDest> = notifyDest <ipAddr | *> <commValue>
<maxMsgSize>

commValue: Identifies the community

ipAddr: Defines the IP address of a management system (0.0.0.0)

maxMsgSize: Specifies the maximum message size for a response which must be in the range (484-1472)

*: Wildcard operator.

set snmp

EXAMPLE: To set the SNMP parameters, enter

```
> set snmp authNotify yes
> set snmp community "public" 0.0.0.0 ro 1472
> set snmp notifyDest 10.0.0.21 "public" 1472
```

EXAMPLE1: To view all SNMP details, enter:

```
> get snmp *
```

```
AuthNotify: yes
```

Community string	IP address	Access	Max Msg Size
private	192.9.3.1	rw	1472
public	192.5.19.59	ro	1472

EXAMPLE 2: To view all SNMP auto-notify setting, enter:

```
> get snmp authNotify
```

AuthNotify: yes

EXAMPLE 3: To view the SNMP public community, enter:

```
> get snmp community public
```

Community string	IP address	Access	Max Msg Size
public	192.5.19.59	ro	1472

```
del snmp
```

EXAMPLES:

```
> del snmp community *
> del snmp community "public"
> del snmp notifyDest *
> del snmp notifyDest 10.0.0.21
```

swver (get swver)

Retrieves the version number of either of the two software images stored on a module.

Syntax

```
get swver [<cardId> | <cardIdRange>]. . . <flashingImgNo>
```

where:

cardId: Indicates the module that is to be queried. Card entries must specify shelf, slot and location (front or back). For example, 1-7-f, refers to a module found in the first shelf of a TB200, its seventh slot and at the front of the unit versus the rear of the chassis. *cardIDformat* = <shelf>-<slot>-<f | b>

cardIdRange: Indicates a range of modules on the same shelf. For example, to request the uptime statistics for modules 3, 4, 5 and 6 on shelf 1, enter: 1-3-f..6. *cardIdRange* = <shelf>-<slot>-<f | b>..*slot*

flashingImgNo: Refers to the image that is to be made active, options are 1 or 2. *flashingImgNo* = <1 | 2>

```
get swver
```

EXAMPLE: To determine the version of software stored in the secondary storage location for a given module (such as 1-8-f), enter:

```
> get swver 1-8-f 2

descr   location   flashImgNo   revision
=====
switch  1-8-f         2            TB-1.3.1
```

system (set system, get system)

Defines or reviews the name and location of a system and the contact for that system. This command is optional.

Syntax

```
set system * | [contact | name | location]
```

```
get system [contact | name | location]
```

where:

***** : Wildcard operator. Requests all information be requested. (*get system* command only)

contact: Refers to the system administrative contact.

<contact> = contact "textstring"

name: Refers to the name of the TB200 system. Often the name of the domain name server (DNS) is specified.

<name> = name "textstring"

location: Indicates the location of a system.

<location> = location "textstring"

```
set system
```

EXAMPLE: To define the name, location and contact for a system, enter:

```
> set system contact "Jack London, 800.555.1212"
> set system name "oakland.ca.com"
> set system location "london square, 3rd flr, closet
7, bay b"
```



NOTE: Each parameter, contact, name and location should be entered via three separate command lines versus a single command line, as shown above.

get system

EXAMPLE 1: To determine the contact for a system, enter:

```
> get system contact
```

```
System contact: Jack London, 800.555.1212
```

EXAMPLE 2: To review all system information (name, contact and location), enter:

```
> get system *
```

```
System name: oakland.ca.com
```

```
System contact: Jack London, 800.555.1212
```

```
System location: london square, 3rd flr, closet 7, bay b
```

```
System autodisconnect: 0
```

```
System date and time: 2/17/2000 12:11:06
```

tftpfile (set tftpfile, get tftpfile)

Assigns or retrieves the name of a system image, boot image or configuration file that is stored on a TFTP server.



NOTE: System image files and configuration files are downloaded using the *set imgload* command.

Syntax

```
set tftpfile <fileName>
```

```
get tftpfile
```

where:

fileName: Indicates the name of the image, boot or configuration file. Up to 128 alphanumeric characters can be specified.

```
set tftpfile
```

EXAMPLE: To name a configuration file as "test", enter:

```
> set tftpfile test.cfg
```

```
get tftpfile
```

EXAMPLE: To get the name of a configuration file available for download from the TFTP server, enter:

```
> get tftpfile
```

```
tftpFile: admin_d-flash.img
```

tftpsrvr (set tftpsrvr, get tftpsrvr)

Configures and retrieves the IP address of a TFTP server that stores and downloads configuration and image files for the TB200.

Syntax

```
set tftpsrvr <IP address>
```

```
get tftpsrvr
```

```
get tftpsrvr
```

where:

ipAddr: Refers to the IP address assigned to the interface by the system administrator. The IP address should be entered in dot notation (such as 195.5.19.59).

```
set tftpsrvr
```

To assign an IP address of 193.54.4.3 to the TFTP server, enter:

```
> set tftpsrvr 193.54.4.3
```

get tftpsrvr

EXAMPLE:

To retrieve the IP address of the TFTP server, enter:

```
> get tftpsrvr
ipTftpSvrAddr: 193.54.4.3
```

time (set time, get time)

Sets and retrieves the system time. Time is expressed in the 24-hour format.

