IOLAN

DS1/TS2
Command Line Interface
Reference Guide

Version 3.5

Part #5500208-12

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FCC Note The IOLAN Device Server has been found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions in this Guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

EN 55022: 1998, Class A, Note

WARNING This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

CE **Caution:** The IOLAN Device Server is approved for commercial use only.

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Preface

About This Book

This guide provides the information you need to configure the IOLAN using the Command Line Interface (CLI).

Intended Audience

This guide is for administrators who will be configuring the IOLAN.

Some prerequisite knowledge is needed to understand the concepts and examples in this guide:

- If you are using an external authentication application(s), working knowledge of the authentication application(s).
- Knowledge of TFTP, the transfer protocol the IOLAN uses.

Typeface Conventions

Most text is presented in the typeface used in this paragraph. Other typefaces are used to help you identify certain types of information. The other typefaces are:

Typeface Example	Usage
At the C: prompt, type: `add host`	This typeface is used for code examples and system-generated output. It can represent a line you type in, or a piece of your code, or an example of output.
Set the value to **`TRUE`**.	The typeface used for `TRUE` is also used when referring to an actual value or identifier that you should use or that is used in a code example.
`subscribe` ***`project subject`*** **`run`** ***`yourcode`***`.exec`	The italicized portion of these examples shows the typeface used for variables that are placeholders for values you specify. This is found in regular text and in code examples as shown. Instead of entering ***`project`***, you enter your own value, such as `stock_trader`, and for ***`yourcode`***, enter the name of your program.
IOLAN DS Family User's Guide	This typeface indicates a book or document title.
See ***About This Book*** on page 11 for more information.	This indicates a cross-reference to another chapter or section that you can click on to jump to that section.

Contacting Technical Support

Making a Technical Support Query

Who To Contact

Note: Perle offers free technical support to Perle Authorised Distributors and Registered Perle Resellers.

If you bought your product from a registered Perle supplier, you must contact their Technical Support department; they are qualified to deal with your problem.

Have Your Product Information Ready

When you make a technical support enquiry please have the following information ready:

Item	Write Details Here
Product Name	
Problem Description	
Your Name	
Company Name and Address	
Country	
Phone Number	
Fax Number	
Email Address	

Making a support query via the Perle web page

If you have an internet connection, please send details of your problem to Technical Support using the email links provided on the Perle web site in the **Support** area.

Click here to access our website at the following URL:

http://www.perle.com

Repair Procedure

Before sending a IOLAN for repair, you must contact your Perle supplier. If, however, you bought your product directly from Perle you can contact directly.

Customers who are in Europe, Africa or Middle East can submit repair details via a website form. This form is on the Perle website, **www.perle.com**, in the **Support** area.

Click here to access our web site at the following URL:

http://www.perle.com/support_services/rma_form.asp

Feedback on this Manual

If you have any comments or suggestions for improving this manual please email Perle using the following address;

Email: ptac@perle.com

Please include the **title**, **part number** and **date** of the manual (you can find these on the title page at the front of this manual).

Introduction

Introduction

This chapter provides the command line interface (CLI) options available for the IOLAN. The commands are grouped by function.

CLI Conventions

This section explains how to interpret the CLI syntax.If you are an existing Terminal Server customer and would like to configure the IOLAN in the native Terminal Server interface, you can type the command **`ts-config`** to display and use the native Terminal Server interface (you must have **User Level Admin**). See your *Terminal Server User Guide* for information on using the Terminal Server interface.

Command Syntax

Each command is broken down into several categories:

- **Description**—Provides a brief explanation of how the command is used.
- **User Level**—Shows which user level(s) (Restricted, Normal, and/or Admin) can issue the command. Some commands have options that are available for one user level and not for another level; this usually occurs when a command is valid for both Normal and Admin user levels, where the Admin user level command will have extended options.
- **Syntax**—Shows the actual command line options. The options can be typed in any order on the command line. The syntax explanation will use the following command to break down the command syntax:

  ```
  set service [dhcp/bootp on|off] [telnetd on|off] [httpd on|off]
  [snmpd on|off] [spcd on|off] [syslog on|off] [dmgrd on|off]
  ```

  – Square brackets ([]) show the options that are available for the command. You can type a command with each option individually, or string options together in any order you want. For example,

  `set service dhcp/bootp on telnetd off`

  – Angle brackets (<>) show that the text inside the brackets is a description for a variable value that you must fill in according to your requirements. In the **`set server`** command, you must determine the values for **`domain`**, **`internet`**, **`name`**, **`password-limit`**, and **`subnet-bit-length`**, if you wish to specify them and not use their defaults (default values provided in the **Options** description). The angle brackets can also contain a range that can be used.

  – The pipe (|) shows an 'or' condition. For example, valid values for **`telnetd`** are either **`on`** or **`off`**.

- **Options**—Provides an explanation of each of the options for a command and the default value if there is one. Some commands do not have any options, so this category is absent.

Command Shortcuts

When you type a command, you can specify the shortest unique version of that command or you can press the **ESC** or **TAB** key to complete the command. For example, the following command:

```
set telnet-client map-to-crlf off
```

can be typed as:

```
set tel map off
```

or, you can use the **ESC** key to complete the lines as you go along:

```
set tel<ESC>net-client ma<ESC>p-to-crlf off
```

where the <**ESC**> key was pressed to complete the option as it was typed.

Command Options

When you are typing commands on the command line (while connected to the IOLAN), you can view the options by typing a question mark (**?**) after any part of the command to see what options are available/valid. For example:

```
DS$ set vmodem ?
failure-string
host
port
style
success-string
suppress
DS$ set vmodem failure-string ?
<text>                    30 characters maximum
DS$ set vmodem failure-string "Vmodem failed" ?
failure-string
host
port
style
success-string
suppress
Or press Enter to confirm command
DS$ set vmodem failure-string "Vmodem failed"
DS$ show vmodem
Host
Host Port
Success String
Failure String           "Vmodem failed"
Suppress                 Off
Style                    Numeric
DS$
```

Server Commands

This chapter defines all the CLI commands associated with configuring the IOLAN's server parameters.

Server Commands

Set Custom-App

Description You can create a custom application that can run on the IOLAN using the Perle SDK.
User Level Admin
Syntax **`set custom-app server program-command-line <`*`command`*`>`**

Options **program-command-line**

The name of the SDK program executable that has been already been downloaded to the IOLAN, plus any parameters you want to pass to the program. Maximum of 80 characters. Use the **`shell`** CLI command as described in the *SDK Programmer's Guide* to manage the files that you have downloaded to the IOLAN. For example, using sample outraw program, you would type:

`outraw -s 0 192.168.2.1:10001 Acct:10001`

if you were starting the application on the Server (notice the **`-s 0`** parameter specifies Line 1).

Set Server

Description Sets server parameters.
User Level Admin
Syntax

```
set server [auto-obtain-gw on|off] [banner on|off] [break on|off]
 [bypass-password on|off] [domain <string>]
 [flush-on-close on|off] [internet <IPV4_address>]
 [internet dhcp/bootp on|off]
 [monitor-connection-every <seconds>][name <string>]
 [netmask <IPV4_address>][oem-login on|off]
 [password-limit <0-10>] [prompt-with-name on|off]
 [single-telnet on|off]

set server tftp [retry <integer>] [timeout <integer>]
```

Options **auto-obtain-gw**

When DHCP/BOOTP is enabled, you can enable this option to have the IOLAN receive the Default Gateway IP address from the DHCP/BOOTP server.

banner

This parameter concerns the banner information (product name/software version). This banner information is presented to a user with a login prompt. For security reasons, you can turn off the display of this information. The default is **Off**.

break

Enables/disables the existing Reverse Telnet break signal and the out-of-band break signals for TruePort. The default value is **Off**.

bypass-password

When set, authorised users who do not have a password set, with the exception of the Admin user, WILL NOT be prompted for a password at login with **Local Authentication**.

dhcp/bootp

Enables the DHCP/BOOTP client process in the IOLAN. By default, this is disabled/off. If this is enabled, the server IP address parameter is disabled.

domain_name

Unique name for your domain, your location in the global network. Like Hostname, it is a symbolic, rather than a numerical, identifier.

flush-on-close

When enabled, deletes any pending outbound data when a port is closed; as opposed to maintaining the port to send pending data. The default value is **Off**.

internet

The IOLAN's unique IPv4 network IP address. If you are using the IOLAN in an IPv6 network, this field can be left blank.

monitor-connection-every

Specify how often, in seconds, the IOLAN will send a TCP keepalive. This only applies to line service types that support the keepalive feature. The default interval is every 30 seconds.

name

You must supply a name for the IOLAN.

netmask

The network subnet mask. For example, 255.255.0.0.

oem-login

When set, and a custom language file is in use, the login prompt will use the string defined in the language file as the login prompt instead of the default prompt, **`login:`**.

password-limit

The number of attempts a user is allowed to enter a password for a port. If this limit is exceeded, the port is disabled for 5 minutes. A user with Admin level rights can restart the port, bypassing the timeout, by issuing a kill on the disabled port. The default value is **3**.

prompt-with-name

Displays the **Server Name** field value instead of default product name. When enabled, the **Server Name** is displayed in the IOLAN login prompt, CLI prompt, WebManager login screen, and the heading of the Menu. The default value is **Off**.

single-telnet

In this mode of operation, the IOLAN will only allow for a single TCP connection at a time to exist for each serial port configured for a reverse connection type. Subsequent connection attempts will be refused until all of the following conditions are met;

- No active connection to serial port exists and at least 1 second has passed since last connection was terminated.
- All data from previous connection on the serial port has been transmitted.

The IOLAN has logic to automatically detect when a reverse connection is no longer active. When this happens, the connection is reset and the server can go back to a **listening for an incoming connection** state.

Applications using Single Telnet need to be aware that there can be some considerable delay between a network disconnection and the port being available for the next connection attempt; this is to allow any data sent on prior connections to be transmitted out of the serial port. Application network retry logic needs to accommodate this feature. The default value is **Off**.

retry

The number of times the IOLAN will attempt to transfer (using TFTP) a file to/from a host. Enter a value between 0 and 5. The default is **5**. A value of **0** (zero) means that the IOLAN will not attempt a retry should TFTP fail.

timeout

The time, in seconds, that the IOLAN will wait for a successful transmit or receipt of TFTP packets before retrying a TFTP transfer. Enter a value between 3 and 10. The default is **3** seconds.

Set Service

Description Sets server service parameters.
User Level Admin
Syntax

```
set service [telnetd on|off] [httpd on|off] [snmpd on|off]
 [spcd on|off] [syslog on|off] [dmgrd on|off] [modbusd on|off]
```

Options

telnetd

Telnet daemon process in the IOLAN on port 23.

httpd

HTTP daemon process in the IOLAN on port 80.

snmpd

SNMP daemon process in the IOLAN on port 161.

spcd

SPC (Trueport) daemon process in the IOLAN on port 668.

syslog

Syslog client process in the IOLAN.

dmgrd

DeviceManager daemon process in the IOLAN. If you disable this service, you will not be able to connect to the IOLAN with the DeviceManager application. DeviceManagerD listens on port 33812 and sends on port 33813.

modbusd

Modbus daemon process in the IOLAN on port 502.

Show Custom-App

Description Shows the custom application server settings.
User Level Admin
Syntax `show custom-app server`

Show Modbus

Description Shows the Modbus settings for the gateway.
User Level Normal, Admin
Syntax `show modbus gateway`

Show Server

Description Shows the parameters set for the server.
User Level Admin, Normal
Syntax `show server`

Hardware Commands

Set Ethernet

Description Sets the hardware configuration for the Ethernet port(s).
User Level Admin
Syntax `set ethernet speed-and-duplex auto|10-half|10-full|100-half|100-full`

Options **auto**|**10-half**|**10-full**|**100-half**|**100-full**

Define the ethernet connection speed at one of the following:

- **auto**—automatically detects the ethernet interface speed and duplex
- **10 Mbps Half Duplex**
- **10 Mbps Full Duplex**
- **100 Mbps Half Duplex**
- **100 Mbps Full Duplex**

Show Hardware

Description Shows the hardware resources, Ethernet link status, date and time.
User Level Normal, Admin
Syntax `show hardware`

Modbus Commands

Set Modbus Gateway

Description Sets the Modbus parameters for the IOLAN when it is operating as a Modbus Gateway.

User Level Admin

Syntax

```
set modbus gateway [addr-mode embedded|re-mapped]
  [broadcast on|off] [char-timeout <number>]
  [req-next-delay <number>] [exceptions on|off]
  [idle-timer <number>] [mess-timeout <number>]
  [port <TCP/UDP_port>] [req-queuing on|off]
  [remapped-id <1-247>]
```

Options

addr-mode

Determines if the original UID address will be embedded in the transmission header or if a specified (remapped) UID will be embedded in the transmission header.

broadcast

When enabled, a UID of 0 (zero) indicates that the message will be broadcast to all Modbus Slaves. The default is **Off**.

char-timeout

Used in conjunction with the Modbus RTU protocol, specifies how long to wait, in milliseconds, after a character to determine the end of frame. The default is **30** ms.

req-next-delay

A delay, in milliseconds, to allow serial slave(s) to re-enable receivers before issuing next Modbus Master request. The default is **50** ms.

exceptions

When enabled, an exception message is generated and sent to the initiating Modbus device when any of the following conditions are encountered: there is an invalid UID, the UID is not configured in the Gateway, there is no free network connection, there is an invalid message, or the target device is not answering the connection attempt. The default is **On**.

idle-timer

Specifies the number of seconds that must elapse without any network or serial traffic before a connection is dropped. If this parameter is set to 0 (zero), a connection will not be dropped (with the following exceptions: the TCP KeepAlive causes the connection to be dropped or the Modbus device drops the connection). The default is **10** seconds.

mess-timeout

Time to wait, in milliseconds, for a response message from a Modbus TCP or serial slave (depending if the Modbus Gateway is a Master Gateway or Slave Gateway, respectively) before sending a Modbus exception. The default is **1000** ms.

port

The network port number that the Slave Gateway will listen on for both TCP and UDP messages. The default is **502**.

req-queuing

When enabled, allows multiple, simultaneous messages to be queued and processed in order of reception. The default is **On**.

remapped-id

Specify the UID that will be inserted into the message header for the Slave Modbus serial device. Valid values are 1-247.

