Command Reference

Digi One IA
Digi One SP

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Making DEVICE NETWORKING easy™

90000324_A

Contents

Navigation and Editing Keys

Use the keys listed in the table to navigate the command line and edit commands:

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

Online Help

Help is available for all commands. The table describes how to access it.

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

Abbreviating Commands

All commands can be abbreviated. Simply supply enough letters to uniquely identify the command.

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

This chapter provides a description of each 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, the following occurs:

1. A prompt requesting the root password appears.
2. The user types in the root password.
3. If the password is
   - Accepted, the device displays the root prompt, indicating that the user can issue commands reserved for administrators.
   - Not accepted, the device displays the following message: “Incorrect password”

Required Privileges

Only normal users can use the admin command.

Related Information

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

- exit on page 15
- quit on page 24

Syntax

```
admin
```

Example

```
admin
```

boot

Use the boot command to do the following:

- Reboot
- Restore the configuration to defaults
- Load new POST code from a TFTP server
- Load a new firmware into flash ROM from a TFTP host

Required Privileges

Root privileges are required to use this command.

Related Information

See the following commands:

- cpconf on page 12 for information on saving the current configuration to a host prior to restoring the configuration to defaults
- revert on page 27 for information on restoring configuration defaults to the latest configuration stored in NVRAM

Syntax: Rebooting

Here is the syntax to reboot the device server:

```
boot action=reset
```

Syntax: Restoring Configuration Defaults

Here is the syntax to restore the configuration to defaults:

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

Syntax: Loading New Firmware

Here is the syntax to load a firmware into flash ROM from a TFTP host:

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

Syntax: Loading New POST Code (Digi One and PortServer TS 2/4 only)

```
boot load-post=tftp-server-ip:filename
```

Fields

action={eewrite | factory | reset}

eewrite
resets all but the network-related parts of the configuration to defaults. Ports, users, passwords, and most other features are reset.

factory
resets the entire configuration to defaults

reset
reboots the device

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

{*host-ip-address* | *host-name*}
is the IP address or host name of a host with new firmware, which is then burned into flash ROM. The host must be running TFTP.

[*file*]
is the firmware file

load-post=*tftp-server-ip:post-filename*

tftp-server-ip
is the IP address of a server running TFTP

post-file-name
is the file that holds the new POST or Boot code

factory
is the firmware that shipped with the device

user
is the most recent firmware upgrade

Example: Restoring Configuration Defaults

The command reloads the firmware stored in flash ROM and resets the configuration to defaults.

```
boot action=factory
```

Example: Resetting All-But the Network-Related Parts of the Configuration

The command resets all but the network-related parts of the configuration to defaults.

```
boot action=eewrite
```

Example: Using the Current OS and Configuration

The command reboots the device and uses the current firmware and configuration stored in flash ROM.

```
boot action=reset
```

Example: Using a Boot Host

The command loads the firmware stored on the host into flash ROM. A reboot is required to use the new firmware.

```
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 table lists default escape keys.

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

Required Privileges

Anyone can use this command.

Related Information

See the command status on page 80 for information on displaying status information on active sessions

Syntax

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

Fields

*

closes all active sessions

connection-number

identifies the session to close

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

Example: Closing a Session Identified by Number

```
close 1
```

Example: Closing the Current Session

```
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:

- To make multiple connections, issue 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 use this command.

Related Information

See the following related commands:

- close on page 10 for information on ending a session
- reconnect on page 25 for information on reestablishing a port connection

Syntax

```
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: Connecting to 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 a terminal

Required Privileges

Root privileges are required to use this command.

Related Information

None

Syntax

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

Fields

fromhost=*host*[:*file*]
copies the configuration from the host and file specified. Be sure to

- Identify the host by either its IP address or DNS name
- Separate host and file fields by colons

Note: 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. Be sure to

- Identify the host by either its IP address or DNS name
- Separate the host and file information by a colon

Note: If the filename is not specified, config.ps3 is used.

Note: TFTP must be running on the host. For transfers to the Digi device, 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

Example: Copying the Configuration From a Host

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

Example: Copying the Configuration To a Host

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

Example: Copying to a Terminal

```
cpconf term
```

display

Use the display command to:

- Display the status of the EIA-232 signals on serial ports
- Display a list of errors
- Clear the errors list
- Display information on Digi devices that use dip switch settings to enable multiple electrical interface (MEI) on serial ports
- Display power information for the Digi devices that support the powered Ethernet feature

Required Privileges

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

Related Information

None

Syntax: Displaying Information

```
display {port range=port-port | error | power | switches |}
```

Syntax: Clearing Errors

```
display error clear
```

Fields

circuitbreaker
: displays status of the circuit breaker

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 errors when the clear option is **not** specified

port
: displays configuration information for the ports specified on the range option. There is only 1 port on the SP/IA.

range
: is a range of ports. There is only 1 port on the SP/IA.

switches
: displays dip switch settings for devices supporting MEI

Example: Displaying Configuration Information on a Port