Syntax

set time <HH>:<MM>:<SS>

get time

where:

HH: Refers to the hour in 24 hour nomenclature (enter as a two-digit number)

MM: Refers to the minute (enter as a two-digit number)

SS: Refers to second (enter as a two-digit number)

set time

To set the system clock for a TB200, to 10:15:05 PM, enter:

```
> set time 22:15:05
```

get time

To retrieve and review the current time setting for a system, enter:

```
> get time
```

```
Time: 18:29:30
```

tracelog (set tracelog, get tracelog, del tracelog)

Syntax

set tracelog <modNum><traceLeve>

get tracelog

del tracelog

set tracelog

Information to be provided.

get tracelog

EXAMPLE:

```
> get tracelog
```

```
TRACE LOG -- ipAddr: 0
```

```
1::ModID[ 1 ]:: ShelfID: 1, SlotID: 1, BP IpA
```

```
00:00:00:00
```

```
File: sys_start.c Line: 590 ::TaskName: (null)
```

```
2::ModID[ 1 ]:: AtmChannel: 0
```

```
00:00:00:00
```

```
File: sys_start.c Line: 591 ::TaskName: (null)
```

```
3::ModID[ 2 ]:: Image Version: TB-1.4.0 Build
```

```
00:00:00:00
```

```
File: ld_client.c Line: 139 ::TaskName: (null)
```

del tracelog

Information to be provided.

uptime (get uptime)

Retrieves and reviews how long a specific module or a range of modules have been operating in a system.

Syntax

```
get uptime [<cardId> | <cardIdRange>]
```

where:

cardId: Indicates the module that is to be queried. Card entries must specify shelf, slot and location (front or back). For example, 1-7-f, refers to a module found in the first shelf of a TB200, its seventh slot and at the front of the unit versus the rear of the chassis. *cardIdFormat* = <shelf>-<slot>-<f | b>

cardIdRange: Indicates a range of modules on the same shelf. For example, to request the uptime statistics for modules 3, 4, 5 and 6 on shelf 1, enter: 1-3-f..6. *cardIdRange* = <shelf>-<slot>-<f | b>..*slot*

get uptime

EXAMPLE 1: To view the uptime details for module seven (seventh slot of the shelf) found at the front of shelf 1 on a TB system, enter:

```
> get uptime 1-7-f
```

```
<location>      <upTime>
=====
1-7-f          3D:16H:31M:55S
```

EXAMPLE 2: To view the uptime details for modules 7 and 8 (seventh and eighth slots of the shelf) found at the front of shelf 1 on a TB200 system, enter:

```
> get uptime 1-7-f 1-8-f
```

```
<location>      <upTime>
=====
1-7-f          3D:16H:34M:43S
1-8-f          3D:16H:34M:46S
```

EXAMPLE 3: To view the uptime details for all modules found at the front of shelf 1 on a TB200 system, enter:


```
> get uptime 1-*-f
```

```
Locationuptime
```

```
1-1-f          1D:15H:54M:37S
```

```
1-6-f          1D:15H:30M:42S
```

```
1-7-f          0D:0H:23M:56S
```

```
1-8-f          0D:5H:44M:25S
```

```
1-9-f          1D:15H:30M:43S
```



NOTE: If no module or module range is noted in the *get uptime* command, the operation is performed on the module running the CLI.

PROVISIONING COMMANDS

Provision commands configure the TB200 and the CPE (TB50 IAD, TB55 IAD).

analogline (set *analogline*, get *analogline*)

Modifies or reviews configuration details for analog lines connected to a CPE (such as TB50 IAD or TB55 IAD).

Analog line parameters are automatically configured with default values when a new CPE is generated with the *set cpe...* command. The following analog line parameters can be modified: type of signalling used, type of coding used and configured values of the transmit (TX) and receive (RX) gain.

Any of the above parameters can be modified independently of one another.

Configuration changes can be applied to a specific analog line, a range of analog lines or all analog lines on a system or multiple systems simultaneously.

Syntax

```
set analogline <cpeId | cpeIdRange> [lineNo | lineNoRange] [sigType]
  [coding] [tx <txGain>] [rx <rxGain>]
```

```
get analogline * | <cpeId | cpeIdRange> [lineNo | lineNoRange | *]
```

where:

cpeId: Refers to an unique system identifier. Possible values are 1 to 2000. *cpeId* = <1 to 2000>

cpeIdRange: Refers to a range of *cpeId*s. In expressing a range, the start and finish *cpeId* values are separated by two periods, such as "2..10". Possible *cpeId* values are 1 to 2000.

<*cpeIdRange*> = <*cpeId*..*cpeId*>.

lineNo: Refers to a specific analog line. Possible values are 1 to 8.

<*lineno*> = <1 to 8>

lineNoRange: Refers to a range of analog lines.

<*lineNoRange*> = <*lineNo*..*lineNo*>.

sigType: Refers to the type of signalling that is being used by the line. Options are loopstart (default value) or groundstart.

<*sigType*> = <loopstart | groundstart>

coding: Refers to the type of line encoding that is being used by the line. Options are *g726* (ADPCM, default value) and *g711* (PCM).

<*coding*> = <*g726* | *g711*>

txGain: Refers to the transmit gain setting in decibels. Possible values are +2 db to -10 db with step values of 0.1 db.

<*txGain*> = <0 to -9>.

rxGain: Refers to the receive gain setting in decibels. Possible values are +2 db to -10 db with step values of 0.1 db.

<*rxGain*> = <+3 to -6>.

