



XPress-I/O Device Server Command Reference

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Contents

1: Introduction	4
2: Configuration Using Telnet or a Serial Port	5
Configuration Using Telnet _____	5
Configuration Using a Serial Port _____	5
Navigating the Command Line Interface _____	5
3: Summary of CLI Commands	8
Root Level Commands _____	9
Enable Level Commands _____	10
Chem Level Commands _____	14
Configure Commands _____	16
Device Level Commands _____	24
Filesystem Level Commands _____	25
If 1 Level Commands _____	28
io level commands _____	29
Line Level Commands _____	30
Modbus Level Commands _____	32
SSH Level Commands _____	33
SSL Level Commands _____	36
Tunnel Level Commands _____	37
4: Configuration Using XML	47
XML Configuration Record Document Type Definition (DTD) _____	47
Quick Syntax Tour for XCRs _____	48
Record, Group, Item, and Value Tags _____	49
Importing and Exporting an XML Configuration File _____	50
Best Practices _____	51
Importing and Exporting Partial Configurations _____	51
Including Passwords in the XML File _____	53
Special XCR Groups _____	53
XML Groups _____	54
XSR Groups and Items _____	68
Index	78

1: Introduction

The XPress-I/O contains all the components necessary to deliver full network connectivity to virtually any kind of serial device. This includes a reliable TCP/IP protocol stack and a variety of remote management capabilities. It boasts an innovative design and runs on Lantronix's leading-edge Evolution OS™, which supports three convenient configuration methods (Web, command line, and XML). The XPress-I/O Command Reference describes how to configure the XPress-I/O using the Command-Line and XML interfaces.

Command-Line Interface (CLI): Making the edge-to-enterprise vision a reality, the XPress-I/O with the Evolution OS™ uses industry-standard tools for configuration, communication, and control. For example, the Evolution OS™ uses a Cisco®-like command line interface (CLI) whose syntax is very similar to that used by data center equipment such as routers and hubs.

This Command Reference provides information about navigating the CLI interface and lists the CLI commands for configuring, monitoring, and controlling the XPress-I/O.

XML-based Architecture and Device Control: XML is a fundamental building block for the future growth of Machine to Machine (M2M) networks. The XPress-I/O supports XML-based configuration records that make configuring the device easy for users and administrators. The XML is easily editable with a standard text editor or an XML editor.

This command reference provides a brief overview of the XML interface, contains rules on basic XML syntax, and provides a guide to interface with the specific tags used and provides a guide to using XML configuration records on the XPress-I/O.

2: Configuration Using Telnet or a Serial Port

As an alternative to using the Web Manager, you can configure the XPress-I/O using a series of commands through the Command-Line Interface (CLI). You can access the CLI through a Telnet session or a direct connection to a serial port on the XPress-I/O.

This command reference describes how to use the CLI and provides a detailed list of all the CLI commands supported.

Configuration Using Telnet

To configure the XPress-I/O using a Telnet session over the network, establish a Telnet connection.

Note: As an alternative, establish a Telnet connection by clicking the **Telnet Configuration** tab in *DeviceInstaller*. See the *XPress-I/O User Guide* for more information.

1. From the Windows **Start** menu, click **Run**. The Run dialog box appears.
2. In the Run dialog box, type the following command, where x.x.x.x is the IP address:

```
telnet x.x.x.x
```

A prompt displays.

Note: Depending on the level of security you have configured, a password may be required.

Configuration Using a Serial Port

To configure the XPress-I/O locally using a serial port, connect a terminal or a PC running a terminal-emulation program to an XPress-I/O serial port. Configure the terminal for 9600 baud, 8-bit, no parity, 1 stop bit, and no flow control.

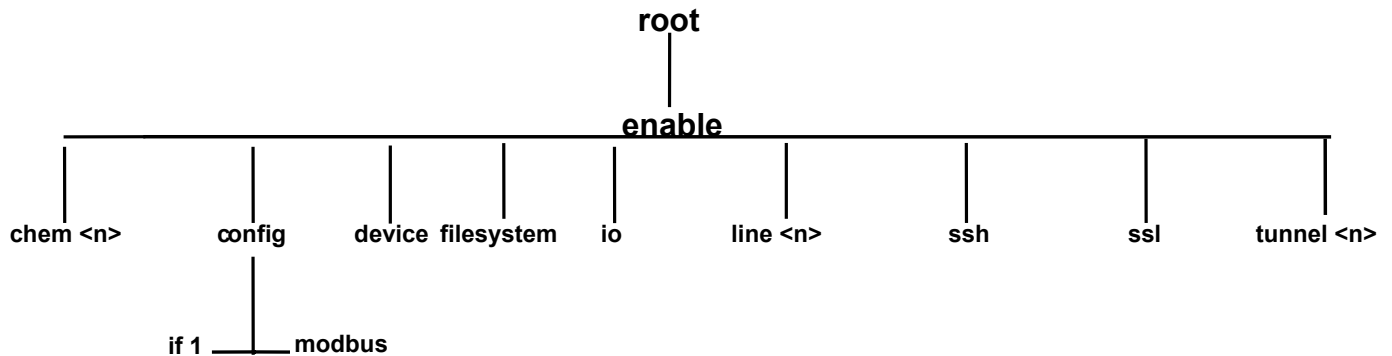
1. Cycle the unit's power (power off and back on). After power-up, the self-test begins.
2. While the device is booting press and hold down the exclamation point (!) key. Then, when an exclamation point appears on the terminal or PC screen, immediately type **xyz** within 5 seconds to display the CLI prompt.

Navigating the Command Line Interface

The CLI is organized into a hierarchy of levels. When you first start a command line session, you are in the root level. Commands at the root level of the CLI do not affect current configuration settings; these commands provide diagnostic and status information

only. To configure the XPress-I/O, you must be in the enable level or any of its sub-levels. The level structure is depicted in the following figure:

Figure 2-1. CLI Hierarchy



To move to a different level: Enter the name of that level from within its parent level.

For example:

```
>enable
(enable)#tunnel 2
```

Note: Some levels require a number to indicate one of several level instances. In the example above the number 2 indicates that we would like to configure the settings for tunneling on serial port 2.

To exit and return to the menu one level higher: Type **exit** and press the **Enter** key.

Note: Typing **exit** at the root level or the enable level will close the CLI session.

To view the current configuration at any level: Type **show**. The configuration for that menu level displays.

To view the list of commands available at the current menu level: At the command prompt, type the question mark “?”. The list of current commands displays.

Note: Items within < > (e.g. <string>) are required parameters.

To view the available commands and their explanation: At the command prompt, type *. The list of commands for that menu level and their description displays.

To view the list of commands available for a partial command: At the command prompt, type the partial command followed by the question mark “?”. The list of current commands displays.

For example: <tunnel-1>#accept? displays a list of all accept commands at the tunnel level.

To view the available commands and their explanations for a partial command: At the command prompt, type the partial command followed by *. The list of partial commands and descriptions displays.

For example: `<tunnel-1>#accept*` displays a list of all accept commands and descriptions at the tunnel level.

To view the last 20 commands entered at the CLI: Type **show history** and press the **Enter** key.

The following key combinations are allowed when configuring the XPress-I/O from the CLI:

- ◆ **Ctrl + a:** place cursor at the beginning of line
- ◆ **Ctrl + b:** backspace one character
- ◆ **Ctrl + d:** delete one character
- ◆ **Ctrl + e:** place cursor at the end of the line
- ◆ **Ctrl + f:** move cursor forward one character
- ◆ **Ctrl + k:** delete from the current position to the end of the line
- ◆ **Ctrl + l:** redraw the command line
- ◆ **Ctrl + n:** display the next line in the history
- ◆ **Ctrl + p:** display the previous line in the history
- ◆ **Ctrl + u:** delete entire line and place cursor at start of prompt
- ◆ **Ctrl + w:** delete one word back
- ◆ **Ctrl + z:** a shortcut for the exit command
- ◆ **Esc + b:** move cursor back one word
- ◆ **Esc + f:** move cursor forward one word

Typing enough characters to uniquely identify a command is a shortcut for that command.

The XPress-I/O CLI supports tab completion.

3: Summary of CLI Commands

The following sections describe the CLI commands. The commands are organized as follows:

- ◆ Root level: page [9](#)
- ◆ Enable level: page [10](#)
- ◆ Chem level: page [14](#)
- ◆ Configure level: page [16](#)
- ◆ Device level: page [24](#)
- ◆ Filesystem level: page [25](#)
- ◆ If 1 level: page [28](#)
- ◆ Line level: page [29](#)
- ◆ Modbus level: page [32](#)
- ◆ SSH level: page [32](#)
- ◆ SSL level: page [36](#)
- ◆ Tunnel level: page [37](#)

Root Level Commands

The following is a list of root level commands. These commands do not alter the configuration of the XPress-I/O.

Root Level Command	Description
<code>clrscrn</code>	Clears the screen.
<code>enable</code>	Enters the enable level. If the XPress-I/O has been configured to do so, it may prompt for a password.
<code>exit</code>	Exits the CLI.
<code>ping <host></code>	Pings the host destination with a 5-second timeout. <host> = IP address or host name of destination host.
<code>ping <host> <count></code>	Pings the host destination a specified number of times with a 5-second timeout. <host> = IP address or host name of destination host. <count> = number of times the ping is to occur.
<code>ping <host> <count> <timeout></code>	Pings the host destination a specified number of times with a specified timeout. <host> = IP address or host name of destination host. <count> = number of times the ping is to occur. <timeout> = number of seconds that must elapse without a response before the ping times out.
<code>show</code>	Displays a select group of XPress-I/O settings. This includes product information, network settings, and line settings.
<code>show history</code>	Displays the last 20 commands entered during the current CLI session.
<code>show xpressio</code>	Same as the show command. Note: This command's syntax will change if the short name of the device changes. (e.g., <code>show <short name></code>).
<code>trace route <host></code>	Displays the route taken from the XPress-I/O to a specified destination. <host> = IP address or host name of destination host.

Enable Level Commands

The following is a list of commands available in the enable level.

Enable Level Command	Description
<code>auto show interfaces</code>	Displays interface statistics.
<code>auto show processes</code>	Continuously displays thread runtime information.
<code>auto show xsr</code>	Displays XML Status Record counters.
<code>chem <number></code>	Enters the chem (configure host email) level.
<code>clear interface counters</code>	Sets the interface session counters to zero.
<code>clear query port counters</code>	Sets the query port counters to zero.
<code>clrscrn</code>	Clears the screen.
<code>clear xsr counters</code>	Sets the XML Status Record counters to zero.
<code>configure</code>	Enters the configure level.
<code>connect</code>	Displays names and numbers of all lines, and allows you to choose a line to connect to.
<code>connect line <line></code>	Starts a session on the serial line. <line> = line number.
<code>device</code>	Enters the device level.
<code>disable</code>	Returns to the root level.
<code>exit</code>	Exits the CLI.
<code>filesystem</code>	Enters the filesystem level.
<code>kill line <line></code>	Closes a specified command mode session. <line> = the number of the serial line to be cleared
<code>kill ssh <session></code>	Closes an active SSH session. <session> = the SSH session to be close. (can be found by executing the <code>show sessions</code> command).
<code>kill telnet <session></code>	Closes an active Telnet session. <session> = the Telnet session to be closed. (can be found by executing the <code>show sessions</code> command).