```
display port range=1
```

Example: Displaying a List of Errors

```
display error
```

Example: Displaying Information on Dip Switch Settings

```
display switches
```

Example: Displaying Power Information

```
display power
```

Example: Clearing 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 use this command.

Related Information

See the following commands:

- admin on page 7 for information on starting a temporary root session
- quit on page 24 for an alternate method of ending a root session

Syntax

```
exit
```

Example

```
exit
```

help

Use this command for information commands.

Required Privileges

Anyone can use this command.

Related Information

None

Syntax

```
help
```

Example

```
help
```

info

Use the info command to do the following:

- Display protocol, interface, IA, serial, and UDP over serial statistics
- Clear statistics

About Statistics Tables

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

Required Privileges

Normal users can view statistics tables. Root privileges are required to clear them.

Related Information

None

Syntax: Clear Statistics

`info clear {`*`protocol`* `| network | serial:`*`port`* `| ia:`*`protocol`* `|sou:`*`range`*`}`

Syntax: Display Statistics

`info {`*`protocol`* `| {network | serial:`*`port`* `| ia:`*`protocol`* `| sou:`*`range`*`}`

Fields

info clear
clears all the statistic tables

info {*protocol* | network | serial:*port* | ia:*protocol* | sou*:range*}
displays one or more statistics tables, depending on the option specified. Use the following table to clarify how the command works

Syntax	Result	Example
info clear	All statistics are cleared.	info clear
info *protocol* where *protocol* is one of the following: wlan, frame, modbus, ip, icmp, ethernet tcp, or udp	wlan, frame, modbus, ip, icmp, tcp, or udp tables are displayed.	info ip
info network	All network interface statistics are displayed.	info network
info serial:*port* where *port* the port number	Port statistics are displayed.	info serial:1
info ia:*protocol* where *protocol* is one of the following: Compoway/F, df1fullduplex, df1halfduplex, fins, hostlink, modbus, userdefined	IA protocol statistics are displayed.	info ia:fins

Syntax	Result	Example
info sou:*range* where *range* is the port	Serial over UDP statistics associated with a serial port are displayed.	info sou:2

Example: Displaying the IP Table

```
info ip
```

Example: Displaying Information on Modbus

```
info ia:modbus
```

Example: Displaying Serial over UDP Statistics for Port 1

```
info sou:1
```

Example: Clearing All Network Statistics Tables

```
info clear
```

kill

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

Required Privileges

Root privileges are required to use this command.

Related Information

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

Syntax

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

Fields

tty=*tty-number*
: specifies a port on which to clear a session. Number = 1.

tty=*tty-range*
: specifies a range of ports on which to clear sessions. Range = 1.

tty-number
: is an alternate method of specifying the port on which to clear a session. Number = 1.

tty-range
: is an alternate method of specifying a range of ports on which to clear sessions. Range = 1.

Example: Killing a Session on a Specific Port

```
kill tty=1
```

mode

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

Required Privileges

Anyone can use this command.

Related Information

None

Syntax: Changing Telnet Options

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

Syntax: Displaying Telnet Options

```
mode
```

Fields

bin

on
turns binary mode on, which means that all transmitted and received characters are converted to binary during this Telnet session

off
turns binary mode off for this Telnet session

The default is off.

crmod

on
means that line feeds are added to received carriage returns

off
means that line feeds are **not** added to received carriage returns

The default is off.

crlf

on
means line feed characters are added to transmitted carriage returns

off
means line feed characters are **not** added to transmitted carriage returns

The default is off.

Example: Turning Binary Mode On

```
mode binary=on
```

Example: Adding Line Feed Characters

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

Example: Displaying Operating Options

```
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, a series of prompts guide you through the process of changing a password.

Syntax

```
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

The command initiates a dialog that changes the user's password.

```
newpass
```

ping

Use the ping command to test if a host or other device is active and reachable.

Required Privileges

Anyone can use this 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 of the ping by an IP address or domain name

loose_sroute
: specifies that the ping 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 routers handling the ping include their IP addresses in the echo reply

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

verbose
: specifies that echo replies include statistics associated with the ping, such as round-trip time and number of packets transmitted and received

Example: Specifying a Simple Ping

The ping command determines whether the specified host can be reached.

```
ping 199.150.150.10
```

Example: Specifying Loose Source Routing

The command specifies that the ping must pass through the routers identified on the loose_sroute option but may pass through additional routers as well.

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

Example: Specifying Strict Source Routing

The command specifies that the ping 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

- The current 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 use this command.

Related Information

See admin on page 7 for information on temporarily accessing commands reserved for the administrator.

Syntax

```
quit
```

Example

```
quit
```

reconnect

Use the reconnect command to reestablish a connection previously established.

Required Privileges

Anyone can use this command.

Related Information

See the following related commands:

- connect on page 11 for information on establishing a connection on a selected port
- close on page 10 for information on ending a connection
- status on page 80 for information on gathering status on current connections

Syntax

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

Fields

serial-port
specifies the serial port to which this command applies

p=*serial-port* | s=*session*
specifies a serial port or session to which this command applies

Example: Reconnecting to the Last Port Used

```
reconnect
```

remove

Use this command to remove entries from configuration tables.

Required Privileges

Root privileges are required to use this command.

Related Information

None

Syntax

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

Fields

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

name=*name*
: removes an entry from a configuration table based on the name specified. This form of the command works only on entries that can be identified by name, such as entries in the user table.

range=*range*
: removes entries from one of the device server configuration tables based on the range of table index entries

table-name
: is one of the following configuration tables:

- arp
- host
- powerunit
- service
-
- ippool
- route
- telnetip
-
- term

Example: Removing an Entry By Name

The command removes a user from the user table.