Show Modbus

Description Displays the Modbus Gateway parameters.
User Level Admin
Syntax **`show modbus gateway`**

`show modbus slave|master <`*`line_number`***`>`**

TruePort Baud Commands

Set TruePort Remap-Baud

Description This command allows for the remapping of the baud rate being specified by the Serial application to a different value on the physical serial port on the IOLAN.
User Level Admin
Syntax **`set trueport remap-baud`**
`50|75|110|134|150|200|300|600|1200|1800|2400|4800|9600|19200|38400`
`50|75|110|134|150|200|300|600|1200|1800|2400|4800|9600|19200|38400|57600|115200|230400|28800|[custom <`*`baud_rate`***`>]`**

Options **50**|**75**|**110**|**134**|**150**|**200**|**300**|**600**|**1200**|**1800**|**2400**|**4800**|**9600**|**19200**|**38400**

The configured baud rate of the TruePort client.

50|**75**|**110**|**134**|**150**|**200**|**300**|**600**|**1200**|**1800**|**2400**|**4800**|**9600**|**19200**|**38400**|**57600**|**115200**|**230400**|**28800**|**[custom** <*baud_rate*>**]**

The actual baud rate that runs between the IOLAN and the connected serial device. You can also specify a custom baud rate; valid values are 50-230400.

Show TruePort

Description Shows the IOLAN TruePort remapping table.
User Level Normal, Admin
Syntax **`show trueport`**

IPv6 Commands

Set IPv6

Description Configures the basic IPv6 settings.
User Level Admin
Syntax

```
set ipv6 [dhcpv6-settings ipv6-address on|off]
 [dhcp-settings network-prefix on|off]

Set ipv6 enable-ipv6-addressing on|off
 [obtain-using auto-ipv6|dhcpv6]
```

Options

dhcpv6-settings

Determines the types of information that the IOLAN will accept from the DHCPv6 server, IPv6 address(es) and/or network prefix(es).

ivp6-address

When enabled, the IOLAN will accept IPv6 address(es) from the DHCPv6 server. This is **`off`** by default.

network-prefix

When enabled, the IOLAN will accept the network prefix from the DHCPv6 server. This is **`off`** by default.

enable-ipv6-addressing

When enabled, you can configure the IOLAN to obtain the IPv6 address(es) using IPv6 Autoconfiguration or a DHCPv6 server.

Default: Enabled

obtain-using auto-ipv6|dhcpv6

- **auto-ipv6**—When enabled, the IOLAN will send out a Router Solicitation message. If a Router Advertisement message is received, the IOLAN will configure the IPv6 address(es) and configuration parameters based on the information contained in the advertisement. If no Router Advertisement message is received, the IOLAN will attempt to connect to a DHCPv6 server to obtain IPv6 addresses and other configuration parameters. This is the default.
- **dhcpv6**—When enabled, requests IPv6 address(es) and configuration information from the DHCPv6 server.

Show IPv6

Description Shows the IPv6 settings.
User Level Admin
Syntax

```
show ipv6
```

Add Custom-IPv6

Description

User Level Admin

Syntax

```
add custom-ipv6 method auto network-prefix <network_prefix>
 [prefix-bits <0-64>]

add custom-ipv6 method manual ipv6-address <ipv6_address>
 [prefix-bits <0-128>]
```

Options

method auto

When this option is specified, the IOLAN will derive an IPv6 address from the entered network prefix and the IOLAN's MAC address. This is the default option.

network-prefix

Specify the IPv6 network prefix. The IOLAN will derive the complete IPv6 address from the entered network prefix and the IOLAN's MAC address.

prefix-bits (auto)

Specify the network prefix bits for the IPv6 address.

Range: 0-64

Default: 64

method manual

Specify this option when you want to enter a specific IPv6 address.

ipv6-address

Specify the complete IPv6 address.

Field Format: IPv6 address

prefix-bits (manual)

Specify the network prefix bits for the IPv6 address.

Range: 0-128

Default: 64

Set Custom-IPv6

Description Configures custom IPv6 network and IP addresses.

User Level Admin

Syntax

```
set custom-ipv6 <config_ipv6_address> method auto
 network-prefix <network_prefix> [prefix-bits <0-64>]

set custom-ipv6 <config_ipv6_address> method manual
 ipv6-address <ipv6_address> [prefix-bits <0-128>]
```

Options

method auto

When this option is specified, the IOLAN will derive an IPv6 address from the entered network prefix and the IOLAN's MAC address. This is the default option.

network-prefix

Specify the IPv6 network prefix. The IOLAN will derive the complete IPv6 address from the entered network prefix and the IOLAN's MAC address.

prefix-bits (auto)

Specify the network prefix bits for the IPv6 address.

Range: 0-64

Default: 64

method manual

Specify this option when you want to enter a specific IPv6 address.

ipv6-address

Specify the complete IPv6 address.

Field Format: IPv6 address

prefix-bits (manual)

Specify the network prefix bits for the IPv6 address.

Range: 0-128

Default: 64

Delete Custom-IPv6

Description Deletes the specified custom IPv6 address. To see a list of configured IPv6 addresses, type the command **`delete custom-ipv6 ?`**.

User Level Admin

Syntax **`delete custom-ipv6 <`***`config_ipv6_address`*`>`**

User Commands

This chapter defines all the CLI commands available to users who are logged into the IOLAN.

Commands for Users Logged Into the IOLAN

Admin

Description Changes a Normal-level user to the Admin user. When you press **Enter** after you type this command, you will be prompted for the Admin password.
User Level Normal
Syntax `admin`

Help

Description Displays help on using the command line interface (CLI).
User Level Restricted, Normal, Admin
Syntax `help`

Kill Line

Description Restarts a line. On IOLANs with more than 1 port, you can specify a port number and then a range of ports; for example, kill line 4, 10-13, 15. On single port models, use the command `kill line`.
User Level Normal, Admin
Syntax `kill line *|<number>|<number range>`

Kill Session

Description Kills an active session.
User Level Restricted, Normal, Admin
Syntax `kill session 1|2|3|4`
Options **1|2|3|4**
The number of the session(s) you want to kill.

Logout

Description Logs the user out from the IOLAN.
User Level Restricted, Normal, Admin
Syntax `logout`

Menu

Description Switches from a command line based interface to Menu mode of operation.
User Level Restricted, Normal, Admin
Syntax **`menu`**

Ping

Description This command checks to see if a given host is reachable via an IP message. The specific message used is called a **`ping`**.
User Level Normal, Admin
Syntax **`ping <`***`hostname/IP_address`***`> [<`***`packet_size`***`>] [<`***`#_of_packets`***`>]`**

Options ***<hostname/IP_address>***

The DNS resolvable host name or IP address of the machine you are trying to ping.

<packet_size>

Enter the number of data bytes to be sent. The default is 100 bytes.

<#_of_packets>

Enter the number of the packets you want to send. The default is 10.

Resume

Description Resumes a started session.
User Level Restricted, Normal, Admin
Syntax **`resume 1|2|3|4`**

Options **1**|**2**|**3**|**4**

The number of the session you want to resume.

Screen

Description Switches from a command line based interface to Menu mode of operation.
User Level Restricted, Normal, Admin
Syntax **`screen`**

Set Termtype

Description Sets the type of terminal being used for the current session.
User Level Normal, Admin
Syntax **`set termtype wyse60|vt100|ansi|dumb|tvi925|ibm3151te|vt320|hp700|term1|term2|term3`**

Option **wyse60**|**vt100**|**ansi**|**dumb**|**tvi925**|**ibm3151te**|**vt320**|**hp700**|**term1**|**term2**|**term3**

Specifies the type of terminal connected to the line:

- **Dumb**
- **WYSE60**
- **VT100**
- **ANSI**
- **TVI925**
- **IBM3151TE**
- **VT320** (specifically supporting VT320-7)
- **HP700** (specifically supporting HP700/44)
- **Term1, Term2, Term3 (user defined terminals)**

Set User

Description Sets the current users settings.

User Level Normal, Admin

Syntax
```
set user . [hotkey-prefix <00-7f>] [language english|customlang]
 [password]
```

Options

hotkey-prefix

The prefix that a user types to control the current session. The default value is **hex 01**, which corresponds to **Ctrl-a** (**^a**) (hex value 02 would be Ctrl-b (^b), etc.):

- **^a number**—To switch from one session to another, press **^a** and then the required session number. For example, **^a 2** would switch you to session 2. Pressing **^a 0** will return you to the IOLAN Menu.
- **^a n**—Display the next session. The current session will remain active. The lowest numbered active session will be displayed.
- **^a p**—Display the previous session. The current session will remain active. The highest numbered active session will be displayed.
- **^a m**—To exit a session and return to the IOLAN. You will be returned to where you left off. The session will be left running.
- **^a l**—(Lowercase L) Locks the line until the user unlocks it. The user is prompted for a password (any password, excluding spaces) and locks the line. Next, the user must retype the password to unlock the line.
- **^r**—When you switch from a session back to the Menu, the screen may not be redrawn correctly. If this happens, use this command to redraw it properly. This is always **Ctrl R**, regardless of the **Hotkey Prefix**.

The **User Hotkey Prefix** value overrides the **Line Hotkey Prefix** value. You can use the **Hotkey Prefix** keys to lock a line only when the line **Lock** parameter is **On**.

language

You can specify whether a user will use **English** or **Customlang** as the language that appears in the Menu, CLI, or WebManager. The IOLAN supports one custom language that must be downloaded to the IOLAN; otherwise, **Customlang** defaults to English.

password

The password the user will need to enter to login to the IOLAN. This case-sensitive field accepts a maximum of 16 characters.

Set User Session

Description Sets the current users session settings.

User Level Normal, Admin

Syntax
```
set user . session 1|2|3|4|* [auto on|off] [type off|telnet]

set user . session 1|2|3|4|* telnet-options [host <config_host>]
 [port <TCP_port>] [termtype <terminal_name>] [line-mode on|off]
 [map-cr-crlf on|off] [local-echo on|off] [echo <00-7f>]
 [eof <00-7f>] [erase <00-7f>] [intr <00-7f>] [quit <00-7f>]
```

Options

session

Specifies the session number (or all, *) that you are configuring.

auto

Specify whether or not the session(s) will start automatically when the user logs into the IOLAN.

telnet-options

See Set ***Telnet-Client*** in the *IOLAN User's Guide*.

Show Line Users

Description Shows the users who are on the line.
User Level Admin
Syntax `show line users`

Syslog Console

Description Starts/stops or displays the status of the syslog console.
User Level Admin
Syntax `syslog console start|stop`

`syslog console status`

Options **start|stop**

Start or stop console logging. When console logging is enabled, syslog messages will be echoed to the current console. These messages are filtered based on the level set in the (remote) syslog options.

status

Displays the current console logging status (enabled or disabled).

Show Sessions

Description Shows available sessions.
User Level Restricted, Normal, Admin
Syntax `show sessions`

Show Termtype

Description Shows the terminal type for the current session.
User Level Admin
Syntax `show termtype`

Start

Description Starts a predefined session. Only inactive sessions are displayed.
User Level Restricted, Normal, Admin
Syntax `start 1|2|3|4`

Options **1|2|3|4**

The number of the session that you want to start.

Telnet

Description Starts a telnet session to the specified host/IP address.

User Level Normal, Admin

Syntax

```
telnet <hostname/IP_address> [<tcp_port>]
 [termtype <terminal_name>] [line-mode on|off]
 [map-cr-crlf on|off] [local-echo on|off]
 [echo <00-7f>] [eof <00-7f>] [erase <00-7f>] [intr <00-7f>]
 [quit <00-7f>] [escape <00-7f>]
```

Options <***hostname/IP_address***>

The name (resolvable via DNS) or IP address of the host you wish to connect to with Telnet.

<***tcp_port***>

The port number the target host is listening on for incoming connections. The default for Telnet is port number 23.

termtype

Type of terminal attached to this line; for example, ANSI or WYSE60.

line-mode

When **On**, keyboard input is not sent to the remote host until **Enter** is pressed, otherwise input is sent every time a key is pressed. Default is **Off**.

map-cr-crlf

Maps carriage returns (CR) to carriage return line feed (CRLF). The default value is **Off**.

local-echo

Toggles between local echo of entered characters and suppressing local echo. Local echo is used for normal processing, while suppressing the echo is convenient for entering text that should not be displayed on the screen, such as passwords. This parameter can only be used when **Line Mode** is **On**. Default is **Off**.

echo

Defines the echo character. When Line Mode is On, typing the echo character echoes the text locally and sends only completed lines to the host. This value is in hexadecimal with a default value of **5** (ASCII value **^E**).

eof

Defines the end-of-file character. When Line Mode is On, entering the eof character as the first character on a line sends the character to the remote host. This value is in hexadecimal with a default value of **4** (ASCII value **^D**).

erase

Defines the erase character. When Line Mode is Off, typing the erase character erases one character. This value is in hexadecimal with a default value of **8** (ASCII value **^H**).

intr

Defines the interrupt character. Typing the interrupt character interrupts the current process. This value is in hexadecimal with a default value of **3** (ASCII value **^C**).

quit

Defines the quit character. Typing the quit character closes and exits the current telnet session. This value is in hexadecimal with a default value of **1c** (ASCII value **FS**).

escape

Defines the escape character. Returns you to the command line mode. This value is in hexadecimal with a default value of **1d** (ASCII value **GS**).

Version

Description Displays firmware version and build.
User Level Normal, Admin
Syntax **`version`**

Configuring Users

Add User

Description Adds a user. For units with 4 or less serial ports, you can configure up to 4 users. For units with 8 or more serial ports, the maximum number of users which can be added is 48. This is in addition to the **`admin`** user.
User Level Admin
Syntax **`add user <`***`username`***`>`**

Option <***username***>

The name of the user, without spaces. When you finish the command and press **Enter**, you will be prompted to enter and re-enter a password for the user.

