Connectware™

PortServer TS 8/16

Command Reference

92000306_A

Table of Contents

About This Manual

Purpose

The purpose of this reference manual is to provide descriptions of all PortServer TS 8/16 commands and command fields, which—along with the rest of the PortServer TS 8/16 library—should enable those responsible for setting up, maintaining, and using PortServer TS 8/16 to complete these tasks.

Audience

This manual is intended primarily for those who configure and administrator PortServer TS 8/16, though some parts of the manual describe commands that users may execute as well.

Scope

This manual provides reference information on commands and command fields. It does not provide task-oriented information, which can be found in the other manuals in the PortServer TS 8/16 library.

Products Addressed in This Manual

This manual provides information on the following products:

- PortServer TS 8
- PortServer TS 16

Chapter 1

Introduction to PortServer TS 8/16 Commands

Introduction

This chapter provides information on using PortServer TS 8/16 commands. It discusses the following topics:

About the Command Line Interface

This section discusses the PortServer TS 8/16 command line interface. It provides information on the following topics:

- The keys you use to navigate along the command line and edit commands
- PortServer TS 8/16 on-line help
- Tips on abbreviating PortServer TS 8/16 commands

Navigation and Editing Keys

Use the following keys to navigate along the command line and edit PortServer TS 8/16 commands:

Action	Keys
Move the cursor back one space	Ctrl b
Move the cursor forward one space	Ctrl f
Delete the character to the left of the cursor	Back space or Ctrl h
Delete the character under the cursor	Delete
Scrolls back through commands	Ctrl p
Scrolls forward through commands	Ctrl n
Executes the command typed on the command line	Enter

Online Help

On-line help is available for PortServer TS 8/16 commands. The following describes how to access help:

For information on...	Type
All PortServer TS 8/16 commands	? (with no additional parameters)
A specific command	The command and then ? **Example:** info ? **Example:** set user ?

Abbreviating Commands

All PortServer TS 8/16 commands can be abbreviated. You need only supply a sufficient number of command letters to uniquely identify the command.

Manual Organization and Conventions

Organization of Command Information

Commands are listed in alphabetical order. Each command description contains the following topics:

- Introduction, which describes the
  - — Purpose of the command
  - — Privileges required to execute the command
  - — Related information
- Syntax, which describes how you issue the command. Often Command Syntax is divided into separate discussions on how you use the command to accomplish a specific purpose. For example, the syntax discussion on the set logins command is divided into separate discussion on the following:
  - — Using the command to display the logins table
  - — Using the command to configure login parameters
- Fields, which provides a description of each command field.
- Examples, which are examples of how the command is used.

In addition, when necessary, some command descriptions provide the following:

- Additional information on the purpose of the command or some aspect of the command that cannot adequately be discussed elsewhere. The heading that identifies these discussions starts with the word “About.” For example, the discussion on the set route command includes a topic called “About the Route Table.”
- A description of the output that results from issuing the command. These descriptions are provided when the description of output fields is not the same as the description of command (input) fields. The info command is a good example.

Syntax Conventions

Presentation of command syntax in this manual follows these conventions:

- Brackets ([]) surround optional material.
- Braces ({}) surround entries that require you to chose one of several options, which are separated by the UNIX pipe (|).
- Non-italicized text indicates literal values, that is, fields or values that must be typed exactly as they appear. Yes and no options are examples of literals.
- Italicized text indicates that a type of information is required in that field. For example, *filename*, means that the name of a file is required in the field.

Chapter 2 **Commands**

Introduction

This chapter provides a description of each PortServer TS 8/16 command.

admin

Use the admin command to temporarily access commands reserved for administrators (root) when logged in as a normal (non-root) user.

About the admin Command

After issuing the admin command, PortServer TS 8/16 prompts for the root password.

Here is the sequence of events produced by the admin command:

1. PortServer TS 8/16 displays a prompt requesting the root password.
2. The user types in the root password.
3. If the password is
   - Accepted, the PortServer TS 8/16 displays the root prompt and the user can issue commands reserved for administrators
   - Not accepted, the PortServer TS 8/16 displays the following message: “Incorrect password”

Required Privileges

Only normal users can issue the admin command. Administrators cannot.

Related Information

For information on ending temporary root sessions, see the following commands:

- exit on page 2-10
- quit on page 2-23

Syntax

Here is how you issue the admin command:

```
admin
```

Example

```
admin
```

boot

Use the boot command to do the following:

- Reboot PortServer TS 8/16
- Restores the configuration to defaults
- Load a new operating system (firmware) into flash ROM from a TFTP host

Required Privileges

Administrator (root) privileges are required to use the boot command.

Related Information

See the following:

- cpconf on page 2-7 for information on saving the current configuration to a host prior to restoring the configuration to defaults
- revert on page 2-26 for information on restoring configuration defaults to the latest configuration stored in NVRAM.

Syntax

Reboot

Here is the syntax to reboot PortServer TS 8/16:

```
boot action=reset
```

Restore Configuration Defaults

Here is the syntax to restore the configuration to defaults:

```
boot  action={reset | factory} switch={factory | user}
```

Load New OS (Firmware)

Here is the syntax to load a new operating system (firmware) into flash ROM from a TFTP host:

```
boot load={ip-address | host-name}:[load-file]
```

Fields

`action=factory`
resets the entire configuration to factory defaults

`action=reset`
reboots PortServer TS 8/16

`load={`*`host-ip-address | host-name`*`}:[`*`file`*`]`
is an IP address or host name and file name that identifies a source host and file for the new operating system, which is then burned into flash ROM. To use this option, the host specified must be running TFTP.

If no file is specified, the default file name (let.bin) is used.

`switch={factory | user}`
determines which firmware to use on reboot, the firmware that shipped with the PortServer TS 8/16 or the most recent upgrade

Examples

Restoring Configuration Defaults

In this example, the boot command reloads the operating system stored in flash ROM and resets the configuration to factory defaults.

```
boot  action=factory
```

Using the Current OS and Configuration

In this example, the boot command reboots the PortServer TS 8/16 and uses the current operating system and configuration stored in flash ROM.

```
boot action=reset
```

Using a Boot Host

In this example, the boot command loads the operating system stored on the host into flash ROM. If you want to use this new operating system, you must reboot PortServer TS 8/16.

```
boot load=198.150.150.10:os-1
```

close

Use the close command to close active Telnet, Rlogin, and connect sessions.

About the close Command

To issue the close command, you must escape the active session. Do this by pressing the escape key defined for your session type.

The following are the default escape keys:

Session Type	Default Escape Keys
Connect	Ctrl [Enter
Rlogin	~ Enter
Telnet	Ctrl] Enter

Required Privileges

Normal users and administrators (root) can issue the close command.

Related Information

See the following commands:

- set user on page 2-74 for information on defining escape keys for telnet, rlogin, and connect sessions
- status on page 2-80 for information on displaying status information on active sessions

Syntax

Here is how you issue the close command:

```
close [{* | connection-number}]
```

Fields

`*`
specifies that all active sessions be closed

`connection-number`
identifies the session to close

Note: When you issue the close command without options, the current connection is closed.

Examples

Closing a Session Identified by Number

In this example, session 1 is closed.

```
close 1
```

Closing the Current Session

In this example, the current session is closed.

```
close
```

connect

Use the connect command to initiate a local connection on a port.

About the connect Command

Here is some information on the connect command:

- Multiple connections can be made by issuing multiple connect commands.
- To temporarily suspend a connection, escape the active session by pressing the escape character defined on the set user command. The default escape character is Ctrl [(Control key and left bracket).
- To temporarily suspend a connection and return to the command line, press the escape character and then the Enter key.
- To switch between active sessions (without first escaping to the command line), press the escape character and then the number of the session you wish to enter.

Note: Pressing the connect escape character twice causes the next session to appear, enabling you to easily page through sessions.

Required Privileges

Anyone can issue the connect command.

Related Information

See the following related commands:

- close on page 2-5 for information on ending a session
- reconnect on page 2-24 for information on reestablishing a port connection
- set user on page 2-74 for information on defining an escape character

Syntax

Here is how you enter the connect command:

```
connect {serial_port | hunt_group | id-name}
```

Fields

serial_port
specifies the number of the port on which to establish a connection

id-name
specifies the name (defined on the set ports command) of the port on which to establish a connection

hunt_group
specifies a hunt group, defined with the set ports group command

Example

In this example, the connect command opens a local connection on port 1.

```
connect 1
```

cpconf

Use the cpconf command to do the following:

- Restore the configuration from a remote host
- Copy the configuration to a remote host
- Display the configuration on the terminal that issues the command

Required Privileges

The cpconf command requires root privileges.

Related Information

None

Syntax

Here is how you issue the cpconf command:

```
cpconf {fromhost=host[:file]| tohost=host[:file] |term}
```

Fields

`fromhost=`*`host`*`[:`*`file`*`]`
copies the configuration to PortServer TS 8/16 from the host and file specified. When you use this field, remember to do the following:

- Identify the host by either its IP address or DNS name.
- Separate host and file fields by colons.
- If you do not specify a file, the default, config.ps3, is used.

`tohost=`*`host`*`[:`*`file`*`]`
copies the configuration to the host and file specified. When you use this field, remember to do the following:

- Identify the host by either its IP address or DNS name.
- Separate the host and file information by a colon.
- If the filename is not specified, config.ps3 is used.

Note: TFTP must be running on the host specified on the fromhost and tohost fields. For TFTP transfers to the PortServer TS 8/16, the file must be in the TFTP directory and assigned read-write permissions for all users.

`term`
displays the configuration file on the terminal that issued the command

Examples

Copying the Configuration From a Host

In this example, the cpconf command copies the configuration from the host and file specified.

```
cpconf fromhost=190.150.150.10:ps-cnfg1
```

Copying the Configuration To a Host

In this example, the cpconf command copies the configuration to the host and file specified.

```
cpconf tohost=190.150.150.10:ps-cnfg1
```

Copying To the Administrative Terminal

In this example, the cpconf command, displays the configuration on the terminal that issued the command.

```
cpconf term
```

display

Use the display command to:

- Determine the status of the EIA-232 signals on serial ports
- Display a list of PortServer TS 8/16 errors
- Clear the errors list

Required Privileges

Anyone can use this command to display information. Root privileges are required to clear the errors list.

Related Information

None

Syntax

Display

Here is how to issue the display command to display configuration settings, error, dip switch or power information.

```
display {port range=port-port | error
```

Clear

Here is how to issue the display command to clear errors from the errors list:

```
display error clear
```

Fields

`clear`
clears the errors list

`error`
does one of the following:

- clears all errors from the errors list when the clear option is specified
- displays a list of PortServer TS 8/16 errors when the clear option is not specified

`port`
indicates that configuration settings information is to be displayed for the ports specified on the range option

`range`
is a range of ports

Examples

Displaying Configuration Information on a Port

In this example, information on port 2 configuration is displayed.

```
display port range=2
```

Displaying Configuration Information on a Range of Ports

In this example, information for ports 1 and 2 will be displayed in response to the command.

```
display port range=1-2
```

Displaying a List of Errors

In this example, a list of errors will be displayed in response to the command:

```
display error
```

Clear Errors

In this example, the command clears the list of errors.

```
display error clear
```

exit

Use the exit command to terminate the following:

- Your current session
- A temporary root session. If you are in a root session, the exit command returns you to a regular session.

Required Privileges

Anyone can execute the exit command.

Related Information

See the following commands:

- admin on page 2-2 for information on starting a temporary root session
- quit on page 2-23 for an alternate method of ending a root session

Syntax

Here is how you issue the exit command:

```
exit
```

Example

In this example, the exit command ends the current session.

```
exit
```

help

Use this command for information on PortServer TS 8/16 commands.

