

User's Guide

CAJUN P333T

STACKABLE SWITCH

SOFTWARE VERSION 2.4



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Overview

The Cajun™ P330 family of stackable Ethernet workgroup switches includes a range of modules with 10/100/1000 Mbps ports and Layer 3 capability/ATM Expansion sub-module. The Cajun P333T switch has 24x10/100 Mbps ports and an Expansion sub-module slot. The optional expansion sub-modules provide additional Ethernet, Fast Ethernet, and Gigabit Ethernet connectivity.

A Cajun P330 stack can contain up to 10 switches and up to 3 backup power supply units. The stacked switches are connected using the Cajun X330STK stacking sub-modules which plug into a slot in the back of the Cajun P330. They are connected using the X330SC or X330LC cable (if the stack is split between 2 racks). The Cajun X330RC cable connects the top and bottom switches in the stack and provides redundancy and hot-swappability in the same way that modules can be swapped in a modular switching chassis.

The Cajun P330 is fully compliant with IEEE standards for VLAN Tagging, Gigabit Ethernet, Spanning Tree and Flow Control. This full standards-compliance, combined with auto-negotiation for 10/100/1000 Mbps and half/full duplex facilitates the expansion of your network to match your company's growing needs.

Cajun P330 Family Features

- You can connect up to 10 Cajun P330 switches in a stack. Moreover, this stack can be either in one rack or split over several racks using the X330LC Long Cable, according to your requirements.
- Cajun X330STK - this stacking sub-module is used to connect Cajun P330 switches in a stack, via the Octaplane.
- Cajun P330 BUPS - this back-up power supply module supports up to four Cajun P330 switches.
- One RJ-45/RS232 front panel console connector for both terminal and modem (future release) sessions.
- Two fan units in every switch, with operation sensors.
- One virtual IP address for managing the whole stack, the P330 stack is managed as a single entity.
- Hot swapping of one switch at a time - by activation of the redundant cable:
 - Does not disrupt the operation of other Cajun P330 switches
 - Does not change stack configuration.
 - Does not require network downtime.
- Connection through Telnet from the front panel ports of *any* switch, with:
 - multiple levels of password protection
 - login and inactivity timeouts.

Layer 2 Features

Auto-Negotiation

Every 10/100 port on the Cajun P330 supports Auto-Negotiation which automatically detects and supports the operating mode and speed of a connected device. Auto-negotiation is also supported on the Gigabit Ethernet ports for flow control mode only.

This means that you can simply connect the Cajun P330 to Ethernet or Fast Ethernet equipment at full or half duplex without configuration.

Congestion Control

Congestion control is a key element of maintaining network efficiency as it prevents resource overload.

The Lucent Cajun P330 supports congestion control on all Ethernet ports, using the following:

- Back Pressure in half duplex mode
- IEEE 802.3x Flow Control in full duplex mode

VLANs

The Cajun P330 VLANs are fully IEEE 802.1Q compliant and can handle up to 3k tagged VLANs.

Special VLAN (Virtual Sideband) for management provides physical security for key applications.

Link Aggregation Group (LAG)

LAG provides increased bandwidth and redundancy for critical high-bandwidth applications such as inter-stack links and connections to servers. You can aggregate the bandwidth of up to eight 10/100Base-Tx ports, two 100Base-FX or 1000Base-X ports.

Load sharing ensures that if one of the port connections fails, the other connections will assume the load seamlessly. Load balancing guarantees that the traffic load at any level will be evenly divided among all the LAG links.

Link Redundancy

Redundancy can be implemented between any two ports in the same stack. You can also assign redundancy between any two LAGs in the stack or between a LAG and a port.

Stack Redundancy

In the unlikely event that a Cajun P330 switch or Octaplane link should fail, stack integrity is maintained. The broken link is bypassed and data transmission continues uninterrupted. The single management IP address for the stack is also preserved for uninterrupted management and monitoring.

Hot-Swappable

You can remove or replace any unit within the stack without disrupting operation or performing stack-level reconfiguration. You can therefore adapt the P330 to your requirements on the fly and with a down-time which is second to none.

Backup Power Supply

Each Cajun P330 basic unit comes with a Backup Power Supply (BUPS) connector. If the internal power supply should fail, the Cajun P330 BUPS (available separately,) will automatically supply power to the switch for uninterrupted operation.