Delete User

Description Deletes a user.
User Level Admin
Syntax **`delete user <`***`config_user`***`>`**

Option <***config_user***>

You can see a list of users that can be deleted by typing **`delete user ?`**. You can not delete the **`admin`** user.

Set Default User

Description Configures the Default User. When adding a new user, the profile of the default user will be used to assign the values of the various parameters of the new user. (CLI and menu only).
User Level Admin
Syntax

```
set default user [host-ip None|<ip_address>|<config_host>]
 [hotkey-prefix <00-7f>] [idle-timer <0-4294967>]
 [language english|customlang]
 [level admin|normal|restricted|menu]
 [line-access readin|readwrite [on|off]|<line(s)> [0]]
 [port tcp-clear|telnet <tcp_port>]
 [service dsprompt|telnet|tcp-clear] [sess-timer <0-4294967>]
```

Options **host-ip**

For outbound User Services such as **Telnet**, this is the target host name or IP address. If no IP address is specified, the **Host IP** value in the **Default User** configuration will be used. The default is **0.0.0.0**. or None.

hotkey-prefix

The prefix that a user types to control the current session. The default value is **hex 01**, which corresponds to **Ctrl-a** (**^a**) (hex value 02 would be Ctrl-b (^b), etc.):

- **^a number**—To switch from one session to another, press **^a** and then the required session number. For example, **^a 2** would switch you to session 2. Pressing **^a 0** will return you to the IOLAN Menu.
- **^a n**—Display the next session. The current session will remain active. The lowest numbered active session will be displayed.
- **^a p**—Display the previous session. The current session will remain active. The highest numbered active session will be displayed.
- **^a m**—To exit a session and return to the IOLAN. You will be returned to where you left off. The session will be left running.
- **^a l**—(Lowercase L) Locks the line until the user unlocks it. The user is prompted for a password (any password, excluding spaces) and locks the line. Next, the user must retype the password to unlock the line.
- **^r**—When you switch from a session back to the Menu, the screen may not be redrawn correctly. If this happens, use this command to redraw it properly. This is always **Ctrl R**, regardless of the **Hotkey Prefix**.

The **User Hotkey Prefix** value overrides the **Line Hotkey Prefix** value. You can use the **Hotkey Prefix** keys to lock a line only when the line **Lock** parameter is **On**.

idle-timer

The amount of time, in seconds, that the **Idle Timer** will run. Use this timer to close a connection because of inactivity. When the **Idle Timer** expires, because there has been no exchange of data within the specified time, the IOLAN will close the connection. The default value is **0** (zero), meaning that the **Idle Timer** will not expire (the connection is open permanently). The maximum value is 4294967 seconds. The **User Idle Timer** will override the **Line Idle Timer**, with the exception of reverse Telnet sessions.

language

You can specify whether a user will use **English** or **Customlang** as the language that appears in the Menu, CLI, or WebManager. The IOLAN supports one custom language that must be downloaded to the IOLAN; otherwise, **Customlang** defaults to English.

level

The access that a user is allowed:

- **Admin**—The admin level user has total access to the IOLAN. You can create more than one admin user account but we recommend that you only have one. They can monitor and configure the IOLAN.
- **Normal**—The Normal level user has limited access to the IOLAN. Limited CLI commands and Menu access are available with the ability to configure the user's own configuration settings.
- **Restricted**—The Restricted level user can only access predefined sessions or access the Easy Port Access menu.
- **Menu**—The menu level user will only be able to access predefined session or access the Easy Port Access menu. The Easy Port Access allows the user to connect to the accessible line without disconnecting their initial connection to the IOLAN. Does not have any access to CLI commands.

line-access

Specifies the user access rights to each IOLAN device line. Options are:

- **Read/Write**—Users are given read and write access to the line.
- **Read In**—Users are given access to read only outbound data, data that is going from the IOLAN to the device.

The **on|off** option is only for 1-port models. You can disable line access in 2-port + models by specifying **0** (zero).

phone-number

The phone number the IOLAN will dial to callback the user (you must have set **Callback** to **On**). Enter the number without spaces.

port

When the **User Service** is **Telnet**, this is the target port number. The default value will change based on the type of **Service** selected; the most common known port numbers are used as the default values.

service

The type of service that the user will use.

sess-timer

The amount of time, in seconds, that the **Session Timer** will run. Use this timer to forcibly close a user's session (connection). When the **Session Timer** expires, the IOLAN will end the connection. The default value is **0** (zero), meaning that the session timer will not expire (the session is open permanently, or until the user logs out). The maximum value is 4294967 seconds. The **User Session Timer** will override the **Line Session Timer**, with the exception of reverse Telnet sessions.

Set User

Description Sets users settings. Normal-level users can configure only their own settings. Admin-level users can configure any users settings, including their own (with the exception of their User Level, which must stay at Admin).

User Level Normal, Admin

Syntax

```
set user . [hotkey-prefix <00-7f>] [language english|customlang]
 [password]
```

Admin

```
set user .|<username>|*
 [host-ip None|<ip_address>|<config_host>]
 [hotkey-prefix <00-7f>] [idle-timer <0-4294967>]
 [language english|customlang]
 [level admin|normal|restricted|menu] [password]
 [line-access readin|readwrite [on|off]|<line(s)> [0]]
 [service dsprompt|telnet|tcp-clear] [sess-timer <0-4294967>]
 [port tcp-clear|telnet <tcp_port>]
```

Options

host-ip

For outbound User Services such as **Telnet**, this is the target host name or IP address. If no IP address is specified, the **Host IP** value in the **Default User** configuration will be used. The default is **0.0.0.0**. or None.

hotkey-prefix

The prefix that a user types to control the current session. The default value is **hex 01**, which corresponds to **Ctrl-a** (**^a**) (hex value 02 would be Ctrl-b (^b), etc.):

- **^a number**—To switch from one session to another, press **^a** and then the required session number. For example, **^a 2** would switch you to session 2. Pressing **^a 0** will return you to the IOLAN Menu.
- **^a n**—Display the next session. The current session will remain active. The lowest numbered active session will be displayed.
- **^a p**—Display the previous session. The current session will remain active. The highest numbered active session will be displayed.
- **^a m**—To exit a session and return to the IOLAN. You will be returned to where you left off. The session will be left running.
- **^a l**—(Lowercase L) Locks the line until the user unlocks it. The user is prompted for a password (any password, excluding spaces) and locks the line. Next, the user must retype the password to unlock the line.
- **^r**—When you switch from a session back to the Menu, the screen may not be redrawn correctly. If this happens, use this command to redraw it properly. This is always **Ctrl R**, regardless of the **Hotkey Prefix**.

The **User Hotkey Prefix** value overrides the **Line Hotkey Prefix** value. You can use the **Hotkey Prefix** keys to lock a line only when the line **Lock** parameter is **On**.

idle-timer

The amount of time, in seconds, that the **Idle Timer** will run. Use this timer to close a connection because of inactivity. When the **Idle Timer** expires, because there has been no exchange of data within the specified time, the IOLAN will close the connection. The default value is **0** (zero), meaning that the **Idle Timer** will not expire (the connection is open permanently). The maximum value is 4294967 seconds. The **User Idle Timer** will override the **Line Idle Timer**, with the exception of reverse Telnet sessions.

language

You can specify whether a user will use **English** or **Customlang** as the language that appears in the Menu, CLI, or WebManager. The IOLAN supports one custom language that must be downloaded to the IOLAN; otherwise, **Customlang** defaults to English.

level

The access that a user is allowed:

- **Admin**—The admin level user has total access to the IOLAN. You can create more than one admin user account but we recommend that you only have one. They can monitor and configure the IOLAN.
- **Normal**—The Normal level user has limited access to the IOLAN. Limited CLI commands and Menu access are available with the ability to configure the user's own configuration settings.
- **Restricted**—The Restricted level user can only access predefined sessions or access the Easy Port Access menu.
- **Menu**—The menu level user will only be able to access predefined session or access the Easy Port Access menu. The Easy Port Access allows the user to connect to the accessible line without disconnecting their initial connection to the IOLAN. Does not have any access to CLI commands.

password

The password the user will need to enter to login to the IOLAN. This case-sensitive field accepts a maximum of 16 characters.

line-access

Specifies the user access rights to each IOLAN device line. Options are:

- **Read/Write**—Users are given read and write access to the line.
- **Read In**—Users are given access to read only outbound data, data that is going from the IOLAN to the device.

The **`on|off`** option is only for 1-port models. You can disable line access in 2-port + models by specifying **`0`** (zero).

service

The type of service that the user will use.

sess-timer

The amount of time, in seconds, that the **Session Timer** will run. Use this timer to forcibly close a user's session (connection). When the **Session Timer** expires, the IOLAN will end the connection. The default value is **`0`** (zero), meaning that the session timer will not expire (the session is open permanently, or until the user logs out). The maximum value is 4294967 seconds. The **User Session Timer** will override the **Line Session Timer**, with the exception of reverse Telnet sessions.

port

When the **User Service** is **Telnet**, this is the target port number. The default value will change based on the type of **Service** selected; the most common known port numbers are used as the default values.

Set User Session

Description Configures a users session settings. See ***Set User Session*** on page 29 for the options descriptions.

User Level Admin

Syntax

```
set user .|<username> session 1|2|3|4|* [auto on|off]
 [type off|telnet]

set user .|<username> session 1|2|3|4|* telnet-options
 [host <config_host>] [port <TCP_port>]
 [termtype <terminal_name>] [line-mode on|off]
 [map-cr-crlf on|off] [local-echo on|off]
 [echo <00-7f>] [eof <00-7f>] [erase <00-7f>] [intr <00-7f>]
 [quit <00-7f>]
```

Show Default User

Description Shows the Default Users settings. When adding a new user, the profile of the default user will be used to assign the values of the parameters to the new user.

User Level Admin

Syntax

```
show default user
```

Show User

Description Shows user configuration settings.

User Level Admin

Syntax

```
show user <configured_user>|.
```

Options <***configured_user***>

Show the settings for the specified user.

.

Show the settings for the current user.

Line Commands

This chapter defines all the CLI commands associated with configuring the IOLAN's line parameters.

1-Port vs. 2-Port Line Commands

If you are using a DS1 IOLAN, the admin user does not have the option of using the number or all (*) options in the line commands, as there is only one line. In an TS2 IOLAN, the admin user must specify **.** (current line), <***number***> (line number), or ***** (sets value for all lines) when configuring lines.

Line Commands

Set Line

Description Configures line parameters.

User Level Admin

Syntax

```
set line .|<number>|* [data-bits 5|6|7|8]
 [connection-method dial-in|dial-out|dial-in-out|direct-connect]
 [idle-timer <0-4294967>] [line-name <name>]
 [modem-name <config_modem>] [pages 1|2|3|4|5|6|7]
 [parity none|even|odd|mark|space] [phone-number <phone_number>]
 [rev-sess-security on|off] [sess-timer <0-4294967>]
 [stop-bits 1|2|1.5] [termtype wyse60|vt100|ansi|dumb|tvi925|
   ibm3151te|vt320|hp700|term1|term2|term3]
```

Admin

```
set line ... [break on|off] [flowin on|off] [flowout on|off]
 [hotkey-prefix <00-7f>] [data-logging on|off]
 [initiate-connection any-char|specific-char <hex_value>]
 [initial cli|menu] [keepalive on|off] [lock on|off]
 [mode enabled|disabled] [motd on|off] [reset on|off]
 [dial-timeout <number>] [dial-retries <number>]
 [single-character on|off] [user <name>] [nouser]
 [internet-address <IPv4_address>] [user <config_user>]
```

Options **break**

Specifies how a break is interpreted:

- **off**—The IOLAN ignores the break key completely and it is not passed through to the host. This is the default setting.
- **local**—The IOLAN deals with the break locally. If the user is in a session, the break key has the same effect as a hot key.
- **remote**—When the break key is pressed, the IOLAN translates this into a telnet break signal which it sends to the host machine.
- **break-interrupt**—On some systems such as SunOS, XENIX, and AIX, a break received from the peripheral is not passed to the client properly. If the client wishes to make the break act like an interrupt key (for example, when the stty options **`-ignbrk`** and **`brkintr`** are set).

connection-method

Determines how a modem will work on the line. Select from the following options:

- **Direct Connect**—Indicates that there is not a modem on the line. This is the default.
- **Dial In**—Specify this option when a user is remote and will be dialing in via modem or ISDN TA.
- **Dial Out**—Specify this option when a modem is attached to the serial port and is being used to dial out.
- **Dial In/Out**—Specify this option when the IOLAN is being used as a router (depending on which end of the link your IOLAN is situated and how you want to initiate the communication).

data-bits

Specifies the number of bits in a byte. The default is **8**.

dial-timeout

The number of seconds the IOLAN will wait to establish a connection to a remote modem. The default value is **45** seconds.

dial-retries

The number of times the IOLAN will attempt to establish a connection with a remote modem. The default value is **2**.

flowin

Determines if input flow control is to be used. Default is **On**. This is active only when **Line Flow Control** is set to **Soft**, **Hard**, or **Both**.

flowout

Determines if output flow control is to be used. Default is **On**. This is active only when **Line Flow Control** is set to **Soft**, **Hard**, or **Both**.

hotkey-prefix

The prefix that a user types to lock a line or redraw the Menu. The default value is **hex 01**, which corresponds to **Ctrl-a** (**^a**) (hex value 02 would be Ctrl-b (^b), etc.):

- **^a l**—(Lowercase L) Locks the line until the user unlocks it. The user is prompted for a password (any password, excluding spaces) and locks the line. Next, the user must retype the password to unlock the line.
- **^r**—When you switch from a session back to the Menu, the screen may not be redrawn correctly. If this happens, use this command to redraw it properly.

You can use the **Hotkey Prefix** key to lock a line only when the **Line Lock** parameter is **On**.

data-loggin

When enabled, serial data will be buffered if the TCP connection is lost. When the TCP connection is re-established, the buffered serial data will be sent to its destination (this option is not available when **Monitor DSR**, **Monitor DCD**, or **Multihost** is enabled).