Enable Level Command	Description
line <line>	Enters the line level for a specified serial port. <line> = number of the line (serial port) to be configured.
no clear interfaces counters	Restores the interface counters to the aggregate values.
no clear query port counters	Restores the query port counters to the aggregate values.
no clear xsr counters	Restores the XML Status Record counters to the aggregate values.
nslookup	Executes the nslookup program, accepting nslookup commands. This program is used for forward and reverse DNS lookups.
nslookup <host>	Performs a forward or reverse DNS lookup on <host>. <host> = IP address or host name of destination host.
ping <host>	Pings the host destination five times with a 5-second timeout. <host> = IP address or host name of destination host.
ping <host> <count>	Pings the host destination a specified number of times with a 5-second timeout. <host> = IP address or host name of destination host. <count> = number of times the specified host is to be pinged.
ping <host> <count> <timeout>	Pings the host destination a specified number of times with a specified timeout. <host> = IP address or host name of destination host. <count> = number of times the ping is to occur. <timeout> = number of seconds that must elapse without a response before the ping times out.
reload	Reboots the XPress-I/O.
reload factory defaults	Resets the XPress-I/O configuration to the default settings.
show	Displays a select group of XPress-I/O settings. This includes product information, network settings, and line settings.
show history	Displays the last 20 commands entered during the current CLI session.
show hosts	Displays the device's domain name and known DNS servers.

Enable Level Command	Description
<code>show interfaces</code>	Displays network-interface statistics.
<code>show ip sockets</code>	Displays TCP and UDP state information and their associated ports.
<code>show processes</code>	Displays thread runtime information.
<code>show sessions</code>	Displays active line, Telnet, and SSH sessions on the XPress-I/O.
<code>show xpressio</code>	Same as the show command. Note: This command's syntax will change if the short name of the device changes. (e.g., <code>show <short name></code>).
<code>show xsr</code>	Displays XML Status Record counters.
<code>ssh</code>	Enters the ssh level.
<code>ssl</code>	Enters the ssl level.
<code>trace route <host></code>	Displays the route taken from the XPress-I/O to a specified destination. <code><host></code> = IP address or host name of destination host.
<code>tunnel <line></code>	Enters the tunnel level for configuring the tunneling settings for the serial line indicated. <code><line></code> = number of serial port
<code>write</code>	Stores and applies current configuration into permanent memory.
<code>xcr dump</code>	Displays the current XML Configuration Record in the CLI.
<code>xcr dump <group list></code>	Displays portions of the current XML Configuration Record (XCR) that correspond to the specified XCR groups. <code><group list></code> = a quoted, comma separated list of XCR groups that you want displayed.
<code>xcr export <file></code>	Writes the current XML Configuration Record (XCR) to a file. <code><file></code> = the name of the local file to write the XCR to.
<code>xcr export <file> <group list></code>	Writes portions of the current XML Configuration Record (XCR) to a file. <code><file></code> = the name of the local file to write the XCR to. <code><group list></code> = a quoted, comma-separated list of XCR groups that you want to write to the file.

Enable Level Command	Description
<code>xcr import <file></code>	Imports an XML Configuration Record (XCR) to the XPress-I/O from a file. The XPress-I/O's configuration will be changed to have the settings indicated in the file. <file> = name of the local file to be imported.
<code>xcr import <file> <group list></code>	Imports only the specified XML Configuration Record (XCR) groups from a file. <file> = name of the local file to be imported. <group list> = a quoted, comma separated list of XCR groups that you want to import.
<code>xcr list</code>	Displays the list of valid XML Configuration Record (XCR) groups.
<code>xsr dump</code>	Displays the current XML Status Record in the CLI.
<code>xsr dump <group list></code>	Displays portions of the current XML Status Record (XSR) corresponding to the list of XSR groups. <group list> = a quoted, comma separated list of XSR groups you want displayed.
<code>xsr export <file></code>	Writes the current XML Status Record (XSR) to a file. <file> = the name of the file to write the XSR to.
<code>xsr export <file> <group list></code>	Writes portions of the current XML Status Record (XSR) to a file. <file> = name of the local file to write the XSR to. <group list> = a quoted, comma separated list of XSR groups you want to write to the file.
<code>xsr list</code>	Displays the list of valid XML Status Record (XSR) groups.

Chem Level Commands

The following is a list of commands available in the chem (configurable host email) level.

Chem Level Command	Description
<code>auto show statistics</code>	Continuously displays email statistics <email addresses> = a semi-colon separated list of email addresses.
<code>cc <email addresses></code>	Sets Cc address information.
<code>chem <number></code>	Enters the chem level. <number> = number of the chem level to enter.
<code>clear log</code>	Clears all entries from the mail log.
<code>clear mail counters</code>	Sets the email counters to zero.
<code>clrscrn</code>	Clears the screen.
<code>exit</code>	Returns to the <code>enable</code> level.
<code>file <file></code>	Specifies a text file, the contents of which will be the message body of an email alert. <file> = the name of a local file.
<code>from <email address></code>	Sets the From address for email alerts. <email address> = email address to list in the From field of the email alert.
<code>local port <number></code>	Sets local port used to send email alerts. <number> local port to use for email alerts.
<code>local port random</code>	Sets local port (used to send email alerts) to random.
<code>no cc</code>	Clears the Cc addresses for email alerts.
<code>no clear mail counters</code>	Restores the email counters to the aggregate values.
<code>no file</code>	Removes the file used for the body of the email.
<code>no from</code>	Removes From address for email alerts.
<code>no overriding domain</code>	Removes the overriding domain name option.
<code>no replyto</code>	Removes Reply-To address for email alerts.
<code>no subject</code>	Removes subject used for email alerts.
<code>no to</code>	Removes To address for email alerts.
<code>no trigger</code>	Disables trigger to send email.

overriding domain <domain>	Sets a domain name that will be used when connecting to an SMTP server to send an email alert instead of the device's domain name in EHLO. <domain> = domain name to override the current domain name in EHLO.
priority high	Sets X-Priority for email alerts to 2.
priority low	Sets X-Priority for email alerts to 4.
priority normal	Sets X-Priority for email alerts to 3.
priority urgent	Sets X-Priority for email alerts to 1.
priority very low	Sets X-Priority for email alerts to 5.
replyto <email address>	Sets Reply-To address for email alerts. <email address> = email address to list in the Reply-To field of the email alert.
send	Sends an email using the current settings.
server port <number>	Sets the port used by the SMTP server. <number> = port used for SMTP on the server side.
show	Displays email settings.
show history	Displays the last 20 commands entered during the current CLI session.
show log	Displays the email log.
show statistics	Displays email statistics.
subject <string>	Sets the subject for email alerts. <string> = text to place as the subject.
to <email addresses>	Sets email address to which the email alerts will be sent. <email addresses> = a quoted, semi-colon separated list of email addresses
trigger <XIO/X102> <High/Low>	Specifies input name and voltage level to trigger sending an email.
write	Writes runtime configuration to permanent storage.

Configure Commands

The following is a list of commands available in the configure level.

Configure Level Command	Description
<code>arp <ip address> <mac address></code>	Adds an entry to the ARP table, mapping an IP address to a MAC address. <ip address> = IP address to be mapped. <mac address> = MAC address in colon-separated form
<code>auto show icmp</code>	Continuously displays ICMP state and statistics.
<code>auto show ip</code>	Continuously displays IP statistics.
<code>auto show tcp</code>	Continuously displays TCP statistics.
<code>auto show udp</code>	Continuously displays UDP statistics.
<code>clear arp-cache</code>	Removes all entries from the ARP table.
<code>clear ftp counters</code>	Sets the FTP counters to zero.
<code>clear host <host></code>	Removes a specified entry from the DNS cache. <host> = IP address or host name of the host to remove.
<code>clear http counters</code>	Sets the HTTP counters to zero.
<code>clear icmp counters</code>	Sets the ICMP counters to zero.
<code>clear ip counters</code>	Sets the IP counters to zero.
<code>clear ip http log</code>	Clears the HTTP server log.
<code>clear ip ssh counters</code>	Sets the SSH counters to zero.
<code>clear ip telnet counters</code>	Sets the Telnet counters to zero.
<code>clear rss</code>	Clears the RSS feed data.
<code>clear tcp counters</code>	Sets the TCP counters to zero.
<code>clear tftp counters</code>	Sets the TFTP counters to zero.
<code>clear udp counters</code>	Sets the UDP counters to zero.
<code>clrscrn</code>	Clears the screen.
<code>enable password</code>	Sets the enable-level administrative password.

Configure Level Command	Description
enable password <string>	Sets the enable-level password to <string>. <string> = a password
exit	Returns to the enable level.
hostname <string>	Sets the system hostname. <string> = hostname to be assigned to the system.
if 1	Enters the if 1 (interface 1) level.
ip domain name <string>	Sets the default domain name for the XPress-IO. <string> = a valid domain name.
ip ftp enable	Enables the FTP server.
ip ftp password <string>	Sets the administrative password for the FTP server. <string> = administrative password.
ip ftp username <string>	Sets the administrative username for the FTP server. <string> = administrative username.
ip http auth <uri> <realm>	Creates a new HTTP server authentication directive. <uri> = URI of the server. <realm> = domain of the server.
ip http auth type <uri> basic	Sets an HTTP server authentication directive to the Basic Access Authentication scheme. <uri> = URI of the server.
ip http auth type <uri> digest	Sets an HTTP server authentication directive to the Digest Access Authentication scheme. <uri> = URI of the server.
ip http auth type <uri> none	Sets the authentication type for an HTTP server authentication directive to none. <uri> = URI of the server.
ip http auth type <uri> ssl	Sets the authentication type for an HTTP server authentication directive to SSL. <uri> = URI of the server.
ip http auth type <uri> ssl-basic	Sets the authentication type for an HTTP server authentication directive to SSL-Basic. <uri> = URI of the server.

Configure Level Command	Description
<code>ip http auth type <uri> ssl-digest</code>	Sets the authentication type for an HTTP server authentication directive to SSL-Digest. <uri> = URI of the server.
<code>ip http auth user <uri> <user> <password></code>	Creates or modifies a user for an HTTP server authentication directive. <uri> = URI of the server. <user> = username. <password> = password associated with the username.
<code>ip http log</code>	Enables HTTP server logging.
<code>ip http log entries <number></code>	Sets the maximum number of HTTP server log entries. <number> = maximum number of HTTP server log entries.
<code>ip http log format <string></code>	Sets the log format for the HTTP server. <string> = log format.
<code>ip http max bytes <bytes></code>	Sets the maximum number of bytes the HTTP server accepts when receiving a request. <bytes> = maximum number of bytes.
<code>ip http max timeout <seconds></code>	Sets the maximum timeout the HTTP server waits when receiving a request. <seconds> = maximum timeout value.
<code>ip http port <number></code>	Sets the port number the HTTP server will use. <number> = port number.
<code>ip http server</code>	Enables the HTTP server.
<code>ip http ssl port <number></code>	Sets the port number the HTTP server will use over SSL. <number> = port number.
<code>ip icmp enable</code>	Allows the transmission and retrieval of ICMP packets.
<code>ip name-server <ip address></code>	Sets the primary DNS server. <ip address> = IP address of the primary server.
<code>ip name-server <ip address1> <ip address2></code>	Sets the primary and secondary DNS servers. <ip address1> = IP address of the primary server. <ip address2> = IP address of the secondary server.
<code>ip ssh enable</code>	Enable the SSH server.

Configure Level Command	Description
<code>ip ssh port <number></code>	Sets the local port that the SSH server uses. <number> = local port number.
<code>ip tcp resets enable</code>	Sends TCP RSTs upon connection to unused ports.
<code>ip telnet enable</code>	Enables the Telnet server.
<code>ip telnet port <number></code>	Sets the local port that the Telnet server uses. <number> = local port number.
<code>ip tftp allow file creation</code>	Enables the automatic creation of files by the TFTP server.
<code>ip tftp enable</code>	Enables the TFTP server.
<code>kill ssh <session></code>	Closes an active SSH session. <session> = the SSH session to be closed. (can be found by executing the <code>show sessions</code> command)
<code>kill telnet <session></code>	Closes an active Telnet session. <session> = The Telnet session to be closed (can be found by executing the <code>show sessions</code> command).
<code>modbus</code>	Changes to the modbus configuration level.
<code>no arp</code>	Clears the ARP table.
<code>no arp <ip address></code>	Removes a specific mapping from the ARP table.
<code>no clear ftp counters</code>	Restores the FTP counters to the aggregate values.
<code>no clear http counters</code>	Restores the HTTP counters to the aggregate values.
<code>no clear icmp counters</code>	Restores the ICMP counters to the aggregate values.
<code>no clear ip counters</code>	Restores the IP counters to the aggregate values.
<code>no clear ip ssh counters</code>	Restores the IP SSH counters to the aggregate values.
<code>no clear ip telnet counters</code>	Restores the IP Telnet counters to the aggregate values.
<code>no clear tcp counters</code>	Restores the TCP counters to the aggregate values.
<code>no clear tftp counters</code>	Restores the TFTP counters to the aggregate values.
<code>no clear udp counters</code>	Restores the UDP counters to the aggregate values.
<code>no enable password</code>	Removes enable (unprivileged mode) password.