Fans

The Cajun P330 base unit fans have integrated sensors which provide advance warnings of fan failure via management.

Network Management Agent (NMA) Redundancy

Since each Cajun P330 module has an integral SNMP agent, any module in a stack can serve as the stack NMA while other NMAs act as redundant agents in “hot” standby. If the “live” NMA fails then a backup is activated instantaneously.

Software Download

Safe S/W download procedure – backup code always present.

Cajun P330 Standards Supported

The Cajun P330 complies with the following standards.

IEEE

- 802.3x Flow Control on all ports
- 802.1Q VLAN Tagging support on all ports and 802.1p compatible
- 802.1D Bridges and STA
- 803.2z Gigabit Ethernet ports
- 803.2u Ethernet/Fast Ethernet ports

IETF

- MIB-II - RFC 1213
- Bridge MIB for Spanning Tree - RFC 1492
- RMON - RFC 1757
- SMON - RFC 2613

Cajun P330 Network Management

Lucent realizes the importance of comprehensive network management as a key component of today's networks. Therefore we have provided multiple ways of managing the Cajun P330 to suit your needs.

Cajun P330 Device Manager (Embedded Web)

The built-in Cajun P330 Device Manager (Embedded Web Manager) allows you to manage a Cajun P330 stack using a Web browser without purchasing additional software. This application works with the Microsoft® Internet Explorer and Netscape® Navigator web browsers and Sun Microsystems Java™ Plug-in.

Cajun P330 Command Line Interface (CLI)

The Cajun P330 CLI provides a terminal type configuration tool for local or remote configuration of Cajun P330 features and functions.

CajunView™

When you need extra control and monitoring or wish to manage other Cajun Campus equipment, then the CajunView network management suite is the answer. This suite provides the ease-of-use and features necessary for optimal network utilization.

- CajunView is available for Windows® 95/NT®.
- CajunView operates under HP OpenView.

Cajun P330 Network Monitoring

RMON MIBs - RFC 1757

- RMON support for groups 1,2,3 and 9
 - Statistics
 - History
 - Alarms
 - Events

SMON MIBs - RFC 2613

- SMON support for groups
 - Data Source Capabilities
 - Port Copy
 - VLAN and Priority Statistics.

Port Mirroring

The Cajun P330 provides port mirroring for additional network monitoring functionality. You can filter the traffic and mirror either incoming traffic to the source port or both incoming and outgoing traffic. This allows you to monitor the network traffic you need.

SMON

The Cajun P330 supports Lucent's ground-breaking SMON Switched Network Monitoring, which the IETF has now adopted as a standard (RFC2613). SMON provides an unprecedented top-down monitoring of switched network traffic at the following levels:

- Enterprise Monitoring
- Switch Monitoring
- VLAN Monitoring
- Port-level Monitoring

This top-down approach gives you rapid troubleshooting and performance trending to keep the network running optimally.



Note: CajunView is required to run SMON monitoring.



Note: You need to purchase one SMON License per Cajun P330 Stack

Cajun P333T Front and Rear Panels

Cajun P333T Front Panel

The Cajun P333T front panel contains LEDs, controls, connectors and an expansion sub-module slot, as well as console connector. The status LEDs and control buttons provide at-a-glance information.

The front panel LEDs consist of Port LEDs and Function LEDs. The Port LEDs display information for each port according to the illuminated function LED. The function is selected by pressing the left or right button until the desired parameter LED is illuminated.

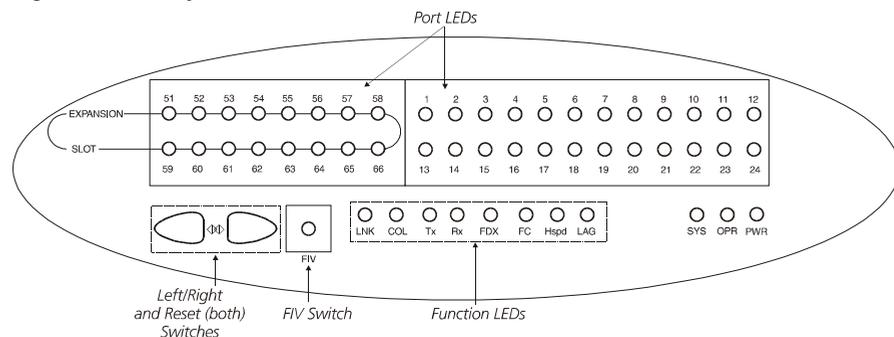
For example, if the COL LED is illuminated, then all Port LEDs show the collision status of their respective port. If you wish to select the LAG function, then press the right button until the LAG Function LED is lit; if you then wish to select Rx then press the left button several times until the Rx function LED lights.