The data buffer is 4K for desktop models and 32K for rack mount models. If the data buffer is filled, incoming serial data will overwrite the oldest data.

The default is **`off`**.

idle-timer

Enter a time period, in seconds, for which the **Idle Timer** will run. Use this timer to close a connection because of inactivity. When the **Idle Timer** expires, the IOLAN will end the connection. The maximum value is 4294967 seconds (about 49 days). The default value of **0** (zero) means the **Idle Timer** will not expire, so the connection is permanently open.

initial

Specifies the initial interface a user navigates when logging into the line; either the **Menu** or a prompt for the **CLI**. The default is **CLI**.

initiate-connection

Initiates a Telnet connection to the specified host when any data is received by the serial port or when the specified character is received by the serial port (direct Telnet only).

internet-address

Used with reverse sessions, users can access serial devices connected to the IOLAN by the specified Internet Address (or host name that can be resolved by a DNS). You must reboot the IOLAN for the **Internet Address** to take affect (the kill line option does not apply to this parameter).

keepalive

Enables a per-connection TCP keepalive feature. This feature when enabled, periodically checks if the TCP connection is still active. The period is configurable on a global basis for the IOLAN server. If the connection is no longer active, the IOLAN will cleanly terminate the session at its end.

Applications using this feature need to be aware that there might be some considerable delay between a network disconnection and the port being available for the next connection attempt; this is to allow any data sent on prior connections to be transmitted out of the serial port buffer. Application network retry logic needs to accommodate this feature.

line-name

Provide a name for the line so it can be easily identified.

lock

When enabled, the user can lock his terminal with a password using the **Hotkey Prefix** (default Ctrl-a) **^a l** (lowercase L). The IOLAN prompts the user for a password and a confirmation.

mode

Enables/disables the line (available only on the TS2 model). The default is enabled.

modem-name

The name of the predefined modem that is used on this line.

motd

Enables/disables the message of the day on the line.

nouser

Blanks out the User parameter, in case you want to change a dedicated user line to an undedicated line.

pages

For **DSLogin** line service, this is the number of video pages the terminal supports. Valid values are 1-7. The default is **5** pages.

parity

Specifies if you are using **Even**, **Odd**, or **No parity** on the line. If you want to force a parity type, you can specify **Mark** for 1or **Space** for 0.

phone-number

The phone number to use when **Connection Method** is set to **Dial Out**.

reset

Resets the terminal type connected to the line when a user logs out.

rev-sess-security

Enables/disables login/password authentication, locally or externally, on reverse Telnet connections. The default is **Off**.

sess-timer

Enter a time, in seconds, for which the **Session Timer** will run. Use this timer to forcibly close the session (connection). When the **Session Timer** expires, the IOLAN will end the connection. The default value is **0** seconds so the port will never timeout. The maximum value is 4294967 seconds (about 49 days).

stop-bits

Specifies the number of stop bits that follow a byte.

term-type

Specifies the type of terminal connected to the line:

- **Dumb**
- **WYSE60**
- **VT100**
- **ANSI**
- **TVI925**
- **IBM3151TE**
- **VT320** (specifically supporting VT320-7)
- **HP700** (specifically supporting HP700/44)
- **Term1, Term2, Term3 (user defined terminals)**

user

For **DSLogin** line service, makes this a line that is dedicated to the specified user. Only this user will be able to log in on this line and they won’t need to enter their login name - just their password.

Set Line Interface

Description Configures line interface (hardware) parameters.

User Level Admin

Syntax

```
set line .|<number>|* interface eia-232 [monitor-dcd on|off]
 [monitor-dsr on|off] [flow none|soft|hard|both]
 [speed 50|75|110|134|150|200|300|600|1200|1800|2400|4800|9600|
   19200|38400|57600|115200|230400|28800|custom <baud_rate>]

set line interface eia-422 [flow none|soft|hard|both]
 [speed 50|75|110|134|150|200|300|600|1200|1800|2400|4800|
   9600|19200|38400|57600|115200|230400|28800|custom <baud_rate>]

set line interface eia-485 [tx-driver-control auto|rts]
 [flow none|soft]
 [duplex full|duplex half [echo-suppression on|off]]
 [speed 50|75|110|134|150|200|300|600|1200|1800|2400|4800|
   9600|19200|38400|57600|115200|230400|28800|custom <baud_rate>]
```

Options **eia-232** | **eia422** | **485**

Specifies the type of line that is being used with the IOLAN. Select either **EIA-232**, **EIA-422**, or **EIA-485** (TS2 supports only EIA-232).

monitor-dcd

Specifies whether the RS-232 signal DCD (Data Carrier Detect) should be monitored. This is used with modems or any other device that sends a DCD signal. When it is monitored and the IOLAN detects a DCD signal, the line service is started. Default is **Off**. If both **Monitor DCD** and **Monitor DSR** are enabled, both signals must be detected before the line service is started.

monitor-dsr

Specifies whether the RS-232 signal DSR (data set ready) should be monitored. This is used with modems or any device that sends a DSR signal. When it is monitored and the IOLAN detects a DSR signal, the line service is started. Default is **Off**. If both **Monitor DCD** and **Monitor DSR** are enabled, both signals must be detected before the line service is started.

flow

Defines whether the data flow is handled by the software (**Soft**), hardware (**Hard**), **Both**, or **None**.

tx-driver-control

Used with a **EIA-485** serial interface, if your application supports **RTS** (Request To Send), select this option. Otherwise, select **Auto**. Default is **Auto**.

duplex

Specify whether the line is **Full Duplex** (communication both ways at the same time) or **Half Duplex** (communication in one direction at a time).

echo-suppression

This parameter applies only to **EIA-485 Half Duplex** mode. All characters will be echoed to the user and transmitted across the serial ports. Some EIA-485 applications require local echo to be enabled in order to monitor the loopback data to determine that line contention has occurred. If your application cannot handle loopback data, echo suppression should be **On**. The default is echo suppression **Off**.

speed

Specifies the baud rate of the line; keep in mind that speed is affected by the length of the cable. You can also specify a custom baud rate; valid values are 50 - 1843200.

Set Line Service

Description Sets the service for the line. For services that need further configuration, see ***Line Service Commands*** on page 47 to find the Line Service that you want to configure.

User Level Admin

Syntax

```
set line .|<number>|* service bidir <config_host> <server_port>
 <host_port>

set line .|<number>|* service direct raw <config_host>
 <host_port>

set line .|<number>|* service silent raw <config_host>
 <host_port>
 [multihost all|backup <config_backup_host> <host_port>|none]

set line .|<number>|* service direct|silent telnet <config_host>
 [<host_port>]

set line .|<number>|* service reverse raw [multihost
 on|off]|telnet <server_port>

set line .|<number>|* service client-tunnel <config_host>
 <host_port>

set line .|<number>|* service server-tunnel <server_port>

set line .|<number>|* service dslogin|udp|vmodem|modbus-master|
 modbus-slave|custom-app

set line .|<number>|* service trueport client-initiated off
 <config_host> <host_port> [signal-active on|off]
 [multihost all|backup <config_backup_host> <host_port>|none]

set line .|<number>|* service trueport client-initiated on
 <server_port> [signal-active on|off] [multihost on|off]
```

Options

bidir

This service allows the IOLAN to listen for incoming TCP connection and if needed, initiate a TCP connection.

<config_host>

The name of the target host. The host must exist in the IOLAN host table.

<server_port>

The IOLAN port number.

<host_port>

The port number the target host is listening on for incoming connections.

direct

Direct connections bypass the IOLAN, enabling the user to log straight into a specific host. A direct connection is recommended where a user logging in to the IOLAN is not required. It is also recommended where multiple sessions are not a requirement. The message **`Press return to continue`** is displayed on the users screen. The user must press a key to display the host login prompt. The message is redisplayed on logout.

silent

Silent connections are the same as direct connections, except they are permanently established. The host login prompt is displayed on the screen. Logging out redisplays this prompt. Silent connections, unlike direct connections, however, make permanent use of pseudo tty resources and therefore consume host resources even when not in use.

raw

Creates a connection where no authentication takes place and data is passed unchanged.

telnet

Sets the line for a telnet connection.

reverse

Enables a TCP/IP host to establish a login connection on an external machine attached to a port. For example, to access machines like protocol converters, statistical multiplexors, or machines like routers, firewalls, servers, etc.

dslogin

The default connection. The IOLAN displays a login on that line. For example, **DSLogin** is used when a System Administrator configures the IOLAN or users starts a session(s) from the IOLAN to hosts.

udp

Sets the line to listen for and/or send UDP data.

vmodem

The IOLAN port behaves as if it were a modem to the attached device.

client-tunnel

Sets the line for a client tunnel connection.

server-tunnel

Sets the line for a server tunnel connection.

modbus-master

Sets the line to act as a Modbus master.

custom-app

Sets the line to use the custom application created with the SDK.

trueport

Sets the line to communicate with the TruePort utility. You must install the TruePort utility on the host machine.

client-initiated

When this option is turned on, the IOLAN will wait for a connection from the TruePort host (see the TruePort documentation for information on how to set up this feature on the TruePort host). When this option is turned off, the IOLAN will initiate the connection to the TruePort host. The default is off.

signal-active

This option has the following impact based on the state of the TruePort connection:

- **TruePort Lite Mode**—When enabled, the EIA-232 signals remain active before, during, and after the TruePort connection is established. When disabled, the EIA-232 signals remain inactive when there is no TruePort connection and active when there is a TruePort connection.
- **TruePort Full Mode**—When enabled, the EIA-232 signals remain active before and after the TruePort connection and the TruePort client will control the state of the signals during the established TruePort connection. When disabled, the EIA-232 signals remain inactive before and after the TruePort connection and the TruePort client will control the state of the signals during the established TruePort connection.

Default: Enabled

multihost

Used for connections coming from the network to the serial port for TruePort or Raw services, allows multiple hosts to connect to the serial device.

multihost all|backup <*config_backup_host*> <*tcp_port*>|none

Used for connections going from the serial port to the network for TruePort or Silent Raw services, allows the serial device to communicate to either all the hosts in the multihost list or a primary/backup host schema (see ***Configuring Multiple Hosts*** in the *IOLAN User's Guide* for a more detailed explanation).

Set Modem

Description Sets the modem initialization string for a modem defined in the modem table. If you wish to add a new modem, use the **`add modem`** command.

User Level Admin

Syntax **`set modem <`***`modem_name`***`> <`***`init_string`***`>`**

Options <***modem_name***>

Predefined modem name.

<***init_string***>

Specify the initialization string for the modem. This can be up to 60 characters long, but cannot include spaces.

Set Termtype

Description Sets the terminal type for the current terminal session. term1, term2, and term3 refer to the user-uploadable custom terminal definitions. If these are not present, the default is wyse60.

User Level Restricted, Normal, Admin

Syntax **`set termtype [wyse60|vt100|ansi|dumb|tvi925|ibm3151te|vt320|hp700|term1|term2|term3]`**

Option **wyse60|vt100|ansi|dumb|tvi925|ibm3151te|vt320|hp700|term1|term2|term3**

Specifies the type of terminal connected to the line:

- **Dumb**
- **WYSE60**
- **VT100**
- **ANSI**
- **TVI925**
- **IBM3151TE**
- **VT320** (specifically supporting VT320-7)
- **HP700** (specifically supporting HP700/44)
- **Term1, Term2, Term3 (user defined terminals)**

Show Line

Description Shows the line settings/information.

User Level Admin

Syntax **`show line`**

Line Service Commands

Set Custom-App

Description You can create a custom application that can run on a specific serial line in IOLAN using the Perle SDK.

User Level Admin

Syntax **`set custom-app line .|<`*`number`*`>|* program-command-line <`*`command`*`>`**

Options **program-command-line**

The name of the SDK program executable that has been already been downloaded to the IOLAN, plus any parameters you want to pass to the program. Maximum of 80 characters. Use the **`shell`** CLI command as described in the *SDK Programmer's Guide* to manage the files that you have downloaded to the IOLAN. For example, using sample outraw program, you would type:

`outraw 192.168.2.1:10001 Acct:10001`

if you were starting the application on a line.

Set Telnet-Client

Description Configures the Telnet parameters for the specified line. When the IOLAN initiates a Telnet connection to a host, it is acting as a Telnet client.

User Level Normal, Admin

Syntax

```
set telnet-client line .|<number>|* [termtype <terminal_name>]
 [line-mode on|off] [map-cr-crlf on|off] [local-echo on|off]
 [echo <00-7f>] [eof <00-7f>] [erase <00-7f>] [intr <00-7f>]
 [quit <00-7f>] [escape <00-7f]
```

Options

termtype

Type of terminal attached to this line; for example, ANSI or WYSE60.

line-mode

When **On**, keyboard input is not sent to the remote host until **Enter** is pressed, otherwise input is sent every time a key is pressed. Default is **Off**.

map-cr-crlf

Maps carriage returns (CR) to carriage return line feed (CRLF). The default value is **Off**.

local-echo

Toggles between local echo of entered characters and suppressing local echo. Local echo is used for normal processing, while suppressing the echo is convenient for entering text that should not be displayed on the screen, such as passwords. This parameter can only be used when **Line Mode** is **On**. Default is **Off**.

echo

Defines the echo character. When Line Mode is On, typing the echo character echoes the text locally and sends only completed lines to the host. This value is in hexadecimal with a default value of **5** (ASCII value **^E**).

eof

Defines the end-of-file character. When Line Mode is On, entering the eof character as the first character on a line sends the character to the remote host. This value is in hexadecimal with a default value of **4** (ASCII value **^D**).

erase

Defines the erase character. When Line Mode is Off, typing the erase character erases one character. This value is in hexadecimal with a default value of **8** (ASCII value **^H**).

intr

Defines the interrupt character. Typing the interrupt character interrupts the current process. This value is in hexadecimal with a default value of **3** (ASCII value **^C**).

quit

Defines the quit character. Typing the quit character closes and exits the current telnet session. This value is in hexadecimal with a default value of **1c** (ASCII value **FS**).

escape

Defines the escape character. Returns you to the command line mode. This value is in hexadecimal with a default value of **1d** (ASCII value **GS**).