Configure Level Command	Description
<code>no hostname</code>	Removes system hostname.
<code>no ip domain name</code>	Removes the domain name.
<code>no ip ftp enable</code>	Disables the FTP server.
<code>no ip ftp password</code>	Resets the FTP password to the default: PASS .
<code>no ip ftp username</code>	Resets the FTP username to the default: admin .
<code>no ip http auth <uri></code>	Deletes an existing HTTP server authentication directive. <uri> = URI of the HTTP server.
<code>no ip http auth user <uri> <user></code>	Deletes an existing user for the specified HTTP server's authentication directive. <uri> = URI of the HTTP server. <user> = user name.
<code>no ip http auth log</code>	Disables HTTP server logging.
<code>no ip http auth log format</code>	Removes the log format string for the HTTP server.
<code>no ip http server</code>	Disables the HTTP server.
<code>no ip icmp enable</code>	Prevents ICMP packets from being sent or received.
<code>no ip name-server</code>	Removes the known DNS servers.
<code>no ip ssh enable</code>	Disables the SSH server.
<code>no ip tcp resets enable</code>	Prohibits TCP RSTs from sending on connect to unused ports.
<code>no ip telnet enable</code>	Disables the Telnet server.
<code>no ip tftp allow file creation</code>	Disables file creation via TFTP.
<code>no ip tftp enable</code>	Disables the TFTP server.
<code>no password</code>	Removes the root level password.
<code>no query port enable</code>	Disables the query port.
<code>no quit connect line</code>	Clears the string used to exit the <code>connect line <line></code> command.
<code>no rss enable</code>	Disables the RSS feed.

Configure Level Command	Description
<code>no rss persistent</code>	Disables RSS feed data persistence.
<code>no snmp-server community ro</code>	Clears the SNMP read-only server community string.
<code>no snmp-server community rw</code>	Clears the SNMP read/write server community string.
<code>no snmp-server contact</code>	Clears the SNMP server contact.
<code>no snmp-server description</code>	Clears the SNMP server description.
<code>no snmp-server enable</code>	Disables the SNMP server.
<code>no snmp-server enable traps</code>	Disables SNMP server traps.
<code>no snmp-server host <ip address></code>	Deletes the primary SNMP server trap host. <ip address> = IP address of the SNMP server.
<code>no snmp-server host <ip address1> <ip address2></code>	Deletes the primary and secondary SNMP server trap hosts. <ip address1> = IP address of the primary SNMP server. <ip address2> = IP address of the secondary SNMP server.
<code>no snmp-server location</code>	Clears the SNMP server location.
<code>no snmp-server name</code>	Clears the SNMP server name.
<code>no syslog enable</code>	Disables syslog logging.
<code>no syslog host</code>	Removes the address of the syslog recipient.
<code>no syslog level</code>	Disables logging of all events.
<code>no syslog local port</code>	Clears the syslog local port.
<code>no syslog remote port</code>	Clears the syslog remote port.
<code>password</code>	Sets the root-level password by prompting the user.
<code>password <string></code>	Sets the root level password to <string>. <string> = password.
<code>query port enable</code>	Enables the query port.
<code>quit connect line <string></code>	Sets the string used to exit the <code>connect line <line></code> command.

Configure Level Command	Description
<code>rss enable</code>	Enables RSS feed
<code>rss entries <number></code>	Sets the maximum number of RSS feed entries.
<code>rss persistent</code>	Enables RSS feed data persistence.
<code>show</code>	Displays a select group of XPpress-I/O settings. This includes product information, network settings, and line settings.
<code>show arp</code>	Displays the ARP table.
<code>show ftp</code>	Displays the FTP settings and statistics.
<code>show history</code>	Displays the last 20 commands entered during the current CLI session.
<code>show http</code>	Displays the HTTP server settings.
<code>show http auth</code>	Displays the HTTP server authentication settings.
<code>show http log</code>	Displays the HTTP server log.
<code>show http statistics</code>	Displays the HTTP statistics.
<code>show icmp</code>	Displays ICMP state and statistics.
<code>show ip</code>	Displays the IP statistics.
<code>show query port</code>	Displays statistics and information about the query port.
<code>show rss</code>	Displays the RSS feed settings.
<code>show snmp-server</code>	Displays the SNMP server settings.
<code>show ssh</code>	Displays the SSH server settings.
<code>show syslog</code>	Displays the syslog settings and statistics.
<code>show tcp</code>	Displays the TCP settings and statistics.
<code>show telnet</code>	Displays the Telnet settings and statistics.
<code>show tftp</code>	Displays the TFTP settings and statistics.
<code>show udp</code>	Displays the UDP statistics.
<code>snmp-server community <string> ro</code>	Sets the read-only community within the SNMP server. <string> = name of the read-only community that is to be set.

Configure Level Command	Description
snmp-server community <string> rw	Sets the read-write community within the SNMP server. <string> = name of the read-write community that is to be set.
snmp-server contact <string>	Sets the SNMP system contact information. <string> = system contact information.
snmp-server description <string>	Enter a description for SNMP server. <string> = description of server.
snmp-server enable	Enables the SNMP server.
snmp-server enable traps	Enables traps on the SNMP server.
snmp-server host <ip address>	Sets the primary SNMP trap host. <ip address> = IP address of host running the SNMP trap.
snmp-server host <ip address1> <ip address2>	Sets the primary and secondary SNMP trap hosts. <ip address1> = IP address of primary host running the SNMP trap. <ip address2> = IP address of secondary host running the SNMP trap.
snmp-server location <string>	Sets the SNMP system location. <string> = SNMP system location.
snmp-server name <string>	Sets the SNMP system name. <string> = SNMP system name.
syslog enable	Enables syslog logging.
syslog host <ip address>	Sets the address of the syslog recipient.
syslog level <severity>	Sets the minimum severity of events that will be logged.
syslog local port <number>	Sets the syslog local port.
syslog remote port <number>	Sets the syslog remote port.
write	Stores and applies the current configuration into permanent memory.

Device Level Commands

The following is a list of commands available in the device level.

Device Configuration Command	Description
<code>auto show tlog</code>	Continuously displays the internal trouble log.
<code>auto show upload</code>	Continuously displays the current upload status.
<code>clrscrn</code>	Clears the screen.
<code>cpu speed <mhz></code>	Sets the CPU speed. <mhz> = speed of the CPU.
<code>exit</code>	Returns to the enable level.
<code>long name <name></code>	Renames the XPress-I/O's long name as displayed in command mode and the Web interface. <name> = new long name to be assigned to the XPress-I/O.
<code>no cpu speed</code>	Restores the CPU speed back to its default value.
<code>no long name</code>	Resets the XPress-I/O's long name to the default value.
<code>no short name</code>	Resets the XPress-I/O's short name to the default value.
<code>short name <name></code>	Sets the XPress-I/O's short name, displayed in command mode and the Web interface. <name> = maximum of eight characters.
<code>show</code>	Displays a select group of the XPress-I/O's settings. This includes product information, network settings, and line settings.
<code>show buffer pool</code>	Displays information on buffer pool.
<code>show hardware information</code>	Displays the hardware information for the XPress-I/O. Shows the CPU type, CPU speed, Hardware ID, flash size, RAM size, and hard drive size.
<code>show history</code>	Displays the last 20 commands entered during the current CLI session.
<code>show ibio2100</code>	Shows system information.
<code>show memory</code>	Displays current memory usage information.
<code>show task memory</code>	Shows task memory utilization.
<code>show task state</code>	Shows can current task states.

show tlog	Displays the internal trouble log.
show upload	Displays the current upload state.
write	Stores and applies the current configuration into permanent memory.

Filesystem Level Commands

The following is a list of commands available in the filesystem level. This level allows for the management of files in the XPress-I/O.

Filesystem Menu Command	Description
cat <i><file></i>	Displays the contents of a specified file. <i><file></i> = name of the file whose contents are to be displayed.
cd <i><directory></i>	Changes the current working directory to <i><directory></i> . <i><directory></i> = name of directory.
clrscrn	Clears the screen.
compact	Defragments the filesystem, freeing up space that is otherwise wasted.
cp <i><source file></i> <i><destination file></i>	Creates a copy of an existing file. <i><source file></i> = name of the original file. <i><destination file></i> = name for the copied file.
dump <i><file></i>	Displays the contents of the specified file. <i><file></i> = name of the file whose contents are to be displayed.
exit	Returns to the enable level.
format	Deletes all files and directories from the filesystem, including the configuration for the device.
ls	Displays the contents of the current working directory.
ls <i><directory></i>	Displays the contents of the specified directory. <i><directory></i> = name of the directory whose contents are to be displayed.
mkdir <i><directory></i>	Creates a directory. This directory is placed in the current working directory. <i><directory></i> = name of the directory to be created.

Filesystem Menu Command	Description
<code>mv <source file> <destination file></code>	Moves contents of a source file to a destination file. The source file is removed from the filesystem. <source file> = current file path. <destination file> = new file location.
<code>pwd</code>	Displays the current working directory.
<code>rm <file></code>	Removes a specified file from the filesystem. <file> = name of the file to be removed from the filesystem.
<code>rmdir <directory></code>	Removes a specified directory from the filesystem. <file> = name of the directory to be removed from the filesystem. Note: The directory must be empty; otherwise an error will be displayed.
<code>show</code>	Displays filesystem settings and statistics.
<code>show history</code>	Displays the last 20 commands entered during the current CLI session.
<code>show tree</code>	Displays the complete filesystem hierarchy.
<code>tftp get ascii <source file> <destination file> <host></code>	Retrieves an ASCII file using TFTP. <source file> = name of the remote file to be retrieved. <destination file> = name of the local file after retrieval. <host> = IP address or host name of the host where the file currently resides.
<code>tftp get ascii <source file> <destination file> <host> <port></code>	Retrieves an ASCII file using TFTP and a specified port. <source file> = name of the remote file to be retrieved. <destination file> = name of the local file after retrieval. <host> = IP address or host name of the host where the file currently resides. <port> = port on which the TFTP server is listening.
<code>tftp get binary <source file> <destination file> <host></code>	Retrieves a binary file using TFTP. <source file> = name of the remote file to be retrieved. <destination file> = name of the local file after retrieval. <host> = IP address or host name of the host where the file currently resides.
<code>tftp get binary <source file> <destination file> <host> <port></code>	Retrieves a binary file using TFTP and a specified port. <source file> = name of the remote file to be retrieved. <destination file> = name of the local file after retrieval.