Figure 2.1 shows the Cajun P333T front panel. Figure 2.2 shows a detailed view of the LEDs (described in Table 2.1), pushbuttons, the Expansion sub-module slot, and the RJ-45 console connector at the bottom right.

Figure 2.1 Cajun P333T Front Panel



Figure 2.2 Cajun P333T LEDs





Note: All LEDs are lit during a reset.

Table 2.1 Cajun P333T LED Descriptions

LED Name	Description	LED Status
PWR	Power status	OFF – power is off
		ON – power is on
		Blink – using BUPS only
OPR	CPU operation	OFF – Module is booting
		ON – Normal operation
SYS	System Status	OFF – Module is a slave in a stack
		ON – Module is the Master of the stack and the Octaplane and Redundant cable are connected correctly. This LED will also light in Standalone mode.
		Blink – Box is the Master of the stack and the long Octaplane cable is not present or the stack is in redundant mode
<i>The following Function LEDs apply to ports 1 to 66</i>		
LNK	Port status	OFF – Port disabled
		ON – Port enabled and link OK
		Blink – Port enabled and the link is down
COL	Collision	OFF – No collision or FDX port
		ON – Collision occurred on line
Tx	Transmit to line	OFF – No transmit activity
		ON – Data transmitted on line from the module
Rx	Receive from line	OFF – No receive activity
		ON – Data received from the line into the module

Table 2.1 Cajun P333T LED Descriptions

LED Name	Description	LED Status									
FDX	Half/Full Duplex	OFF – Half duplex mode									
		ON – Full duplex mode									
FC	Symmetric Flow Control	OFF – No Flow Control only and/or while in half duplex mode									
		ON – Symmetric/Asymmetric Flow Control mode is <i>enabled</i> and port is in full duplex mode									
Hspd	High Speed	<table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;"><u>10/100</u></td> <td style="text-align: center;"><u>1000</u></td> </tr> <tr> <td>OFF:</td> <td style="text-align: center;">10</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td>ON:</td> <td style="text-align: center;">100</td> <td style="text-align: center;">1000</td> </tr> </table>		<u>10/100</u>	<u>1000</u>	OFF:	10	N/A	ON:	100	1000
	<u>10/100</u>	<u>1000</u>									
OFF:	10	N/A									
ON:	100	1000									
	Link Aggregation Group (Trunking)	OFF – No LAG defined for this port									
		ON – Port belongs to a LAG									

Table 2.2 Cajun P330 <- -> Select buttons

Description	Function
Left/Right	Individual – select LED function (see table above)
Reset module	Press both right and left buttons together for approximately two seconds. All LEDs on module light up until buttons are released
Reset stack	Press both Right and Left buttons together for 4 seconds. All LEDs on stack light up until buttons are released.
FIV	Force Initial Version – boot from backup initial version of the Cajun P330 software, from Bank A (see Note below).



Note: To perform “Force Initial Version” reset the module and at the same time press the FIV reset button (use an opened paper clip or other pointed object). Let go of the reset buttons first and then let go of the FIV button 1 or 2 seconds later.

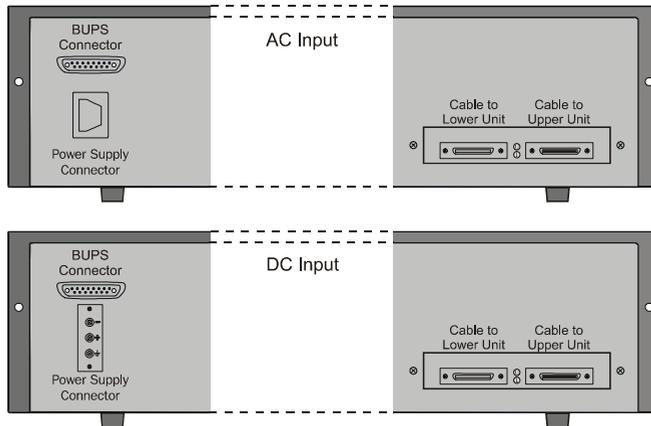


Note: The Port LEDs of the P333T are numbered from 1-24. Expansion sub-module ports are numbered from 51. Port LED numbers 49-50 are reserved.