```
remove user name=martymertz
```

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 use this command.

Related Information

None

Syntax

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

Fields

option={factory | nvram}

sets one of the configuration options listed in the following table 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
arp	set arp configuration
config	set config configuration
flow	set flow configuration
host	set host configuration
ia	set ia netmaster, set ia netslave, set ia serial, and set iaroute configuration
ianetmaster	set ia netmaster configuration.
ianetslave	set ia netslave configuration.
iaroute	set ia route configuration.
iaserial	set ia serial configuration.
keys	set keys configuration
line	set line configuration
login	set login configuration
network	altip, arp, host, route, tcpip, and telnetip configuration
port	set ports configuration
routed	Routing configuration
script	set script configuration
security	set auth, set logins, set radius, and set configuration

If you specify ...	Then this part of the configuration reverts ...
service	set service configuration
system	set config, set ethernet, 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

range

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

Example: Resetting the Port Configuration

The command resets port 1 configuration to defaults.

```
revert port=factory range=1
```

Example: Resetting Network-Related Settings

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 command line.

Required Privileges

Anyone can use this command.

Syntax

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

Fields

esc
: is a different escape character than the ~ (tilde) character, which will be used for the current Rlogin session. This character is used for suspending a session from the remote host to return to the device server command line.

hostname
: is the name of a host to log into

host-ip-addr
: is the IP address of a host to log into

user=*user-name* | -1 *user-name*
: is the user name to use on the remote system. If you do not specify a name, your device server user name will be used. The -1 user-name option is for compatibility with the UNIX rlogin command.

Example: Using a Host Name

The rlogin command establishes an Rlogin session using a host name.

```
rlogin host1
```

Example: Using an IP Address

The rlogin command establishes an Rlogin session using an IP address.

```
rlogin 192.192.150.28
```

Example: Using a Host Name and User Name

The rlogin command establishes an Rlogin session using a host name. The command also supplies the name that identifies the user on the host.

```
rlogin host1 user=fred
```

send

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

Required Privileges

Anyone can use this command.

Related Information

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

Syntax

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

Fields

ao
: sends the “abort output” signal to discard 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

Example: Sending the Interrupt Process Signal

The send command transmits an interrupt process signal.

```
send ip
```

Example: Sending an Are You There Signal

The send command transmits an “are you there” signal.

```
send ayt
```

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 LAN, which is required to communicate with these devices. The ARP protocol updates this table automatically, so manual modification is seldom required.

Required Privileges

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

Related Information

None

Syntax: Configuring ARP Entries

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

Syntax: Displaying ARP Entries

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

Fields

ether
: specifies the Ethernet address of a device

ip
: specifies the IP address of a 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.

Example: Displaying All Entries

```
set arp
```

Example: Configuring an Entry

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

set config

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

- Network-related parameters, such as an IP address, mask, and default gateway
- Information on how ICMP redirect messages are handled

Required Privileges

Root privileges are required to use this command.

Related Information

None

Syntax: Configuration

```
set config [bootfile=file] [boothost=host-ipaddr] [dhcp={on |
off}] [dns=ip-addr]  [domain=domain] [gateway=ip-addr]
[ip=ip-addr] [optimize={latency | throughput}] [myname=name]
[ramsize=show] [realport=tcp-port]  [redirect={listen|ignore}]
[save={on |off} [securerealport=tcp-port] [sockets=socket-num]
[submask=mask] [tbreak={std|any|none}] [tftpboot={yes|no|smart}]
[circuitbreaker=reset]
```

Syntax: Display