Set UDP

Description Configures the UDP settings for the serial line.

User Level Normal, Admin

Syntax

```
set udp line .|<number>|* entry 1|2|3|4
 both auto-learn|specific <UDP_port> [<start_IP_address>]
 [<end_IP_address>]

set udp line .|<number>|* entry 1|2|3|4 in
 any-port|auto-learn|specific <UDP_port> [<start_IP_address>]
 [<end_IP_address>]

set udp line .|<number>|* entry 1|2|3|4 out <UDP_port>
 [<start_IP_address>] [<end_IP_address>]

set udp line .|<number>|* entry 1|2|3|4 none
```

Options

entry 1|2|3|4

Selects which of the 4 available entries we wish to define/modify. For each entry the user can specify a different IP address range, UDP port and direction of data flow.

both|in|out|none

The direction in which information is received or relayed:

- **None**—UDP service not enabled.
- **In**—LAN to serial.
- **Out**—Serial to LAN.
- **Both**—Messages are relayed both directions.

auto-learn

The IOLAN will only listen to the first port that it receives a UDP packet from. Applicable when set to **In** or **Both**.

any-port

The IOLAN will receive messages from any port sending UDP packets. Applicable when set to **In**.

specific

The port that the IOLAN will use to relay messages to servers/hosts or the port from which the IOLANN will receive messages to be forwarded to the serial port. This option works with any setting except **None**. The IOLAN will listen for UDP packets on the port configured by the **DS Port** parameter.

<outbound_port>

The port that the IOLAN will use to relay messages to servers/hosts. The IOLAN will listen for UDP packets on the port configured by the **DS Port** parameter.

<start_ip_address>

The first host IP address in the range of IP addresses (for IPV4 or IPV6) that the IOLAN will listen for messages from and/or send messages to.

<end_ip_address>

The last host IP address in the range of IP addresses (for IPV4, not required for IPV6) that the IOLAN will listen for messages from and/or send messages to.

Set Vmodem

Description Configures the vmodem settings for the serial line.

User Level Admin

Syntax

```
set vmodem line .|<number>|* [echo on|off]
 [failure-string <string>] [host <config_host>]
 [init-string <string>] [mode auto|manual]
 [port <TCP_port>|0] [respons-delay <time_ms>]
 [signals dcd always-high|follow-connection]
 [signals dtr always-high|represent-dcd|represent-ri]
 [signals rts always-high|represent-dcd|represent-ri]
 [style numeric|verbose] [success-string <string>]
 [suppress on|off]
```

Options

echo

When enabled, echoes back characters that are typed in (equivalent to ATE0/ATE1 commands). Disabled by default.

failure-string

String that is sent to the serial device when a connection fails. If no string is entered, then the string **`NO CARRIER`** will be sent.

host

The target host name.

init-string

You can specify additional vmodem commands that will affect how vmodem starts. The following commands are supported: ATQn, ATVn, ATEn, ATS0, AT&Z1, AT&Sn, AT&Rn, AT&Cn, AT&F, ATS2, ATS12, and ATDS1.

See ***VModem Initialisation Commands*** in the *IOLAN User's Guide* for a more detailed explanation of the support initialization commands.

mode

Auto mode establishes the connection when the line becomes active. You must supply the AT command or phone number that will start the connection; see ***Set Vmodem-Phone*** in the *IOLAN User's Guide* for the command parameters to set the AT command or phone number.

port

The amount of time, in milliseconds, before an AT response is sent to the requesting device. The default is 250 ms.

response-delay

The port number the target host is listening on for messages.

signals dcd

Controls the state of the DCD signal.

`always-high` = DCD signal will always stay high.

`follow-connection` = DCD signal will be high when an end to end connection is established and low when it is not.

Since the IOLAN does not have a physical DCD pin, you need to re-map the DTR or RTS signal to DCD to have the signal present. (see next option).

signals dtr

You can specify how the DTR signal pin acts during your modem application connection, as itself (DTR), as DCD, or as RI.

signals rts

You can specify how the RTS signal pin acts during your modem application connection, as itself (RTS), as DCD, or as RI.

style

One of the following:

- **Verbose**—Return codes (strings) are sent to the connected device.
- **Numeric**—The following characters can be sent to the connected device:

  0 OK

  1 CONNECTED

  2 RING

  3 NO CARRIER

  4 ERROR

  6 ITERFACE DOWN

  7 CONNECTION REFUSED

  8 NO LISTNER

success-string

String that is sent to the serial device when a connection succeeds. If no string is entered, then the string **`CONNECT`** will be sent with the connecting speed, for example **`CONNECT 9600`**.

suppress

If set to **No**, connection success/failure indication strings are sent to the connected device, otherwise these indications are suppressed.

Set Vmodem-Phone

Description This command associates a phone number with an IP address and TCP port. This enables the existing modem application to issue a dial command with a phone number. The phone number will be search in this table and if an exact match is found, the associated IP address and TCP port will be used to establish the connection. This is a universal command, meaning that all VModem lines will access to the entries defined here. 1-port models support up to 4 entries, all other desktop models support up to 8 entries, and rack-mount models support up to 48 entries.

User Level Admin

Syntax

```
set vmodem-phone entry <number> phone-number <string>
 <IP_address> <TCP_port>

set vmodem-phone entry <number> delete
```

Options

entry

Specify the entry number in the vmodem phone number table.

phone-number

Specify the phone number that your application uses to connect to remote location. Enter the number exactly as it is issued by your application.

<IP_address>

Specify the IP address of the remote host that is receiving the vmodem connection.

<TCP_port>

Specify the TCP port that the remote host is lisening on for the vmodem connection.

delete

Deletes the specified entry from the phone number table.

Set Modbus-Slave Line

Description Sets the Modbus slave parameters for the line.
User Level Admin
Syntax

```
set modbus-slave line .|<number>|* [crlf on|off]
 [protocol rtu|ascii] [uid-range <uid_range>]
```

Options

crlf

When **Modbus/ASCII** is selected, adds a CR/LF to the end of the transmission; most Modbus devices require this option. The default is **On**.

protocol

Specify the protocol that is used between the Modbus Master(s) and Modbus Slave(s), either RTU or ASCII.

uid-range

You can specify a range of UIDs (1-247), in addition to individual UIDs. The format is comma delimited; for example, 2-35, 50, 100-103.

Set Modbus-Master Line

Description Sets the Modbus master parameters for the line.
User Level Admin
Syntax

```
set modbus-master line .|<number>|* [crlf on|off]
 [protocol rtu|ascii]
 [[entry <number> [port <port>] [protocol udp|tcp]
  [range-mode gateway|host] [slave-ip <IP_address>]
  [uid-range <start_uid> <end_uid>]]
```

Options

crlf

When **Modbus/ASCII** is selected, adds a CR/LF to the end of the transmission; most Modbus devices require this option. The default is **On**.

protocol

Specify the protocol that is used between the Modbus Master(s) and Modbus Slave(s), either RTU or ASCII.

entry

You can specify up to 16 Modbus Slave Remote IP Mapping entries (the UIDs must not overlap).

port

The destination port of the remote Modbus TCP Slave that the IOLAN will connect to.

protocol

Specify the protocol that is used between the Modbus Master and Modbus Slave(s), either TCP or UDP.

range-mode

If you specify **Host**, the IP address is used for the first UID specified in the range. The last octect in the IPv4 address is then incremented for subsequent UID's in that range. The **Host** option is not applicable for IPv6 addresses. If you specify **Gateway**, the Modbus Master Gateway will use the same IP address when connecting to all the remote Modbus slaves in the specified UID range.

slave-ip

The IP address of the TCP/Ethernet Modbus Slave.

uid-range

When **Range Mode** is **Host** and you have sequential Modbus Slave IP addresses (for example, 10.10.10.1, 10.10.10.2, 10.10.10.3, etc.), you can specify a UID range and the IOLAN will automatically increment the last digit of the configured IP address. Therefore, you can specify a UID range of 1-100, and the IOLAN will route Master Modbus messages to all Modbus Slaves with IP addresses of 10.10.10.1 - 10.10.10.100.

Set Multihost Line

Description Configures multiple hosts or a primary/backup host schema for Silent Raw, Reverse Raw, or Client-Initiated TruePort service types (multihost must be enabled by the line service type for this to take effect, see ***Set Line Service*** on page 44 for the command to enable multihost).

User Level Admin

Syntax

```
set multihost line <number> entry <number> host <host> <TCP_port>

set multihost line <number> entry <number> delete
```

Options

entry

You can specify up to 49 hosts in the multihost table.

host <*host*>

Specify the preconfigured host that will be in the multihost list.

<*TCP_port*>

Specify the TCP port that the IOLAN will use to communicate to the **Host**.

delete

Deletes the specified entry from the multihost table.

Set Line Initiate-Connection

Description Determines how the connection is initiated for Direct Telnet.

User Level Admin

Syntax

```
set line <number>|* initiate-connection
 any-char|specific-char <hex>
```

Options

any-char

Initiates a connection to the specified host when any data is received by the serial port.

specific-char <*hex*>

Initiates a connection to the specified host only when the specified character is received by the serial port.

Show Custom-App

Description Shows the custom application line settings.
User Level Admin
Syntax **`show custom-app line .|<`***`number`***`>|*`**

Show Interface

Description Shows the network interface information.
User Level Admin
Syntax **`show interface [brief|ethernet]`**

Show Modbus

Description Shows the Modbus settings for a line.
User Level Admin
Syntax **`show modbus master|slave <`***`number`***`>`**

Show Telnet-Client

Description Shows the telnet client settings for a line.
User Level Admin
Syntax **`show telnet-client`**

Show UDP

Description Shows the UDP settings for the line.
User Level Admin
Syntax **`show udp`**

Show Vmodem

Description Show the vmodem settings for the line.
User Level Admin
Syntax **`show vmodem`**

Show Vmodem-Phone

Description Show the vmodem-phone entries.
User Level Admin
Syntax **`show vmodem-phone`**

Modem Commands

Add Modem

Description Adds a modem.
User Level Admin
Syntax **`add modem <`***`modem_name`***`> <`***`initialization_string`***`>`**

Options <***modem_name***>

The name of the modem. Do not use spaces.

<***initialization_string***>

The initialisation string of the modem; see your modem's documentation.

Delete Modem

Description Deletes a modem.
User Level Admin
Syntax **`delete modem <`***`config_modem_name`***`>`**

Option <***config_modem_name***>

You can see a the list of modems that can be deleted by typing **`delete modem ?`**.

Show Modems

Description Shows the IOLAN modem table.
User Level Normal, Admin
Syntax **`show modems`**

Packet Forwarding Commands

Set Packet-Forwarding Line

Description The Packet Forwarding feature allows you to control how the data coming from a serial device is packetized before forwarding the packet onto the LAN network. This command configures packet forwarding options for serial devices attached to the serial line. The command is broken up into logical flows that can be configured; if you configure both the packet options and the frame definition options, the frame definition options will take precedence. If any of the packet options that are configured are met, the packet transmission is triggered.

User Level Admin

Syntax

```
set packet-forwarding line <number>|* mode minimize-latency

set packet-forwarding line <number>|* mode
 optimize-network-throughput

set packet-forwarding line <number>|* mode
 prevent-message-fragmentation delay-between-messages <0-65535>

set packet-forwarding line <number>|*
 mode custom-on-specific-events [enable-end-trigger1 on|off]
 [enable-end-trigger2 on|off] [end-trigger1 <0x0-FF>]
 [end-trigger2 <0x0-FF>] [force-transmit-timer <number>]
 [forwarding-rule trigger1|trigger+1|trigger+2|strip-trigger]
 [idle-timer <number>] [packet-size <number>]

set packet-forwarding line <number>|*
 mode custom-on-fram-definition [enable-eof1 on|off]
 [enable-eof2 on|off] [enable-sof1 on|off] [enable-sof2 on|off]
 [eof1 <0x0-FF>] [eof2 <0x0-FF>]
 [forwarding-rule trigger|trigger+1|trigger+2|strip-trigger]
 [sof1 <0x0-FF>] [sof2 <0x0-FF>] [start-frame-transmit on|off]
```

Options

minimize-latency

This option ensures that any data received on the serial port will immediately be forwarded to the LAN. Select this option for timing-sensitive applications.

optimize-network-throughput

This option provides optimal network usage while ensuring that the application performance is not compromised. Select this option when you want to minimize overall packet count, such as when the connection is over a WAN.

prevent-message-fragmentation

This option detects the message, packet, or data blocking characteristics of the serial data and preserves it throughout the communication. Select this option for message-based applications or serial devices that are sensitive to inter-character delays within these messages.

delay-between-messages

The minimum time, in milliseconds, between messages that must pass before the data is forwarded by the IOLAN. The range is 0-65535. The default is 250 ms.

custom-on-specific-events

This section allows you to set a variety of packet definition options. The first criteria that is met causes the packet to be transmitted. For example, if you set a **Force Transmit Timer** of **1000** ms and a **Packet Size** of **100** bytes, whichever criteria is met first is what will cause the packet to be transmitted.

custom-on-frame-definition

This section allows you to control the frame that is transmitted by defining the start and end of frame character(s). If the internal buffer (1024 bytes) is full before the EOF character(s) are received, the packet will be transmitted and the EOF character(s) search will continue. The default frame definition is SOF=00 and EOF=00.

enable-end-trigger1

Enable or disable the end trigger1 hex character.

enable-end-trigger2

Enable or disable the end trigger2 hex character.

enable-end-eof1

Enable or disable the eof1 (end of frame) hex character.

enable-end-eof2

Enable or disable the eof2 (end of frame) hex character.

enable-end-sof1

Enable or disable the sof1 (start of frame) hex character.

enable-end-sof2

Enable or disable the sof2 (start of frame) hex character.

end-trigger1

When enabled, specifies the character that when received will define when the packet is ready for transmission. The transmission of the packet is based on the Trigger Forwarding Rule. Valid values are in hex 0-FF. The default is 0.