Cajun P330 Back Panel

The Cajun P330 back panel contains a stacking sub-module slot, power supply and BUPS connector. Figure 2.3 shows the back panel of the AC switch (top) and the DC switch (bottom) with a stacking sub-module installed.

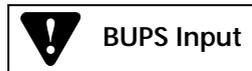
Figure 2.3 Cajun P330 AC and DC Back Panels



Note: Any further illustrations of the Cajun P330 Back Panel will be that of the AC model, the topmost panel in Figure 2.3.

BUPS Input Connector

The BUPS input connector (see Figure 2.3) is a 5 V DC connector for use with the Cajun P330 BUPS unit only.



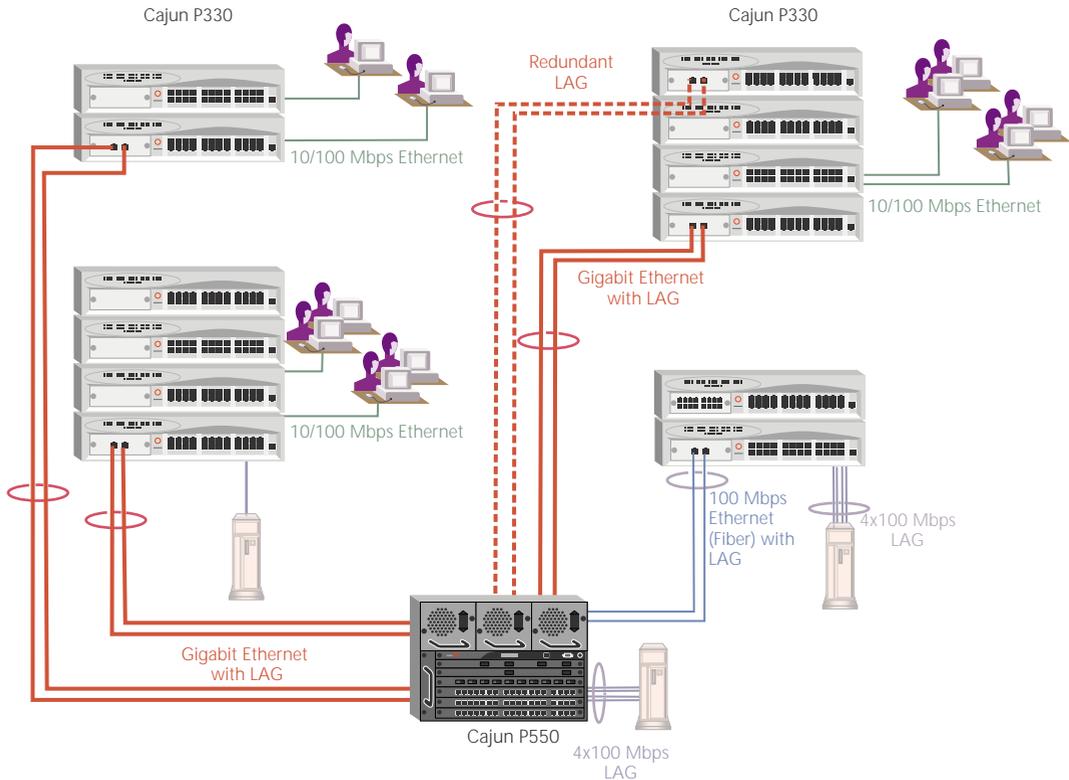
Applications

The following sections describe typical applications for the Cajun P330 in a network with other Cajun Campus products.

Application 1

This application shows Cajun P550 as the network backbone with Cajun P330 stacks as closet devices with LAG and redundant links.