Filesystem Menu Command	Description
	<p><i><host></i> = IP address or host name of the host where the file currently resides.</p> <p><i><port></i> = port on which the TFTP server is listening</p>
<pre>tftp put ascii <source file> <destination file> <host></pre>	<p>Sends an ASCII file using TFTP.</p> <p><i><source file></i> = name of the local file to be sent.</p> <p><i><destination file></i> = name of the remote file after being sent.</p> <p><i><host></i> = IP address or host name of the host where the file will be sent.</p>
<pre>tftp put ascii <source file> <destination file> <host> <port></pre>	<p>Sends an ASCII file using TFTP and a specified port.</p> <p><i><source file></i> = name of the local file to be sent.</p> <p><i><destination file></i> = name of the remote file after being sent.</p> <p><i><host></i> = IP address or host name of the host where the file will be sent.</p> <p><i><port></i> = port on which the TFTP server is listening.</p>
<pre>tftp put binary <source file> <destination file> <host></pre>	<p>Sends a binary file using TFTP.</p> <p><i><source file></i> = name of the local file to be sent.</p> <p><i><destination file></i> = name of the remote file after being sent.</p> <p><i><host></i> = IP address or host name of the host where the file will be sent.</p>
<pre>tftp put binary <source file> <destination file> <host> <port></pre>	<p>Sends a binary file using TFTP and a specified port.</p> <p><i><source file></i> = name of the local file to be sent.</p> <p><i><destination file></i> = name of the remote file after being sent.</p> <p><i><host></i> = IP address or host name of the host where the file will be sent.</p> <p><i><port></i> = port on which the TFTP server is listening.</p>
<pre>touch <file></pre>	<p>Creates an empty file on the filesystem.</p> <p><i><file></i> name of the file to be created.</p>

If 1 Level Commands

The following is a list of commands available in the if 1 (interface 1) level.

If 1 Level Command	Description
<code>arp timeout <seconds></code>	Sets the ARP cache timeout. <seconds> = ARP cache timeout in seconds.
<code>bootp</code>	Enables BOOTP.
<code>clear host <string></code>	Removes an entry from DNS cache. <string> = entry to be removed.
<code>clrscrn</code>	Clears the screen.
<code>dhcp</code>	Enables DHCP.
<code>dhcp renew</code>	Forces DHCP to renew.
<code>duplex auto</code>	Sets Ethernet link duplex to auto-negotiate.
<code>duplex full</code>	Sets Ethernet link duplex to full-duplex.
<code>duplex half</code>	Sets Ethernet link duplex to half-duplex.
<code>exit</code>	Returns to the configure level.
<code>ip address <ip address/bits></code>	Sets the IP address and netmask. <ip address/bits> = IP address / netmask in Classless Inter-Domain Routing (CIDR) notation.
<code>ip address <ip address></code>	Sets the IP address. <ip address> = IP address.
<code>ip address <ip address> <netmask></code>	Sets the IP address and netmask. <ip address> = IP address. <netmask> = netmask in dotted notation.
<code>ip address filter <ip address> <netmask></code>	Adds a filter to the IP filter table. <ip address> = IP address. <netmask> = netmask in dotted notation.
<code>ip default-gateway <ip address></code>	Sets the IP address for the default gateway.
<code>ip dhcp client client-id id ascii <string></code>	Sets the DHCP client ID.
<code>no bootp</code>	Disables BOOTP.
<code>no dhcp</code>	Disables DHCP.

If 1 Level Command	Description
<code>no duplex</code>	Restores default duplex of the Ethernet link.
<code>no ip address</code>	Removes the IP address.
<code>no ip address filter <ip address> <netmask></code>	Removes a specified filter from the IP filter table. <ip address> = IP address. <netmask> = netmask in dotted notation.
<code>no ip default-gateway</code>	Removes the default gateway.
<code>no ip dhcp client client-id</code>	Deletes the DHCP client ID.
<code>no speed</code>	Restores the default Ethernet link speed.
<code>show</code>	Displays the interface settings.
<code>show history</code>	Displays the last 20 commands entered during the current CLI session.
<code>show ip address filter</code>	Displays the IP filter table.
<code>speed 10</code>	Sets the Ethernet link speed to 10 Mbps, duplex is unchanged.
<code>speed 100</code>	Sets the Ethernet link speed to 100 Mbps, duplex is unchanged.
<code>speed auto</code>	Sets the Ethernet link speed to auto-negotiation.
<code>write</code>	Stores and applies the current configuration into permanent memory.

io level commands

io Level Command	Description
<code>clrscrn</code>	Clears the screen.
<code>exit</code>	Exits to the enable level.
<code>get <io></code>	Displays the value of the specified Input or Output.
<code>set <io> as input</code>	Configures I/O as an input.
<code>set <io> as output</code>	Configures I/O as an output.
<code>set <output> force closed</code>	Forces the specified Output to be Closed.
<code>set <output> force open</code>	Forces the specified Output to be Open.

io Level Command	Description
set <output> normal	Sets the specified Output for normal operation.
show	Shows information for all I/Os.
show history	Shows previously entered commands.

Line Level Commands

The following is a list of commands available in the line level. These commands configure the corresponding serial ports.

Line Level Command	Description
auto show statistics	Continuously displays line statistics.
clear line counters	Sets the serial counters to zero.
clrscrn	Clears the screen.
command mode always	Sets the line to always be in command mode.
command mode echo serial string	Enables user-defined serial boot string to be echoed in the CLI.
command mode serial string	Enables user to enter a custom string at boot time to enter command mode.
command mode serial string <string>	Sets a string that can be entered at boot time to enter command mode.
command mode serial string binary <string>	Sets a binary string that can be entered at boot time to enter command mode.
command mode signon message <string>	Sets an ASCII sign-on message that is sent from the serial port when the device boots and when the line is in command mode.
command mode signon message binary <string>	Sets a binary sign-on message that is sent from the serial port when the device boots and when the line is in command mode.
command mode wait time <milliseconds>	Sets boot-up wait time for command mode serial string. <milliseconds> = number of milliseconds for boot-up wait time and serial settings.
databits 7	Sets the current serial port to use 7 databits.
databits 8	Sets the current serial port to use 8 databits.
enable rs485 full- duplex (line 2 only)	Sets the current serial port interface to RS485 using full-duplex communication.

Line Level Command	Description
<code>enable rs485 half-duplex</code> (line 2 only)	Sets the current serial port interface to RS485 using half-duplex communication.
<code>enable rs485 termination</code>	Enables 120 ohm termination in RS485 half-duplex mode.
<code>exit</code>	Returns to the enable level.
<code>flowcontrol hardware</code>	Sets the current serial port's flow control to hardware.
<code>flowcontrol software</code>	Sets the current serial port's flow control to software.
<code>no clear line counters</code>	Restores the serial counters to the aggregate values.
<code>line <line></code>	Enters the line level for a specified serial port. <line> = number of the line (serial port) to be configured.
<code>name <text></code>	Sets remote address to connect to.
<code>no command mode</code>	Disables command mode for the current serial port.
<code>no command mode echo serial string</code>	Disables the echoing of serial data at boot time.
<code>no command mode serial string</code>	Prevents the user-defined serial boot string from being echoed in the CLI.
<code>no command mode signon message</code>	Prevents the sign-on message from being displayed at boot time and when entering command mode.
<code>no flowcontrol</code>	Sets the current serial port's flow control to none.
<code>no name</code>	Removes the name of current line.
<code>no protocol</code>	Uses no protocol on the serial port.
<code>no rs485 termination</code>	Disables 120-ohm termination in RS485 half-duplex mode.
<code>no shutdown</code>	Enables the interface so data can be sent/received.
<code>parity even</code>	Sets the current serial port's parity to even.
<code>parity none</code>	Sets the current serial port's parity to none.
<code>parity odd</code>	Sets the current serial port's parity to odd.
<code>protocol modbus ascii</code>	Specifies that Modbus ASCII protocol be applied to the serial port.
<code>protocol modbus rtu</code>	Specifies that Modbus RTU protocol be applied to the serial port.
<code>protocol tunnel</code>	Specifies that Tunnel protocol be applied to the serial port.

Line Level Command	Description
show	Displays the current line's settings.
show command mode	Shows the command mode settings for the current line.
show history	Displays the last 20 commands entered during the current CLI session.
show line	Shows the current serial port's settings.
show statistics	Shows the line statistics.
shutdown	Disables the interface so data cannot be sent/received.
speed <baud>	Sets the current serial port's interface speed. <baud> = a standard rate between 300 and 230400.
speed custom <baud>	Sets the current serial port's interface to use a custom speed. <baud> = any rate between 300 and 230400.
stopbits 1	Sets the current serial port to use 1 stop bit.
stopbits 2	Sets the current serial port to use 2 stopbits.
tunnel <line>	Enters the tunnel level for a specified serial port. <line> = number of the line (serial port) to be configured.
write	Stores and applies the current configuration into permanent memory.
xoff <character definition>	Sets the XOFF character for the current serial port (for use with software flow control). <character definition> = a single character, a hex value \0x##, or a decimal value \###.
xon <character definition>	Sets the XON character for the current serial port (for use with software flow control). <character definition> = a single character, a hex value \0x##, or a decimal value \###.

Modbus Level Commands

The following is a list of commands available in the modbus level.

Modbus Level Command	Description
additional port <number>	Sets an additional TCP server port. <number> = Sets an additional TCP Server port.
clrscrn	Clears the screen.

Modbus Level Command	Description
<code>exit</code>	Returns to the configure level.
<code>kill connection <index></code>	Kills modbus connection selected by index from show connections.
<code>no additional port</code>	Removes additional TCP server port.
<code>no tcp server</code>	Disables modbus TCP Server.
<code>show</code>	Displays Modbus configuration.
<code>show connections</code>	Displays Modbus connections.
<code>show history</code>	Shows previously entered commands.
<code>show statistics</code>	Displays Modbus statistics.
<code>tcp server enable</code>	Enables Modbus TCP Server.

SSH Level Commands

The following is a list of commands available in the ssh level.

SSH Level Command	Description
<code>client server <server></code>	Sets a known server's public RSA or DSA key. <server> = IP address or host name of the server.
<code>client server <server> <key></code>	Sets a known server's public RSA or DSA key. <server> = IP address or host name of the server. <key> = the public RSA or DSA key.
<code>client user <user> <command></code>	Sets the client user, command, and RSA or DSA keys for use when the XPress-I/O acts as a client. <user> = client username. <command> = command to execute on the remote machine.
<code>client user <user> <password> <command></code>	Sets the client user, password, command, and RSA or DSA keys (optional) for use when the XPress-I/O acts as a client. <user> = client username. <password> = password associated with the username. <command> = command to execute on the remote machine.

SSH Level Command	Description
<pre>client user <user> <password> <command> <public> <private></pre>	<p>Sets the client user, password, command, and RSA or DSA keys for use when the XPress-I/O acts as a client.</p> <p><user> = username to be set.</p> <p><password> = password associated with username.</p> <p><command> = command to execute on the remote machine.</p> <p><public> = public RSA or DSA key.</p> <p><private> = private RSA or DSA key.</p>
<pre>client user <user> generate dsa 1024</pre>	<p>Generates 1024-bit DSA public and private keys for use when the XPress-I/O acts as a client.</p> <p><user> = username.</p>
<pre>client user <user> generate dsa 512</pre>	<p>Generates 512-bit DSA public and private keys for use when the XPress-I/O acts as a client.</p> <p><user> = username.</p>
<pre>client user <user> generate dsa 768</pre>	<p>Generates 768-bit DSA public and private keys for use when the XPress-I/O acts as a client.</p> <p><user> = username.</p>
<pre>client user <user> generate rsa 1024</pre>	<p>Generates 1024-bit RSA public and private keys for use when the XPress-I/O acts as a client.</p> <p><user> = username.</p>
<pre>client user <user> generate rsa 512</pre>	<p>Generates 512-bit RSA public and private keys for use when the XPress-I/O acts as a client.</p> <p><user> = username.</p>
<pre>client user <user> generate rsa 768</pre>	<p>Generates 768-bit RSA public and private keys for use when the XPress-I/O acts as a client.</p> <p><user> = username.</p>
<pre>clrscrn</pre>	<p>Clears the screen.</p>
<pre>exit</pre>	<p>Returns to the enable level.</p>
<pre>host</pre>	<p>Sets the RSA or DSA public (or private) keys for use when the XPress-I/O acts as a server.</p>
<pre>host <key></pre>	<p>Sets the RSA or DSA public (or private) key for use when the XPress-I/O acts as a server.</p> <p><key> = RSA or DSA key to be set.</p>
<pre>host <public> <private></pre>	<p>Sets RSA or DSA public and private keys for use when the XPress-I/O acts as a server.</p> <p><public> = public key to be set.</p> <p><private> = private key to be set.</p>

SSH Level Command	Description
host generate dsa 1024	Generates 1024-bit DSA public and private keys for use when the XPress-I/O acts as a server.
host generate dsa 512	Generates 512-bit DSA public and private keys for use when the XPress-I/O acts as a server.
host generate dsa 768	Generates 768-bit DSA public and private keys for use when the XPress-I/O acts as a server.
host generate rsa 1024	Generates 1024-bit RSA public and private keys for use when the XPress-I/O acts as a server.
host generate rsa 512	Generates 512-bit RSA public and private keys for use when the XPress-I/O acts as a server.
host generate rsa 768	Generates 768-bit RSA public and private keys for use when the XPress-I/O acts as a server.
host user <user> <password>	Sets a username and password that can be used to access the XPress-I/O through an SSH connection. <user> = username to be set. <password> = password associated with username.
host user <user> <password><key>	Sets a username, password, and key that can be used to access the XPress-I/O through an SSH connection. <user> = username to be set. <password> = password associated with username. <key> = key to be set.
host user <user> <password> <public> <public>	Sets a username, password, public key, and private key that can be used to access the XPress-I/O through an SSH connection. <user> = username to be set. <password> = password associated with username. <public> = public key to be set. (either RSA or DSA) Note: Either an RSA and DSA public key may be set.
no client server <server>	Removes a known server. <server> = IP address or host name of the server.
no client user <user>	Removes a client user for use when the XPress-I/O acts as a client. <user> = name of client user to be removed.
no host dsa	Removes DSA public and private keys for use when the XPress-I/O acts as a server.
no host rsa	Removes RSA public and private keys for use when the XPress-I/O acts as a server.