Required Privileges

Anyone can execute the help command.

Related Information

None

Syntax

Here is how you issue the help command:

```
help
```

Example

In this example, the help command displays command information.

```
help
```

info

Use the info command to

- Display PortServer TS 8/16 network statistics tables
- Clear network statistics tables

About Network Statistics Tables

The statistics in these tables are those gathered since the tables were last cleared.

Required Privileges

Normal users can view statistics tables. Administrator (root) privileges are required to clear them.

Related Information

None

Syntax

Clear the Network Statistics Table

Here is how you use the info command to clear network statistics tables:

`info clear [table_name]`

Display Network Statistics

Here is how you use the info command to display statistics for IP, ICMP, Ethernet, TCP, and UDP.

`info table_name`

Fields

`clear | clear table_name`
clears either (1) all network statistics tables (when no particular table is specified) (2) the specified table, which can be the IP, ICMP, Ethernet, TCP, or UDP

`table_name`
is one of the following tables:

table_name	Contents
ip	IP statistics
icmp	ICMP statistics
network	Statistics collected on the Ethernet interface
serial	Statistics on serial port activity
tcp	TCP statistics
udp	UDP statistics

Examples

Displaying the IP Table

In this example, the info command displays the IP table.

```
info ip
```

Clear All Network Statistics Tables

In this example, the info command clears all network statistics tables.

```
info clear
```

Command Output: ICMP Fields

This section describes the fields displayed when you issue the info icmp command.

`icmpInMsgs`
ICMP messages received, including those counted by icmpInErrors

`icmpInEchos`
ICMP Echo Request messages received

`icmpInEchoRp`
ICMP Echo Reply messages received

`icmpInDstUnrec`
ICMP Destination Unreachable messages received

`icmpInRedirect`
ICMP Redirect messages received

`icmpInParmProb`
ICMP Parameter Problem messages received

`icmpInTimeExcd`
ICMP Time Exceeded messages received

`icmpInSrcQuenc`
ICMP Source Quench messages received

`icmpInTimest`
ICMP Timestamp Request messages received

`icmpInTimestRp`
ICMP Timestamp Reply messages received

`icmpInAdrMsk`
ICMP Address Mask Request messages received

`icmpInAdrMskRp`
ICMP Address Mask Reply messages received

`icmpInErrors`
ICMP messages received with ICMP-specific errors (for example, bad ICMP checksums or length)

`icmpOutMsgs`
ICMP messages that PortServer TS 8/16 attempted to send, including those counted by icmpOutErrors

`icmpOutEchoRp`
ICMP Echo Reply messages sent

`icmpOutEchos`
ICMP Echo Request messages sent

`icmpOutDstUnre`
ICMP Destination Unreachable messages sent

`icmpOutRedirec`
ICMP Redirect messages sent

`icmpOutParmPro`
ICMP Parameter Problem messages sent

`icmpOutTimeExc`
ICMP Time Exceeded messages sent

`icmpOutSrcQuen`
ICMP Source Quench messages sent

`icmpOutTimestR`
ICMP Timestamp Reply messages sent

`icmpOutTimest`
ICMP Timestamp (request) messages sent

`icmpOutAdrMskR`
TICMP Address Mask Reply messages sent

`icmpOutAdrMsk`
ICMP Address Mask Request messages sent

Command Output: IP Statistics

This section describes the fields displayed when you issue the info ip command.

`ipInReceives`
incoming datagrams, including any received in error

`ipInHdrErrors`
incoming datagrams discarded due to IP header errors. Causes include bad checksums, version number mismatches, other format errors, time-to-live values exceeded, and errors discovered in processing IP options. Correctly configured networks produce few such errors.

`ipInAddrErrors`
incoming datagrams discarded because the address in the IP header destination field was not valid for PortServer TS 8/16's network. This includes addresses of unsupported classes (Class E, for example). Correctly configured networks produce few such errors.

`ipInUnknownProtos`
datagrams received successfully but discarded because of an unknown or unsupported protocol

`ipInDiscards`
good incoming datagrams discarded for lack of resources, such as buffer space, including those discarded while awaiting re-assembly

`ipReasmOKs`
IP datagrams successfully re-assembled

`ipReasmFails`
failures detected by the IP re-assembly algorithm. This is may not be a count of all discarded IP fragments because some algorithms (notably the algorithm in RFC 815) lose count by combining fragments as they are received.

`ipForwDatagram`
incoming datagrams destined for another subnetwork to which PortServer TS 8/16's could not find a route

`ipOutNoRoutes`
outgoing datagrams discarded because no route could be found to their destination. This includes datagrams:

- Counted in ipForwDatagrams
- That a host could not route because default gateways are down

Correctly configured networks produce few such errors.

`ipOutRequests`
datagrams that local IP user protocols (including ICMP) supplied to IP for transmission, not including those counted in ipForwDatagrams

`ipOutDiscards`
good outgoing datagrams discarded for lack of resources, including those counted in ipForwDatagrams

`ipFragCreates`
datagram fragments PortServer TS 8/16 generated

`ipFragOKs`
datagrams successfully fragmented

Command Output: Network Statistics

This section describes the fields displayed when you issue the info network command. This command reports activity on the Ethernet interface.

`ifInOctets`
octets received, including framing characters

`ifInUcastPkts`
subnetwork unicast packets delivered to higher-layer protocols

`ifInNUcastPkts`
non-unicast (for example, subnetwork-broadcast or subnetwork multicast) packets delivered to a higher-layer

`ifInDiscards`
inbound packets discarded, even though no error was detected that would prevent delivery to a higher-layer

`ifInErrors`
inbound packets with errors that prevent delivery to a higher-layer

`ifUnknownProtos`
inbound packets discarded because of unknown or unsupported protocols

`ifOutOctets`
Octets transmitted, including framing characters

`ifOutUcastPkts`
outbound packets using the subnetwork unicast address, including discards

`ifOutNUcastPkts`
outbound packets using a non-unicast (that is, a subnetwork broadcast or subnetwork multicast) address, including discards

`ifOutDiscards`
error-free outbound packets discarded, possibly to free buffer space

`ifOutErrors`
outbound packets not transmitted because of errors

`In Total`
frames received

`In IP`
IP protocol frames received

`In ARP`
ARP frames received

`Out Total`
frames sent by PortServer TS 8/16

`Out IP`
IP frames sent

`Out ARP`
ARP frames sent

`In Overruns`
times the Ethernet controller was unable to place a received frame in memory

`In Unaligned`
misaligned frames received

`In No Resource`
incoming frames not processed due to lack of available buffers

`In Collision`
Ethernet collisions detected after a destination address was received

`In Short Frame`
short frames received

`In Bad CRC`
frames received with bad CRC

`Out No Carrier`
frames lost when lack of carrier was detected

`Out Lost CTS`
frames lost when ClearToSend was reset

`Out DMA Underrun`
frames lost because transmit buffers were not available

`Out Deferred`
transmissions deferred

`Out Collisions`
Ethernet collisions detected after starting a transmission

Command Output: Serial Statistics

`rbytes`
number of bytes received on a serial port

`tbytes`
number of bytes transmitted on a serial port

Command Output: TCP Statistics

This section describes the fields displayed when you issue the info TCP command.

`tcpInSegs`
segments received, including those received in error. This includes only segments received on currently established connections.

`tcpInErrs`
segments received in error (for example, bad TCP checksums)

`tcpEstabResets`
times that TCP connections made a direct transition to the CLOSED state from either the ESTABLISHED or CLOSE-WAIT states

`tcpPassiveOpen`
times that TCP connections made a direct transition to the SYN-RCVD state from the LISTEN state

`tcpAttemptFail`
times that TCP connections made a direct transition to the CLOSED state from either the SYN-SENT state or the SYN-RCVD state, plus the times TCP connections made a direct transition to the LISTEN state from the SYN-RCVD state

`tcpOutSegs`
segments sent, including those on current connections. This excludes those containing only retransmitted octets.

`tcpRetransSegs`
segments retransmitted, that is, the number of TCP segments transmitted containing one or more previously transmitted octets

`tcpOutRsts`
TCP segments sent containing the RST flag

`tcpActiveOpens`
times TCP connections made a direct transition to the SYN-SENT state from the CLOSED state

Command Output: UDP Statistics

This section describes the fields displayed when you issue the info UDP command.

`udpInDatagrams`
datagrams delivered to UDP users

`udpInErrors`
received UDP datagrams that could not be delivered for any reason other than the lack of an application at the destination port

`udpNoPorts`
received UDP datagrams for which there was no application at the destination port

`udpOutDatagrams`
UDP datagrams sent

kill

Use the kill command to clear or reset sessions on ports.

Required Privileges

The kill command requires root privileges.

Related Information

See who on page 2-84 for information on determining current users.

Syntax

Here is how you issue the kill command:

```
kill {tty=tty-number | tty=tty-range} | tty-number | tty-range}
```

Fields

`tty=`*`tty-number`*
specifies a port on which to clear a session

`tty=`*`tty-range`*
specifies a range of ports on which to clear sessions

`tty-number`
is an alternate method of specifying the number of the port on which to clear a session

`tty-range`
is an alternate method of specifying a range of ports on which to clear sessions

Examples

Killing a Session on a Particular Port

In this example, the kill command clears TTY session 1:

```
kill tty=1
```

Killing a Session on a Range of Ports

In this example, the kill command clears sessions on a range of ports:

```
kill tty=1-2
```

mode

Use the mode command to change or display the operating options for a current Telnet session.

Required Privileges

Anyone can issue the mode command.

Related Information

None

Syntax

Change

Here is the form of the mode command used for changing Telnet operating options:

```
mode [bin={on|off}][crmod={on|off}][crlf={on|off}]
```

Display

Here is the form of the mode command used for displaying the operating options of the current Telnet session.

```
mode
```

Fields

`bin`
  `on`
  means that binary mode is on, that is, all transmitted and received characters are converted to binary during this Telnet session

  `off`
  means that binary mode is off for this Telnet session

  The default is off.

`crmod`
  `on`
  means that line feed characters are added to received carriage return characters

  `off`
  means that line feed characters are **not** added to received carriage return characters

  The default is off.

`crlf`
  `on`
  means that line feed characters are added to transmitted carriage return characters

  `off`
  means that line feed characters are **not** added to transmitted carriage return characters

  The default is off.

Examples

Turning Binary Mode On

In this example, the mode command turns binary mode on.

```
mode binary=on
```

Adding Line Feed Characters

In this example, the mode command adds line feed characters to both transmitted and received carriage returns.

```
mode crmod=on crlf=on
```

Displaying Operating Options

In this example, the mode command displays information on each Telnet session. This information includes

- The identity of the originating terminal
- The identity of the host on which the Telnet session is running
- The state (on or off) of mode command options for the Telnet session

```
mode
```

newpass

Use the newpass command to create or change:

- Your own password (if you are logged in under your own name)
- The root password or another user's password (if you are logged in as root)

Required Privileges

Anyone can change his or her own password. Root privileges are required to change someone else's password or the root password.

About the newpass Command

When you enter the newpass command, PortServer TS 8/16 provides a series of prompts to guide you through the process of changing a password.

Related Information

See set user on page 2-74 for information on configuring users.

Syntax

Here is the syntax for the newpass command:

```
newpass [name=username]
```

Field

`name=`*`username`*
: is the name of the user (configured with the set user command) whose password will be created or changed. This option is available only if you have root privileges.

Example

In this example, the newpass command initiates a dialog that will enable the user to change his/her password.

```
newpass
```

ping

Use the ping command—which requests ICMP echo replies from a specified host or network device—to test if a host or other device is active and reachable.