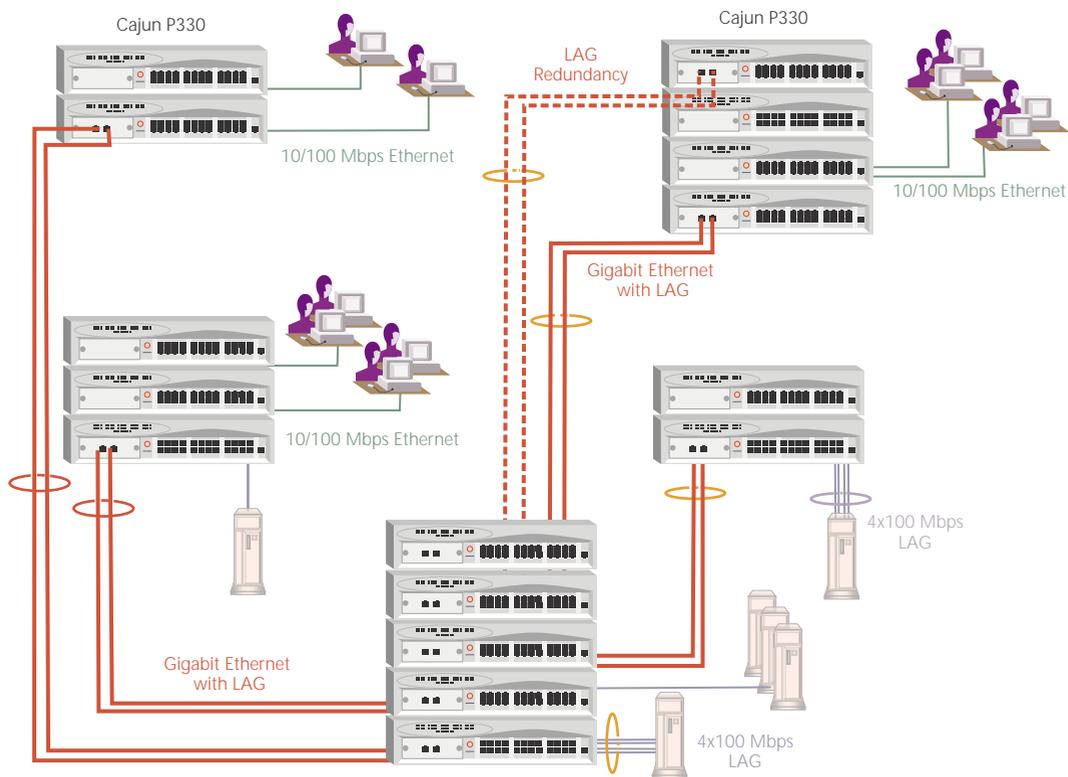
Figure 3.1 Cajun P330 stacks with a Cajun P550 Backbone



Application 2

This application shows a Cajun P330 stack forming the backbone of a Small/Medium-sized Enterprise (SME) network with CajunP330 stacks as closet devices with LAN and redundant links.

Figure 3.2 Cajun P330 stacks with a Cajun 330 backbone



Installation and Setup

The Cajun P333T is ready to work after you carry out the installation instructions given below. All the Cajun P333T ports provide complete connectivity and no configuration is required to make the system work.

Installing Stacking Sub-modules



Caution: The stacking sub-modules contain components sensitive to electrostatic discharge. Do not touch the circuit board unless instructed to do so.

Installing the Stacking Sub-module in the Cajun P330

- 1 Remove the blanking plate from the back of the Cajun P330 switch.
 - 2 Insert the stacking sub-module gently into the slot, ensuring that the metal base plate is aligned with the guide rails.
The metal plate of the X330STK (and *not* the PCB) fits onto the guide rails.
 - 3 Press the sub-module in firmly until it is completely inserted into the Cajun P330.
 - 4 Gently tighten the two screws on the side panel of the stacking sub-module by turning the screws.
-



Note: The Cajun P330 switch must not be operated with the back-slot open; the stacking sub-module should be covered with the supplied blanking plate if necessary.

Positioning

Cajun P330 can be mounted alone or in a stack in a standard 19-inch equipment rack in a wiring closet or equipment room. Up to 10 units can be stacked in this way. When deciding where to position the unit, ensure that:

- It is accessible and cables can be connected easily and according to the configuration rule.
 - Cabling is away from sources of electrical noise such as radio transmitters, broadcast amplifiers, power lines and fluorescent lighting fixtures.
 - Water or moisture cannot enter the case of the unit.
 - Air-flow around the unit and through the vents in the back and sides of the case is not restricted.
-



Note: Use Octaplane cables to interconnect with other switches.