```
set config
```

Fields

bootfile
: is the name of a boot file on a TFTP host. Specify the full path to the file if this is required to satisfy the host's TFTP implementation.

boothost
: is the IP address of a host from which the device server can boot using TFTP.

circuitbreaker=reset
: resets the circuit breaker

dhcp
: enables or disables DHCP (Dynamic Host Configuration Protocol). Turning DHCP on causes the device server to obtain an IP address from a DHCP 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 device server's domain

gateway
: is the IP address of the default gateway

ip
is the device server's IP address

myname
is the device server's DNS name

nameserv
is the IP address of a name server in the device server's domain.

optimize={latency | throughput}
configures how the Digi device handles network latency. Choose latency if the Digi device will handle delay-sensitive data and choose throughput if overall network throughput is more important than latency. For Digi One IA RealPort, the default is latency. For all other models, the default is throughput.

redirect

listen
means accept ICMP routing redirect messages. Use this option only if you have not configured the device server to forward RIP packets.

ignore
means discard ICMP routing redirect messages

The default is ignore.

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 device server is reset.

The default is on.

securerealport
specifies the TCP port number used for secure RealPort connections. The default is 1027.

sockets
sets the base TCP socket service, which is used in reverse Telnet, raw, SSH, and SSL/TLS connections to identify the connection type (Telnet, raw, SSH, or SSL/TLS) and a particular port. The base socket can be any number between 2000 - 50,000.

Once the base socket is set, the port accessed and the connection type are determined by the command the user issues to access the port. Here is the formula for issuing commands:

- For Telnet connections, the formula is base socket + port number.
- For raw connections, the formula is base socket + 100 + port number.
- For SSH connections, the formula is base socket + 500 + port number.
- For SSL/TLS connections, the formula is base socket + 600 + port number.

The examples that follow in the table illustrate how this works

If Base Sockets is ...	And the user specifies ...	Example	Then, the user establishes ...
1000	telnet *ip-address* 1002	telnet 192.1.1.1 1002	A Telnet connection to port 2
	telnet *ip-address* 1102	telnet 192.1.1.1 1102	A raw connection to port 2
	telnet *ip-address* 1502	telnet 192.1.1.1 1502	An SSH connection to port 2
	telnet *ip-address* 1602	telnet 192.1.1.1 1602	A SSL/TLS connection to port 2
1121	telnet *ip-address* 1122	telnet 192.1.1.1 1122	A Telnet connection to port 1
	telnet *ip-address* 1222	telnet 192.1.1.1 1222	A raw connection to port 1
	telnet *ip-address* 1622	telnet 192.1.1.1 1622	An SSH connection to port 1
	telnet *ip-address* 1722	telnet 192.1.1.1 1722	A SSL/TLS connection to port 1

submask
is the subnet mask for the 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 ^] (control right bracket) will break a Telnet connection. This is the default. 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`

tftpboot

yes
means always boot from the TFTP host identified on the boothost field

smart
means that if the device server cannot boot from the TFTP host identified on the boothost field, boot from the device server's internal flash ROM

instead

no
means boot the device server from internal flash ROM

The default is no.

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 device server to obtain an IP address from the host server. If DHCP is disabled, a static IP address must be defined for the device server.
- Renew the IP address of the device server. This causes the device server 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.

Related Information

See set config on page 32 for information on configuring the IP address manually.

Syntax: Configuration

```
set dhcp [client_identifier=string][client_id_type=type]
[keepalive={accept|ignore}] [run={on|off}]|[renew]
```

Syntax: Display

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

```
set dhcp
```

Fields

client_identifier=*string*
: is a text string consisting of 30 or fewer characters, which must be surrounded by quotation marks if it contains spaces. The default is an empty string. To enter non-printable characters, use hexadecimal format, which is \x*n*, where *n* is a hexadecimal value (0- F). To use the backslash character as the string, use two consecutive backslashes (\\).

client_id_type=*type*
: is a number between 0 and 255 that can be used to define the type of information in the client_identifier string. For example, all routers could be assigned 11 as the client_id_type.

keepalive={accept | ignore}
: determines which TCP keep-alive attributes are used, those set by the DHCP server or those specified on the set tcpip command.

  accept
  means that the DHCP server settings are used, and the set tcpip settings are not used.

  ignore
  means that the set tcpip settings are used, and the DHCP server settings

are ignored.

The default is accept. If the DHCP client feature is disabled, this setting has no effect.

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

Note: You must reboot the device server before this change takes affect.

renew
renews the IP address of the device server

Example: Enabling DHCP

```
set dhcp run=on
```

Example: Renewing the IP address

```
set dhcp renew
```

set ethernet

Use this command to set and adjust Ethernet communications parameters.

Required Privileges

Root privileges are required to use this command.

Related Information

See "set config" on page 32.

Syntax

```
set ethernet [duplex={half|full|auto}] [speed={10|100|auto}]
```

Fields

duplex={half | full | auto}
: determines the mode the Digi device uses to communicate on the Ethernet network. Specify one of the following:

  - half to communicate in half-duplex mode
  - full to communicate in full-duplex mode
  - auto to sense the mode used on the network and adjust automatically

  The default is half-duplex. The value you specify for this field must match the option used by the peer. In other words, if the other side is using auto (negotiating), this device must use auto. If the other side is set for half-duplex, this side must use half-duplex.

speed={10 | 100 | auto}
: configures the throughput rate the Digi device will use on the Ethernet network. Specify an appropriate setting for your Ethernet network, which can be one of the following:

  - 10 to operate at 10 megabits per second (Mbps) only
  - 100 to operate at 100 Mbps only
  - auto to configure the Digi device to sense the throughput rate of the network and adjust automatically

  The default is auto. The value you specify for this field must match the option used by the peer. In other words, if the other side is using auto (negotiating), this device must use auto. If the other side is set for 100 Mbps, this side must use 100 Mbps.

Example: Configuring 100 Mbps Throughput