*: Wildcard operator; all lines are on the CPE are selected



NOTE: TX and RX gain are only set when *groundstart* is configured. These parameters are not relevant for *loopstart* configurations

set analogline

EXAMPLE 1: To modify the signalling method used by analog line 7 that terminates on CPE 5 to *groundstart*, enter:

```
> set analogline 5 7 groundstart
```

```
Modified cpeId = 5 lineNo = 7
```

EXAMPLE 2: To apply a configuration change to all analog lines, enter:

```
> set analogline 5 groundstart.
```

EXAMPLE 3: To apply parameter changes across multiple lines (3 through 5, 2 and 3) and systems CPE 3, 4 and 5, enter:

```
> set analogline 3..5 2..3 groundstart g726 tx 70 rx 50
```

```
Modified cpeId=3 lineNo=2
```

```
Modified cpeId=3 lineNo=3
```

```
Modified cpeId=4 lineNo=2
```

```
Modified cpeId=4 lineNo=3
```

```
Modified cpeId=5 lineNo=2
```

```
Modified cpeId=5 lineNo=3
```

get analogline

EXAMPLE: To review configuration details for a range of analog lines on a system identified with a CPE ID of 1, enter:

```
> get analogline 1 1..3 5 8
```

<cpeId>	<lineNo>	<sigType>	<coding>	<txGain>	<rxGain>
1	1	loopstart	g726	0	0
1	2	loopstart	g726	0	0

1	3	loopstart	g726	0	0
1	5	loopstart	g726	0	0
1	8	loopstart	g726	0	0



NOTE: G726 represents ADPCM (32K), the default and G711 refers to PCM (64K) voice encoding.

config (set config, del config)

set config saves the configuration saved in NVRAM.

del config resets the configuration in NVRAM. After reset, the system configuration will be undefined.

cpe (set cpe, get cpe, del cpe)

Configures, reviews, or deletes information about TB50s (CPE) to which the TB200 is connected. This is primarily done so that the CPE device is recognized by the TB200 as a possible termination point. Once the new CPE is created, the *set cpe...* command is also used to modify its parameters.

Syntax

```
set cpe [<cpeId> | <cpeIdRange>] <cpeType> <ipAddr> <vPathId>  
[voice_tos <tosField>] [data_tos <tosField>] [upstream <kbps>]  
[downstream <kbps>] [<dataPortCtl>] [<dataShaping>] [data_rtr  
<ipAddr>] [<bridgeMode>]
```

```
get cpe <cpeId | cpeIdRange | * >
```

```
del cpe <cpeId | cpeIdRange | * >
```

where:

cpeId: Assigns a number to a CPE. Values between 1 and 2,000 can be used.

<cpeId> = <1 to 2,000>.

bridgeMode: Refers to the bridging mode of the CPE data port. Options are learning, repeater, router_only.

<bridgeMode> = <learning | repeater | router_only>

learning: Data is transferred to and from a data port based on a learned source address.

repeater: Data is transferred to and from a data port like a repeater.

router_only: Data is transferred to and from a data port based on the router's address

cpeType: Indicates the type of CPE that is being defined. Option is TB50 IAD.

<cpeType> = <TB50 IAD>.

data_rtr <ip addr>: Indicates the IP address of the router accessible from the CPE data port.

data_rtr <ip addr> = <AA.BB.CC.DD>

ipAddr: Indicates the IP address of the CPE. *ipAddr* = <aa.bb.cc.dd>

vPathId: Defines the voice communication that the CPE (such as the TB50 IAD) uses in communicating with the TB200. This value is defined using the *set voicepath...* command. You can determine available path IDs for the CPE by using the *get voicepath...* command.

data_tos: Indicates the Type of Service (TOS) value for packets transmitted on the CPE data port.

<data_tos> = <1 to 255>, default is 0.

dataPortCtl: Enables or disables a data port on a CPE.

<dataPortCtl> = <enable_data | disable_data>

dataShaping: Enables or disables shaping of the data packet stream on the data port on the CPE.

<dataShaping> = <enable_shaping | disable_shaping>

downstream: The maximum rate in kbits/sec the CPE can receive <kbps> in the downstream direction, including both voice and data traffic. The range is from 28 to 2,147,483,647 with the default value being 768.

upstream: The maximum rate in kbits/sec the CPE is allowed to <kbps> transmit in the upstream direction, including both voice and data traffic. The range is from 28 to 2,147,483,647 with the default value being 768.

voice_tos: Indicates the TOS value for packets transmitted on the CPE voice port.

<voice_tos> = <0 to 255>, default is 16.

* : Operator is a wildcard; it represents all currently defined CPEs.



NOTE: The parameters <cpeType>, <ipAddr> and <vPathId> are required when creating a new CPE. All other parameters are optional.

set cpe

EXAMPLE: To create and configure parameters for a new CPE (example, TB50 IAD) identified as 100, with an IP address of 192.53.4.2 that will communicate on a given voice path (e.g, 5), enter:

```
> set cpe 100 TB50 IAD 192.53.4.2 5 disable_data
voice_tos learning data_rtr 193.55.5.59
```

```
created CPE = 100
```



NOTE: If a numeric identifier for the CPE device is not specified, then the system automatically assigns a value, which is then echoed to the screen.

get cpe

EXAMPLE: To view the configuration details for a specific CPE (such as 100), enter:

```
> get cpe 48
```

```
cId   ipAddr      st  #   vId prt shap vTos dTos  uSpd  dSpd brdg  dataRtr
=====
48 10.5.100.187  init 8   87 ena ena  0x10 0x00  768  768 learn 0.0.0.0
```



NOTE: Several or all defined CPE configurations can be viewed at once by specifying a range of CPE identifiers such as in the command `get cpe 5..10` or all by entering `get cpe *`.

`del cpe`



NOTE: To delete a CPE, first delete all CRVs associated with the analog lines of the CPE using `del crv`.

EXAMPLE: To delete a range of CPEs (such as CPE's identified as 5, 6, 7, 8 and 11) from the database, enter:

```
> del cpe 5..8 11
```

```
Deleted cpeId=5
```

```
Deleted cpeId=6
```

```
Deleted cpeId=7
```

```
Deleted cpeId=8
```

```
Deleted cpeId=11
```

`crv` (set crv, get crv, del crv)

Assigns, reviews or deletes a CRV to a TB50 IAD analog line within an IG.