SSH Level Command	Description
<code>no host user <user></code>	Removes username that can be used to access the XPress-I/O through an SSH connection. <user> username to be removed.
<code>show</code>	Displays SSH settings.
<code>show client server <server></code>	Displays client server RSA and DSA public keys. <server> = IP address or host name of the server.
<code>show client user <user></code>	Displays information about a client user. <user> = username.
<code>show history</code>	Displays the last 20 commands entered during the current CLI session.
<code>show host dsa</code>	Displays the DSA public key for use when the XPress-I/O acts as a server.
<code>show host rsa</code>	Displays the full RSA public key for use when the XPress-I/O acts as a server.
<code>show host user <user></code>	Displays information for a host user. <user> = username.
<code>write</code>	Stores and applies current configuration into permanent memory.

SSL Level Commands

The following is a list of commands available in the ssl level.

SSL Level Command	Description
<code>clrscrn</code>	Clears the screen.
<code>exit</code>	Returns to the enable level.
<code>no ssl</code>	Removes the SSL certificate.
<code>show history</code>	Displays the last 20 commands entered during the current CLI session.
<code>show ssl</code>	Displays the SSL certificate information.
<code>ssl</code>	Adds a SSL certificate and private key.
<code>ssl generate</code>	Generates a new self-signed SSL certificate.
<code>write</code>	Stores and applies current configuration into permanent memory.

Tunnel Level Commands

The following is a list of commands available in the tunnel level.

Tunnel Level Command	Description
accept aes decryption key <string>	Sets the AES decryption key for accept mode tunneling using ASCII format. <string> = AES decryption key to be set.
accept aes decryption key binary <string>	Sets the AES decryption key for accept mode tunneling using binary format. <string> = AES decryption key to be set. Note: Each byte in the binary format is represented as a decimal or hex number preceded by a \ (e.g., \###, \0x##).
accept aes encryption key <string>	Sets the AES encryption key for accept mode tunneling using ASCII format. <string> = AES encryption key to be set.
accept aes encryption key binary <string>	Sets the AES encryption key for accept mode tunneling using binary format. <string> = AES encryption key to be set. Note: Each byte in the binary format is represented as a decimal or hex number preceded by a \ (e.g., \###, \0x##).
accept always	Enables the tunneling server to always accept tunneling connections.
accept any character	Enables the tunneling server to accept tunneling connections only when a character is received through the corresponding line (serial port).
accept block network	Discards all data coming in from the network interface from the accept mode tunneling connection (generally used for debugging).
accept block serial	Discards all data coming in from the serial interface associated with the accept mode tunneling connection (generally used for debugging).
accept email connect <email profile>	Sets an email profile to use to send an e-mail alert upon establishing an accept mode tunnel. <email profile> = a number (1 to 4) of the e-mail profile to use
accept email disconnect <email profile>	Sets an email profile to use to send an e-mail alert upon closing an accept mode tunnel. <email profile> = a number (1 to 4) of the e-mail profile to use
accept flush serial data	Flushes the serial data buffer upon establishing an accept mode tunneling connection.

Tunnel Level Command	Description
accept keep alive <milliseconds>	Enables TCP keepalives for accept mode tunneling and sets the timer in milliseconds. <milliseconds> = timer value, in milliseconds.
accept modem control active	Enables the tunneling server to accept tunneling connections when the modem control pin is set to asserted.
accept modem emulation	Enables modem emulation for accept mode tunneling.
accept output exclusive	Requires exclusive control of the output for accept mode connection.
accept output wired-or	Does not require exclusive control of the output for accept mode connection.
accept output select <output>	Output to enable while accept mode connection is up.
accept password <string>	Sets tunnel password.
accept port <port>	Sets the port to use for accept mode tunneling. <port> = port for use.
accept prompt for password	Prompt for password in accept mode upon connection.
accept protocol ssh	Uses SSH protocol for accept mode tunneling.
accept protocol tcp	Uses TCP protocol for accept mode tunneling.
accept protocol tcp aes	Uses TCP protocol with AES encryption for accept mode tunneling.
accept protocol telnet	Use Telnet protocol (IAC) for accept mode tunneling.
accept start character	Enables accept mode tunneling when the configured start character is received.
auto show statistics	Continuously displays tunneling statistics.
clear accept counters	Sets the counters for accept mode tunneling to zero.
clear aggregate counters	Sets the aggregate counters to zero.

Tunnel Level Command	Description
<code>clear all counters</code>	Sets the tunneling counters to zero.
<code>clear connect counters</code>	Sets the counters for connect mode tunneling to zero.
<code>clrscrn</code>	Clears the screen.
<code>connect aes decryption key <string></code>	Sets the AES decryption key for connect mode tunneling using ASCII format. <i><string></i> = AES decryption key to be set.
<code>connect aes decryption key binary <string></code>	Sets the AES decryption key for connect mode tunneling using binary format. <i><string></i> = AES decryption key to be set. Note: Each byte in the binary format is represented as a decimal or hex number preceded by a \ (e.g., \###, \0x##).
<code>connect aes encryption key <string></code>	Sets the AES encryption key for connect mode tunneling using ASCII format. <i><string></i> = AES encryption key to be set.
<code>connect aes encryption key binary <string></code>	Sets the AES encryption key for connect mode tunneling using binary format. <i><string></i> = AES encryption key to be set. Note: Each byte in the binary format is represented as a decimal or hex number preceded by a \ (e.g., \###, \0x##).
<code>connect always</code>	Enables the tunneling server to always establish tunneling connections.
<code>connect any character</code>	Enables the tunneling server to establish a tunneling connection when a character is received on the line (serial port).
<code>connect block network</code>	Discards all data coming in from the network interface from the connect mode tunneling connection (generally used for debugging).
<code>connect block serial</code>	Discards all data coming in from the serial interface associated with the connect mode tunneling connection (generally used for debugging).
<code>connect email connect <email profile></code>	Sets an email profile to use to send an e-mail alert upon establishing a connect mode tunnel. <i><email profile></i> = a number (1 to 4) of the e-mail profile to use.

Tunnel Level Command	Description
connect email disconnect <email profile>	Sets an email profile to use to send an e-mail alert upon closing a connect mode tunnel. <email profile> = the number (1 to 4) of the e-mail profile to use.
connect flush serial data	Flushes the serial data buffer upon establishing an connect mode tunneling connection.
connect keep alive <number>	Enables TCP keepalives for connect mode tunneling and sets the timer in milliseconds. <milliseconds> = timer value, in milliseconds.
connect modem control active	Enables the tunneling server to make tunneling connections. when the modem control pin is set to asserted.
connect modem emulation	Enables modem emulation for connect mode tunneling.
connect output exclusive	Requires exclusive control of the output for connect mode connection.
connect output wired-or	Does not require exclusive control of the output for connect mode connection.
connect output select <output>	Output to enable while connect mode connection is up.
connect port <port>	Sets the local port that the XPress-I/O will use to make tunneling connections to other devices. <port> = port for use.
connect protocol ssh	Uses SSH protocol for connect mode tunneling.
connect protocol tcp	Uses TCP protocol for connect mode tunneling.
connect protocol tcp aes	Uses TCP protocol with AES encryption for connect mode tunneling.
connect protocol udp	Uses UDP protocol for connect mode tunneling.
connect protocol udp aes	Uses UDP protocol with AES encryption for connect mode tunneling.
connect reconnect timer <milliseconds>	Sets the reconnect time value for tunneling connections established by the XPress-I/O in milliseconds. <milliseconds> = number of milliseconds.

Tunnel Level Command	Description
connect remote <host>	Sets the remote host to establish tunneling connections with. <host> = IP address or host name of host.
connect remote port <port>	Sets remote port to be used for tunneling connections established by the XPress-I/O. <port> = port to be used.
connect ssh username <string>	Sets the SSH user name for use when establishing tunneling connections with other devices. <string> = SSH user name.
connect start character	Enables the tunneling server to establish a tunneling connection when the configured start character is received on the line (serial port).
disconnect flush serial data	Flushes serial data buffer when a tunneling connection is closed.
disconnect modem control inactive	Enables disconnect mode to disconnect if the modem control pin is not asserted.
disconnect stop character	Enables the tunneling server to close tunneling connections when the configured stop character is received on the line (serial port).
disconnect timeout	Enables the tunneling server to close tunneling connections when no data has been received on the line (serial port) for the configured amount of time (timeout).
disconnect timeout <milliseconds>	Sets the disconnect mode timeout in milliseconds. <milliseconds> = disconnect mode timeout value.
echo start character	Enables forwarding (tunneling) of the start character.
echo stop character	Enables forwarding (tunneling) of stop-character.
exit	Returns to the enable level.
kill accept connection	Disconnects the active accept mode tunneling connection.
kill connect connection	Disconnects the active connect mode tunneling connection.
line <line>	Enters the line level for a specified serial port. <line> = number of the line (serial port) to be configured.

Tunnel Level Command	Description
modem connect string <string>	Sets the CONNECT string used in modem emulation. <string> = connect string.
modem echo commands	Echoes modem commands.
modem echo pluses	Echoes the +++ characters when entering modem command mode.
modem error unknown commands	Returns an error upon unknown AT commands.
modem numeric response codes	Uses numeric response codes.
modem text response codes	Uses text response codes.
modem verbose	Uses verbose status codes.
no accept	Disables accept mode tunneling.
no accept aes decryption key	Removes the AES decryption key for accept mode tunneling.
no accept aes key encrypt	Removes the AES encryption key for accept mode tunneling.
no accept block network	Forwards (tunnels) network data in accept mode tunneling.
no accept block serial	Forwards (tunnels) serial data in accept mode tunneling.
no connect email connect	Removes email profile to use to send an e-mail alert upon establishing a connect mode tunnel.
no connect email disconnect	Removes email profile to use to send an e-mail alert upon closing a connect mode tunnel.
no accept flush serial data	Do not flush serial data buffer upon establishing an accept mode tunneling connection.
no accept keep alive	Disables TCP keepalives for accept mode tunneling.
no accept output select	Removes output to enable while accept mode connection is up.
no accept output wired-or	Requires exclusive control of the output for accept mode connection.
no accept password	Removes password for accept mode tunneling.