```
set ethernet speed=100
```

Example: Configuring Full-Duplex Mode

```
set ethernet duplex=full
```

set flow

Use the set flow command to configure or display flow control options for device server's EIA-232 serial ports.

Required Privileges

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

Related Information

See the following commands:

- set keys on page 44
- set line on page 46
- set ports on page 52

Syntax: Configuration

```
set flow [aixon={on|off}][altpin={on|off}] [cts={on|off}]
[dcd={on|off}] [dsr={on|off}] [dtr={on|off}] [forcedcd={on | off}]
[itoss={on|off}] [ixany={on|off}] [ixoff={on|off}] [ixon={on|off}]
[pre-delay=milliseconds]
[post-delay=milliseconds] [range=range] [ri={on|off}]
[rts={on|off|toggle}]
```

Syntax: Display

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

```
set flow [range=range] show=rtstoggle
```

Fields

aixon={on | off}
: determines whether the auxiliary flow control characters defined on the set keys command are used for output flow control:
  - on means that they are.
  - off means that they are not.

  The default is off.

cts={on | off}
: determines whether CTS (clear to send) is used for output flow control:
  - on means CTS is used for output flow control.
  - off means CTS is **not** used for output flow control.

  The default is off.

dcd={on | off}
: determines whether DCD (data carrier detect) is used for output flow control:
  - on means that DCD is used for output flow control.
  - off means that DCD is **not** used for output flow control.

  The default is off.

dsr={on | off}
determines whether DSR (data set ready) is used for output flow control:

- 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 |off}
determines whether DTR (data terminal ready) is used for input flow control:

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

The default is off.

forcedcd={on | off}
determines whether the port acts as though DCD were always high. The primary implications is that autoconnections are launched as soon as the Digi device completes booting when this field is on and an appropriate incoming device type (see the set ports dev field) is defined for the port. The default is off.

itoss={on | off}
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={on | off}
is used only with software flow control:

- on means any received character can restart output when output has been stopped because of software flow control. Specify “on” only when communicating with devices, 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 | off}
determines whether to use input software flow control:

- on means use input software flow control
- off means do **not** use input software flow control

The default is on.

ixon={on | off}
determines whether to use output software flow control:

- on means use output software flow control
- off means do **not** use output software flow control

The default is on.

pre-delay=*milliseconds*
specifies the time in milliseconds to wait after the RTS signal is turned on before sending data. The range is 0 to 5000 milliseconds, and the default is 0.

post-delay=*milliseconds*
specifies the time in milliseconds to wait after sending data before turning off the RTS signal. The range is 0 to 5000 milliseconds, and the default is 0.

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

ri={on | off}
determines whether RI (ring indicator) is used for output flow control:

- on means use RI for output flow control.
- off means do **not** use RI for output flow control.

The default is off.

rts={on | off | toggle}
determines whether RTS (request to send) is used for output flow control:

- on means use RTS for output flow control.
- off means do not use RTS for output flow control.
- toggle means that RTS is turned on when transmitting.

The default is off.

show=rtstoggle
displays settings related to the RTS toggle feature, which includes information on rts=toggle, post-delay, and predelay

Example: Displaying Flow Control Settings

```
set flow range=1
```

Example: Configuring Flow Control Settings

```
set flow range=1 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

The device'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 device server can access a DNS server, there is no reason to configure the host table. The host table can hold up to 20 entries.

You can configure

- A host table and DNS
- Either the host table or DNS

If you configure a host table and a DNS server, the device server will attempt to satisfy a request by first searching the host table and then the DNS server.

Required Privileges

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

Related Information

See set config on page 32 for information on configuring device server to use a DNS server.

Syntax: Configuration

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

Syntax: Display

```
set host
```

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

Example: Displaying the Entire Host Table

```
set host
```

Example: Displaying an Entry in the Host Table

```
set host range=1
```

Example: Configuring a Name-to-IP Address Mapping

```
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 that generate certain characters and command functions.

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

Syntax: 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.

Example: 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
```

Example: Changing a Key

In this example, the set keys command changes the key that generates an end of file character (eof) for 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 52
- set flow on page 39

Syntax: Configuration

```
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 |m |s}] [range=range]
[stopb={1|2}]
```

Syntax: Display

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

Fields

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

break

: ignore
means that the Telnet break signal is ignored

: send
means send the Telnet break signal on the serial line when the device server receives a break signal

: escape
means send the escape sequence on the serial line when the device server 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 the device server handles parity errors on the line

: ignore

means the device server ignores errors

null
means device server changes the error character to a null character

parmrk
means the device server “marks” the error with FF (16450 error byte)

dos
means that the device server 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

m
means mark parity is selected

s
means space 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.