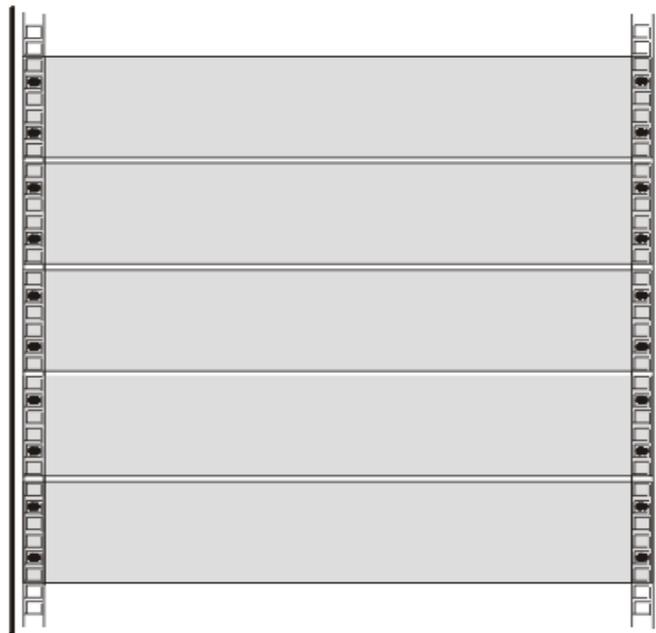
Rack Mounting

The Cajun P330 case fits in most standard 19-inch racks. Cajun P330 is 2U (88mm, 3.5") high.

Place the Cajun P330 in the rack as follows:

- 1 Snap open the ends of the front panel to reveal the fixing holes.
- 2 Insert the unit into the rack. Ensure that the four Cajun P330 screw holes are aligned with the rack hole positions as shown in Figure 4.1.

Figure 4.1 Cajun P330 Rack Mounting



KEY
□ Hole in rack
● Screw position

- 3 Secure the unit in the rack using the screws. Use two screws on each side. Do not overtighten the screws.
- 4 Snap closed the hinged ends of the front panel.
- 5 Ensure that ventilation holes are not obstructed.

Connecting Stacked Switches



Note: The two ends of the Octaplane cable terminate with different connectors. Each connector can only be connected to its matching port.

The following cables are used to connect stacked switches:

- Short Octaplane cable (X330SC) – ivory-colored, used to connect adjacent switches (Catalog No. CB0223) or switches separated by a BUPS unit.
- Long Octaplane cable (X330LC) – ivory-colored, used to connect switches from two different physical stacks, or switches separated by a BUPS unit (Catalog No. CB0225).
- Redundant cable (X330RC) – black, used to connect the top and bottom switches of a stack (Catalog No. CB0222).

To connect stacked switches:

- 1 Plug the light grey connector of the Short Octaplane cable into the port marked “to upper unit” of the bottom Cajun P330 switch.
- 2 Plug dark grey connector of same Short Octaplane cable to the port marked “to lower unit” in the unit above. The connections are illustrated in Figure 4.3.
- 3 Repeat Steps 1 and 2 until you reach the top switch in the stack.



Note: If you have split the stack, use the Long Cable instead of the Short Cable where required.

- 4 If you wish to implement stack redundancy, use the Redundant Cable to connect the the port marked “to lower unit” on the bottom switch to the port marked “to upper unit” on top switch of the stack.



Caution: Do not cross connect two Cajun P330 switches with two Octaplane (light-colored) cables. If you wish to cross-connect for redundancy, use one light-colored Octaplane cable and one black redundancy cable. Figure 4.2 shows an incorrect connection.



Note: You can build a stack of up to 10 Cajun P330 switches. If you do not wish to stack all the switches in a single rack, use long Octaplane cables to connect two physical stacks as shown in Figure 4.3.