Tunnel Level Command	Description
no accept port	Uses a default port number as the local port for accept mode tunneling. Note: The default port is 1000# where # is the line number for this tunnel.
no accept prompt for password	Removes prompt for password in accept mode upon connection.
no clear accept counters	Restores the counters for accept mode tunneling to the aggregate values.
no clear aggregate counters	Restores the aggregate counters to the aggregate values.
no clear all counters	Restores all tunnel counters to the aggregate values.
no clear connect counters	Restores all counters for connect mode tunneling to the aggregate values.
no connect	Disables connect mode tunneling.
no connect aes decryption key	Removes the AES decryption key for connect mode tunneling.
no connect aes encryption key	Removes the AES encryption key for connect mode tunneling.
no connect block network	Forwards (tunnels) network data in connect mode tunneling.
no connect block serial	Forwards (tunnels) serial data in connect mode tunneling.
no accept email connect	Removes email profile to use to send an e-mail alert upon establishing an accept mode tunnel.
no accept email disconnect	Removes email profile to use to send an e-mail alert upon closing an accept mode tunnel.
no connect flush serial data	Do not flush serial data buffer upon establishing a connect mode tunneling connection.
no connect keep alive	Disables TCP keepalives for connect mode tunneling.
no connect output wired-or	Requires exclusive control of the output for connect mode connection.
no connect output select	Removes output to enable while connect mode connection is up.
no connect port	Uses a random port number as the local port for establishing tunneling connections to other devices.

Tunnel Level Command	Description
no connect remote address	Removes a remote host to establish tunneling connections with.
no connect remote port	Removes the remote port used to establish tunneling connections.
no connect ssh username	Remove SSH user name to be used for establishing tunneling connections.
no disconnect	Disables disconnect mode.
no disconnect flush serial data	Do not flush serial data buffer upon closing a tunneling connection.
no echo start character	Disables forwarding (tunneling) of start-character.
no echo stop character	Disables forwarding (tunneling) of stop-character.
no modem connect string	Removes optional CONNECT string information for modem emulation.
no modem echo commands	Does not echo modem commands.
no modem echo pluses	Do not echo the +++ characters when entering modem command mode.
no modem error unknown commands	Returns OK on unknown AT commands.
no modem verbose	Do not use verbose status codes
no packing	Disables packing mode.
no packing send character	Removes the send character for packing mode.
no packing trailing character	Removes the trailing character for packing mode.
no serial buffer size	Sets buffers used in tunneling of data to the default.
no serial wait for read timeout	Disables waiting for read timeout before returning serial data.
no start character	Removes the start character.
no stop character	Removes the stop character.

Tunnel Level Command	Description
packing send character	Enables packing mode to pack data and transmit upon receiving the configured send character on the line (serial port).
packing send character <string>	Sets the send character for packing mode <string> = a single character, a hex value \0x##, or a decimal value \###.
packing timeout	Enables packing mode to pack data and transmit after a specified amount of time (timeout).
packing threshold <bytes>	Sets the threshold (byte count). If the queued data reaches this threshold then the data will be sent.
packing timeout	Enables packing mode to pack data and transmit using a timeout.
packing timeout <milliseconds>	Sets the timeout value for packing mode in milliseconds. <milliseconds> = timeout value, in milliseconds.
packing trailing character <string>	Sets the trailing character for packing mode. <string> = a single character, a hex value \0x##, or a decimal value \###.
serial buffer size size <bytes>	Sets buffer size (in bytes) for data read from the serial port. <bytes> = size of buffer, in bytes.
serial read timeout <milliseconds>	Sets the time to wait for serial data. <milliseconds> = wait time, in milliseconds.
serial wait for read timeout <milliseconds>	Makes tunneling server wait for read timeout before tunneling the serial data. <milliseconds> = read timeout value, in milliseconds.
show	Displays tunneling settings.
show history	Displays the last 20 commands entered during the current CLI session.
show statistics	Show tunneling statistics.
start character <string>	Sets the start character. <string> = a single character, a hex value \0x##, or a decimal value \###.

Tunnel Level Command	Description
stop character <string>	Sets the stop- character. <string> = a single character, a hex value \0x##, or a decimal value \###.
tunnel <line>	Enters the tunnel level for configuring the tunneling settings for the serial line indicated. <line> = number of serial port
write	Stores and applies current configuration into permanent memory.

4: Configuration Using XML

The XPress-I/O provides an Extensible Markup Language (XML) interface that can be used to configure XPress-I/O devices. Every configuration setting that can be issued from the XPress-I/O Web Manager and CLI can be specified using XML.

The XPress-I/O can import and export configuration settings as an XML document known as an XML configuration record (XCR). An XCR can be imported or exported via the CLI, a Web browser, FTP, the XPress-I/O's filesystem. An XCR being imported or exported can contain many configuration settings or just a few. For example, it might change all of the configurable parameters for an XPress-I/O, or it may only change the baud rate for a single serial line. Using XCRs provides a straightforward and flexible way to manage the configuration of multiple XPress-I/O devices.

XML Configuration Record Document Type Definition (DTD)

An XML DTD is a description of the structure and content of an XML document. It can be used to verify that a received document is valid.

XML Configuration Records are exported using the following DTD:

```
<!DOCTYPE configrecord [
  <!ELEMENT configrecord (configgroup+)>
  <!ELEMENT configgroup (configitem+)>
  <!ELEMENT configitem (value+)>
  <!ELEMENT value (#PCDATA)>
  <!ATTLIST configrecord version CDATA #IMPLIED>
  <!ATTLIST configgroup name CDATA #IMPLIED>
  <!ATTLIST configgroup instance CDATA #IMPLIED>
  <!ATTLIST configitem name CDATA #IMPLIED>
  <!ATTLIST value name CDATA #IMPLIED>
]>
```

The XPress-I/O's DTD states the following:

- ◆ The XML document element is a <configrecord> element. This is the root element.
- ◆ A <configrecord> must have one or more <configgroup> elements and can have a version attribute.
- ◆ A <configgroup> must have one or more <configitem> elements and can have version and name attributes.
- ◆ A <configitem> element must have one or more <value> elements and can have a name attribute.

- ◆ A <value> element can have only data and can have a name attribute.

Notes:

- ◆ *The name for each <configgroup> (specified with the name attribute) is the group name listed in the Web Manager XCR groups. See the User Guide for more information.*
- ◆ *In general, an empty <value> element in an XCR clears the setting to its default, however there are exceptions such as passwords and SSH/SSL certificates.*

Attributes

- ◆ Use the “name” attribute to identify a group, item, or value. It is always a quoted string.
- ◆ Use the “instance” attribute to identify the specific option (such as the serial port number). It is always a quoted string.

Quick Syntax Tour for XCRs

Figure 4-1 shows a simple XML example.

Figure 4-1. Simple XML Group Example

```
<?xml version="1.0" standalone="yes"?>
<configrecord>
  <configgroup name = "serial command mode" instance = "1">
    <configitem name = "mode serial string">
      <value>disable</value>
    </configitem>
  </configgroup>
</configrecord>
```

The first line:

```
<?xml version="1.0" standalone="yes"?>
```

is the “XML declaration.” It is required and indicates the XML version in use (normally version 1.0).

The remainder of the document consists of nested “elements,” some of which have “attributes” and “content.”

- ◆ An element typically consists of two tags, a “start tag” and an “end tag,” possibly surrounding text and other elements.
 - The start tag consists of a name surrounded by angle brackets, like <configrecord>.
 - The end tag consists of the same name surrounded by angle brackets, but with a forward slash preceding the name, like </configrecord>.
- ◆ The element’s content is everything that appears between the start tag and end tag, including text and other (child) elements.

In addition to content, an element can contain attributes — name-value pairs included in the start tag after the element name. Attribute values must always be quoted, using single or double quotes. Each attribute name should appear only once in an element.

The Evolution OS™ uses these attributes to differentiate and group configuration settings.

Record, Group, Item, and Value Tags

A <configgroup> is a logical grouping of configuration parameters and must contain one or more <configitem> elements. It must have a name attribute and may have an instance attribute.

A <configitem> is a specific grouping of configuration parameters relevant to its parent group. An item takes the name attribute and must contain one or more value elements. For example, the line group might have parameters such as baud rate, data bits, and parity.

A value may specify the value of a configuration parameter. It may take the name attribute. In our example, a value of 9600 might be specified for baud rate, 7 may be specified for data bits, and even may be specified for parity.

- ◆ A name attribute identifies the group, item, or value. It is always quoted (as are all XML attributes). For example, a group that contains serial port parameters has the name "line".
- ◆ An instance attribute identifies which of several instances is being addressed. It is always quoted. For example, the serial port name has the instance "1" to indicate serial port 1 or "2" to specify serial port 2.

The following figures show examples of XML configuration records and the use of the <configrecord>, <configgroup>, <configitem>, and <value> XML elements.

Figure 4-2. XML Group Example

```
<?xml version="1.0" standalone="yes"?>
<configrecord>
  <configgroup name = "serial command mode" instance = "1">
    <configitem name = "mode serial string">
      <value>disable</value>
    </configitem>
  </configgroup>
</configrecord>
```

Figure 4-3. XML Example with Multiple Named Values

```
<?xml version="1.0" standalone="yes"?>
<configgroup name = "ssh server">
  <configitem name = "host rsa keys">
    <value name = "public key"></value>
    <value name = "private key"></value>
  </configitem>
</configgroup>
```

Figure 4-4. XML Example with Multiple Items

```
<?xml version="1.0" standalone="yes"?>
<configgroup name = "email" instance = "1">
  <configitem name = "to">
    <value>john.doe@somewhere.com</value>
  </configitem>
  <configitem name = "from">
    <value>evolution@xportar.com</value>
  </configitem>
</configgroup>
```

Figure 4-5. XML Example with Multiple Groups

```
<?xml version="1.0" standalone="yes"?>
<configgroup name = "ftp server">
  <configitem name = "state">
    <value>enable</value>
  </configitem>
  <configitem name = "admin username">
    <value>admin</value>
  </configitem>
  <configitem name = "admin password">
    <value><!-- configured and ignored --></value>
  </configitem>
</configgroup>
<configgroup name = "tftp server">
  <configitem name = "state">
    <value>enable</value>
  </configitem>
  <configitem name = "allow file creation">
    <value>disable</value>
  </configitem>
</configgroup>
```

Importing and Exporting an XML Configuration File

An XML configuration record can be imported or exported using the following methods:

- ◆ Filesystem — XCRs can be saved to the XPress-I/O's file system and imported or accessed as needed. See the Best Practices section below or the *File System Browser Page* in the User Guide.
- ◆ CLI — an XML configuration record can be imported (captured) or exported (dumped) directly to a Telnet, SSH, or serial line session. Capturing an XML configuration record can be started by pasting a valid XCR directly into the CLI prompt. Evolution OS will

immediately process the configuration record, changing any settings specified in the XCR. This can be done on any level, including the root. Special tags allow for providing root and enable level passwords can also be done at the password prompt.

- ◆ Web browser — the Web interface can be used to import and export an XCR to the XPress-I/O's file system. It can also be used to import from a XCR from an external source such as your local hard drive.
- ◆ FTP — The XPress-I/O's FTP server will export and import XCRs when a get or a put on the file `xpress_io.xcr` is requested. On export (FTP get of `xpress_io.xcr`), the FTP server obtains the current XCR from Evolution OS™ and sends it as a file. On import (FTP put of `xpress_io.xcr`), the FTP server processes the file by sending it directly to the XML engine. In both cases the XPress-I/O's filesystem is not accessed. The file `xpress_io.xcr` is not read from, or written to the file system. See *FTP Page* in the User Guide.

Note: The Trivial File Transfer Protocol (TFTP) is not supported for importing or exporting XML configuration files because it does not provide any security features.

Best Practices

Importing and Exporting Partial Configurations

You can import or export an entire XCR, or just a portion of it, by specifying the group name and/or group instances. In the examples below, import and export operations are performed from the CLI on the local filesystem and require a XCR on the local filesystem. The Web Manager provides the same functionality.