Syntax

```
set crv <igId | igName> <cpeId> <lineNo> | <lineNoRange> <crvVal>
```

```
get crv * | <igId> | <igName> [<cpeId> [<lineNo>]]
```

```
del crv [<igId> | <"igName">] [<crvVal> | <crvValRange>] | *
```

where:

cpeId: Refers to a unique number assigned to a TB50 system. Possible values are between 1 and 2,000. You can view a list of all CPEs and their ID on a TB200 by entering the `get cpe` command.

<cpeId> = <1 to 2000>.

igId: Refers to a unique identifier for IG, assigned when the IG is created using the *set gr303ig...* command. Possible values are 1 to 50.

<igId> = <1 to 50>

igName: Identifies an IG by a user-specified name. A double-quoted text string of up to 32 alphanumeric characters can be used.

<igName> = <" text string">.

lineNo: Refers to a specific analog line of a TB50. Possible values are 1 to 8 which represents the number of analog ports supported on a TB50.

<line no> = <1 to 8>

lineNoRange: Refers to a range of analog lines.

<lineNoRange> = <lineNo..lineNo>.

crvVal: Indicates a specific line on the CO switch that is mapped to a specific analog line (lineNo) on a TB50. Possible values are 1 to 2,048.

<crvVal> = <1 to 2048>

crvValRange: Refers to a range of CRV values. Possible values are 1 to 2,048.

<crvValRange> = <crvVal..crvVal>

set crv

EXAMPLE: To assign a CRV of 1024 (found on IG 1) to the eighth analog line of a TB50 IAD (identified with a cpeId of 5), enter:

```
> set crv 1 5 8 1024
```

get crv

Views assigned CRVs for a specific IG (igId, igName), a specific TB50 IAD (cpeId) or for a specific analog line (lineNo) of a TB50 IAD.

EXAMPLE 1: To retrieve the CRVs associated with a specific IG (example 1), enter:

```
> get crv 1
```

igId	crvId	cpeId	lineNo	priServ	secServ
------	-------	-------	--------	---------	---------


```
=====
```

1	10	25	1	OOS	NM FEF
1	20	26	1	OOS	NM FEF
1	30	27	1	OOS	NM FEF

EXAMPLE 2: To retrieve the CRVs associated with a TB50 IAD (such as cpeId = 25), enter:

```
> get crv 1 25
```

```
=====
```

igId	crvId	cpeId	lineNo	priServ	secServ
1	10	25	1	OOS	NM FEF

EXAMPLE 3: To retrieve the CRVs associated with a specific line (such as line 3) of a TB50 IAD (example, cpeId of 25), enter:

```
> get crv 1 25 3
```

```
=====
```

igId	crvId	cpeId	lineNo	priServ	secServ
1	10	25	3	OOS	NM FEF

del crv

Removes an assigned CRV value from an IG.



NOTE: When the CRV is removed from the IG, calls can no longer be processed on that line.

EXAMPLE: To remove multiple CRVs (such as 755, 766, 200, 1000 to 1007) from an IG (such as 1), enter:

```
> del crv 1 755 766 200 1000..1007
```



NOTE: Both contiguous and non-contiguous CRVs can be entered in the same **del crv** command.

ds1 (set ds1, get ds1)

Modifies or reviews configuration details of a single or multiple DS1 interface(s). DS1 entries are established in the system database when a new module is detected in the chassis.

The following parameters can be modified for DS1 interfaces: frame type, bit coding, signalling mode, line equalization levels and loopback type.

Syntax

```
set ds1 {<ds1Id> | <ds1IdRange> | {<igId> | <igName>} {<igLineId> | <igLineIdRange>} }...[<frameType>] [<lineCode>] [<loopbackType>] [{<dsx <lineLength>} | {t1 <attenLevel>}][<adminState>]
```

```
get ds1 { * | {<ds1Id> | <ds1IdRange> | {{<igId> | <igName>} {<igLineId> | <igLineIdRange>}}}... }
```

where:

ds1Id: Refers to the DS1 that is to be modified. ds1Id = <shelf>-<slot>-<fbindicator>-<port>.

<shelf> = <1 to 3>

<slot> = <2 to 8, 11 to 17>

<fbindicator> = where "b" refers to the back module.

<port> = <1 to 4>

ds1IdRange: Refers to a range of DS1s. ds1IdRange = <ds1Id..ds1Id>

igId: Refers to a unique identifier for an IG, assigned when the IG is created using the *set gr303ig...* command. Possible values are 1 to 50. igId = <1 to 50>

igName: Identifies an IG by a user-specified name. A double-quoted text string of up to 32 alphanumeric characters can be used. igName = <" text string">.

igLineId: Refers to a specific number within an IG. Possible line number values are 1 to 28.

<igLineId> = <1 to 28>

igLineIdRange: Refers to a range of IG line numbers. Possible line number (igLineId) values are 1 to 28.

`<igLineIdRange> = <1 to 28..1 to 28>`

frameType: Refers to the type of framing being used on the line. Possible values are: `sf`, `esf` (default value).

`<frameType> = <sf | esf>`.

lineCode: Refers to the type of bit coding being used on the line. Possible values are `b8zs` (default value) and `ami`.

`<lineCode> = <b8zs | ami>`.

leq <value>: Indicates the length of the line, in feet, required to adjust the line equalization. Possible values are 0 (default value) to 655.

loopbackType: Indicates the type of loopback to be used for the line. Allowed values:

`noloopback`

`loopline`

`loopframer`

dsx: Controls the transmit LBO function that can provide

lineLength: additional transmit signal strength above the nominal setting based on the length of the cable. The line length can be in the range of 0-655 feet.