Required Privileges

Anyone can issue the ping command.

Related Information

None

Syntax

```
ping [continuous][fill=char] {hostname | ip-addr} [intv=msec]
[loose_sroute=ip-addr,ip-addr...] [npkts=num] [pksiz=bytes] [record_route]
[strict_sroute=ip-addr,ip-addr...] [verbose]
```

Fields

`continuous`
specifies that pings be sent continuously until stopped. (Press the interrupt keys to stop continuous pings. The default interrupt keys are <Ctrl-C>.)

`fill`
specifies characters to include in the data portion of the echo reply

`intv`
is the interval in milliseconds between pings

The range is -1 to 60,000, and the default is 1000 milliseconds (one second). -1 means that echoes will be continuously sent until the value in the npkts field is reached.

`ip-addr | hostname`
identifies the target device of the ping (ICMP echo request). Use one of the following to identify this device:

- An IP address
- A domain name

`loose_sroute`
specifies that the ping must pass through the routers indicated on its way to the target host. These routers are identified by their IP addresses.

`npkts`
is the number of packets to include with each ping

The range is 1 to 30,000, and the default is 1.

`pksiz`
specifies the size of the ping packet in bytes. The range is 0 to 20000, and the default is 56.

`record_route`
specifies that each router through which the ping passes record its IP addresses for inclusion in the echo reply

`strict_sroute`
specifies that the ping must pass through the routers indicated—and only those indicated—on its way to the target host. These routers are identified by their IP addresses.

`verbose`
specifies that returned echo replies include statistics associated with the ping, such as the roundtrip time and the number of packets transmitted and received

Examples

Ping with No fields

In this example, the ping command simply determines whether the specified host can be reached.

```
ping 199.150.150.10
```

Loose Source Routing

In this example, the ping command specifies loose source routing, which means that the ping must pass through the routers identified on the loose_sroute option. The ping may, however, pass through additional routers as well.

```
ping 199.150.150.10 loose_sroute=199.150.160.10,190.150.161.10
```

Strict Source Routing

In this example, the ping command specifies strict source routing, which means that the ping must pass through the routers identified on the strict_sroute field, and only those routers. If it cannot reach the destination along this path, the destination is regarded as unreachable.

```
ping 199.150.150.10 strict_sroute=199.150.160.10,190.150.161.10
```

quit

Use the quit command to end

- Your current PortServer TS 8/16 session. If you are in a regular or root session, quit closes the session.
- A temporary root session. If you are in a root session started with the admin command, quit returns you to a regular session.

Required Privileges

Anyone can issue the quit command.

Related Information

See admin on page 2-2 for information on temporarily accessing commands reserved for the administrator.

Syntax

Here is the syntax for the quit command:

```
quit
```

Example

In this example, the quit command ends either a regular session or a temporary root session.

```
quit
```

reconnect

Use the reconnect command to reestablish a connection previously established.

Required Privileges

Anyone can issue the reconnect command.

Related Information

See the following related commands:

- connect on page 2-6 for information on establishing a connection on a selected port
- close on page 2-5 for information on ending a connection
- status on page 2-80 for information on gathering status on current connections

Syntax

Enter the reconnect command as shown below:

```
reconnect [{serial-port | p=serial-port | s=session}]
```

Fields

serial-port
specifies a serial port to reconnect to

p=*serial-port* | s=*session*
specifies a serial port or session to reconnect to

Example

Reconnecting to the Last Port Used

In this example, the reconnect command reopens a local connection on the last port to which a connection has been established.

```
reconnect
```

remove

Use this command to remove entries from PortServer TS 8/16 configuration tables.

Required Privileges

Root privileges are required to issue this command.

Related Information

None

Syntax

Enter the remove command as shown below:

`remove` *`table-name`* {`range=`*`range`* | `name=`*`name`* | `ip=`*`ip-address`*}

Fields

`ip=`*`ip-address`*
removes an entry from one of the PortServer TS 8/16 configuration tables based on the IP address specified. This form of the command works only on table entries that can be identified by an IP address, such as entries in the auth or altip tables.

`name=`*`name`*
removes an entry from one of the PortServer TS 8/16 configuration tables based on the name specified. This form of the command works only on table entries that can be identified by name, such as entries in the user table.

`range=`*`range`*
removes entries from one of the PortServer TS 8/16 configuration tables based on the range of table index entries.

`table-name`
is one of the following PortServer TS 8/16 configuration tables:

altip	auth	menu	route	telnetip	user
arp	host	modbus	service	term	

Examples

Removing an Entry By Name

In this example, a user, identified by name, is removed from the user table.

```
remove user name=martymertz
```

Removing an Entry By IP Address

In this example, an altip entry, identified by IP address, is removed from the altip table.

```
remove altip ip=143.191.2.120
```

Removing an Entry By Index Number

In this example, an altip entry, identified by index number, is removed from the altip table.

```
remove altip range=3
```

revert

Use this command to restore the configuration to defaults or to the latest configuration stored in NVRAM.

Required Privileges

Root privileges are required to issue this command.

Related Information

None

Syntax

Enter the revert command as shown below:

`revert` *`option`*`={factory | nvram} [range]`

Fields

`option``={factory | nvram}`

sets one of the following configuration options to either the factory defaults or to the latest version of the configuration stored in NVRAM. Here are the options you can specify:

If you specify ...	Then this part of the configuration reverts ...
all	Entire configuration
altip	altip configuration
arp	arp configuration
auth	auth configuration
config	set config configuration
flow	set flow configuration
host	set host configuration
keys	set keys configuration
line	set line configuration
login	set logins configuration
menu	menu configuration
network	altip, arp, host, route, snmp, tcpip, and telnetip configuration
port	set ports configuration
radius	RADIUS configuration
routed	Routing configuration
security	set auth, set logins, and set radius configuration
serial	set flow, set line, set ports configuration
service	set service configuration
snmp	SNMP configuration
system	set config, set keys, set menu, set service, set terms, set trace, and set user configuration
tcpip	set tcpip configuration
telnetip	set telnetip configuration
terms	set terms configuration
trace	Trace settings
users	set user configuration

`range`

defines a range of ports to which the command will apply. This option is valid when used with serial, port, line, flow, keys and login.

Examples

Resetting the Port Configuration

In this example, the configuration for port 2 is reset to factory defaults.

```
revert port=factory range=2
```

Resetting Network-Related Settings

In this example, the configuration is reset to the latest user configuration saved in NVRAM.

```
revert config=nvram
```

rlogin

Use the rlogin command to log into a remote system from the PortServer TS 8/16 command line.

Required Privileges

Anyone can issue the rlogin command.

Related Information

None

Syntax

Here is the form of the rlogin command used to log into a remote host:

```
rlogin [esc=(char)] {hostname|host-ip-addr}
[user=user-name | -1 user-name}]
```

Fields

`esc`
is a different escape character than the ~ (tilde) character. This character is used for suspending a session from the remote host to return to the PortServer TS 8/16 command line.

`hostname`
is the name of the host on which you want to log in

`host-ip-addr`
is the IP address of the host on which you want to log in

`user=`*`user-name`* `| -1` *`user-name`*
is the user name to use on the remote system. If you do not specify a name, your PortServer TS 8/16 user name will be used. The -1 user-name option is for compatibility with the UNIX rlogin command.

Examples

Using a Host Name

In this example, the rlogin command establishes an Rlogin session using a host name.

```
rlogin host1
```

Using an IP Address

In this example, the rlogin command establishes an Rlogin session using an IP address.

```
rlogin 192.192.150.28
```

Using a Host Name and User Name

In this example, the rlogin command establishes an Rlogin session using a host name. The name that identifies the user on the host system is also supplied in the command.

```
rlogin host1 user=fred
```

send

Use the send command to send a control command to a Telnet peer.

Required Privileges

Anyone can issue the send command.

Related Information

See telnet on page 2-81 for information on establishing Telnet sessions.

Syntax

Here is the syntax of the send command:

```
send {ao|ayt|brk|ec|el|escape|ga|ip|nop|synch}
```

Fields

`ao`
sends the “abort output” signal, which discards output buffered on the peer

`ayt`
sends the “are you there” signal to test whether a host is still active

`brk`
sends the break signal to interrupt the executing application

`ec`
sends the “erase character” to delete the previous character

`el`
sends the “erase line” signal to delete the entire current line

`escape`
sends the “escape character”

`ga`
sends the “go ahead” signal

`ip`
sends the “interrupt process” signal to terminate the program running on the peer

`nop`
sends the “no option” signal to the peer

`synch`
sends the “synchronize process” signal to the peer

Examples

Send IP

In this example, the send command transmits an interrupt process signal.

```
send ip
```

Send AYT

In this example, the send command transmits an “are you there” signal.

```
send ayt
```

set altip

Use the set altip command to

- Configure a serial port or group of serial ports with an IP address
- Display current entries in the altip table

About the set altip Command

PortServer TS 8/16 uses alternate IP addresses to route outbound calls to the correct serial port or group of ports. By associating ports with IP addresses, Telnet users on the LAN can use IP addresses, rather than port numbers, to specify a port or range of ports in their Telnet calls.

Up to 64 alternate IP address entries are permitted.

Required Privileges

Normal users can display altip information. Root privileges are required to change altip settings.

Related Information

See the sockets option on set tcpip on page 2-64 for information on configuring the base option.

Syntax

Configuration

Here is the syntax used to configure altip entries:

```
set altip  group={port# | group#} ip=ip-addr mode={raw | telnet}
```

Display

Here is the syntax used to display entries in the altip table:

```
set altip [range=range]
```

Fields

Field Descriptions

`group`
is a port or group of ports

`ip`
assigns an IP address to the ports or group of ports (hunt group) specified on the group field or identifies an entry in the altip table for removal (when the rm option is specified)

`range`
specifies a range of index entries in the altip table

`mode`
is either raw or Telnet, which is used to determine a connection type for reverse Telnet connections, that is, direct connections to PortServer TS 8/16 ports

Examples

In this example, the set altip command displays the entire altip table.

```
set altip
```

Displaying Several Entries

In this example, the set altip command displays altip table entries 1 through 4.

```
set altip range=1-4
```

Configuring an Entry

In this example, the set altip command configures an alternate IP address for the ports specified on the group field.

```
set altip  ip=198.150.150.10 group=65
```

set arp

Use the set arp command to

- Manually configure an entry in the Address Resolution Protocol (ARP) Table
- Display the contents of the ARP table

About the ARP Table

The ARP table contains the Ethernet-to-IP address mappings of other devices on the local subnetwork. PortServer TS 8/16 requires these mappings to communicate with these devices. The ARP protocol updates this table automatically, so manual modification is usually not required.

Required Privileges

Normal users can display information. Root privileges are required to change ARP table entries.

Related Information

None

Syntax

Configuration

Here is the form of the set arp command used to configure entries in the arp table.

`set arp ether=`*`etaddr`* `ip=`*`ipaddr`* `[tim2liv=`*`time`*`]`

Display

Here is the form of the set arp command used to display the contents of the arp table.

`set arp [range=`*`range`*`]`

Fields

`ether`
specifies the Ethernet address of a device

`ip`
specifies the IP address of a host or device

`range`
specifies a range of table entries, which are identified by the index field in the ARP table

`tim2liv`
specifies the time, in seconds, to keep an entry in the ARP table

The range is 0 to 1200 seconds. The default is 0, which means the entry will never time out.