The following syntax can be used to import configurations from a file on the XPress-I/O's file system:

```
xcr import <file>
xcr import <file> <groups and/or group:instances>
```

The first line imports all groups specified in the XML config record named in `<file>`. Any filename is valid, and the file name and extension are not important.

Note: The file name `xpress_io.xcr` is not acceptable, since performing a FTP get on that name produces the current configuration and does not get anything from the filesystem.

In the second line:

- ◆ Instance follows group with a colon (see the third example on the next page).
- ◆ Multiple groups are separated with a comma.
- ◆ Any white space requires the list of groups to be quoted.
- ◆ Only the named groups will be imported, even if the XCR contains additional XCR groups.

The following syntax can be used to export configurations to a file on the XPress-I/O's file system:

```
xcr export <file>
xcr export <file> <groups and/or group:instances>
```

The same guidelines above regarding importing configurations also apply to exporting configurations. If no groups are specified, then the export command will export all configuration settings to the file. If instances are specified after the groups, only those

group instances are written. If no instance is specified, all instances of that group are written.

The following example exports only the tunnel 1 settings to the file "tunnel_1.xcr" on the XPress-I/O filesystem:

```
xcr export tunnel_1.xcr "tunnel:1"
```

The following example exports only tunnel settings for all ports to the file "tunnel_all.xcr" on the XPress-I/O filesystem:

```
xcr export tunnel_all.xcr "tunnel"
```

The following example imports only the settings for line 4 from a XCR named "factory_config.xcr" on the XPress-I/O filesystem. If "factory_config.xcr" has other configuration settings, they are ignored:

```
xcr import factory_config.xcr "line:4"
```

The following example imports only line settings for all ports from a configuration record on the XPress-I/O filesystem named "foobar.xcr":

```
xcr import foobar.xcr "line"
```

To import only tunnel port 1 settings and serial line 4 settings from an XML configuration record named "production.xcr" that contains these settings (and possibly more), issue the following command:

```
xcr import production.xcr "tunnel:1, line:4"
```

The following example imports settings for all tunnel ports and all serial line ports from a file named xcr_file:

```
xcr import xcr_file "tunnel, line"
```

The following example exports only tunnel port 1 settings, and serial line 4 settings to a file named tunnel_config_t1_l4.xcr on the XPress-I/O filesystem.

```
xcr export tunnel_config_t1_l4.xcr "tunnel:1, line:4"
```

The following example exports settings for all tunnel ports and all serial line ports to the file tunnel_config.xcr on the XPress-I/O filesystem:

```
xcr export tunnel_config.xcr "tunnel, line"
```

Note: If you edit an XCR with Microsoft Word, you will not be able to import the file, even if you save the document as Plain Text (.txt) or XML Document (.xml) file.

Including Passwords in the XML File

If you log in to an XPress-I/O to which you will be pasting an XML configuration record, you do not need to include passwords in the file, since you are already logged in to the device. However, if you will be sending an XML configuration record to one or more XPress-I/O devices that are password protected, you can include the appropriate passwords in the XML configuration record and forego the usual login steps.

The “level passwords” <configgroup> name is used with the “passwords” <configitem> name and “enable” and “system” values to specify the passwords to use when the device has been configured with password protection. The password value is clear text; to protect the password and all other data on that channel, establish an SSH connection to the XPress-I/O.

```
<!--
```

```
Use these level passwords when importing via cli capture
```

```
-->
```

```
<configgroup name = "level passwords">
  <configitem name = "passwords">
    <value name = "system"></value>
    <value name = "enable"></value>
  </configitem>
</configgroup>
```

Special XCR Groups

The XML configuration record has several groups that do not directly affect the device’s configuration. These groups generally provide functionality to control the device behavior during XCR importing and are not exported when an XCR is generated. Entries that are not exported are marked as Import only in the “Import/Export column.”

The following list shows the XCR groups that are used to perform such operations. For example, the Reboot group, which causes the XPress-I/O to reboot, is not a configurable setting that can be exported. However, it may be added to an XML configuration record manually to ensure the XPress-I/O reboots after applying new configuration settings.

XML Groups

The following table lists the XPress-I/O XML import and export groups in alphabetical order. This table also indicates whether the group can be imported and/or exported.

Table 4-1. XPress-I/O Import and Export Groups

Group Name	Item Name	Value Name	Value	Import/Export	Additional Information
arp	arp timeout			Import and Export	
	arp entry	ip address		Import	Add a dynamic entry to the ARP table.
		mac address		Import	
	arp delete			Import	Remove an entry from the ARP table. Specify the entry by its IP address.
command mode password	system			Import and Export	Set the password for the system (root) level of the CLI.
	enable			Import and Export	Sets the password for the enable level of the CLI.
device	cpu speed			Import and Export	
	short name			Import and Export	
	long name			Import and Export	
email	to			Import and Export	Multiple to addresses may be separated with semicolons or input as separate "to" items.
	from			Import and Export	
	reply to			Import and Export	

Group Name	Item Name	Value Name	Value	Import/Export	Additional Information
	cc			Import and Export	Multiple cc address may be separated with semicolons or input as separate "cc" items.
	subject			Import and Export	
	message file			Import and Export	
	local port			Import and Export	
	server port			Import and Export	
	priority		Very Low	Import and Export	
			Low	Import and Export	
			Normal	Import and Export	
			High	Import and Export	
			Urgent	Import and Export	
	overriding domain			Import and Export	
	cp	group		Import and Export	
		trigger value		Import and Export	
ethernet	auto negotiate		enable	Import and Export	Enable = auto-negotiation determines the link speed and duplex. Not set to enable = speed and duplex items are exported.
			disable	Import and Export	
input output	input output	direction	output	Import and Export	Default

Group Name	Item Name	Value Name	Value	Import/Export	Additional Information
			input	Import and Export	
		control	normal	Import and Export	Default
			force closed	Import and Export	
		rss trace transitions	force open	Import and Export	
			disable	Import and Export	Default
Note: (1) Group "input output" instance is the name, such as xio1, xio2, and relay.					
exit cli	state		enable	Import	Enable = close CLI session when XCR processing is complete
			disable	Import	
firmware	version			Export	Displays current Firmware version
ftp server	state		enable	Import and Export	
			disable	Import and Export	
	Admin username			Import and Export	
	Admin password			Import and Export	
http authentication uri	realm			Import and Export	Attribute of "instance" specifies the uri.
	type			Import and Export	
	user	username		Import and Export	
		password		Import and Export	
	user delete			Import	Delete the HTTP Authentication URI user. The value element is used to specify the user for deletion.

Group Name	Item Name	Value Name	Value	Import/Export	Additional Information
	uri delete			Import	Delete the HTTP Authentication URI. The value of the element is used to specify the URI for deletion.

Group Name	Item Name	Value Name	Value	Import/Export	Additional Information
http sever	state		enable	Import and Export	
			disable	Import and Export	
	port			Import and Export	
	secure port			Import and Export	
	max timeout			Import and Export	
	max bytes			Import and Export	
	logging state			Import and Export	
icmp	state		enable	Import and Export	
			disable	Import and Export	
interface	bootp state		enable	Import and Export	
			disable	Import and Export	
	dhcp state		enable	Import and Export	
			disable	Import and Export	
	dhcp client id			Import and Export	Set the identity of the client device.
	mac address			Import and Export	Specify the MAC address of the Ethernet card.
	domain			Import and Export	
	hostname			Import and Export	
	ip address			Import and Export	
	network mask			Import and Export	
	default gateway			Import and Export	
primary dns			Import and Export		

Group Name	Item Name	Value Name	Value	Import/Export	Additional Information
	secondary dns			Import and Export	
ip filter	filter entry	ip address		Import and Export	Add an IP filter entry
		net mask		Import and Export	
	filter delete	ip address		Import	Delete an IP filter entry.
		net mask		Import	
level passwords	passwords	system		Import	This group specifies the passwords to use when importing an XCR using the CLI capture feature. The system value specifies the root password used if the root level is password protected. Passwords are not required if the CLI is already logged in to the system level.
		enable		Import	The enable value specifies the enable level password to use if the enable level is password-protected. The password is not needed if the CLI is already logged in to the enable level.
line	name			Import and Export	Line name
	state		enable	Import and Export	

Group Name	Item Name	Value Name	Value	Import/Export	Additional Information
	baud rate			Import and Export	Any value from 300 to 230400.
	data bits		7	Import and Export	
			8	Import and Export	
	parity		none	Import and Export	
			even	Import and Export	
			odd	Import and Export	
	stop bits		1	Import and Export	
			2	Import and Export	
	flow control		hardware	Import and Export	
			software	Import and Export	
			none	Import and Export	
	protocol		tunnel	Import and Export	Specifies the protocol applied to the serial port. XPress-I/O can have None, Tunnel, Modbus ASCII, Modbus RTU
	interface		rs232	Import and Export	Type of interface applied to the serial port. All can have RS232 or RS485.
			rs485		
	xon char			Import and Export	Set the x-on character. Enter as a hexadecimal byte.

Group Name	Item Name	Value Name	Value	Import/Export	Additional Information
	xoff char			Import and Export	Set the x-off character. Enter as a hexadecimal byte.
query port	state		enable	Import and Export	
			disable	Import and Export	
reboot	state		enable	Import	Force the XPress-I/O to reboot after processing.
			disable	Import	
restore factory defaults	state		enable	Import	Before processing, reset the XPress-I/O to factory defaults.
			disable	Import	
rss	feed		enable	Import and Export	
			disable	Import and Export	
	persist		enable	Import and Export	
			disable	Import and Export	
max entries			Import and Export		
serial command mode	mode		disable	Import and Export	
			always	Import and Export	
			serial string	Import and Export	
	echo serial string		enable	Import and Export	
			disable	Import and Export	
	serial string			Import and Export	
	signon message			Import and Export	
	wait time			Import and Export	

Group Name	Item Name	Value Name	Value	Import/Export	Additional Information	
snmp	state		enable	Import and Export		
			disable	Import and Export		
	system name			Import and Export		
	system contact			Import and Export		
	system location			Import and Export		
	traps	state		enable	Import and Export	
				disable	Import and Export	
		primary destination			Import and Export	
		secondary destination			Import and Export	
	ssh client	known host			Import and Export	
server				Import and Export		
public rsa key				Import and Export		
client users		username			Import and Export	
		password			Import and Export	
		remote command			Import and Export	
		public rsa key			Import and Export	
		private rsa key			Import and Export	
		public dsa key			Import and Export	
private dsa key				Import and Export		
known host delete				Import and Export	Specify the server host for deletion.	
client users delete				Import and Export	Specify the username for deletion.	