NOTE: The default operating mode of the T1 is "dsx 134" (e.g., 134 feet).

t1: Controls the transmit LBO function that can provide `<attenLevel>` additional transmit signal attenuation below the nominal setting. The amount of attenuation is specified via the parameter `<attenLevel>`. Values allowed for `attenLevel`:

0: 0.0db of attenuation

1: 7.5db of attenuation

2: 15.0db of attenuation

3: 22.5db of attenuation

adminState: Controls the administrative state of the DS1 interface. Values allowed:

unlocked: The normal operating state of the DS1, where the services provided by the interface are available for use and alarms will be generated when detected. (Creation default value)

locked: The services provided by the interface are no longer available, all current alarms associated with the interface will be cleared, and all future alarms will be suppressed.



NOTE: For Release 1.x, the following parameters are configured with their default settings and cannot be modified: frameType, lineCode, sigMode, eq <value> and loopback.

set ds1

EXAMPLES:

```
> set ds1 1-6-1 locked
> set ds1 1-6-1 locked
> set ds1 1-6-1 dsx 250
> set ds1 1-6-1..4 t1 0
> set ds1 1 5 dsx 250
> set ds1 "myig" 5 t1 2
> set ds1 1-6-1 loopline
```

get ds1

EXAMPLE: To review configuration details of DS1s across different T1s slots 15 (all four DS1 ports) and 16 (one DS1 port) in a system, enter:

```
> get ds1 1-15-b-1..4 1-16-b-1
```

Id	type	coding	txClk	txlbo	lineLen	attLevl	loopBack
1-15-1	esf	b8zs	loop	dsx	134	---	noloop
1-15-2	esf	b8zs	loop	dsx	134	---	noloop
1-15-3	esf	b8zs	loop	dsx	134	---	noloop
1-15-4	esf	b8zs	loop	dsx	134	---	noloop
1-16-1	esf	b8zs	loop	dsx	134	---	noloop

ds3 (set ds3, get ds3)

Modifies or reviews configuration details of a single or multiple DS3 interface(s). The *ds3* command does not create a database entry for a DS3 module; DS3 entries are established in the system database when a new module is detected in the chassis.

The DS3, a rear interface module, provides connection to the ATM broadband network.

The following parameters can be modified for a DS3 interface: frame type, bit coding (*lineCode*), line equalization levels, clock source (*txClockSrc*) and loopback type.

Syntax

```
set ds3 <ifId> [<frameType>] [<lineCode>] [<txClockSrc>] [eq  
  <eqValue>] [<loopbackType>] [<scramble>] [<adminState>]
```

```
get ds3 { <ifId> | * } [ {pm_stat <statType>} | {line_stat <statType>} ]
```

where:

ifId: Refers to the DS3 that is to be modified. *ifId* = <shelf>-<slot>-<fbindicator>-<port>.

<shelf > = <1 to 3>

<slot > = <9 | 10>

<fbindicator> = , where b refers to "back" module

<port> = 1

frameType: Refers to the type of framing being used on the line. Possible value is: *cbitplcp* (default value).

<frameType> = <cbitplcp>

lineCode: Refers to the type of bit coding being used on the line. Possible value is: *b8zs* (default value).

<lineCode> = <b8zs>

eqValue: Indicates the length of the line, in feet, required to adjust the line equalization. Possible values are 0 (default value) to 1100.

<eqValue> = <0 to 1100>.

txClockSrc: Indicates the source of the transmit clock. Possible values are: receive clock, local clock or pass through clocking.

<txClockSrc> = <recvClock | localClock | thruClock>

recvClock: Clocking received on the given DS3 interface is used as the transmit clock.

localClock: Clocking is either derived from the internal system clock (TB200) or an external clocking system providing clock to the system is used.

thruClock: Clocking is pulled from a different DS3 interface on the system.

loopbackType: Indicates the type of loopback to be used for the line. Possible values are noloopback (default value), loopline and loopframer.

loopback = <noloopback | loopline | loopframer>

scramble: Enables or disables scrambling of the ATM cell payload. Possible values are scramenable (enable scramble) and scramdisable (disable scramble). scramble = <scramenable | scramdisable>

* : Wildcard operator. In this case, it refers to all active VCCs (vpi:vci) defined for the DS3 interface.

pm_stat <statType>: Initiates collection of DS3 statistics (example, PES, PSES, SEFS, UAS, LCVs, PCVs, etc.) and defines the interval of statistics to be displayed. DS3 statistics:

CCVs: Number of C-bit coding violations

CES: Number of C-bit errored seconds

CSE: Number of C-bit severely errored seconds

LCV: Number of line code violations

LESs: Number of line errored seconds

PCVs: Number of Path Coding Violations

PES: Number of P-bit errored seconds

PSES: Number of P-bit severely errored seconds

SEFS: Number of severely errored seconds

UAS: Number of unavailable seconds

line_stat <statType>: Initiates collection of traffic related performance statistics (such as transmit cell count, receive cell count, etc.) and defines the interval of statistics to be displayed.

<statType>: Defines how often statistics are collected. Options are:

current: displays statistics for the current 15 minute sampling interval.

interval: displays statistics for all of the 15 minute sampling intervals sampled.

total: displays statistics are for all of the total 15 minute sampling intervals sampled.

adminState: Controls the administrative state of the DS3 interface. Values allowed:

unlocked: The normal operating state of the DS3, where the services provided by the interface are available for use and alarms will be generated when detected. (Creation default value)

locked: the services provided by the interface are no longer available, all current alarms associated with the interface will be cleared, and all future alarms will be suppressed.

set ds3

The DS3 module is the rear interface to the Switch module. Switch modules can be installed in either slot 9 or 10 of a shelf, therefore, the slot options for the DS3 module will be either 9 or 10.

EXAMPLES:

```
> set ds3 1-9-b-1 eq 200
> set ds3 1-9-b-1 locked
> set ds3 1-9-b-1 scramenable
> set ds3 1-9-b-1 scramdisable
> set ds3 1-9-b-1 loopdiag
> set ds3 1-9-b-1 noloopback
```

get ds3

This command is used to retrieve the operating parameters associated with one or more DS3s.