Examples

Displaying a Range of Entries

In this example, the set arp command displays a range of ARP table entries.

```
set arp range=1-4
```

Displaying All Entries

In this example, the set arp command displays the entire ARP table.

```
set arp
```

Configuring an Entry

In this example, the set arp command configures an ARP entry.

```
set arp ip=198.150.150.10 ether=08:00:20:05:0b:da tim2liv=900
```

set auth

Use the set auth command to

- Configure access permissions to PortServer TS 8/16 serial ports for users making outbound calls
- Display outbound call permission levels to PortServer TS 8/16 serial ports

About set auth

The set auth command is a very powerful tool for limiting outbound call access to PortServer TS 8/16 ports. There are, however, a few principles to understand in order to use this command to produce the configuration results you intend. Here are the principles:

- The default for a port is unrestricted access. This means that all IP addresses have unrestricted access to a port to make outbound calls unless you use the set auth command to place restrictions on port use.
- You can configure a new default by removing the default entry in the auth table (the entry that specifies an IP address of 0.0.0.0 and mask of 0.0.0.0). Then, the default becomes no access for any IP address. You can then use the command to permit access for particular IP addresses.
- In addition to unrestricted access, there are three types of restricted access:
  - Login access. The user of an IP address must use his/her PortServer TS 8/16 login name and password before access to the port is granted.
  - RealPort access. Only the RealPort application can use the port.
  - No access. The user of the IP address cannot access the port.
- The most reliable way to use the command for configuration is to explicitly specify the type of access for each port on each command.

  In the examples that follow, the “right” command accounts for all ports, and the “wrong” one does not.:

Right	set auth ip=192.10.10.10 realport=1-3 login=4-5 unrestricted=6-8
Wrong	set auth ip=192.10.10.10 realport=1-3 login=4-5

- When the only option specified on the set auth command is an IP address, that IP address loses all access rights to all outbound ports.
- When you use the set auth command to change access permissions for a particular IP address (or range of addresses), all other IP addresses are unaffected by the command.
- The mask field extends the scope of the set auth command to a range of IP addresses. In each mask position that a binary 1 appears, the incoming address must match perfectly with the address specified on the ip field.

The auth table is limited to 20 entries.

Required Privileges

Normal users can display information. Root privileges are required to change auth table entries.

Related Information

See the following commands:

- set ports on page 2-52 for information on defining outbound port device types
- set user on page 2-74 for information on configuring a user for outbound port access

Syntax

Configuration

Here is the syntax of the set auth command used to configure auth table entries:

```
set auth ip=ipaddress [login={range | none}] [mask=mask]
[realport={range | none}] [unrestricted={ range | none]
```

Display

Here is the syntax of the set auth command used to display auth table entries.

```
set auth [range=range]
```

Fields

`ip`
is the IP address of the device to which this set auth command applies

`login={range | none}`
requires that users of the IP address specified log in using their PortServer TS 8/16 names. None indicates that users of the IP address specified have login access to none of the ports.

`mask`
specifies an IP mask used to extend the scope of this set auth command to a range of IP addresses. Here are some examples of how the mask field works:

IP Address	Subnet Mask	set auth mask	Result
143.191.0.0	255.255.0.0	255.255.0.0.	All users on this class B network are included in the restrictions applied to the outbound ports.
192.10.10.0	255.255.255.0	255.255.255.0	All users on this class C network are included in the restrictions applied to the outbound ports.
192.10.10.0	255.255.255.240	255.255.255.240	All users on this subnetted class C network are included in the restrictions applied to the outbound ports.

`range`
specifies a range of auth table entries (identified by an index number) to which this set auth command applies

`realport={range | none}`
configures port access for the RealPort application running on the devices identified by the ip and mask fields. Use this option when you want to grant access to the RealPort application but restrict access to other users of the IP address.

`unrestricted={range | none}`
configures unrestricted access for the IP address specified to the range of ports specified

Examples

Display the Entire Auth Table

In this example, the set auth command displays the entire auth table.

```
set auth
```

Display Setting for a Range of Entries

In this example, the set auth command displays a range of auth table entries.

```
set auth range=1-2
```

Configuring No Access for an IP Address

In this example, users of the IP address specified will not be able to use outbound ports.

```
set auth ip=199.150.10.12 mask=255.255.255.255
```

Configuring Mixed Access

In this example, an 8-port PortServer TS 8/16 is configured for mixed access.

```
set auth ip=199.150.10.12 mask=255.255.255.255 realport=1-4 login=5-6
unrestricted=7-8
```

Configuring Access for Two IP Address

This example requires three set auth commands.

- The first removes the default entry from the auth table, which changes the default setting from unrestricted access to all 8 ports for all IP addresses to no access to any ports for any IP addresses.
- The second and third commands restore unrestricted access to all ports for the IP addresses specified.

```
set auth ip=0.0.0.0 rmauth=on
```

```
set auth ip=199.22.33.4 realport=none login=none unrestricted=1-8
```

```
set auth ip=199.22.33.8 realport=none login=none unrestricted=1-8
```

Using the Mask to Extend the Command (TS8/16 stuff follows)

In this example of a TCP/IP Class C network, the set auth command configures RealPort running on any host on network 199.150.150.0 with access to ports 1 and 2. The other ports are not available to users of the IP address specified.

```
set auth ip=199.150.150.10 mask=255.255.255.0 realport=1-2 logon=none
unrestricted=none
```

set config

Use the set config command to configure or display entries in the network parameters configuration table, which holds

- PortServer TS 8/16's network-related parameters, such as an IP address, mask, and default gateway
- Information on how PortServer TS 8/16 should handle ICMP redirect messages

Required Privileges

Root privileges are required to use this command.

Related Information

None

Syntax

Configuration

Here is the form of the set config command used to add and change entries in the network parameter configuration table.

```
set config  [dhcp={on | off}] [dns=ip-addr]  [domain=domain]  [gateway=ip-
addr] [ip=ip-addr] [myname=name]
[realport=tcp-port]
[save={on |off}  [sockets=socket-num] [submask=mask]
[tbreak={std|any|none}]
```

Display

Here is the form of the set config command used to display entries in the network parameter configuration table.

```
set config
```

Fields

`dhcp`
enables or disables DHCP (Dynamic Host Configuration Protocol). Turning DHCP on causes PortServer TS 8/16 to obtain an IP address from a host server.

The default is on.

`dns`
specifies the IP address of a domain name server. This parameter cannot be changed if dhcp=on.

`domain`
is the name of PortServer TS 8/16's domain

`gateway`
is the IP address of the default gateway

`ip`
is PortServer TS 8/16's IP address

`myname`
is PortServer TS 8/16's DNS name

`realport`
specifies the TCP port number used for RealPort connections. The default is 771.

`save`
on saves configuration changes to flash memory. Off means that changes will be discarded when the PortServer TS 8/16 is reset.

The default is on.

`sockets`
sets the base TCP socket service, which is used in reverse Telnet connections to identify the connection type (Telnet or raw) and a particular port. You can specify a base socket service as a mul-

tiple of 100 between 2000 - 9000. The examples that follow illustrate how this works.

If sockets= ...	And the user specifies ...	Then, the user establishes ...
3000	telnet *ip-address* 3002	A Telnet connection to port 2
3000	telnet *ip-address* 3102	A raw connection to port 2
8100	telnet *ip-address* 8102	A Telnet connection to port 2
8100	telnet ip-*address* 8204	A raw connection to port 4

The default is 2000 and the range is 2000 to 9000.

`submask`
is the subnet mask for PortServer TS 8/16's subnetwork

`tbreak`
sets the Telnet break keystroke

Once a Telnet connection is initiated but before the connection is established, the connection can be broken by entering a designated keystroke. This keystroke is determined by these settings.

`std`

configures tbreak so only ^C will break a Telnet connection

Example: `set config tbreak=std`

`any`

configures tbreak so any keystroke will break a Telnet connection

Example: `set config tbreak=any`

`none`

configures tbreak so no keystoke will break a Telnet connection

Example: `set config tbreak=none`

Example

Displaying the Complete Table

In this example, the set config command displays the network parameter configuration table.

```
set config
```

set dhcp

Use the set dhcp command to:

- Enable/disable DHCP (Dynamic Host Configuration Protocol). Enabling DHCP causes the PortServer TS 8/16 to obtain an IP address from the host server. If DHCP is disabled, a static IP address must be defined for the PortServer TS 8/16, using the set config command.
- Renew the IP address of the PortServer TS 8/16. This causes the PortServer TS 8/16 to discard its current IP address and obtain a new one from the host server.
- Display the lease information for the current IP address.

Required Privileges

Normal users can display information. Root privileges are required to change settings.

Syntax

Configuration

Enter the set dhcp command as shown below to configure DHCP settings.

```
set dhcp [run={on|off}]|[renew]
```

Syntax

Enter the set dhcp command with no parameters to display the lease information for the current IP address.

```
set dhcp
```

Fields

`run={on | off}`
turns DHCP on or off. The default is on.

Note: You must reboot the PortServer TS 8/16 before this change will takes affect.

`renew`
renews the IP address of the PortServer TS 8/16

Examples

Enabling DHCP

```
set dhcp run=on
```

Renewing the IP address

```
set dhcp renew
```

set flow

Use the set flow command to configure or display flow control options for PortServer TS 8/16's EIA-232 serial ports.

Required Privileges

Normal users can display information. Root privileges are required to change settings.

Related Information

See the following for additional information on configuring serial ports:

- set line on page 2-46
- set ports on page 2-52

Syntax

Configuration

Use this form of the set flow command to configure flow control attributes for ports.

```
set flow [aixon={on|off}][altpin={on|off}] [cts={on|off}] [dcd={on|off}]
[dsr={on|off}] [dtr={on|off}] [itoss={on|off}] [ixany={on|off}]
[ixoff={on|off}] [ixon={on|off}] [range=range] [ri={on|off}]
[rts={on|off}]
```

Display

Use this form of the set flow command to display flow control attributes for ports.

```
set flow [range=range]
```

Fields

`aixon`

`on`
means that the auxiliary flow control characters defined on the set keys command are used for output flow control

`off`
means that the auxiliary flow control characters defined on the set keys command are **not** used for output flow control

The default is off.

`altpin`

`on`
means that the altpin option is used. This option swaps DCD with DSR so eight-pin RJ-45 connectors can be used with modems. Ports using this option must be equipped with altpin cables.

`off`
means that the altpin option is **not** used

The default is off.

`cts`

`on`
means CTS (clear to send) is used for output flow control

`off`
means CTS is **not** used for output flow control

The default is off.

`dcd`

`on`
means that DCD (data carrier detect) is used for output flow control

`off`
means that DCD is **not** used for output flow control

The default is off.

`dsr`
`on`
means that DSR (data set ready) is used for output flow control

`off`
means that DSR is **not** used for output flow control

The default is off.

`dtr`
`on`
means that DTR (data terminal ready) is used for input flow control

`off`
means that DTR is **not** used for input flow control

The default is off.

`itoss`
is used only with software flow control (XON\XOFF) and only if ixany=on

`on`
means that the character that resumes output is discarded

`off`
means that the character that resumes output is **not** discarded

The default is off.

`ixany`
is used only with software flow control

`on`
means any received character can restart PortServer TS 8/16 output when output has been stopped because of software flow control. Specify "on" only when PortServer TS 8/16 communicates with a device, such as printers and terminals that use software flow control (XON\XOFF).

`off`
means output will resume only when the XON character is received

The default is off.

`ixoff`
`on`
means that PortServer TS 8/16 will use input software flow control

`off`
means that PortServer TS 8/16 will **not** use input software flow control

The default is on.

`ixon`
`on`
means that PortServer TS 8/16 will use output software flow control

`off`
means that PortServer TS 8/16 will **not** use output software flow control

The default is on.

`range`
is a port or range of ports to which this set flow command applies.