Example: Displaying Serial Line Options

```
set line
```

Example: Configuring Baud, Parity and Stop Bits

```
set line range=1 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 port. This includes information the user supplies and 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

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

Syntax: Display

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

Fields

cmdprompt
: is the 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 52 for more information.

logprompt
: is the login prompt displayed. 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 displayed. The maximum length is 10 characters. Enclose this string in quotation marks if it includes spaces.

  The default is password:dbps

passwd

on
means that users are required to supply a password to access the ports specified by the range field

off
means that users do not supply a password

The default is on. This field is disabled when the port is configured as an auto port (see set ports on page 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 the device server displays connection status messages to users before the login prompt

off
means that the device server 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

Example: Displaying Login Information on All Ports

```
set logins
```

Example: Displaying Login Information on a Range of Ports

```
set logins range=1
```

Example: 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
```

Example: 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 ports

Use the set ports command to

- Configure the port's operating parameters
- 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 46
- set flow on page 39
- set keys on page 44
- set logins on page 49
- set route on page 58

Syntax: Configuration

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

```
set ports [auto={on|off}] [autoservice={default | raw | rlogin |
telnet} [bin={on|off}] [dest={ip-adr | none] [dev=device]
[dport=tcp-port | none] [edelay=milliseconds]
[flushstchar={default | on | off}]
[flushstchar={default | on | off}][group={none | group]
[id={id-name | none}] [keepalive={on | off}]
[p[1-9]=script-param][range=range] [scriptname=name]
[sess=sessions] [termtype=type] [uid={id | none}]
```

Syntax: Display

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

```
set ports [range=range] [show={script | id | autoconnect}]
```

Fields

auto={on | off}
: determines whether users of the port will bypass device server's login and password sequence and be automatically connected to the destination defined on the dest field.

  - on means that they will be automatically connected to a destination.
  - off means that they will **not** be automatically connected to a destination.

  The default is off.

autoservice={detault | raw | rlogin| telnet}
: specifies the autoconnection service for this port, which is only used if auto=on. Choose one of the following:

- default, which normally means the Digi device will use Telnet. The exception is if the dport field is 0 or 513. In that case, rlogin is used.
- raw
- rlogin
- telnet

bin={on | off}
determines whether Telnet users of the port are provided with Telnet binary connections:

- 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={*ip-addr* | none}
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:

- Power units use dev=power
- 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.
- Modem emulation uses dev=pm.

If the device you are configuring is not one of these listed or requires unusual flow control attributes, use the information in the table to define a device type:

Device Type	Attributes
hdial	• The device generates a login when carrier is detected (DCD high) and data is received. • The device 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.

Device Type	Attributes
hio	• The device generates a login when carrier is detected (DCD high) and data is received. • The device 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.
host	• The device does not generate a login. • The device 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).
ia	• The device never generates a login. • 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. • Specifying dev=ia enables port support for industrial automation. See "set keys" on page 44.
min	• The device server generates a login when carrier is detected (DCD high). • The device server 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.
mio	• The device generates a login when carrier is detected (DCD high). • The device 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.
mout	• The device never generates a login. • The device 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 Telnet.
pm	• The device never generates a login. • This device's characteristics are specific to modem emulation settings for a given port. • DTR and RTS are low when the connection is idle. • Use dev=pm when initiating communication with the device.

Device Type	Attributes
prn	• The device never generates a login. • device server 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.
rp	• The device never generates a login. • The device 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.
term	• The device generates a login when it receives data. • The device 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.

The default is term.

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

dport=*port*

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

- For Telnet, use 23
- For Rlogin, use 513
- For a physical port on the device server, use 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

Note: If you specify 0, Rlogin is used.

- None, which disables the field

The default is 0.

flushstchar={default | on | off}

determines whether the first character of an autoconnection is discarded. If you specify `flushstchar=default`, the first character will be discarded for Telnet and Rlogin connections and will not be discarded for raw connections.

group={none | *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 that will not cause conflicts with regular port numbers. For example, on a four port device, use numbers 5 to 99. The default is none.

id=*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.

keepalive={on | off}
: determines whether the keepalive function is implemented with autoconnections. The default is off.

p[1-9]=*script-param*
: are letters and numbers that can be used in the variable fields of login or dialer scripts. This field is used only when the port-based autoconnect feature is on. (See the dest option.)

range=*ports*
: is the port or range of ports to which this command applies

scriptname=*name*
: is the name of a script (defined with the set script command) to use with auto connections to automatically log on to a host or run a script on a host

sess=*sessions*
: is the maximum number of sessions any user can run through this port

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

show={autoconnect | *id* | *script*}
: displays autoconnect and script configuration information for the port specified and information on who is using the port.

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.

Example: 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
```

Example: 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
```

Example: 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 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.

Syntax: Configuration

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
```

Syntax: 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

wanname
: is the interface to use for this route, which is one of the following
  - For routes over a PPP link, it is the name of a set user command that defines a PPP user
  - For routes over the Ethernet interface it is ether

Example: Displaying the Route Table

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

```
set route
```

Example: 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
```

Example: 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
```

Example: Configuring a Route over a WAN Connection

In this example, the set route command configures a route that uses a WAN connection through a serial port.

```
set route net=199.150.144.8 mask=255.255.255.0 metric=3
wanname=user998 gateway=199.150.100.2
```

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 table lists 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.

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}
```

Syntax: 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

Example: Displaying the Service Table

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

```
set service
```

Example: 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 socketid

Use this command to configure the serial port socket ID feature.