Two types of queries can be made with this command:

- Queries for attributes related directly to the DS3 interfaces themselves (for example, line type, line coding, transmit clock source, loopback status, etc...), and;
- Queries relating to statistics gathered for the interface (pm or line statistics).

EXAMPLE: To view the configuration details of a DS3 interface (such as shelf 1, slot 9, port 1) and all current statistics, enter:

```
> get ds3 1-9-b-1 pm_stat current
```

Id	PES	PSSES	SEFS	UAS	LCV	PCV	LES	CCV	CES	CSES
1-9-b-1	0	0	0	0	0	0	0	0	0	0

gr303ig (set gr303ig, get gr303ig)

Configures, modifies, or reviews configuration details of an IG or delete configuration details of an IG. An IG can only be created with the primary DS1.

The following parameters can be configured or modified for an IG: ID, name, attached switch type, enabling or disabling of alarm generation and the type of alarms reported.

Syntax

```
set gr303ig [<igId>] [igName] <switchType> <alarmReport>
  <alarmEnable> <priDs1Id> [<secIgLineId>
    <secDs1Id>]
```

```
get gr303ig <igId | igIdRange | igName | *>
del gr303ig { <igId> | <igIdRange> | <"igName"> | * }
```

where:

switchType: Identifies the type of class 5 switch connected at the other end of the IG. Possible values are: 5ess (default value), dms100, ewsd and gtd5.

```
switchType = <5ess | dms100 | ewsd | gtd5>
```

alarmReport: Defines the alarms that are reported for the IG. Alarms must be enabled (*alarmEnable*) on the system for this parameter to function.

<alarmReport> = <gr303 | env | all>

alarmEnable: Enables or disables the reporting of alarms for the specified IG(s). Possible values are disable (default value) and enable.

<alarmEnable> = <enable | disable>.

priDs1Id: Identifies the physical location of the primary DS1. Shelf, slot and port number make up the *priDs1Id*. DS1 ports are numbered 1 to 4 from top to bottom.

<priDs1Id> = <shelf-slot-DS1portnumber>.

secIgLIneId: Refers to the logical line number in the IG that is assigned to the secondary DS1. This logical representation corresponds to a line on the CO switch.

<secIgLIneId> = <2 to 28>

secDs1Id: Identifies the physical location of the secondary DS1. Shelf, slot and DS1 port number make up the *sceDs1Id*. DS1 ports are numbered from top to bottom starting with one. The secondary DS1 port selected must be different from that defined as the primary DS1.

igId: Refers to a unique identifier for an IG, assigned when the IG is created using the *set gr303ig...* command. Possible values are 1 to 50.

<igId> = <1 to 50>

igIdRange: Refers to a range of IG numbers.

<igIdRange> = <igId..igId>.

igName: Identifies an IG by a user-specified name. A double-quoted text string of up to 32 alphanumeric characters can be used.

<igName> = <" text string">.

* : Wildcard operator. In this case, it refers to all active VCCs (vpi:vcj) defined for the DS3 interface.

```
set gr303ig
```

EXAMPLE1: To create a new IG that originates on shelf 1, slot 6, and terminates on a 5ESS, with alarms enabled, enter:

```
> set gr303ig 5ess gr303 enable 1-6-1 2 1-6-2
```

```
Created IG=1
```



NOTE: In this example, no IG number is assigned (igId), so the system automatically assigns the value of one (1) to the IG.

EXAMPLE2: To modify of an existing IG, enter:

```
> set gr303ig 10 gr303 enable  
> set gr303ig 10 myIgNewName
```

```
get gr303ig
```

EXAMPLE: To view the configuration of an IG 1, enter:

```
> get gr303ig 1
```

```
IG Number   : 1
IG Name     : "asdf"
Switch Type: 5ess
AlarmReport: all
AlarmEnable: enabled
Primary     DS1:    1    1-6-2    EOC active on: "primary" DS1
Secondary   DS1:    5    1-6-3    TMC active on: "primary" DS1
-----
DS1:  1    1-6-2                    DS1: 15    not assigned
DS1:  2    not assigned              DS1: 16    not assigned
DS1:  3    not assigned              DS1: 17    not assigned
DS1:  4    not assigned              DS1: 18    not assigned
DS1:  5    1-6-3                    DS1: 19    not assigned
...
DS1: 13    not assigned              DS1: 27    not assigned
DS1: 14    not assigned              DS1: 28    not assigned
```

```
del gr303ig
```

EXAMPLE: To delete an IG 1, enter:

```
> del gr303ig 1
```

history (set history, get history)

Retrieves the history of called CLI commands.

Syntax

```
set history
```

```
get history
```

```
set history
```

EXAMPLE: To set history to retrieve the last 100 CLI commands, enter:

```
> set history 100
```

get history

EXAMPLE:

```
> get history
```

igds1 (set igds1, get igds1, del igds1)

Assigns DS1s, other than the primary or secondary DS1s, to an IG, reviews assigned IGs and their membership and delete an IG.

Syntax

```
set igds1 <igId | igName> <ds1Id | ds1Range> <igLineId>
```

```
get igds1 <igId | igName>
```

```
del igds1 <igId | igName> <ds1Id | ds1IdRange | igLineId |  
  igLineIdRange>
```

where:

ds1Id: Refers to the DS1 that is to be modified. ds1Id = <shelf>-<slot>-<fbindicator>-<port>

<shelf> = <1 to 3>

<slot> = < 2 to 8, 11 to 17>

<fbindicator> = where "b" refers to back module.