`ri`
`on`
means that RI (ring indicator) is used for output flow control

`off`
means that RI is **not** used for output flow control

The default is off.

`rts`
`on`
means that RTS (request to send) is used for output flow control

`off`
means that RTS is **not** used for output flow control

The default is off.

Examples

Displaying Flow Control Settings

In this example the set flow command displays the flow control options for a port.

```
set flow range=3
```

Configuring Flow Control Settings

In this example, the set flow command configures hardware flow control.

```
set flow range=3 cts=on rts=on ixoff=off ixon=off
```

set host

Use the set host command to

- Configure the host table, which contains host name-to-IP address mappings
- Display entries in the host table

About the Host Table and DNS

PortServer TS 8/16's IP component can use the host table and a DNS server to map host names to IP addresses. These mappings allow users to identify hosts by user-friendly names, instead of IP addresses.

This is a convenience only. If you do not configure the host table or configure DNS, users identify hosts by IP addresses.

If the PortServer TS 8/16 can access a DNS server, there is no reason to configure the host table. The host table can hold up to 64 entries.

You can configure

- A host table and DNS
- Either the host table or DNS
- Neither the host table nor DNS

Required Privileges

Normal users can display information. Root privileges are required to change settings.

DNS Search Order

If you configure a host table and a DNS server, PortServer TS 8/16 will attempt to satisfy a request by first searching the host table and then the DNS server.

Related Information

See set config on page 2-36 for information on configuring PortServer TS 8/16 to use a DNS server.

Syntax

Configuration

Here is the form of the set host command used to add (configure) entries in the host table:

`set host name=`*`host-name`* `ip=`*`ip-addr`*

Display

Here is the form of the set host command used to display host table entries:

`set host [range=`*`range`*`]`

Fields

`ip`
is the IP address that is to be mapped to the name specified on the name field

`name`
is the name that is to be mapped to the IP address specified on the ip field

`range`
is one or a range of index numbers that identify entries in the host table

Examples

Displaying the Host Table

In this example, the set host command displays the entire host table.

```
set host
```

Displaying an Entry in the Host Table

In this example, the set host command displays an entry in the host table.

```
set host range=4
```

Configuring a Name-to-IP Address Mapping

In this example, the set host command configures a mapping between a host name and an IP address.

```
set host ip=190.150.150.10 name=server1
```

set keys

Use the set keys command to

- Change the key or key sequences used to generate certain characters and command functions
- Display current key mappings for these characters and functions

About the set keys Command

Use the carat character (^) to indicate that the Ctrl key should be held while pressing another key.

Required Privileges

Normal users can display information. Root privileges are required to change settings.

Related Information

None

Syntax

Configuration

Here is the form of the set keys command used to change the key sequences you use to generate certain characters and command functions.

`set keys` *`function=keys`* `[range=`*`range`*`]`

Display

Here is the form of the set keys command used to display current key mappings.

`set keys [range=`*`range`*`]`

Fields

`function`
is one of the following characters or control functions:

Note: ^ means press and hold the Ctrl key.

backchar
is the back character. The default is ^b.

`eof`
is the end of file character. The default is ^d.

`erase`
is the erase command. The default is ^h.

`forwchar`
is the forward key (move cursor forward). The default is ^f.

`intr`
is the interrupt command. The default is ^c.

`kill`
is the kill character. The default is ^u.

`lnext`
is the literal next character (interpret the next character literally). The default is ^v.

`nextcmd`
scroll forward through command history. The default is ^n.

`prevcmd`
scroll backward through command history. The default is ^p.

`xon`
is the XON character. The default is ^q.

`xoff`
is the XOFF character. The default is ^s.

`xona`
is the auxiliary XON character. The default is ^q.

`xoffa`
is the auxiliary XOFF character. The default is ^s.

`range`
is a range of ports. If you issue the command from a Telnet session, you must specify the range field. If you issue the command from an attached terminal, the command will work for the port to which the terminal is attached unless you use the range field to specify a different port.

Examples

Displaying the Key Table

In this example, the set keys command, issued from an attached terminal, displays key mapping information for the port on which the terminal is attached.

```
set keys
```

Changing a Key

In this example, the set keys command changes the key that generates an end of file character (eof) fro port 1.

```
set keys eof=^h range=1
```

set line

Use the set line command to configure and display options associated with a serial line.

Required Privileges

Normal users can display port information. Root privileges are required to change settings.

Related Information

See the following related commands for information on configuring serial ports:

- set ports on page 2-52
- set flow on page 2-39

Syntax

Configuration

Here is the form of the set line command used to configure serial line options.

```
set line [baud=bps] [break={ignore|send|escape}] [csize={5|6|7|8}]
[error={ignore|null|parmrk|dos}] [inpck={on|off}] [istrip={on|off}]
[onlcr={on|off}] [otab={on|off}] [parity={o|e|n}] [range=range]
[stopb={1|2}]
```

Display

Here is the form of the set line command used to display serial line options:

```
set line [range=range]
```

Fields

`baud`
is the line speed (bps) for this line. Use one of the following values: 50, 75, 100, 110, 134, 150, 200, 300, 600, 1200, 1800, 2400, 3600, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 76800, 115200, 230400, 460800.

The default is 9600.

`break`
`ignore`
means that the Telnet break signal is ignored

`send`
means that PortServer TS 8/16 sends the Telnet break signal on the serial line when the PortServer TS 8/16 receives a break signal

`escape`
means that PortServer TS 8/16 sends the escape sequence on the serial line when the PortServer TS 8/16 receives a break signal

The default is ignore.

`csize`
is the character size, which can be 5, 6, 7, or 8 bits. The default is 8.

`error`
determines how PortServer TS 8/16 handles parity errors on the line

`ignore`
means PortServer TS 8/16 ignores errors

`null`
means PortServer TS 8/16 changes the error character to a null character

`parmrk`
means PortServer TS 8/16 “marks” the error with FF (16450 error byte)

`dos`
means that PortServer TS 8/16 marks the error with an error character

The default is ignore.

`inpck`
`on`
means input parity checking is turned on

`off`
means input error checking is turned off

The default is off.

`istrip`
`on`
means the high-order bit is stripped from each byte

`off`
means the high order bit is **not** stripped from each byte

The default is off.

`onlcr`
`on`
means that new line characters are mapped to carriage return/line feed characters

`off`
means that no mapping of new line characters occurs

The default is off.

`otab`
`on`
means that output tabs are converted to eight spaces

`off`
means that output tabs are **not** converted

The default is off.

`parity`
`o`
means odd parity is selected

`e`
means even parity is selected

`n`
means no parity is selected

The default is “n” (no parity).

`range`
is the port or range of ports to which this command applies

`stopb`
is the number of stop bits per character to use on this line. The value you use here must match the setting on the device connected to this port. Use 1 or 2 stop bits.

The default is 1 stop bit.

Examples

Displaying Serial Line Options

In this example, the set line command is used to display serial line options.

```
set line
```

Configuring Baud, Parity and Stop Bits

In this example, the set line command is used to configure the line’s baud rate (line speed), parity, and the number of stop bits.

```
set line range=3-4 baud=150 parity=e stopb=2 csize=6
```

set logins

Use the set logins command to

- Configure the sequence of events that occurs when a user logs into a PortServer TS 8/16 port. This includes information the user supplies and PortServer TS 8/16 prompts and responses.
- Display current login settings

Required Privileges

Normal users can display information. Root privileges are required to change settings.

Related Information

None

Syntax

Configuration

Here is the form of the set logins command used to configure login sequences:

```
set logins [cmdprompt=string] [logprompt=string] [login={on|off}]
[passwd={on|off}] [passprompt=string] [range=range]  [verbose={on|off}]
[write={on|off}]
```

Display

Here is the form of the set logins command used to display login sequences:

```
set logins [range=range]
```

Fields

`cmdprompt`
is the PortServer TS 8/16 prompt displayed to a regular user who has logged in. The maximum length is 31 characters. Enclose this string in quotation marks if it includes spaces.

The default is digi> for normal users and #> for root users.

`login`
`on`
means that a user must log into the port.

`off`
means that a user is not required to log into the port

The default is “on” for inbound dev types. This field is disabled when the port is configured as an auto port . See set ports on page 2-52 for more information.

`logprompt`
is the login prompt PortServer TS 8/16 displays. The maximum length is 10 characters. Enclose this string in quotation marks if it includes spaces.

The default is login:.

`passprompt`
is the password prompt PortServer TS 8/16 displays. The maximum length is 10 characters. Enclose this string in quotation marks if it includes spaces.

The default is password:.

`passwd`
`on`
means that users are required to supply a password to access PortServer TS 8/16 on the ports specified by the range field.

`off`
means that users do not supply a password to access PortServer TS 8/16

The default is on. This field is disabled when the port is configured as an auto port (see set ports on page 2-52).

`range`
is the range of ports addressed by this set logins command. When this command is issued from a Telnet session, this command is required in order to identify the port to which it applies. When it is issued from an attached terminal, the command will apply to the port which the terminal is attached unless the range field is used to specify another port.

`verbose`
`on`
means that PortServer TS 8/16 displays connection status messages to users before the login prompt

`off`
means that PortServer TS 8/16 does **not** display connection status messages to users before the login prompt

The default is off.

`write`
`on`
means that configuration changes made by regular users can be saved and used for subsequent sessions by that user

`off`
means that configuration changes made by regular users are **not** saved

Examples

Displaying Login Information on a Port

In this example, the set logins command displays login-related information on the port the user is using:

```
set logins
```

Displaying Login Information on a Range of Ports

In this example, the set logins command displays login-related information on a range of ports:

```
set logins range=1-2
```

Configuring a Port for User Configuration

In this example, the set logins command configures a port so that users can save their login-related configuration changes and use them in future sessions:

```
set logins write=on range=1
```

Configuring the Command Prompt

In this example, the set logins command configures the command prompt. Since there are spaces in the new command prompt, the entry is enclosed in quotation marks.

```
set logins cmdprompt=”Ent Cmd:” range=1
```

set menu

Use the set menu command to

- Create menus for PortServer TS 8/16 users
- Display menu table entries
- Display lines of a menu
- Remove a line from a menu

Required Privileges

Normal users can display information. Root privileges are required to change settings.

Related Information

See set user on page 2-74 (the menu and defaultaccess fields) for information on setting up a user to use a menu.

Syntax

Creation

Use this form of the set menu command to create a menu:

`set menu [c#=`*`command`*`] [m#=`*`string`*`] [range=`*`range`*`] [t#=`*`string`*`] [name=string]`

Display Menu Table Entries

Use this form of the set menu command to display the contents of the menu table:

`set menu [range=`*`range`*`]`

Display Lines of Menus

Use this form of the set menu command to display the contents of a menu:

`set menu range=`*`range`*` [show={on|off}]`

Remove Line Syntax

Use this form of the set menu command to remove a line from a menu:

`set menu range=`*`range`*` rmentry=`*`line-num`*

Fields

`c#=`*`command`*

`c`
means that this is a command that is executed when a user selects this menu line. Enclose commands containing spaces in quotation marks.

#
is a line number. Lines appear in numeric order on the menu.

command
is any PortServer TS 8/16 command

`name`
specifies a name for the menu. If this parameter is not used, menus are named menu*X*, where *X* is the index number of the menu specified on the range field.

Names may be up to 16 characters long. Enclose names containing spaces in quotation marks.

`range`
is a port or range of ports

`rmentry`
removes the specified line from the menu

`m#=`*`string`*

`m`
means that this is a text or informational line

#
is a line number for the menu. Lines appear in numeric order on the menu

string
is a text string. Enclose strings with spaces in quotation marks.