Group Name	Item Name	Value Name	Value	Import/Export	Additional Information
	client rsa key delete			Import and Export	Specify the username.
	client dsa key delete			Import and Export	Specify the username.
ssh command mode	state		enable	Import and Export	
			disable	Import and Export	
	port			Import and Export	
ssh server	host rsa keys	public key		Import and Export	
		private key		Import and Export	
	authorized users	username		Import and Export	
		password		Import and Export	
		public rsa key		Import and Export	
		public dsa key		Import and Export	
	authorized users delete			Import and Export	Delete an SSH authorized user.
	host keys delete			Import and Export	Delete an SSH host key.
ssl	certificate	certificate		Import and Export	Enter the text of the certificate.
		private key		Import and Export	Enter the text of the private key.
	delete		certificate	Import and Export	Deletes the current SSL certificate.
tcp	resets		enable	Import and Export	
			disable	Import and Export	
telnet command mode	state		enable	Import and Export	
			disable	Import and Export	

Group Name	Item Name	Value Name	Value	Import/Export	Additional Information
	port			Import and Export	
tftp server	state		enable	Import and Export	
			disable	Import and Export	
	allow file creation			Import and Export	
tunnel accept	accept mode		enable	Import and Export	
			disable	Import and Export	
			any character	Import and Export	
			start character	Import and Export	
			modem control asserted	Import and Export	
			modem	Import and Export	
	local port			Import and Export	
	protocol		tcp	Import and Export	
			tcp aes	Import and Export	
			ssh	Import and Export	
			telnet	Import and Export	
	flush serial		enable	Import and Export	
			disable	Import and Export	
	block serial		enable	Import and Export	
			disable	Import and Export	
	block network		enable	Import and Export	
			disable	Import and Export	
	tcp keep alive			Import and Export	

Group Name	Item Name	Value Name	Value	Import/Export	Additional Information
tunnel aes accept	encrypt key			Import and Export	
	decrypt key			Import and Export	
tunnel aes connect	encrypt key			Import and Export	
	decrypt key			Import and Export	
tunnel connect	connect mode		enable	Import and Export	
			disable	Import and Export	
			any character	Import and Export	
			start character	Import and Export	
			modem control asserted	Import and Export	
			modem	Import and Export	
	local port			Import and Export	
	remote address			Import and Export	
	remote port			Import and Export	
	protocol		tcp	Import and Export	
			udp	Import and Export	
			ssh	Import and Export	
			tcp aes	Import and Export	
			udp aes	Import and Export	
	reconnect time			Import and Export	
	flush serial		enable	Import and Export	
			disable	Import and Export	
ssh username			Import and Export		

Group Name	Item Name	Value Name	Value	Import/Export	Additional Information	
	block serial		enable	Import and Export		
			disable	Import and Export		
	block network		enable	Import and Export		
			disable	Import and Export		
	tcp keep alive			Import and Export		
	tunnel disconnect	disconnect mode		disable	Import and Export	
			timeout	Import and Export		
			stop character	Import and Export		
			modem control not asserted	Import and Export		
timeout				Import and Export		
		flush serial	enable	Import and Export		
			disable	Import and Export		
tunnel modem		echo pluses		enable	Import and Export	
				disable	Import and Export	
	echo commands		enable	Import and Export		
			disable	Import and Export		
	verbose response		enable	Import and Export		
			disable	Import and Export		
	response type		text	Import and Export		
			numeric	Import and Export		
	error unknown		enable	Import and Export		

Group Name	Item Name	Value Name	Value	Import/Export	Additional Information
	commands		disable	Import and Export	
	connect string			Import and Export	
tunnel packing	packing mode		disable	Import and Export	
			timeout	Import and Export	
			send character	Import and Export	
	timeout			Import and Export	
	threshold			Import and Export	
	send character			Import and Export	
	trailing character			Import and Export	
tunnel serial	buffer size			Import and Export	
	read timeout			Import and Export	
	wait read timeout			Import and Export	
tunnel start	start character			Import and Export	
	echo		enable	Import and Export	
			disable	Import and Export	
tunnel stop	stop character			Import and Export	
	echo		enable	Import and Export	
			disable	Import and Export	

XSR Groups and Items

The following table lists the supported XML Status Record (XSR) groups and items. These groups and items show the status of the device in XML form and can only be exported.

The XSR DTD differs slightly from the XCR DTD in that the XSR allows groups within groups. The only current use of this is the buffer pool group, which has the following groups as sub groups:

- ◆ protocol stack
- ◆ ethernet drive
- ◆ line

The CLI command usage is identical to the XCR export, dump, and list.

Table 4-2. XPress-I/O XSR Groups and Items

Group Name	Item Name	Value Name	Valid Values
arp	arp entry	ip address	
		mac address	
		Age	
		Type	
buffer pool			
clock	time		
	date		
	timezone	Zone	
		Offset	
device	product info	product type	lantronix xpress i/o
		serial number	
		firmware version	
		uptime	
		permanent config	saved
ethernet driver	buffer headers	total	
		free	
		used	
		max used	
	cluster pool	cluster size	
		total	
		free	
		used	
filesystem	filesystem	size	
		available clean	
		available dirty	

Group Name	Item Name	Value Name	Valid Values
		used total	
		used data	
		busy	
	entries	file count	
		directory count	
		system count	
		open count	
		lock count	
		share count	
	banks	bank a begin	
		bank a end	
		bank a erase cycles	
		bank b begin	
		bank b end	
		bank b erase cycles	
ftp	status		
	admin username		
	connections	rejected	
		accepted	
	last client	ip address	
		port	
hardware	cpu	type	
		speed	
	memory	flash size	
		ram size	
http	state		
	ports	http port	
		https port	
	max timeout		
	logging	state	
		max entries	
		format	
		entries	
		bytes	
http log	totals	entries	
		bytes	

Group Name	Item Name	Value Name	Valid Values
icmp	state		
	in	messages	
		messages detected	
		errors	
		destination unreachablees	
		time exceeded messages	
		parameter problems	
		source quench requests	
		redirects	
		ping requests	
		ping replies	
		timestamp requests	
		timestamp replies	
		address mask requests	
		address mask replies	
	out	messages	
		messages detected	
		errors	
		destination unreachablees	
		time exceeded messages	
		parameter problems	
		source quench requests	
		redirects	
		ping requests	
		ping replies	
timestamp requests			
timestamp replies			
address mask requests			
address mask replies			
interface	status		
	ethernet	ip address	
		mac address	
	phy	auto negotiate	
		speed	
		duplex	
	arp	encapsulation	

Group Name	Item Name	Value Name	Valid Values
		type	
		timeout	
	mtu		
	transmits	octets	
		unicast	
		non unicast	
		discards	
		errors	
		broadcasts packets	
		multicasts packets	
		filtered packets	
		deferred	
		multiple retries	
		one retry	
		underflows	
		late collisions	
		retry errors	
		carrier lost errors	
	receives	octets	
		unicast	
		non unicast	
		discards	
		errors	
		broadcasts packets	
		multicasts packets	
		filtered packets	
		unknown protocol	
		framing errors	
		overflows	
		crc errors	
	missed frame errors		
ip	state		
	default ttl		
	forwarded		
	route discards		
	in	receives	

Group Name	Item Name	Value Name	Valid Values
		header errors	
		address errors	
		unknown protocols	
		discarded	
		delivered	
	out	requests	
		discards	
		discards no routes	
	reassembly	timeout	
		needed	
		success	
		failures	
	fragments	needed	
		failure	
		success	
ip sockets	ip socket	protocol	
		rx queue	
		tx queue	
		local address	
		remote address	
		local port	
		remote port	
		state	
	ip socket	protocol	
		rx queue	
		tx queue	
		local address	
		remote address	
		local port	
		remote port	
		state	
	ip socket	protocol	
		rx queue	
		tx queue	
		local address	
		remote address	

Group Name	Item Name	Value Name	Valid Values
		local port	
		remote port	
		state	
line 1	buffer headers	total	
		free	
		used	
		max used	
	cluster pool	cluster size	
		total	
		free	
		used	
		max used	
	line 2	buffer headers	total
free			
used			
max used			
cluster pool		cluster size	
		total	
		free	
		used	
		max used	
		max used	
line statistics	receive	bytes	
		breaks	
		parity errors	
		framing errors	
		overrun errors	
		number buffers	
		allocated bytes	
	transmit	bytes	
		breaks	
		queued bytes	
	flow control	asserting	
		asserted	
	line levels	cts	
		rts	

Group Name	Item Name	Value Name	Valid Values
		dsr	
		dtr	
memory	main heap	condition	
		total memory	
		available memory	
		fragments	
		allocated blocks	
	internal buffer	heap	
		condition	
		total memory	
		available memory	
		allocated blocks	
modbus local slave	state		
	local port		
	totals	uptime	Time the modbus server has been enabled.
		pdus in	Protocol units received by the slave interface.
		pdus out	Protocol units sent by the slave interface.
modbus tcp server	totals	pdus in	Protocol data units received by the modbus TCP server.
		pdus out	Protocol data units sent by the modbus TCP server.
		exceptions	Number of pdus in error.
processes	process	pid	
		cpu %	
		stacks	
		thread name	
protocol stack	buffer headers	total	
		free	
		used	
		max used	

Group Name	Item Name	Value Name	Valid Values
	cluster pool	cluster size	
		total	
		free	
		used	
		max used	
query port	status		
	last connection	ip address	
		port	
	in	discoveries	
		unknown queries	
		erroneous packets	
	out	discovery replies	
		errors	
rss	state		
	persist		
	max entries		
	url		
	data	entries	
bytes			
sessions	line	interface	
		baud	
		parity	
		data bits	
		stop bits	
		flow control	
	telnet	local port	
		remote ip address	
		remote port	
		duration	
	ssh	state	
local port			
totals		uptime	
		bytes in	
		bytes out	
tcp	send reset		
	retransmission	algorithm	

Group Name	Item Name	Value Name	Valid Values
		timeout minimum	
		timeout maximum	
	connections	maximum	
		open active	
		open passive	
		failed	
		resets	
		established	
telnet	state		
	local port		
	totals	uptime	
		bytes in	
		bytes out	
	last connection	local ip address	
		local port	
		remote ip address	
		remote port	
tftp	state		
	creation		
	downloaded		
	uploaded		
	not found		
	errors	read	
		write	
		unknown	
	last client	ip address	
		port	
tunnel	aggregate	completed connects	
		completed accepts	
		disconnects	
		dropped connects	
		dropped accepts	
		octets from serial	
		octets from network	
		connect connection time	
		accept connection time	

Group Name	Item Name	Value Name	Valid Values
		connect dns address changes	
		accept dns address invalids	
	current connect connections	local ip address	
		local port	
		remote ip address	
		remote port	
		uptime	
		octets from serial	
		octets from network	
		connect dns address changes	
		accept dns address invalids	
	current accept connections	local ip address	
		local port	
		remote ip address	
		remote port	
		uptime	
		octets from network	
udp	in unknown ports		
	in datagrams		
	in errors		
	out datagrams		
xsr	out	bytes	
		lines	
		elements	
	errors		

Index

- Best practices, XML, 51
- CLI
 - Configure menu, 16
 - Device menu, 24
 - Enable menu, 10
 - Filesystem menu, 25
 - Interface 1 Level menu, 28
 - Line menu, 30
 - Navigating through, 5
 - Root menu, 9
 - Serial port configuration, 5
 - SSH menu, 33
 - SSL menu, 36
 - Summary of commands, 8
 - Telnet configuration, 5
 - Tunnel menu, 37
- CLI configuration, 5
- CLI menus
 - Configure, 16
 - Device, 24
 - Enable, 10
 - Filesystem, 25
 - Interface 1 Level, 28
 - Line, 30
 - Root, 9
 - SSH, 33
 - SSL, 36
 - Tunnel, 37
- Configuration record schema, 47
- Configure menu, 16
- Configuring the XPress-I/O
 - Serial port, 5
 - Telnet, 5
 - XML, 47
- Device menu, 24
- Enable menu, 10
- Exporting
 - system configuration record, 50
- Filesystem menu, 25
- Groups, XML, 49
- Import and export
 - XML groups, 54
 - XSR groups, 68
- Importing
 - system configuration record, 50
- Interface 1 Level menu, 28
- Items, XML, 49
- Line menu, 30
- Navigating through the
 - CLI, 5
- Records, XML, 49
- Root menu, 9
- Schema, XML configuration record, 47
- Serial port configuration, 5
- SSH menu, 33
- SSL
 - menu, 36
- Summary of
 - CLI commands, 8
- Syntax examples for XML, 48
- System configuration record
 - exporting, 50
 - importing, 50
- Telnet configuration, 5
- Tunnel menu, 37
- Values, XML, 49
- XML, 48
 - Best practices, 51
 - configuration, 47
 - configuration record schema, 47
 - Import and export groups, 54
 - Records, groups, items, and values, 49
- XML pages
 - Export system configuration record, 50
 - Import system configuration record, 50
- XPress-I/O
 - Serial port configuration, 5
 - Telnet configuration, 5
 - XML configuration, 47
- XSR
 - Import and export groups, 68