<port> = <1 to 4>

ds1IdRange: Refers to a range of DS1s. ds1IdRange = <ds1Id..ds1Id>

igId: Refers to a unique identifier for an IG, assigned when the IG is created using the **set gr303ig** command. Possible values are 1 to 50.

<igId> = <1 to 50>

igName: Identifies an IG by a user-specified name. A double-quoted text string of up to 32 alphanumeric characters can be used.

<igName> = <" text string">

igLineId: Identifies a line number within an IG. Possible values for IG line numbers range from 2 to 28, excluding the line number of a secondary DS1 (if one has been configured).

igLineIdRange: Identifies a range of line numbers within an IG.

igLineIdRange = <igLineId..igLineId>

set igds1

EXAMPLES:

```
> set igds1 10 1-7-1 20 1-8-1 21
> set igds1 "myIg" 1-7-1 20 1-8-1 21
> set igds1 10 1-7-1..4 20 1-8-1 25
> set igds1 "myIg" 1-7-1..4 20 1-8-1..4 25
```

get igds1

EXAMPLE: To view a summary of IGs and their membership (specific DS1s), enter:

```
> get igds1 1
```

IgId	igLineId	location	type	priServ	secServ
1	1	1-6-2	primary	IS	ACT
1	5	1-6-3	secondary	IS	ACT

del igds1

EXAMPLE: To delete all DS1s from a specific module (such as module 5) from an IG, enter:

```
> del igds1 1 1-5-b-1..4
```



NOTE: In deleting DS1 from an IG the DS1 can be referenced by its ID (ds1ID, ds1IDRange), or by its line reference number (igLineId, igLineIdRange).

oamds3 (set oamds3, get oamds3)

Starts or stops an OAM loopback on one or more VCCs on a DS3 or reviews the loopback status for a given VCC.

Syntax

```
set oamds3 <ds3Id> <vpi:vci | * > < loopback [interval <time>] [reps  
<count>] | noloopback>
```

```
get oamds3 <vpi : vci | * >
```

where:

ds3Id: Refers to the DS3 that is to be modified or reviewed. ds3Id = <shelf>-<slot>-<fbindicator>-<port> <ds3No>.

<shelf > = <1 to 3>

<slot > = <9 | 10>

<fbindicator> = , where b refers to "back" module

<port> = 1

<ds3No> = number of the DS3 on the specified shelf and slot

vpi:vci: Defines the VPI and VCI values of the PVC. VPI and VCI values are assigned by your ATM network system administrator.

loopback: Initiates an OAM loopback on a VCC(s). The number of times the loopback cells are transmitted (*reps <count>*) as well as the period of time between loopback transmissions (*interval <time>*) are also defined.

interval <time>: Specifies the number of seconds between loopback cell transmissions. Possible values are 3 to 2,147,483,641. If not specified, the default value is 3. *interval* = <3 to 2,147,483,641>

reps <count>: Specifies the number of loopback cells that will be sent. Possible values are 0 to 2,147,483,641. A value of zero (default) results in infinite loopbacks. *reps* = <0 to 2,147,483,641>

noloopback: Indicates that the loopback for the given VCC will be ending. This parameter must be used in conjunction with the location of the DS3 and the appropriate VCI and VPI. *See example 2 above.*

*: Wildcard operator. Represents all active VCCs in the DS3.

```
set oamds3
```

EXAMPLE 1: To initiate a loopback on a DS3 port (shelf 1, slot 9, port 1) that will transmit every 15 seconds for up to 150 queries, on a PVC (vpi:vci), enter:

```
> set oamds3 1-9-b-1 0:151 loopback 15 150
```

EXAMPLE 2: To end a loopback on the above noted port and PVC, enter:

```
> set oamds3 1-9-b-1 0:151 noloopback
```

```
get oamds3
```

EXAMPLE: To retrieve the status of loopbacks for a number of VCCs (such as 0:101 and 0:200) active on a DS3 module (such as 1-9-b-1), enter:

```
> oamds3 1-9-b-1 0:101 0:200
```

DS3Id	VPI/VCI	xmitInterval	xmitReps	Status	RoundTripAvg(ms)
1-9-b-1	0:101	100	0	completed	100
1-9-b-1	0:100	3	1001	running	52

pathprotect (set pathprotect, get pathprotect)

Configures or shows which DS1, (primary or secondary) within an IG, carries the EOC and TMC management data.

Syntax

```
set pathprotect <igId | igName> {<entityType> < ds1Indicator>...}
get pathprotect <igId | igName>
```

where:

igId: Refers to a unique identifier for an IG, assigned when the IG is created using the *set gr303ig...* command. Possible values are 1 to 50.

<igId> = <1 to 50>.

igName: Identifies an IG by a user-specified name. A double-quoted text string of up to 32 alphanumeric characters can be used. *igName* = <" text string">.

entityType: Refers to the management channel being assigned. Options are EOC and TMC.

<entityType> = <eoc | tmc>

ds1Indicator: Specifies either the primary or secondary DS1 as the one in which the EOC and TMC channels will be active. Options are primary or secondary.

`ds1Indicator = <primary | secondary>`

igName: Identifies an IG by a user-specified name. A double-quoted text string of up to 32 alphanumeric characters can be used.

`<igName> = <" text string">`.

`set pathprotect`

EXAMPLE: To activate the transmission of EOC and TMC management data on the secondary DS1 of IG 1, enter:

```
> set pathprotect 1 emc secondary tmc secondary
```

`get pathprotect`

EXAMPLE: To determine which DS1 (primary or secondary) of IG 1 is transmitting the management data, enter:

```
> get pathprotect 1
```

IG#	EOC	(igLineId phys)	TMC	(igLineId phys)
1	secondary	71-7-b-1-12	secondary	7 1-7-1-24

`secs1 (del secs1)`

Deletes a DS1 from an IG, either primary or secondary.