`show=on`
displays menu entries identified on the range field

`t#=`*string*
`t`
means that this is a title line

#
is a line number for the menu. Each menu can have two title lines (t1 and t2).

string
is a text string. Enclose strings with spaces in quotation marks.

Examples

Creating a Menu

In this example, set menu commands create a menu with active fields that enable users to start connections to hosts named server1 and server2.

```
set menu range=4 t1=”Welcome to the Communications Server” t2=”Make a Selection”
set menu range=4 m1=”Connect to Server1” c1=”connect 1”
set menu range=4 m2=”Connect to Server2” c2=”connect 2”
```

Displaying the Menu Table

In this example, the set menu command displays the contents of the menu table.

```
set menu
```

Displaying the Contents of a Menu

In this example, the contents of Menu 1 are displayed.

```
set menu ra=1 show=on
```

set ports

Use the set ports command to

- Configure the operating parameters of a port
- Display the port's operating parameters

Required Privileges

Normal users can display information. Root privileges are required to change settings.

Related Information

See the following commands for more information on configuring serial ports:

- set line on page 2-46
- set flow on page 2-39
- set keys on page 2-44
- set logins on page 2-48

Syntax

Configuration

Here is the form of the set ports command to configure the operating parameters of a port:

Display

Here is the form of the set ports command to display operating parameters for a port:

`set ports [range=`*`range`*`]`

Fields

`auto`

`on`
means that all users of the port will bypass PortServer TS 8/16's login and password sequence and be automatically connected to the destination defined on the dest field

`off`
means that port users will **not** be automatically connected to a destination

The default is off.

`bin`

`on`
means that Telnet users are provided with Telnet binary connections

`off`
means that Telnet users are provided with normal (ASCII) connections

The default is off.

`dest`
is the IP address of the destination system to which port users will be routed if auto=on. Specify none to disable the field.

`dev`
is the device type, which defines the device connected to the port. Typically, you can use the following to define the devices listed:

- Most printers can use dev=prn.
- Most dumb terminals can use dev=term.
- Most incoming modem connections can use dev=min.
- Most outgoing modem connections can use dev=mout.
- Most bidirectional modem connections can use dev=mio.
- Most Realport connections can use dev=rp.
- Most reverse Telnet connections can use dev=prn.

If the device you are configuring is not one of these listed or requires unusual flow control at-

tributes, use the information in the following table to define a device type:

Device Type	Attributes
term	• PortServer TS 8/16 generates a login when it receives data. • PortServer TS 8/16 ignores loss of carrier (DCD low). • DTR and RTS are high when the connection is idle. • This type usually requires cable support for transmit, receive, and ground only, which means a 3-wire crossover cable will work. Six, eight, and ten wire crossover cables work as well. • Do **not** use dev=term for RealPort and reverse Telnet connections.
prn	• PortServer TS 8/16 never generates a login. • PortServer TS 8/16 ignores carrier. • DTR and RTS are low when the connection is idle. • This type usually requires cable support for transmit, receive, and ground only, which means a 3-wire crossover cable will work. Six, eight, and ten wire crossover cables work as well. • Use dev=prn for reverse Telnet connections.
min	• PortServer TS 8/16 generates a login when carrier is detected (DCD high). • PortServer TS 8/16 closes the port at carrier loss (DCD low). • DTR and RTS are high when the connection is idle. • This type requires a 10-pin straight-through cable or an altpin cable. • Do not use dev=min for RealPort and reverse Telnet connections.
mout	• PortServer TS 8/16 never generates a login. • PortServer TS 8/16 closes the port at carrier loss (DCD low). • DTR and RTS are low when the connection is idle. • This type requires a 10-pin straight-through cable or an altpin cable. • dev=mout supports RealPort and reverse Tel-net.
mio	• PortServer TS 8/16 generates a login when carrier is detected (DCD high). • PortServer TS 8/16 closes the port at carrier loss (DCD low). • DTR and RTS are high when the connection is idle. • This type requires a 10-pin straight-through cable or an altpin cable. • dev=mio supports reverse Telnet but does **not** support RealPort.

host	• PortServer TS 8/16 does not generate a login. • PortServer TS 8/16 opens the port at DCD high and closes the port at carrier loss (DCD low). • DTR and RTS are low when the connection is idle. • This type supports reverse Telnet and RealPort. • This type requires a cable that supports carrier detect (DCD).
hdial	• PortServer TS 8/16 generates a login when carrier is detected (DCD high) and data is received. • PortServer TS 8/16 closes the port at carrier loss (DCD low). • DTR and RTS are low when the connection is idle. • This type does **not** support reverse Telnet or RealPort. • This type requires 10-pin cables with DCD and DTR cross-connected or an altpin cable.
hio	• PortServer TS 8/16 generates a login when carrier is detected (DCD high) and data is received. • PortServer TS 8/16 closes the port at carrier loss (DCD low). • DTR and RTS are low when the connection is idle. • This type requires 10-pin cables with DCD and DTR cross-connected or an altpin cable.
rp	• PortServer TS 8/16 never generates a login. • PortServer TS 8/16 ignores carrier. • DTR and RTS are low when the connection is idle. • This type usually requires cable support for transmit, receive, and ground only, which means a 3-wire crossover cable will work. Six, eight, and ten wire crossover cables work as well. • Use dev=rp for RealPort connections.

The default is term.

Note: With mio, mout, min, host, and hdial device types, PortServer TS 8/16 lowers DTR at disconnect and holds it low for two seconds to ensure a clean disconnection.

`dport`
is the TCP port for users of autoconnect ports, which is one of the following:

- 23 for Telnet
- 513 for Rlogin
- Any other TCP port or a physical port on the PortServer TS 8/16, identified by specifying the base TCP socket number and then the port number. For example (if you use the default base TCP socket number), to indicate an autoconnect Telnet connection to port 12, specify dport=2012. Similarly, to indicate an autoconnect raw connection to port 12, specify dport=2112
- 0, which means one of two things, depending on whether a specific user is assigned to this port on the uid field: (1) That Rlogin is used as the default if a specific user is assigned to this port (2) That Telnet is used as the default if a specific user is **not** assigned to this port
- None, which disables the field

The default is 0.

`group`
assigns a group number to this port, which means that this port is part of a hunt group. Outgoing calls specifying this hunt group can then use any available port in the group. Use numbers 65 to

100 to avoid conflicts with regular port numbers.

`id`
specifies a character string for the port, which can be used in console management applications to identify the device connected to the port. Enclose this string in quotation marks if there are spaces in the string.

`range`
is the port or range of ports to which this command applies

`sess`
is the maximum number of sessions any user can run through this port

The range is 1-9, and the default is 4.

`termtype`
is the type of terminal assigned to the port. This information is used during multiscreen and multisession operations and is passed to the host during Telnet negotiations. Use a terminal type that is valid with the host operating system.

`uid`
is an index number in the user table that identifies a particular user for this port. If you use this field, calls from others attempting to use this port will be rejected. Specify none to disable the field.

Examples

Displaying Attributes of the Current Port

In this example, the set ports command displays attributes for the port to which the user is connected.

```
set ports
```

Displaying Attributes for a Range of Ports

In this example, the set ports command displays attributes for a range of ports.

```
set ports range=1-2
```

Configuring an Autoconnect Port

In this example, the set ports command configures the port so that all incoming users are automatically connected via Telnet to the host specified on the dest field. The port is also available for outgoing connections.

```
set ports range=1 auto=on dest=199.125.123.10 dev=mio dport=23
```

set radius

Use the set radius command to

- Configure PortServer TS 8/16 to use one or more RADIUS (Remote Authentication Dial-In User Service) servers to authenticate and maintain user profiles on dial-in users
- Display current RADIUS configuration options

About RADIUS

When PortServer TS 8/16 uses a RADIUS server, it authenticates users by first searching its own user table and then, if the user is not found, searching the RADIUS server.

Required Privileges

Administrator (root) privileges are required to use this command.

Related Information

None

Syntax

Configuration

Here is the form of the set radius command used to configure PortServer TS 8/16 to use RADIUS servers to authenticate dial-in users.

```
set radius   [primary=ip-adr] [run={on|off}] [secondary=ip-adr]
[secret=password] [tolerant={on|off}]
```

Display

Here is the form of the set radius command used to display RADIUS configuration status.

```
set radius
```

Fields

`primary`
is the IP address of the primary RADIUS server. This is the server that PortServer TS 8/16 queries first. If this server is down or busy, PortServer TS 8/16 queries the secondary server (if there is one).

`run`
`on`
enables RADIUS authentication

`off`
disables RADIUS authentication

The default is off.

`secondary`
is the IP address of a secondary RADIUS server

`secret`
is a password used for encryption of messages between the RADIUS server and PortServer TS 8/16. The server and PortServer TS 8/16 must use the same password. The primary and the secondary servers are not required to use the same password. If they are different, however, you must issue two set radius commands, one to configure the primary RADIUS server and one to configure the secondary server. See the command examples for more information.

`tolerant`
on means ignore unrecognized RADIUS attributes. Off means that the connection is denied if unrecognized RADIUS attributes are present.

Examples

Displaying RADIUS Configuration Status

In this example, the set radius command displays the status of the current RADIUS configuration.

```
set radius
```

Configuring a Primary RADIUS Server

In this example the set radius command configures PortServer TS 8/16 to use a primary RADIUS server.

```
set radius run=on primary=199.150.150.10 secret=xyyzzz
```

Configuring Two RADIUS Servers

In this example, the first set radius command configures the primary RADIUS server. The second set radius command configures the secondary server. Two commands are required because the two servers use different passwords (secret field).

```
set radius run=on primary=199.150.150.10 secret=xyyzzz
```

```
set radius run=on secondary=199.150.150.22 secret=abbccc
```

set route

Use the set route command to

- Manually configure IP routes
- Remove routes from the routing table
- Display the contents of the route table

About the Route Table

The route table holds up to 50 entries.

Required Privileges

Normal users can display information. Root privileges are required to change settings.

Related Information

None

Syntax

Configuration and Removal

Here is the form of the set route command used to manually configure and remove IP routes:

```
set route {gateway=ip-adr | wanname=name} mask=mask metric=hops net=net-
adr range=range [rmroute={on|off}]
```

Display

Here is the form of the set route command used to display the route table:

```
set route
```

Fields

`gateway`
is the IP address of the router that is the next hop to the destination network defined on the net field. Use this field if this router is on the LAN.

`mask`
is the subnet mask used by the destination network

`metric`
is the number of routers through which a datagram must pass before reaching the destination network defined on the net field

`net`
is the IP network address of the destination network

`range`
is the entry or range of entries in the route table that will be removed when the rmroute field is executed

`rmroute=on`
means that the route table entry or entries defined on the range field will be removed

The default is off.

`wanname`
is the name, defined on a set user command, of a WAN connection that PortServer TS 8/16 can use to reach the next hop to the destination defined on the net field.

Examples

Displaying the Route Table

In this example, the set route command displays the entire route table.

```
set route
```

Displaying a Range of Route Table Entries

In this example, the set route command displays a range of entries in the route table.

```
set route range=3-5
```

Removing an Entry in the Route Table

In this example, the set route command removes an entry from the route table.

```
set route rmroute=on range=2
```

set service

Use the set service command to

- Configure (associate) names with TCP and UDP service ports for use in filters
- Display entries in the service table

About Service Numbers

The following are the service numbers (TCP and UDP ports) to which you can assign names:

Service	Port Number
FTP	21
NNTP	119
RIP	520
Login	513
Shell	514
SMTP	25
Telnet	23
TFTP	69

Required Privileges

Normal users can display information. Root privileges are required to change settings.