About Serial Port Socket IDs

Device servers support reverse Telnet and raw reverse Telnet connections, which enable remote users and applications to manage serial devices connected to device server ports. A socket ID is a text string that is sent at the start of a connection between a Digi device's serial port and a remote host. This feature enables easier identification of the managed device.

Required Privileges

Root privileges are required to use this command.

Related Information

None.

Syntax: Configuration

Here is how you use the set socketid command to configure the serial port socketid feature:

```
set socketid range=range [state={on | off}
[string="character-string"]
```

Syntax: Display

Here is how you use the set socketid command to display serial port socketid configuration settings:

```
set socketid [range=range] [verbose]
```

Fields

range=*range*
is the port configured with this command

state={on | off}
turns the feature on or off for the port specified. The default is off.

string=*"character-string"*
is an identification string made up of ASCII characters, surrounded by quotation marks. This string can be 1 to 256 bytes long.

Characters can also be embedded in the string in the manner described in the following table:

To embed this character ...	Use this escape sequence ...
Backspace	\b
Form feed	\f
Tab	\t
New line	\n
Return	\r
Backslash	\\

To embed this character ...	Use this escape sequence ...
Hexadecimal byte value *hh*	\xhh

verbose
: is used to displays the entire identification string when the string exceeds twenty characters. The verbose option is not necessary for strings under twenty characters.

Example: Displaying the Configuration for All Ports

In this example, the set socketid configuration settings for all ports are displayed:

```
set socketid
```

Example: Displaying the Configuration for a Specific Port

In this example, the set socketid configuration for port 2 is displayed:

```
set socketid range=1
```

Example: Configuring an Identification String

```
set socketid range=1 state=on string=”\fDevice 54”
```

Example: Configuring a Hexadecimal Identification String

```
set socketid range=1 state=on string=”\xae”
```

set tcpip

Use the set tcpip command to set operating characteristics of the device server 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]
```

Syntax: 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 device server.

keepalive_byte
: on means that the device server 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 device server.

ip_ttl
: sets the initial 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 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 reason. Changing the value can adversely affect Telnet connections.

tcp_ttl
: sets the initial 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

Example: Configuring Keepalive Options

In this example, the device server 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
```

Example: Configuring TCP Maximum Retransmission Timeout Value

In this example, the device server 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

- Create configuration profiles for Telnet communication with particular devices. That is, the set telnetip command links an IP address to particular Telnet operating parameters.
- 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 device server:

```
set telnetip
```

Syntax: 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|striplf}] range=port
```

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.

Example: Displaying Telnet Table Entries

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

```
set telnet
```

Example: 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 device server 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
```

Syntax: 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

The device server provides two default terminal types, wy60 and wy60-e. Use the set terms command to display options associated with these types of terminals.

Example: Displaying the Entire Term Table

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

```
set terms
```

Example: 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
```

Example: 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 trace

Use the set trace command to do the following:

- Configure device server 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}]
```

Syntax: 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 entries listed in the following table:

Type	Trace 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)

Type	Trace events associated with ...
ia	IA (industrial automation) protocols
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
pm	Modem Emulation Module
portsw	Portswitcher software
ppp	Point-to-Point Protocol
realp	RealPort
rlogin	Rlogin
routed	Route Daemon
serial	Serial ports
stream	STREAMS internal data processing methodology
tcp	Transmission Control Protocol
telnet	Telnet
udp	User Datagram Protocol
udpser	Serial over UDP
user	Users
vj	Van Jacobsen header compression
*	All entities listed in this table

severity

is one of the severity levels listed in Table:

Severity	Meaning
+ (plus sign)	This 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)	This 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	This 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.

Example: Displaying Trace Settings

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

```
set trace
```

Example: 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
```

Example: 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
```

Example: 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
```

Example: 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 udpdest

Use this command to configure destinations for serial over UDP communication.

About the UDP Destination Table

The UDP destination table can hold up to 64 entries per port.

Required Privileges

Anyone can display the UDP destination table. Root privileges are required to add entries.

Related Information

See set udpserial on page 76.

Syntax: Configuration

```
set udpdest [description="string"] [ipaddress=dest-ip]
[ipport=port] port=serial-port range=index
```

Syntax: Remove

```
set udpdest rmudp=on range=index port=serial-port
```

Syntax: Display

```
set udpdest [port=serial-port range=index]
```

Fields

description=*string*
: is a description of the destination, used for easy identification. This description can be up to 16 characters long. If it includes spaces, surround the entire string in quotation marks.

ipaddress=*dest-ip*
: is the destination's IP address

ipport=*port*
: is the UDP port number that will be used for communication with the destination

port=*serial-port*
: is the port or ports on which the serial device or devices reside. Enter this information in any of the following ways: port=1, port=1-2, port=1,2, port=1,2-4

range=*index*
: is the index number or numbers that identify entries in the UDP destination table. Enter this information in any of the following ways: range=1, range=1-2, range=1,2, range=1,3-4

rmudp=on
: removes the entries from the UDP destination table identified on the port and range fields

Display Entries in the UDP Destination Table

In this example, entries from the UDP destination table are displayed.