end-trigger2

When enabled, creates a sequence of characters that must be received to specify when the packet is ready for transmission (if the End Trigger1 character is not immediately followed by the End Trigger2 character, the IOLAN waits for another End Trigger1 character to start the End Trigger1/End Trigger2 character sequence). The transmission of the packet is based on the Trigger Forwarding Rule. Valid values are in hex 0-FF. The default is 0.

eof1

Specifies the End of Frame character, which defines when the frame is ready to be transmitted. The transmission of the frame is based on the Trigger Forwarding Rule. Valid values are in hex 0-FF. The default is 0.

eof2

When enabled, creates a sequence of characters that must be received to define the end of the frame (if the EOF1 character is not immediately followed by the EOF2 character, the IOLAN waits for another EOF1 character to start the EOF1/EOF2 character sequence), which defines when the frame is ready to be transmitted. The transmission of the frame is based on the Trigger Forwarding Rule. Valid values are in hex 0-FF. The default is 0.

force-transmit-timer

When the specified amount of time, in milliseconds, elapses after the first character is received from the serial port, the packet is transmitted. After a packet is transmitted, the next character received starts the timer again. A value of zero (0) ignores this parameter. Valid values are 0-65535 ms. The default is 0.

forwarding-rule

Determines what is included in the Frame (based on the EOF1 or EOF1/EOF2) or Packet (based on Trigger1 or Trigger1/Trigger2). Choose one of the following options:

- **Strip-Trigger**—Strips out the EOF1, EOF1/EOF2, Trigger1, or Trigger1/Trigger2, depending on your settings.
- **Trigger**—Includes the EOF1, EOF1/EOF2, Trigger1, or Trigger1/Trigger2, depending on your settings.
- **Trigger+1**—Includes the EOF1, EOF1/EOF2, Trigger1, or Trigger1/Trigger2, depending on your settings, plus the first byte that follows the trigger.
- **Trigger+2**—Includes the EOF1, EOF1/EOF2, Trigger1, or Trigger1/Trigger2, depending on your settings, plus the next two bytes received after the trigger.

idle-timer

The amount of time, in milliseconds, that must elapse between characters before the packet is transmitted to the network. A value of zero (0) ignores this parameter. Valid values are 0-65535 ms. The default is 0.

packet-size

The number of byte that must be received from the serial port before the packet is transmitted to the network. A value of zero (0) ignores this parameter. Valid values are 0-1024 bytes. The default is 0.

sof1

When enabled, the Start of Frame character defines the first character of the frame, any character(s) received before the Start of Frame character is ignored. Valid values are in hex 0-FF. The default is 0.

sof2

When enabled, creates a sequence of characters that must be received to create the start of the frame (if the SOF1 character is not immediately followed by the SOF2 character, the IOLAN waits for another SOF1 character to start the SOF1/SOF2 character sequence). Valid values are in hex 0-FF. The default is 0.

start-frame-transmit

When enabled, the SOF1 or SOF1/SOF2 characters will be transmitted with the frame. If not enabled, the SOF1 or SOF1/SOF2 characters will be stripped from the transmission.

Show Packet-Forwarding Line

Description	Shows the packet-forwarding settings for the line.
User Level	Admin
Syntax	**`show packet-forwarding line [<`*`number`*`>]`**

Network Commands

This chapter defines all the CLI commands associated with configuring the IOLAN's network parameters.

SNMP Commands

The IOLAN supports SNMP traps for restart and SNMP community authentication error.

Add Community

Description Adds an SNMP community (version 1 and version 2).
User Level Admin
Syntax **`add community <`***`community_name`***`> <`***`config_host`***`>|<`***`ip_address`***`> none|readonly|readwrite`**

Options <***community_name***>

A name that will be sent to the IOLAN from an SNMP manager. This name will define the permissions of the manager.

<***config_host***>|<***ip_address***>

The host name of the SNMP community that will send requests to the IOLAN.

The IPv4 or IPv6 address of the SNMP manager that will send requests to the IOLAN. If the address is **`0.0.0.0`**, any SNMP manager with the **Community Name** can access the IOLAN. If you specify a network address, for example **`172.16.0.0`**, any SNMP manager within the local network with the **Community Name** can access the IOLAN.

none|readonly|readwrite

Permits the IOLAN to respond to SNMP requests by:

- **None**—There is no response to requests from SNMP.
- **Readonly**—Responds only to Read requests from SNMP.
- **Readwrite**—Responds to both Read and Write requests from SNMP.

Add Trap

Description Adds an SNMP host to which trap messages will be sent.
User Level Admin
Syntax **`add trap <`***`trap_name`***`> <`***`config_host`***`>|<`***`ip_address`***`>`**

Options <***trap_name***>

An arbitrary trap community name.

<***config_host***>|<***ip_address***>

Defines the hosts (by IPv4 or IPv6 address) that will receive trap messages generated by the IOLAN. Up to four trap hosts can be defined.

Delete Community

Description Deletes an SNMP community (version 1 and version 2).
User Level Admin
Syntax **`delete community <`***`config_community_number`***`>`**

Option <***config_community_number***>

When you add an SNMP community, it gets assigned to a number. To delete the SNMP community, you need to specify the number of the community that you want to delete. To see which community is assigned to what number, type the **`show snmp`** command.

Delete Trap

Description Deletes an SNMP trap host.
User Level Admin
Syntax **`delete trap <`***`config_trap_number`***`>`**

Option <***config_trap_number***>

When you add an SNMP trap host, it gets assigned to a number. To delete the SNMP trap host, you need to specify the number of the trap that you want to delete. To see which trap host is assigned to what number, type the **`show snmp`** command.

Set SNMP

Description Configures SNMP settings.
User Level Admin
Syntax **`set snmp [contact <`***`string`***`>] [location <`***`string`***`>]`**
`[readonly user <`*`username`***`>] [readwrite user <`***`username`***`>]`**

Options **contact**

The name and contract information of the person who manages this SMNP node.

location

The physical location of the SNMP node.

readonly user

Specified user can only view SNMP variables.

readwrite user

Specified user can view and edit SNMP variables.

Show SNMP

Description Shows SNMP settings, including communities and traps.
User Level Admin
Syntax **`show snmp`**

TFTP Commands

Set Server TFTP

Description Configures the IOLANs TFTP client settings.
User Level Admin
Syntax **`set server tftp [retry <`*`integer`*`>] [timeout <`*`integer`*`>]`**

Options **retry**

The number of times the IOLAN will attempt to transfer (using TFTP) a file to/from a host. Enter a value between 0 and 5. The default is **5**. A value of **0** (zero) means that the IOLAN will not attempt a retry should TFTP fail.

timeout

The time, in seconds, that the IOLAN will wait for a successful transmit or receipt of TFTP packets before retrying a TFTP transfer. Enter a value between 3 and 10. The default is **3** seconds.

Hosts Commands

Add Host

Description Adds a host to the IOLAN host table.
User Level Admin
Syntax **`add host <`*`hostname`*`> <`*`ip_address`*`>`**

Options <***hostname***>

The name of the host.

<***ip_address***>

The host IPv4 or IPv6 address.

Delete Host

Description Deletes a host from the IOLAN host table.
User Level Admin
Syntax **`delete host <`*`config_host`*`>`**

Option <***config_host***>

You can see a list of hosts that can be deleted by typing **`delete host ?`**.

Set Host

Description Configures a host in the IOLAN host table.
User Level Admin
Syntax **`set host <`*`config_host`*`> <`*`ip_address`*`>`**

Options <***config_host***>

The name of the host.

<***ip_address***>

The host IPv4 or IPv6 address.

Show Hosts

Description Shows the IOLAN host table.
User Level Normal, Admin
Syntax **show hosts**

Gateway Commands

Add Gateway

Description Adds a gateway. You can configure up to twenty gateways.
User Level Admin
Syntax **add gateway <***config_host***> default**

add gateway <*config_host***> host <***dest_IP_addr***>**

add gateway <*config_host***> network**
<*dest_IPv4_addr***>|<***dest_IPv6_addr***>**
[<*subnet_bits_0-32***>|<***subnet_bits_0-128***>]**

Options <***config_host***>

You can specify up to twenty hosts to act as gateways in your network. Each gateway host must be defined in the IOLAN host table.

default|host|network

Specify the type of gateway:

- **Default**—A gateway which provides general access beyond your local network.
- **Host**—A gateway reserved for accessing a specific host external to your local network.
- **Network**—A gateway reserved for accessing a specific network external to your local network.

<***dest_IP_addr***>

When the gateway is a **Host** or **Network** gateway, you must specify the IPv4 or IPv6 address of the target host machine/network.

<***subnet_bits***>

When the gateway is a **Network** gateway, you must specify the network's subnet mask.

Delete Gateway

Description Deletes a gateway.
User Level Admin
Syntax **delete gateway <***config_gateway_host***>**

Option <***config_gateway_host***>

You can view the configured gateways that can be deleted by typing **delete gateway ?**.

Set Gateway

Description Configures the gateway.
User Level Admin
Syntax

```
set gateway <config_gateway_host> default

set gateway <config_gateway_host> host <destination_ip>

set gateway <config_gateway_host>
 network <dest_IPv4_addr>|<dest_IPv6_address> <prefixbits_mask>|
```

Options <***config_gateway_host***>

You can view the configured gateways that can be deleted by typing **`delete gateway ?`**.

default|host|network

Specify the type of gateway:

- **Default**—A gateway which provides general access beyond your local network.
- **Host**—A gateway reserved for accessing a specific host external to your local network.
- **Network**—A gateway reserved for accessing a specific network external to your local network.

<***destination_ip***>

When the gateway is a **Host** or **Network** gateway, you must specify the IPv4 or IPv6 address of the target host machine/network.

<***prefixbits_mask***>

When the gateway is a **Network** gateway, you must specify the network's subnet mask for an IPv4 destination IP address (the address is in the form of 123.123.123.123) or prefix bits for an IPv6 destination IP address (valid values are 0-128).

Show Gateways

Description Shows configured gateways.
User Level Normal, Admin
Syntax **`show gateways`**

Logging Commands

Set Syslog

Description Configures the system log.
User Level Admin
Syntax

```
set syslog
 [level emergency|alert|critical|error|warning|notice|info|debug]
 [primary-host <config_host>] [secondary-host <config_host>]
```

Options

level

Choose the event level that triggers a syslog entry:

- **Emergency**
- **Alert**
- **Critical**
- **Error**
- **Warning**
- **Notice**
- **Info**
- **Debug**

When you select a **Level**, all the levels that appear above it in the list also trigger a syslog entry. For example, if you select **Error**, all **Error**, **Critical**, **Alert**, and **Emergency** events will be logged.

primary-host

The first preconfigured host that the IOLAN will attempt to send system log messages to; messages will be displayed on the host's monitor.

secondary-host

If the IOLAN cannot communicate with the primary host, then the IOLAN will attempt to send system log messages to this preconfigured host; messages will be displayed on the host's monitor.

Show Syslog

Description Shows the syslog settings.
User Level Admin
Syntax

```
show syslog
```

Time Commands

This chapter defines all the CLI commands associated with configuring the IOLAN's time parameters.

Time Commands

Set Time

Description Sets the IOLAN's system clock.
User Level Admin
Syntax **`set time <`***`hh`***`:`***`mm`***`[:`***`ss`***`]>`**

Option <***hh*:*mm*[:*ss*]>**

Sets the IOLAN's system time, using military time format.

Show Time

Description Shows the 's system clock.
User Level Normal, Admin
Syntax **`show time`**

Time/Date Setting Commands

Set Date

Description Sets the IOLAN's system clock.
User Level Admin
Syntax **`set date <`***`dd/mm/yyyy`***`>`**

Set Time

Description Sets the IOLAN's system clock.
User Level Admin
Syntax **`set time <`***`hh`***`:`***`mm`***`[:`***`ss`***`]>`**

Option <***hh*:*mm*[:*ss*]>**

Sets the IOLAN's system time, using military time format.

Show Date

Description Shows the date, according to the IOLAN system clock.
User Level Normal, Admin
Syntax `show date`

Show Time

Description Shows the IOLAN's system clock.
User Level Normal, Admin
Syntax `show time`

Administration Commands

This chapter defines all the CLI commands associated with configuring the IOLAN's administration parameters.

Bootup Commands

Reboot

Description Reboots the IOLAN. You will be prompted to save configuration to FLASH, if there have been unsaved configuration changes.
User Level Admin
Syntax **`reboot`**

Reset

Description Resets the user profile or serial line to the default factory configuration.
User Level Admin
Syntax **`reset user .|<`***`username`***`>|*`**

`reset line`

Reset Factory

Description Resets the IOLAN to the factory configuration.
User Level Admin
Syntax **`reset factory`**

Save

Description Saves the configuration to FLASH.
User Level Admin
Syntax **`save`**

Set Bootup

Description Specifies remote the TFTP host and pathname for files to be loaded after a IOLAN reboot.

User Level Admin

Syntax **`set bootup firmware host <`***`hostname`***`> [file <`***`path_filename`***`>]`**

`set bootup configuration host <`*`hostname`***`> [file <`***`path_filename`***`>]`**

Options

firmware file

The path and file name (do not use a drive letter), relative to the default path of your TFTP server software, of the update software for the IOLAN that will be loaded when the IOLAN is rebooted.

configuration file

The path and file name (do not use a drive letter), relative to the default path of your TFTP server software, of the configuration software for the IOLAN that will be loaded when the IOLAN is rebooted.

host

The host name or IPv4/IPv6 address of the server that contains the configuration or firmware file. If you use a host name, it must exist in the IOLAN's host table or be resolved by DNS.

Show ARP

Description Shows the current contents of the ARP cache.

User Level Admin

Syntax **`show arp`**

Show Bootup

Description Shows the Firmware and Configuration files specified for IOLAN bootup.