Syntax

`del secs1 <igId | igName>`

where:

igId: Refers to a unique identifier for an IG, assigned when the IG is created using the *set gr303ig* command. Possible values are 1 to 50.

`<igId> = <1 to 50>`

igName: Identifies an IG by a user-specified name. A double-quoted text string of up to 32 alphanumeric characters can be used.

<igName> = <"text string">

voicepath (set voicepath, get voicepath, del voicepath)

Configures, reviews, or deletes the communication path between a TB200 and one or more TB50s. A path is established to support data transmission between carrier (TB200) and CPE (TB50 IAD) equipment. Each path is assigned a unique number which can be used as a reference point in other commands.

Syntax

```
set voicepath <vPathId> <vPathType> <ifType> <ifId> <vpi:vci>
  [<encapType>] [<voiceCardId>] [<ipAddr>]
```

```
get voicepath {{<vPathId | vPathIdRange | * > <cpelist>} | {<cardId |
  cardIdRange | * >}}
```

```
del voicepath <vPathId | vPathIdRange | * >
```

where:

vPathId: Refers to a unique identification number for a voice communication path. If not specified, the system will assign one.
vPathType = <1 to 3,000>.

vPathType: The underlying mechanism providing the communication path.

vPathType = <PVC>

vPathIdRange: Defines a range of vPathIds. <vPathIdRange> = <vPathId..vPathId>.

voiceCardId: Defines which Voice module will terminate the VCC. If a value is not specified, then the system will select which Voice module to terminate the VCC.

voiceCardId = <2 to 8 and 11 to 17>

cardId: Indicates the module that is to be queried. Card entries must specify shelf, slot and location (front or back). For example, 1-7-f, refers to a module found in the first shelf of a TB200, its seventh slot and at the front of the unit versus the rear of the chassis.

<cardIDformat> = <shelf>-<slot>-<f | b>

cardIdRange: Indicates a range of modules on the same shelf. For example, to request the uptime statistics for modules 3, 4, 5 and 6 on shelf 1, enter: **1-3-f..6**.

<cardIdRange> = <shelf>-<slot>-<f | b>..<slot>

ifType: Refers to the type of interface that is being assigned. The valid option is "ds3" (a DS3 port).

<ifType> = <ds3>

ifId: Refers to the physical location of the interface and is specified in the following manner, **<shelf>-<slot>**

<fbIndicator>-<port>. Since this can only be a DS3 module, the slot and port options are limited as noted below:

<shelf> = <1 to 3>

<slot> = < 9 | 10>

<fbIndicator> = < b>; where "b" = back

<port> = <1>

vpi:vci: Defines the VPI and VCI values of the PVC. VPI and VCI values are assigned by your ATM network system administrator.

encapType: Refers to the encapsulation type used on the PVC. If no value is specified, the default value, bridge is used. **encapType = <bridged | routed>**.

bridged: RFC1483 bridged encapsulation (default)

routed: RFC1483 routed encapsulation

ipAddr: The IP address of the voice path. If not specified, the IP address is identified with the identified interface: **<ifType><ifId>**

*****: Wildcard operator. Represents all voice paths in a command.

set voicepath

EXAMPLE: To establish a path between the TB200 and a TB50 IAD, enter:

```
> set voicepath 1 pvc ds3 1-9-b-1 0:77 routed 1-2-f
```

get voicepath

Retrieves information associated with voice communication paths used by the TB200 to transfer voice and management data to the CPEs.

Two types of queries can be made with this command:

- queries for attributes related directly to the voice path(s) themselves, such as interface type, encapsulation type, VPI:VCI, list of CPEs using voicepath, and so one.
- queries to determine which voice paths are on which Voice modules<cardId>. (Example 3)

EXAMPLE 1: To view the details for a specific voice path, 64, enter:

```
> get voicepath 64
```

Id	type	intf	vcl(Ext)	encap	spec	cardId	vcl(Int)	ipAddr
64	pvc	ds3 1-9-b-1	0:140	routed	yes	1-6-f	0:36	10.5.140.1

EXAMPLE 2: To view the details for a multiple voice paths (such as 64 to 71), enter:

```
> get voicepath 64..71
```

Id	type	intf	vcl(Ext)	encap	spec	cardId	vcl(Int)	ipAddr
64	pvc	ds3 1-9-b-1	0:140	routed	yes	1-6-f	0:36	10.5.140.1
65	pvc	ds3 1-9-b-1	0:141	routed	yes	1-6-f	0:37	10.5.141.1
66	pvc	ds3 1-9-b-1	0:142	routed	yes	1-6-f	0:38	10.5.142.1
67	pvc	ds3 1-9-b-1	0:143	routed	yes	1-6-f	0:39	10.5.143.1
68	pvc	ds3 1-9-b-1	0:144	routed	yes	1-6-f	0:40	10.5.144.1
69	pvc	ds3 1-9-b-1	0:145	routed	yes	1-6-f	0:41	10.5.145.1
70	pvc	ds3 1-9-b-1	0:146	routed	yes	1-6-f	0:42	10.5.146.1
71	pvc	ds3 1-9-b-1	0:147	routed	yes	1-6-f	0:43	10.5.147.1

EXAMPLE 3: To determine which voice paths are on a specific module (such as module 2), enter:

```
> get voicepath 1-2-f
```

location	vPathIds										
1-6-f	64	65	66	67	68	69	70	71	72	73	

74	75	76	77	78	79	80	81	82	83
84	85	86	87						

del voicepath

EXAMPLE 1: To delete a communication path, (such as 2), enter:

```
> del voicepath 2
```

EXAMPLE 2: To delete communication paths (such as 2 through 10), enter:

```
> del voicepath 2..10
```

EXAMPLE 3: To delete all communication paths defined on a system, enter:

```
> del voicepath
```