```
set udpdest port=1-2 range=1,2-4,6
```

Example: Remove Entries from the UDP Destination Table

In this example, entries from the UDP destination table are displayed.

```
set udpdest rmudp=on port=1-2 range=1,2-4,6
```

Example: Configure Entries in the UDP Destination Table

In this example, two entries are configured for the UDP destination table.

```
set udpdest port=1 range=1,2 ipaddress=192.2.2.2 ipport=50
```

Example: Change an Entry in the UDP Destination Table

In this example, one of the entries configured in the previous example is changed, that is, a different UDP port number is assigned one of the destinations.

```
set udpdest port=1 range=2 ipport=51
```

set udpserial

Use this command to configure operating parameters for serial over UDP communication.

Required Privileges

This command requires root privileges.

Related Information

See set udpdest on page 74.

Syntax

```
set udpserial [delimiters=string]
[overflowpolicy={forward | flush}] range=ports [rmax=max]
[rtime=time] [stripdelimiters={on | off}]
```

Fields

delimiters=*string*
: is the string in the serial data that tells the Digi device that the message is complete and should be forwarded to the destination. If you do not specify a delimiter, the Digi device will forward a message based on the number of bytes accumulated in the buffer (rmax field.) and on the period to wait for the buffer to fill (rtime field.). Here are some rules and tips for specifying this string:

- The string can be between 1 and 4 characters long.
- The string can be made up of printable or unprintable characters.
- To use an unprintable character, enter the character in hexadecimal format, that is, \x*hh*, where *hh* is replaced with a hexadecimal number.
- There are several unprintable characters that can be entered using a shortcut, enabling you to avoid entering hexadecimal digits. They are: \t (tab), \r (carriage return), \n (line feed).
- To use the backslash character as a delimiter, enter two backslashes (\\)

There is no default delimiter.

overflowpolicy={forward | flush}
: determines how the Digi device responds when the buffer that holds the serial data overflows. Choose one of the following:

- forward, if you want the buffer's contents sent to the destination
- flush, if you want the buffer's content discarded

The default is to forward the data.

range=*ports*
: is the port or ports to which this command applies. Enter this information in any of the following ways: port=1, port=1-2, port=1,2, port=1,2-4.

rmax
: is the maximum number of bytes the buffer can accumulate before the Digi device forwards the contents to the destination. The range is 1 to

65535 bytes, and the default is 1024 bytes.

rtime
: is the period to wait for the buffer to fill before forwarding it to its destination. The range is 1 to 60000 milliseconds, and the default is 100 milliseconds.

stripdelimiter={on | off}
: determines whether the Digi device strips the delimiter string from the message before sending the message to the destination

Example: Discard the Message when the Buffer Fills

In this example, the serial message will be forwarded to the destination when two consecutive tab characters are encountered in the data stream. If the buffer fills before this delimiter string is encountered, the message is discarded.

```
set udpserial range=1 delimiter=\t\t overflowpolicy=flush
```

Example: Configure the Wait Period

In this example, the time to wait for the end of a message is configured for 200 milliseconds, which doubles the default value.

```
set udpserial range=1 rtime=200
```

show

Use the show command to display the following information:

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

Required Privileges

Anyone can use this command.

Related Information

None

General Syntax

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

Fields

option
is one of the following options:

Option	Displays events associated with ...	Works with Range Field
arp	set arp settings	yes
config	set config settings	no
dhcp	set dhcp setting	no
ethernet	set ethernet settings	no
flow	set flow settings	yes
host	set host settings	yes
ia netmaster	set ia netmaster settings	no
ia route	set ia netslave settings	no
ia serial	set ia serial settings	yes
ippool	set ippool settings	no
keys	set keys settings	yes
lines	set line settings	yes
logins	set logins settings	yes
ports	set ports settings	yes
route	set route settings	yes
script	set script settings	yes
service	set service settings	yes
socketid	socketid settings.	yes
tcpip	set tcpip settings	no

Option	Displays events associated with ...	Works with Range Field
telnetip	set telnetip settings	yes
terms	set terms settings	yes
trace	set trace settings	no
udpdest	set udpdest settings	yes
udpserial	set udpserial settings	yes
version	Version of POST, Boot, and EOS running on the device server.	no

range
is a configuration table entry or range of entries

Example: Displaying Current Versions of POST, Boot and EOS

In this example, the current versions of the POST, Boot and EOS are displayed.

```
show version
```

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 use this command.

Related Information

See close on page 10. 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 use this command.

Related Information

None

Syntax

Here is how you issue the telnet command.

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

Field Descriptions

hostname
is the name of the host to which you want a Telnet session. DNS must be configured on the device server 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.

Example: 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
```

Example: 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
```

Example: Telnetting to a device server Port from the LAN

In this example, a user on the LAN initiates a Telnet connection to port 4 on a device server 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 use this 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

Example: 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
```

Example: 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 use this command.

Syntax

Here is how to issue the uptime command:

```
uptime
```

Example

```
uptime
```

who

Use the who command to display a list of current device server users.

Required Privileges

Anyone can use this 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

Example: Display List of all Users

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

```
who
```

Example: Display a Range of Users

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

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

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