User Level Admin

Syntax **`show bootup`**

TFTP File Transfer Commands

Netload

Description Transfers a file from a remote host to the IOLAN using the TFTP protocol.
User Level Admin
Syntax **`netload firmware|configuration|customlang|term1|term2|term3 customapp-file <`***`hostname/ip_address`***`> <`***`filename`***`>`**

Options

firmware

Specifies that you are going to download a new firmware file to the IOLAN.

configuration

Specifies that you are going to download a new configuration file to the IOLAN.

customlang

Specifies that you are going to download a custom language file to the IOLAN.

term1|term2|term3

You can create and download up to three custom terminal definitions to the IOLAN.

customapp-file

You can download multiple SDK program executables and ancillary files using this command by running the command multiple times to download multiple files. Use the **`shell`** CLI command as described in the *SDK Programmer's Guide* to manage the files that you download.

<***hostname/ip_address***>

The IP address or host name where the file you are downloading to the IOLAN resides. If you are using a host name, it must be resolved in either the IOLAN's **Host Table** or a DNS server.

<***filename***>

The complete path and file name (cannot use a drive letter) of the file you are downloading to the IOLAN.

Netsave

Description Transfers a file from the IOLAN to a remote host using the TFTP protocol.
User Level Admin
Syntax **`netsave configuration|crash|serialt-buf <`***`hostname/ip_address`***`> <`***`filename`***`>`**

Options

configuration

Specifies that you are going to upload a configuration file from the IOLAN to the specified host or IP address.

crash

Specifies that you are going to upload a crash file from the IOLAN to the specified host or IP address.

serialt-buf

Specifies that you are going to upload the contents of the serial trace buffer.

<*hostname/ip_address*>

The IP address or host name for where the file you are uploading from the IOLAN is going. If you are using a host name, it must be resolved in either the IOLAN's **Host Table** or a DNS server.

<*filename*>

The complete path and file name (cannot use a drive letter) for the file you are uploading from the IOLAN.

MOTD Commands

Set MOTD

Description Specifies the server/file that contains the message of the day (MOTD) that is displayed when users log into the IOLAN. You can also retrieve the MOTD from a local file (it must already be downloaded to the IOLAN using the **`netload customapp-file`** command); to do this, do not specify the host parameter.

User Level Normal, Admin

Syntax

```
set motd host <hostname> file <path_filename>
set motd file <local_file>
```

Options **host**

The host that the IOLAN will be getting the Message of the Day file from.

<*path_filename*>

The path and file name (do not use a drive letter), relative to the default path of your TFTP server software, of the file that contains a string that is displayed when a user connects to the IOLAN.

<*local_file*>

This is the name of a file already downloaded to the IOLAN. The contents of this file will be used for the MOTD.

Show MOTD

Description Show the Message of the Day (MOTD) settings.

User Level Admin

Syntax

```
show motd
```

8 Statistic Commands

This chapter defines all the CLI commands associated with configuring the IOLAN's statistic parameters.

Configuration Statistics

Show Netstat

Description Shows currently used TCP/UDP sockets/ports.
User Level Admin
Syntax **`show netstat [all] [listening] [tcp] [udp] [tcpv6] [updv6]`**
Options **all**

Displays all ports, including server (listening) ports; by default, listening ports are not displayed.

listening

Displays server (listening) ports; by default, listening ports are not displayed.

tcp

Displays TCP port statistics.

udp

Displays UDP port statistics.

tcpv6

Displays TCPv6 port statistics.

udpv6

Displays UDPv6 port statistics.

Show Modbus Statistics

Description Shows the Modbus statistics.
User Level Admin
Syntax **`show modbus statistics master-tcp line *|<`*`number`*`>`**

`show modbus statistics master-udp line *|<`*`number`*`>`

`show modbus statistics slave-tcp line *|<`*`number`*`>`

`show modbus statistics slave-udp line *|<`*`number`*`>`

Show Netstat Statistics

Description Shows protocol (IP/ICMP/TCP/UDP) counters.
User Level Admin
Syntax `show netstat statistics [ip] [ipv6] [icmp] [icmpv6] [tcp] [udp] [udp6]`

Show Routes

Description Shows current information about IPv4 or IPv6 network routes.
User Level Admin
Syntax `show routes [ipv6]`

Run-Time Statistics

Delete Arp

Description Delete entries from the IOLAN's ARP cache. Takes effect immediately; not related to configuration.
User Level Admin
Syntax `delete arp`

Show Arp

Description Shows the current contents of the ARP cache.
User Level Admin
Syntax `show arp`

Show Serial

Description Shows statistics on the serial port.
User Level Admin
Syntax `show serial`

Uptime

Description Displays the elapsed time (in days, hours, minutes, and seconds) since the last reboot/power cycle.
User Level Admin
Syntax `uptime`

I/O Commands

This chapter defines all the CLI commands associated with configuring the IOLAN's I/O parameters.

Global I/O Commands

Set IO UDP

Description Sets the UDP settings for I/O unicast messages.

User Level Admin

Syntax

```
set io udp [mode on|off]
 [broadcast-interval <broadcast_interval>]

set io udp entry 1|2|3|4 disabled

set io udp entry 1|2|3|4 <udp_port> <start_ip> [<end_ip>]
```

Options

mode

Enables/disables UDP broadcast of I/O channel status (data).

broadcast-interval

Enter the interval, in seconds, for UDP broadcasts of I/O channel status (data). Valid values are 1-9999. Default value is 30 seconds.

entry

You can specify up to four sets of UDP IP address that will receive the I/O unicast.

udp_port

The UDP port that the IOLAN will use to relay messages to servers/hosts.

start_ip

The first host IP address in the range of IP addresses (for IPV4 or IPV6) that the IOLAN will listen for messages from and/or send messages to.

end_ip

The last host IP address in the range of IP addresses (for IPV4, not required for IPV6) that the IOLAN will listen for messages from and/or send messages to.

Set IO Failsafe

Description Sets the failsafe (watchdog) settings for I/O.
User Level Admin
Syntax `set io failsafe [mode on|off] [timeout <seconds>]`
Options **mode**

Enables/disables the **Failsafe Timer**. This is the global setting that must be enabled to set the **Failsafe Action** on the channel for digital outputs and relays. When this timer expires because of no I/O activity within the specified time interval, the **Failsafe Action** set for the channel determines the action on the output.

timeout

The number of seconds that must elapse with no I/O activity before the channel **Failsafe Action** is triggered. Valid values are 1-9999. The default is 30 seconds.

Set IO Modbus

Description Enabling the Modbus option makes the IOLAN act as a Modbus Slave, allowing Modbus Masters to communicate with the IOLAN to control and/or retrieve I/O data.
User Level Admin
Syntax `set io modbus [mode on|off] [uid <1-255>]`
Options **mode**

Enables/disables the ability to control/monitor I/O channels using the Modbus protocol.

uid

This is the UID you are assigning to the IOLAN, which is acting as a Modbus slave.

Set IO Temperature-Scale

Description Sets the temperature scale that will be used for all Temperature input readings.
User Level Admin
Syntax `set io temperature-scale celsius|fahrenheit`
Option **temperature-scale**

Select the temperature scale that will be used to display temperature data, either Fahrenheit or Celsius. The default is Celsius.

Set Line

Set Line Service

Description Sets the **Line Service** settings to signal I/O.
User Level Admin
Syntax `set line <number> service signal-io`
Option **signal-io**

Sets the line to use signal I/O. You still need to define the serial pins for digital input (CTS, DSR, or DCD) or digital output (RTS or DTR). See ***Set IOChannel Digital Input (Serial Pins)*** on page 76 or ***Set IOChannel Digital Output (Serial Pins)*** on page 79 for configuration options.

Set IOChannel

Set IOChannel Mode

Description Sets general I/O channel settings for the specified channel, these settings are available to all channels and I/O serial pins.

User Level Admin

Syntax
```
set iochannel <i/o_channel> [mode enabled|disabled]
 [description <string>]
```

Options ***i/o_channel***

Specify the channel number, for example, d2 or a4. Temperature models use Analog input, so the channel numbers are a1-a4.

mode

Enables the channel, allowing the settings to become active.

description

Provide a description of the channel, making it easier to identify. The channel description can be up to 20 characters.

Set IOChannel Digital I/O

Description Sets up the Digital I/O channel to act as either an output or input channel.

User Level Admin

Syntax
```
set iochannel <digital_channel> source-type input|output
```

Options ***digital_channel***

Specify the Digital channel number, for example, d2.

source-type

Specify whether the channel will drive the line (output) or will be reading the status of the line (input). The default is **Input**. The internal jumpers must match the software configuration, so if you change this setting to **Output**, you will have to also change the internal hardware jumpers.

Set IOChannel Digital Input

Description Sets the Digital input settings for the channel.

User Level Admin

Syntax
```
set iochannel <digital_channel>
 [alarm [trigger disabled|inactive-input|active-input]
   [clear auto|manual] [syslog on|off] [snmp on|off]]
 [description <string>] [invert-signal on|off]
 [latch disabled|inactive-to-active|active-to-inactive]
```

Options ***digital_channel***

Specify the Digital channel number, for example, d2.

alarm

Configures alarm settings when the Digital input trigger is activated.

trigger

When the trigger condition is met, triggers the specified alarm action. Triggers can be:

- **Disabled**—No alarm settings. This is the default.
- **Inactive**—When the expected Digital input is active, going inactive will trigger an alarm.
- **Active**—When the expected Digital input is inactive, going active will trigger an alarm.

clear

Specify **Manual** to manually clear an alarm. Specify **Auto** to automatically clear the alarm when the trigger condition changes; for example, if the **Trigger** is **Inactive** and the alarm is triggered, once the input becomes active again, the alarm will be cleared when **Auto** is set. The default is **Auto**.

syslog

Sends a message to syslog when an alarm is triggered or cleared. The syslog entry includes the severity level and the value that caused the alarm to trigger or clear. The syslog message is associated with **Level Critical**.

snmp

Sends an SNMP trap when an alarm is triggered or cleared. The trap consists of the severity level and whether the alarm was triggered or cleared.

description

Provide a description of the channel, making it easier to identify. The channel description can be up to 20 characters.

invert-signal

Inverts the actual condition of the I/O signal in the status; therefore, an inactive status will be displayed as active.

latch

Latches (remembers) the activity transition (active-to-inactive or inactive-to-active). The latched status is maintained until it is read. Once it is read, it will revert to the current status. The default is disabled.

Set IOChannel Digital Input (Serial Pins)

Description Sets the Digital input settings for serial pins CTS, DSR, and DCD. This option is only available when the **Line Service** is set to **Signal I/O**.

User Level Admin

Syntax

```
set iochannel cts|dsr|dcd
 [alarm [trigger disabled|inactive-input|active-input]
   [clear auto|manual] [syslog on|off] [snmp on|off]]
 [description <string>] [invert-signal on|off]
 [latch disabled|inactive-to-active|active-to-inactive]
```

Options ***digital_channel***

Specify the Digital channel number, for example, d2.

alarm

Configures alarm settings when the Digital input trigger is activated.

trigger

When the trigger condition is met, triggers the specified alarm action. Triggers can be:

- **Disabled**—No alarm settings. This is the default.
- **Inactive**—When the expected Digital input is active, going inactive will trigger an alarm.
- **Active**—When the expected Digital input is inactive, going active will trigger an alarm.

clear

Specify **Manual** to manually clear an alarm. Specify **Auto** to automatically clear the alarm when the trigger condition changes; for example, if the **Trigger** is **Inactive** and the alarm is triggered, once the input becomes active again, the alarm will be cleared when **Auto** is set. The default is **Auto**.

syslog

Sends a message to syslog when an alarm is triggered or cleared. The syslog entry includes the severity level and the value that caused the alarm to trigger or clear. The syslog message is associated with **Level Critical**.

snmp

Sends an SNMP trap when an alarm is triggered or cleared. The trap consists of the severity level and whether the alarm was triggered or cleared.

description

Provide a description of the channel, making it easier to identify. The channel description can be up to 20 characters.

invert-signal

Inverts the actual condition of the I/O signal in the status; therefore, an inactive status will be displayed as active.

latch

Latches (remembers) the activity transition (active-to-inactive or inactive-to-active). The latched status is maintained until it is read. Once it is read, it will revert to the current status. The default is disabled.

Set IOChannel Digital Output

Description Sets the Digital output channel settings.

User Level Admin

Syntax

```
set iochannel <digital_channel>
 [type sink|source|sink-and-source] [active-signal-width <width>]
 [inactive-signal-width <width>]
 [failsafe-action none|activate-output|deactivate-output]

set iochannel <digital_channel>
 output [pulse continuous|counted <pulse_count>]
 [active-to-inactive-delay <delay>]
 [inactive-to-active-delay <delay>]
```

Options ***digital_channel***

Specify the Digital channel number, for example, d2.

type

Specify the type of digital output:

- **Sink**—Specifies that the channel will be grounded when active.
- **Source**—Specifies that the channel will provide voltage when active.
- **Sink and Source**—Specifies that channel will be grounded when it is inactive and will provide voltage when it is active.

The default is **Sink**.

active-signal-width

How long the channel output will be active during the pulse mode. Valid values are 1-9999 x 100 ms. The default is 100 ms.

inactive-signal-width

How long the channel output will remain inactive during pulse mode. Valid values are 1-9999 x 100 ms. The default is 100 ms.

failsafe-action

When there has been no I/O activity within the specified time (set in the Global Settings) and the **Failsafe Timer** is triggered, you can set the **Failsafe Action** to:

- **None**—The state of the Digital/Relay output remains the same, no change.
- **Activate Output**—Activates the output.
- **Deactivate Output**—Deactivates the output.

output

Specify how the channel Digital output will be handled:

- **Manual**—You must manually activate and deactivate the output.
- **Pulse**—When the output is activated, this configuration will cause the output to pulse (go active and inactive) at a configured rate.
- **Inactive-to-Active Delay**—The channel output will remain inactive for the specified time interval after it is manually started.
- **Active-to-Inactive Delay**—The channel output will go inactive after the specified time interval after it is manually started.

The default is **Manual**.

pulse

When the **Output** is **Pulse**, you can have it pulse in a **Continuous** manner or specify a pulse **Count** (each count consists of an active/inactive sequence). The default is **Continuous**.

active-to-inactive-delay

When the I/O is commanded to an inactive state, this is the length of the delay before the command is executed. Valid values are 1-9999 x 100 ms. The default is 100 ms.

inactive-to-active-delay

When the I/O is commanded to an active state, this is the length of the delay before the command is executed. Valid values are 1-9999 x 100 ms. The default is 100 ms.