Related Information

None

Syntax

Configuration

Use this form of the set service command to associate names with TCP service ports:

`set service name=`*`name`* `port={udp:`*`port`*`|tcp:`*`port`*`}`

Display

Use this form of the set service command to display entries in the service table:

`set service [range=`*`range`*`]`

Fields

`name`
is the name to assign the service

`port`
is the TCP or UDP port number for the service

`range`
is a range of entries in the service table, which is used to identify entries to display or delete

`{rmservice=`*`name`*`| rmservice=on}`
name
is the name of a service to be removed from the service table

`on`
means remove the service (or services) from the service table identified on the range field

Examples

Displaying the Service Table

In this example, the set service command displays the entire service table.

```
set service
```

Displaying an Entry in the Service Table

In this example, the set service command displays a range of entries in the service table.

```
set service range=2-4
```

Configuring an Entry in the Service Table

In this example, the set service command configures a name for Telnet.

```
set service name=http port=tcp:80
```

set snmp

Use the snmp command to configure, enable, and disable PortServer TS 8/16's SNMP (Simple Network Management Protocol) agent.

Required Privileges

Normal user may display information. Root privileges are required to change settings.

Related Information

None

Syntax

```
set snmp [auth_trap={off|on}] [contact=administrator]
[get_request=community] [location=location-string]
[name=name-string] [run={off|on}] [set_request ] [trap_dest=ipaddress]
```

Fields

`auth_trap`
`on`
means the agent sends an authentication trap to the SNMP manager when an authentication error occurs

`off`
means the agent silently ignores SNMP requests that fail authentication

The default is off.

`contact`
is a text string that identifies a contact person (usually an administrator). The entry must be surrounded by quotation marks if there are spaces in the text.

`get_request=`*`community`*
is the password required to read PortServer TS 8/16 SNMP managed objects. The default is "public".

`location`
is a text string that describes PortServer TS 8/16's location. The entry must be surrounded by quotation marks if there are spaces in the text.

`name`
is a text string that identifies PortServer TS 8/16. The entry must be surrounded by quotation marks if there are spaces in the text.

`run`
`on`
starts the SNMP daemon

`off`
means the SNMP daemon will not start

The default is off.

`set_request`
displays a prompt of a password required to write to PortServer TS 8/16 SNMP managed objects. The default is "private".

`trap_dest`
is the IP address of the system to which the agent should send traps

Examples

Displaying SNMP Configuration

In this example, the snmp command displays the SNMP configuration.

```
set snmp
```

Configuring All Options

In this example, the snmp command configures SNMP.

```
set snmp run=on auth_trap=on trap_dest=190.175.178.73
location=Manufacturing-1 name=PServer1
contact=”Joe Friday”
```

set tcpip

Use the set tcpip command to set operating characteristics of the PortServer TS 8/16 TCP component. Configurable options include:

- The TCP port used by RealPort
- The interval TCP waits before retransmitting an unacknowledged segment
- How TCP handles idle connections
- Socket service values for reverse Telnet connections

Required Privileges

Normal users can display information. Root privileges are required to change settings.

Related Information

None.

Syntax

Configuration

Here is the form of the set tcpip command to change TCP options:

```
set tcpip [keepalive_active={on|off}] [keepalive_byte={on|off}]
[ip_ttl=hops]  [keepalive_idle=hours:minutes:seconds] [probe_count=probe-
count#] [probe_interval=probe-interval#]  [rto_max=timeout#]
[tcp_ttl=hops]
```

Display

Here is the form of the set tcpip command to display TCP settings:

```
set tcpip
```

Fields

`keepalive_active`
on enables the keep-alive function, and off disables it. The default is off, but can be turned on by an application regardless of this setting. When you change this setting, you must reboot the PortServer TS 8/16.

`keepalive_byte`
on means that the PortServer TS 8/16 sends a "garbage" byte of data to force the device at the other end of the connection to respond to the keep-alive packet. The default is off. When you change this setting, you must reboot the PortServer TS 8/16.

`ip_ttl`
sets the intial value of the IP time-to-live variable, which defines the maximum number of hops that a packet can survive before being discarded. The default is 64.

`keepalive_idle=hours:minutes:seconds`
determines the period a TCP connection has to be idle before the keep-alive option is activated.

The range is 10 seconds to 24 hours. The default is 2 hours.

`probe_count`
is the number of times TCP probes the other connection to determine if it is alive after the the keep-alive option has been activated

The valid range for probe_count is 5-30. The default is 10.

Digi recommends that the probe_count default not be changed unless there is a good reason to change it. Changing the value can adversely affect Telnet connections.

`probe_interval`
is the time in seconds between each keep-alive probe

The range is 10-75 seconds. The default is 75 seconds.

Digi recommends that the probe_interval default value not be changed unless there is a good rea-

son. Changing the value can adversely affect Telnet connections.

`tcp_ttl`
sets the intial value of the TCP time-to-live variable, which defines the maximum number of hops that a packet can survive before being discarded. The default is 64.

`rto_max`
is the TCP maximum retransmission time out in seconds

When one side of a TCP connection sends a packet and does not receive an acknowledgment from the other side within the timeout period, the sending station retransmits the packet and sets an exponential backoff timeout. This is done for each successive retransmit until the maximum retransmission timeout is reached; then the TCP connection resets

Examples

Configuring Keepalive Options

In this example, the PortServer TS 8/16 TCP component is configured to do the following:

- Begin sending keepalive probes after a TCP connection has been idle for 10 minutes
- Send up to 15 probes
- Send a probe every 50 seconds

```
set tcpip keepalive_active=on keepalive_idle=0:10:0 probe_count=15
```

Configuring TCP Maximum Retransmission Timeout Value

In this example, the PortServer TS 8/16 TCP component is configured to attempt to reconnect a dormant connection for up to 100 seconds.

```
set tcpip rto_max=100
```

set telnetip

Use the set telnetip command to

- Add Telnet IP address table entries
- Display Telnet IP address table entries

Required Privileges

Normal users can display information. Root privileges are required to change settings.

Related Information

None.

Syntax

Display

Use this form of the set telnetip command to display the current Telnet values for the PortServer TS 8/16:

```
set telnetip
```

Add

Use this form of the set telnetip command to add an entry to the Telnet table, which can hold up to 30 entries:

```
set telnetip ip=ip-addr [mask=mask] [mode={none|crbin|telprnt}]
```

Fields

`ip`
is the IP address to add to the Telnet table

`mask`
is value of the mask to use for the IP address entered
The default is 255.255.255.255

`mode`
is the Telnet mode

`none`
means that no special Telnet mode is set

`crbin`
sets a Telnet binary connection where carriage returns are added with line feeds

`telprnt`
is used for a Telnet print connection

The default is none.

`range`
is the range of index entries to remove

Note: Before removing Telnet table entries it may be helpful to use set telnet without any options to display the existing Telnet table entries and their corresponding index numbers.

Examples

Displaying Telnet Table Entries

In this example, the set telnet command displays current Telnet table entries.

```
set telnet
```

Adding a Telnet Table Entry

In this example, the set telnet command adds a Telnet table entry.

```
set telnet ip=199.86.5.56 mask=255.255.255.0 mode=none
```

set terms

Use the set terms command to

- Define terminal types and the escape sequence a terminal uses when initiating and maintaining multiple sessions
- Display entries in the term table

About the set terms Command

Here is some information on the set terms command:

- The set terms command configures PortServer TS 8/16 to handle terminals that are **not** connected over a network.
- If users are to use the Ctrl key in a key sequence, use a carat character (^) in place of the Ctrl key when you configure the sequence.

Required Privileges

Normal users can display information. Root privileges are required to change settings.

Related Information

None

Syntax

Configuration

Here is the form of the set terms command used to configure terminals:

`set terms [clrseq=`*`escape-seq`*`] [npages=`*`pages`*`] [swtseq=`*`SessNumSequence`*`] termtype=`*`type`*

Display

Here is the form of the set terms command used to display entries in the term table:

`set terms [range=`*`range`*`]`

Fields

`clrseq`
is the escape sequence that clears the terminal's current screen. This should be the sequence specified by your terminal's manufacturer.

`npages`
is the number of sessions available to this terminal type. This should be the same as the number of pages of screen memory available on the terminal.

The range is 1-9.

`swtseq=`*`SessNumSequence`*
is a number that identifies the session and the escape sequence used to access that session. This should be the sequence specified by your terminal's manufacturer.

Note: There are no spaces between the number identifying the session and the key sequence used to access that session.

`range`
is the range of term table entries to display or remove

`termtype`
is a name for the terminal type. This name must match the name

- Specified on the termtype field of the set ports command
- Used by hosts on your network for this type of terminal

PortServer TS 8/16 provides two default terminal types, wy60 and wy60-e. Use the set terms command to display options associated with these types of terminals.

Examples

Displaying the Entire Term Table

In this example, the set terms command displays the entire term table.

```
set terms
```

Displaying a Range of Entries in the Term Table

In this example, the set terms command displays a range of entries in the term table:

```
set terms range=4-6
```

Configuring a Terminal Type

In this example, the set terms command configures a terminal type.

```
set terms termtype=Jet npages=4 clrseq=^! swtseq=1^] swtseq=2^[ swtseq=3^}
swtseq=4^{
```

set time

Use the set time command to set and display the time and date PortServer TS 8/16 keeps.

Required Privileges

Root privileges are required to use this command.

Related Information

None

Syntax

Here is how to use the set time command to set or display the time and date.

```
set time [{AM|PM}] [date=mn.day.yr] [dayofweek=day] [hrmode={12|24}]
[time=hr.mn.sec]
```

Fields

`{AM|PM}`
specifies the period of the day when hrmode=12.

`date`
is the month (expressed numerically), day, and year (use only two digits for the year), separated by periods

`dayofweek`
values are sun, mom, tue, wed, thu, fri, sat.

`hrmode`
is either 12 or 24.

`time`
is the hour (24-hour clock), minute, and second, separated by periods

Examples

Displaying the Time

In this example, the set time command displays the current time and date:

```
set time
```

Setting the Time

In this example, the set time command sets the time and date.

```
set time time=17.05 date=12.25.97
```

set trace

Use the set trace command to

- Configure PortServer TS 8/16 for tracing
- Display tracing information

Required Privileges

Root privileges are required to use this command.

Related Information

None

Syntax

Configuration

Use this form of the set trace command to configure tracing:

```
set trace [loghost=ip-addr][mask=type:severity] [mode={historical |
concurrent]} [state={on|off|dump}] [syslog={on|off}]
```

Display

Use this form of the set trace command to display the status of tracing information:

```
set trace
```

Fields

`loghost`
is the IP address of a host to which trace messages should be sent. This host must be running the syslog daemon.

`mask=`*`type`*`:`*`severity`*
is the type and nature of event that should be traced

type
is one of the following:

Type	Traces events associated with...
addp	ADDP
arp	Address Resolution Protocol
cache	Routing cache
connect	connect functionality
dhcp	DHCP
dialer	Dial-out ports
dns	Domain Name System
esc	Escape sequence
ether	Ethernet
fwdr	Routing (forwarded IP packets)
icmp	Internet Control Message Protocol
inetd	Internet daemon (based on received packets)
ip	Internet Protocol
lpd	Line Printer Daemon
lpd_a	Line Printer Daemon (ASCII)
lpd_h	Line Printer Daemon (hex)
netd	Net Daemon
portsw	Portswitcher software
radius	RADIUS
realp	RealPort

rlogin	Rlogin
serial	Serial ports
snmp	Simple Network Management Protocol
stream	STREAMS internal data processing methodology
tcp	Transmission Control Protocol
telnet	Telnet
udp	User Datagram Protocol
user	Users
*	All entities listed in this table

severity
is one of the following severity levels:

Severity	Meaning
+ (plus sign)	+ is used to add other severity levels to the trace. This can be used to specify multiple severity trace levels on a single command or to specify multiple trace commands that add levels of severity. See the examples that follow for clarification.
- (minus sign)	- is used to subtract severity levels from the trace. See the examples that follow.
critical (the default)	This means that tracing is done on only the most severe events. This level produces the least amount of trace data. Critical can be abbreviated with a “c”.
warning	This means tracing is done on critical events and on less severe events as well. This level produces more trace data than critical, but less than info. Warning can be abbreviated with a “w”.
info	This means tracing is done on many events. It produces more trace data than previous levels. Info can be abbreviated with an “i”.
debug	Is the level to use for debugging. Do not use this level for anything but debugging. Debug can be abbreviated with a “d”.