Set IOChannel Digital Output (Serial Pins)

Description Sets the Digital output for serial pins RTS and DTR. This option is only available when the **Line Service** is set to **Signal I/O**.

User Level Admin

Syntax

```
set iochannel rts|dtr [description <string>]
 [failsafe-action none|activate-outut|deactivate-output]
 [mode enabled|disabled]
```

Options

description

Provide a description of the channel, making it easier to identify. The channel description can be up to 20 characters.

failsafe-action

When there has been no I/O activity within the specified time (set in the Global Settings) and the **Failsafe Timer** is triggered, you can set the **Failsafe Action** to:

- **None**—The state of the Digital/Relay output remains the same, no change.
- **Activate Output**—Activates the output.
- **Deactivate Output**—Deactivates the output.

mode

Enables the channel, allowing the settings to become active.

Set IOChannel Relay

Description Sets the Relay output channel settings.

User Level Admin

Syntax

```
set iochannel <relay_number> output
 [pulse continuous|counted <pulse_count>]
 [active-to-inactive-delay <delay>]
 [inactive-to-active-delay <delay>]

set iochannel <relay_number>
 [active-signal-width <width>] [inactive-signal-width <width>]
 [failsafe-action none|activate|deactivate]
```

Options

relay_number

Specify the Relay channel number, for example, r2.

output

Specify how the channel Digital output will be handled:

- **Manual**—You must manually activate and deactivate the output.
- **Pulse**—When the output is activated, this configuration will cause the output to pulse (go active and inactive) at a configured rate.
- **Inactive-to-Active Delay**—The channel output will remain inactive for the specified time interval after it is manually started.
- **Active-to-Inactive Delay**—The channel output will go inactive after the specified time interval after it is manually started.

The default is **Manual**.

pulse

When the **Output** is **Pulse**, you can have it pulse in a **Continuous** manner or specify a pulse **Count** (each count consists of an active/inactive sequence). The default is **Continuous**.

active-to-inactive-delay

When the I/O is commanded to an inactive state, this is the length of the delay before the command is executed. Valid values are 1-9999 x 100 ms. The default is 100 ms.

inactive-to-active-delay

When the I/O is commanded to an active state, this is the length of the delay before the command is executed. Valid values are 1-9999 x 100 ms. The default is 100 ms.

active-signal-width

How long the channel output will be active during the pulse mode. Valid values are 1-9999 x 100 ms. The default is 100 ms.

inactive-signal-width

How long the channel output will remain inactive during pulse mode. Valid values are 1-9999 x 100 ms. The default is 100 ms.

failsafe-action

When there has been no I/O activity within the specified time (set in the Global Settings) and the **Failsafe Timer** is triggered, you can set the **Failsafe Action** to:

- **None**—The state of the Digital/Relay output remains the same, no change.
- **Activate Output**—Activates the output.
- **Deactivate Output**—Deactivates the output.

Set IOChannel Analog (True Analog)

Description Sets the Analog input channel settings.

User Level Admin

Syntax

```
set iochannel <analog_channel> type current|voltage
 range <range_specifier>

set iochannel <analog_channel> alarm
 [level 1|2|3|4|5 [mode on|off] [trigger-type disabled|low|high]
  [trigger-level <decimal_value>] [clear-mode auto|manual]
  [clear-level <decimal_value>] [snmp on|off] [syslog on|off]]
```

Options ***analog_channel***

Specify the Analog channel number, for example, a2 or a4 (this also applies to Temperature models).

type

Select the type of input being measured, either **Current** or **Voltage**. The default is **Current**.

range

Select the range for the measurement type. For current, the range is:

- 0-20 (0-20mA) This is the default.
- 4-20 (04-20mA)

For voltage, the range is:

- 1 (+/-1V)
- 5 (+/-5V)
- 10 (+/-10V) This is the default.
- 150 (+/-150mV)
- 500 (+/-500mV)

alarm

Configures alarm settings when the Analog input trigger is activated.

level

You can specify up to five alarm trigger/clear severity levels. If the **Trigger Type** is **Low**, an alarm is triggered when the input drops below the specified **Trigger** value; other severity level trigger values must decrease in value with each subsequent level. If the **Trigger Type** is **High**, an alarm is triggered when the input is higher than the specified **Trigger** value; other severity level trigger values must increase in value with each subsequent level. To clear an alarm, the input must drop below the specified value when **Trigger Type** is **High** or go above the specified value when **Trigger Type** is **Low**.

mode

Enables/disables an alarm level. The default is off.

trigger-type

If the **Trigger Type** is **Low**, an alarm is triggered when the input drops below the specified **Trigger** value; other severity level trigger values must decrease in value with each subsequent level. If the **Trigger Type** is **High**, an alarm is triggered when the input is higher than the specified **Trigger** value; other severity level trigger values must increase in value with each subsequent level.

trigger-level

Specify the value that will trigger an alarm, the measurement is based on the **Type** and **Range** that you specify. This value must not fall within the scope of the value used to clear an alarm.

clear-mode

Specifies whether an activated alarm must be **Manually** cleared, or can be cleared when the input drops below the specified value (when **Trigger Type** is **High**) or goes above the specified value (when **Trigger Type** is **Low**).

clear-level

Specify that value that will clear an alarm, the measurement is based on the **Type** and **Range** that you specify. This value must not fall within the scope of the value used to trigger an alarm.

snmp

Sends an SNMP trap when an alarm is triggered or cleared. The trap consists of the severity level and whether the alarm was triggered or cleared.

syslog

Sends a message to syslog when an alarm is triggered or cleared. The syslog entry includes the severity level and the value that caused the alarm to trigger or clear. The syslog message is associated with **Level Critical**.

Set IOChannel Analog (Temperature)

Description Sets the Analog input channel settings for Temperature models.

User Level Admin

Syntax

```
set iochannel <analog_channel> type rtd|thermocouple
 range <range_specifier>

set iochannel <analog_channel> alarm
 [level 1|2|3|4|5 [mode on|off] [trigger-type disabled|low|high]
  [trigger-level <decimal_value>] [clear-mode auto|manual]
  [clear-level <decimal_value>] [snmp on|off] [syslog on|off]]
```

Options ***analog_channel***

Specify the Analog channel number, for example, a2 or a4 (this also applies to Temperature models).

type

Specify the type of sensor you are using to measure temperature, either RTD or thermocouple. The default is RTD.

range

Specify the temperature range that you want to measure. For RTD, the range is:

- 1 (Pt100 a=385 -50 to 150C) This is the default.
- 2 (Pt100 a=385 0 to 100C)
- 3 (Pt100 a=385 0 to 200C)
- 4 (Pt100 a=385 0 to 400C)
- 5 (Pt100 a=385 -200 to 200C)
- 6 (Pt100 a=392 -50 to 150C)
- 7 (Pt100 a=392 0 to 100C)
- 8 (Pt100 a=392 0 to 200C)
- 9 (Pt100 a=392 0 to 400C)
- 10 (Pt100 a=392 -200 to 200C)
- 11 (Pt1000 a=385 -40 to 160C)
- 12 (NiFe604 a=518 -80 to 100C)
- 13 (NiFe604 a=518 0 to 100C)

For thermocouple, the range is:

- b (B 500 to 1800C)
- e (E 0 to 1000C)
- j (J 0 to 760C) This is the default.
- k (K 0 to 1370C)
- r (R 500 to 1750C)
- s (S 500 to 1750C)
- t (T -100 to 400C).

alarm

Configures alarm settings when the Analog input trigger is activated.

level

You can specify up to five alarm trigger/clear severity levels. If the **Trigger Type** is **Low**, an alarm is triggered when the input drops below the specified **Trigger** value; other severity level trigger values must decrease in value with each subsequent level. If the **Trigger Type** is **High**, an alarm is triggered when the input is higher than the specified **Trigger** value; other severity level trigger values must increase in value with each subsequent level. To clear an alarm, the input must drop below the specified value when **Trigger Type** is **High** or go above the specified value when **Trigger Type** is **Low**.

mode

Enables/disables an alarm level. The default is off.

trigger-type

If the **Trigger Type** is **Low**, an alarm is triggered when the input drops below the specified **Trigger** value; other severity level trigger values must decrease in value with each subsequent level. If the **Trigger Type** is **High**, an alarm is triggered when the input is higher than the specified **Trigger** value; other severity level trigger values must increase in value with each subsequent level.

trigger-level

Specify the value that will trigger an alarm, the measurement is based on the **Type** and **Range** that you specify. This value must not fall within the scope of the value used to clear an alarm.

clear-mode

Specifies whether an activated alarm must be **Manually** cleared, or can be cleared when the input drops below the specified value (when **Trigger Type** is **High**) or goes above the specified value (when **Trigger Type** is **Low**).

clear-level

Specify that value that will clear an alarm, the measurement is based on the **Type** and **Range** that you specify. This value must not fall within the scope of the value used to trigger an alarm.

snmp

Sends an SNMP trap when an alarm is triggered or cleared. The trap consists of the severity level and whether the alarm was triggered or cleared.

syslog

Sends a message to syslog when an alarm is triggered or cleared. The syslog entry includes the severity level and the value that caused the alarm to trigger or clear. The syslog message is associated with **Level Critical**.

Kill IOChannel

Description Kills the I/O channel.
User Level Admin
Syntax **`kill iochannel <`***`i/o_channel`***`>`**

`kill iochannel line <number> rts|cts|dtr|dsr|dcd`

Options ***i/o_channel***

Specify the channel number, for example, d2 or a4. Temperature models use Analog input, so the channel numbers are a1-a4.

rts|cts|dtr|dsr|dcd

Specify the Digital output pins (RTS or DTR) or Digital input pins (CTS, DSR, or DCD).

Show IO

Description Shows global I/O information (for example, UDP, TruePort, Modbus). Temperature input is Analog.
User Level Admin
Syntax **`show iochannel <`***`i/o_channel`***`>`**

`show iochannel rts|cts|dtr|dsr|dcd`

Options ***i/o_channel***

Specify the channel number, for example, d2 or a4. Temperature models use Analog input, so the channel numbers are a1-a4.

rts|cts|dtr|dsr|dcd

Specify the Digital output pins (RTS or DTR) or Digital input pins (CTS, DSR, or DCD).

Show IOChannel

Description Shows I/O channel information. Temperature input is Analog.
User Level Admin
Syntax **`show iochannel <`***`i/o_channel`***`>`**

`show iochannel line <`*`number`***`> rts|cts|dtr|dsr|dcd`**

Options ***i/o_channel***

Specify the channel number, for example, d2 or a4. Temperature models use Analog input, so the channel numbers are a1-a4.

rts|cts|dtr|dsr|dcd

Specify the Digital output pins (RTS or DTR) or Digital input pins (CTS, DSR, or DCD).

I/O Channel Control Commands

The I/O commands in this section are used to manually manage the I/O channels.

Digital Output

Description Manages the Digital output channel status. Not all models have four digital channels, most have just two.

User Level Admin

Syntax `iochannel d1|d2|d3|d4|cts|dsr|dcd clear alarm|input-latch`

Options **alarm**

Clears the alarm. Note that if the condition that tripped the alarm still exists, the alarm will not look like it's cleared, but will reflect the appropriate alarm level severity. Alarm Level 0 means that the alarm has not been triggered.

latch-input

Clears the latch value.

Digital Input

Description Manages the Digital input channel status.

User Level Admin

Syntax `iochannel d1|d2|d3|d4|rts|dtr output activate|deactivate`

Option **output**

Manually activates/deactivates the I/O channel.

Relay

Description Manages the Relay output channel status.

User Level Admin

Syntax `iochannel r1|r2 output activate|deactivate`

Option **output**

Manually activates/deactivates the I/O channel.

Analog Input

Description Manages the Analog input channel status.

User Level Admin

Syntax `iochannel a1|a2|a3|a4 clear alarm|min|max|input-latch`

Options **alarm**

Clears the alarm. Note that if the condition that tripped the alarm still exists, the alarm will not look like it's cleared, but will reflect the appropriate alarm level severity. Alarm Level 0 means that the alarm has not been triggered.

min

Clears the minimum value.

max

Clears the maximum value.

latch-input

Clears the latch value.

Glossary

This chapter provides definitions for IOLAN terms.

BOOTP (BOOTstrap Protocol)	An Internet protocol that enables a diskless workstation to discover its own IP address, the IP address of a BOOTP server on the network, and a file to be loaded into memory to boot the machine. This enables the workstation to boot without requiring a hard or floppy disk drive.
Community (SNMP)	An SNMP community is the group that devices and management stations running SNMP belong to. It helps define where information is sent.
DHCP (Dynamic Host Configuration Protocol)	A TCP/IP protocol that provides static and dynamic address allocation and management.
Direct Connection	Connections that bypass the IOLAN enabling the user to log straight into a specific host. A direct connection is recommended where a user logging in to the IOLAN is not required.
Ethernet	A high-speed (10Mbps,100Mbps) cable technology that connects devices to a LAN, using one or more sets of communication protocols.
Local Authentication	Uses the user ID and password stored within the IOLAN User database.
Modem Initialization String	A series of commands sent to the modem by a communications program at start up. These commands tell a modem how to set itself up in order to communicate easily with another modem.
MOTD	Message of the day. This is defined by a file whose contents display when users log into the IOLAN.
Multicast	The broadcasting of messages to a specified group of workstations on a LAN, WAN, or internet.
NAK (Negative Acknowledgment)	A communication control character sent by the receiving destination indicating that the last message was not received correctly.
Reverse Connection	Connections that originate from a host that go directly to a serial device through the IOLAN.
Silent Connection	Silent connections are the same as direct connections except that they are permanently established. The host login prompt is displayed on the screen. Logging out redisplays this prompt. Silent connections, unlike direct connections, however, make permanent use of pseudo tty resources and therefore consume host resources even when not in use.
SNMP (Simple Network Management Protocol)	A protocol for managing network devices.
Subnet/Prefix Bits	Identifies the devices IP address, which portion constitutes the network address and which portion constitutes the host address.