`mode`

`historical`
means that all trace messages stored in the buffer may be displayed by issuing the following command: `set trace state=dump`

`concurrent`
means that all trace messages are printed to the administrative terminal when state=on

`state`

`on`
means that all messages in the trace buffer are displayed. Once they are displayed, the state remains on.

`off`
means that tracing is off

`dump`
means that all messages in the trace buffer are displayed. Once they are displayed, the state returns to off.

The default is off.

`syslog`

`on`

means that trace messages are sent to the host identified on the loghost field

`off`
means that trace messages are not sent to a host

The default is off.

Examples

Displaying Trace Settings

In this example, the set trace command displays current trace settings.

```
set trace
```

Dumping a Trace

In this example, the set trace command dumps a previously recorded trace of ARP events.

```
set trace mask=arp:warning mode=historical state=dump
```

Configuring Trace Levels

In this example, the set trace command configures tracing for future critical events.

```
set trace mask=arp:critical mode=concurrent state=on
```

Using the + Sign to Extend the Trace

In this example, the set trace command configures tracing for info, warning, and debug trace levels.

```
set trace mask=arp:i+w+d
```

Using the - Sign to Subtract a Severity Level

In this example, the warning severity level is subtracted from the trace settings specified in the previous example.

```
set trace mask=arp:-w
```

set user

Use the set user command to

- Display configuration attributes stored in the user table, such as whether a user must supply a password
- Configure a range of options associated with users, such as whether the user automatically connects to a host or is required to supply a password

About the User Table

The user table holds up to 64 entries. If you need to configure additional users, use a RADIUS server. See set radius on page 2-56.

Required Privileges

All set user command functions require root privileges.

Syntax

Configuration

Here is the form of the set user command used to configure user attributes:

```
set user [autoconnect={on|off}]
[autohost=ip-addr] [autoport=tcp-port]
[autoservice={default|telnet|rlogin|raw}] [commandline={on|off}]
[connectesc={off | esc-char} [defaultaccess=service]
[idletimeout=time][killescchar=character] [maxsessions=number]
[menu={off|index-num}] [name=name] [newname=string] [outgoing={on|off}]
[password={on|off}] [ports=ports] [range=range] [rloginesc=char]
[sessiontimeout=seconds] [telnetesc=character]
```

Display

Here is the form of the set user command used to display entries from the user table:

```
{set user {[name=name]|[range=range]} | set user name=name }
```

Remove Entry

Here is the form of the set user command used to remove an entry from the user table.

```
set user [range=range] [rmuser={on|name}]
```

Fields

`accesstime`
is the period in which the user can access PortServer TS 8/16. Use the accesstime field to restrict the user's access to the time specified.

Use the following keywords to specify day (or days) and hours:

Period	Keyword
Working week (Monday-Friday)	wk
Sunday	su
Monday	mo
Tuesday	tu
Wednesday	we
Thursday	th
Friday	fr
Saturday	sa

Specify hour ranges in the form: hr:min-hr:min or hr-hr. Use spaces to separate keywords and then enclose the entire string in quotation marks. Here are some examples:

Examples	Provides access...
accesstime=wk9:00-17:00	Monday through Friday from 9:00 a.m. until 5:00 p.m.
accesstime="wk9:00-17:00 su0-23"	Monday through Friday from 9:00 a.m. until 5:00 p.m. and all day Sunday
accesstime="su mo fr"	All day Sunday, Monday, and Friday

`autoconnect`

`on`

means that a Telnet or Rlogin user will be automatically connected to another system without accessing the PortServer TS 8/16 command line once the user has satisfied login and password requirements. If you specify yes, specify the autohost and autoport or autoservice fields.

`off`

means the user will **not** be automatically connected to another system

The default is off.

`autohost`

is the IP address of a host to which this Telnet or Rlogin user should be automatically connected. Use this field only if you specify autoconnect=yes.

`autoport`

is the TCP port to use for the automatic connection. Use this field only if you specify autoconnect=yes.

If you specify autoconnect and do not specify a TCP port, the port will be determined by the autoservice field, or—if there is no autoservice field specified—the default, port 513, which is Rlogin.

`autoservice`

is an alternate way to specify a TCP port for an autoconnect user (see the autoport field). Use this field only if you specify autoconnect=yes. Specify one of the following services: Telnet, Rlogin, or raw (which means that data will be passed between the serial port and the TCP stream without modification).

The default is the value of the autoport field.

`commandline`

`on`

means that a telnet or rlogin user can access the PortServer TS 8/16 command line to issue commands

`off`

means that the user can **not** access the command line and can **not** issue commands

The default is on.

`connectesc`

is the escape character for users using the connect command. The default escape character is Ctrl [(Control key and left bracket).

`defaultaccess`

restricts the service accessible to the user

`commandline`

means that the PortServer TS 8/16 command line is displayed to the user

`menu`

means that a menu is displayed to the user. If you specify this option, you must also specify a menu number on the menu field

`autoconnect`

means that PortServer TS 8/16 automatically connects the user to the destination specified on the autohost field

`outgoing`

means that this user is limited to outgoing connections only

The default is commandline.

`idletimeout`
is the maximum time in seconds that a PPP, SLIP, or CSLIP user's connection can be idle before the user is disconnected

The range is 0 to unlimited. The default is 0, which means that the user will never be disconnected for lack of connection activity.

`killescchar`
is the kill character, which is used to close sessions. The default is ^u.

`maxsessions`
is the maximum number of ports that a Telnet or Rlogin user can be logged into at the same time

0 means that the user can be simultaneously logged into all ports specified on the ports field

`menu`
`index-num`
is the menu, identified by an index number in the menu table, that will be presented to this user

`off` and `0` (zero)
means that no menu is presented to the user

The default is off.

`name`
is the name that identifies this user

`newname`
is a new name for a previously defined user

`outgoing`
`on`
means that the user can initiate outgoing connections

`off`
means that the user can **not** initiate outgoing connections

`password`
`on`
means a PortServer TS 8/16 password is required of this user

`off`
means a password is not required of this user

The default is on.

`ports`
is a port or range of ports that this user can access

`range`
identifies an entry or range of entries in the user table to display or remove

`rloginesc`
is a different escape character than the ~ (tilde) character. This character is used for disconnecting from the remote host.

`sessiontimeout`
is the maximum time in seconds that a user may be connected

The range is 0 to an unlimited number of seconds. The default is 0, which means that there is no limit.

`telnetesc`
is the Telnet escape character for this user. The default is ^] (Ctrl and right bracket)

Examples

Displaying the Entire User Table

In this example, the set user command displays a list of users.

```
set user
```

Displaying a Range of Entries in the User Table

In this example, the set user command displays a range of entries in the user table.

```
set user range=2-7
```

Displaying a Single User

In this example, the set user command displays information on a single entry in the user table.

```
set user ra=1
```

Configuring an Autoconnect User

In this example, the set user command configures an autoconnect user.

```
set user name=user4 autoconnect=on autohost=199.193.150.10 autoport=23
defaultaccess=autoconnect
```

Show

Use the show command to display the following:

- Configuration settings
- Current versions of the Boot, POST, OS components

Required Privileges

Anyone can issue the show command.

Related Information

None

Syntax

`show` *`option`* `[range=`*`range`*`]`

Fields

`option`

is one of the following options:

Option	Displays events associated with...	Works with Range Field?
altip	set altip setting	yes
arp	set arp settings	yes
auth	set auth settings	yes
boot	boot version	no
config	set config settings	no
dhcp	set dhcp setting	no
flow	set flow settings	no
host	set host settings	yes
keys	set keys settings	no
lines	set line settings	yes
logins	set logins settings	no
menu	set menu settings	yes
modbus	set modbus settings	yes
ports	set ports settings	no
route	set route settings	yes
service	set service settings	yes
snmp	snmp settings	no
tcpip	set tcpip settings	no
telnetip	set telnetip settings	yes
terms	set terms settings	yes
trace	set trace settings	no
user	set user settings	yes

`range`

is a configuration table entry or range of entries

Example

Displaying User Setting

In this example, the settings for a user, identified by an index number in the user table, are displayed.

```
show user range=3
```

status

Use the status command to display information about your current Telnet or connect session.

Required Privileges

Anyone can execute the status command.

Related Information

See close on page 2-5. Typically you use the status command to determine which Telnet sessions to close.

Syntax

Here is how you issue the status command.

```
status
```

Example

In this example, the status command provides information on the user's current Telnet session.

```
status
```

telnet

Use the telnet command to establish a Telnet session with a remote system.

Required Privileges

Anyone can execute the telnet command.

Related Information

None

Syntax

Here is how you issue the telnet command.

`telnet {`*`hostname`* `|` *`host-ip-addr`*`} [`*`tcp-port`*`]`

Fields

Field Descriptions

`hostname`
is the name of the host to which you want a Telnet session. DNS must be configured on the PortServer TS 8/16 to use this option.

`host-ip-addr`
is the IP address of the host to which you want a Telnet session

`tcp-port`
is the TCP port assigned the Telnet application on the remote system. The default is 23, the port typically used for Telnet.

Examples

Telnetting Using a Host Name

In this example, the telnet command establishes a Telnet session using a host name. The default TCP port (23) is used.

```
telnet host1
```

Telnetting Using an IP Address

In this example, the telnet command establishes a Telnet session using an IP address. The default TCP port (23) is used.

```
telnet 192.192.150.28
```

Telnetting to a PortServer TS 8/16 Port from the LAN

In this example, a user on the LAN initiates a Telnet connection to port 4 on a PortServer TS 8/16 named host-1.

```
telnet host-1 2004
```

traceroute

Use the traceroute command to display a list of routers through which an IP packet passes on its way to a particular destination.

Required Privileges

Anyone can issue the traceroute command.

Related Information

None

Syntax

Here is the syntax for issuing the traceroute command.

```
traceroute ip-addr|name
```

Field

ip-addr | name
is either the IP address or the DNS name of the host to which you want a route traced

Examples

Tracing a Route Using an IP Address

In this example, the traceroute command traces a route to a host using the specified IP address.

```
traceroute 199.150.150.74
```

Tracing a Route Using a Name

In this example, the traceroute command traces a route to a host using a host name.

```
traceroute poe
```

uptime

Use the uptime command to display the amount of elapsed time since the last reboot.

Required Privileges

Anyone can issue the uptime command.

Syntax

Here is how to issue the uptime command:

```
uptime
```

Example

```
uptime
```

who

Use the who command to display a list of current PortServer TS 8/16 users.

Required Privileges

Anyone can issue the who command.

Related Information

None

Syntax

Here is how you issue the who command.

`who [range=`*`tty-tty`*`]`

Field

`range`
is either a tty connection or a range of connections identified by tty connection number

Examples

Display List of all Users

In this example, a list of all current users is displayed.

```
who
```

Display a Range of Users

In this example, a range of user connections is displayed.

```
who range=5-10
```

Index