Figure 4.2 Incorrect Stack Connection

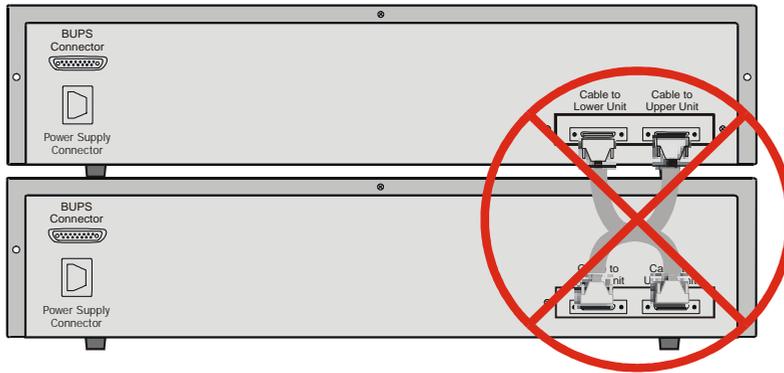
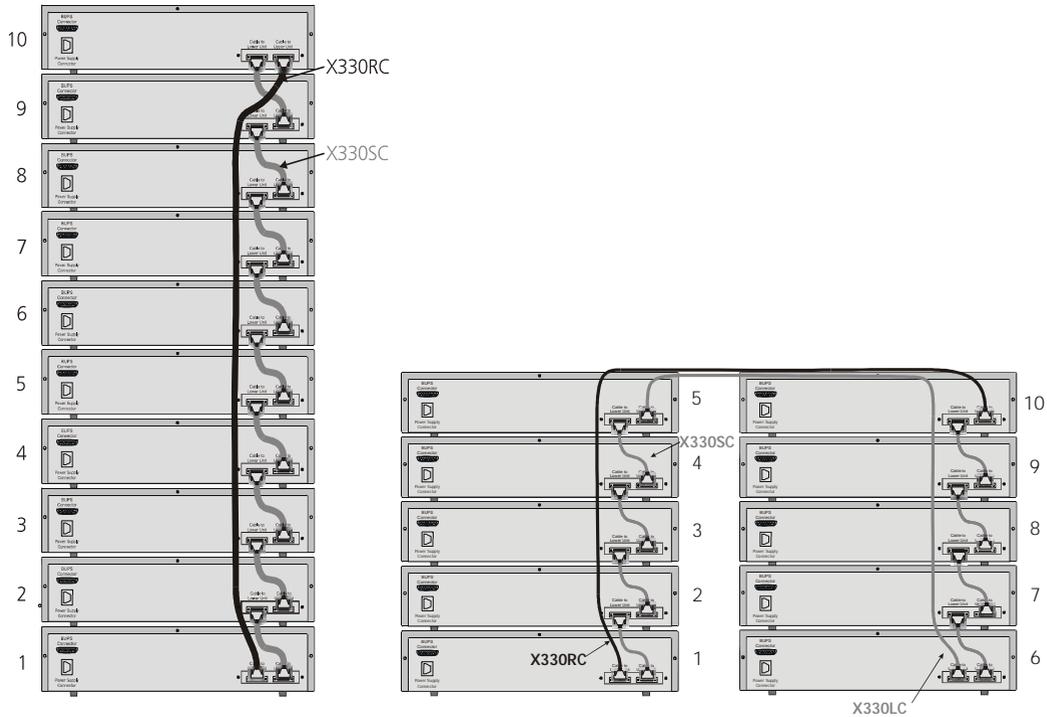


Figure 4.3 Cajun P330 Stack Connections



Installing Expansion Sub-modules



Caution: The expansion sub-modules contain components sensitive to electrostatic discharge. Do not touch the circuit board unless instructed to do so.

Installing the Expansion Sub-module into the Cajun P330

- 1 Remove the blanking plate or other sub-module (if installed).
- 2 Insert the sub-module gently into the slot, ensuring that the Printed Circuit Board (PCB) is aligned with the guide rails.
The PCB *not* the metal base plate fits into the guide rail.
- 3 Press the sub-module in firmly until it is completely inserted into the Cajun P330.
- 4 Gently tighten the two screws on the front panel of the expansion sub-module by turning the screws.

Removing an Existing Expansion Sub-module

- 1 Loosen the screws by turning the knobs.
- 2 Grasp the two knobs one near each side of the front panel, and pull gently but firmly towards yourself.
- 3 Insert another expansion sub-module or the blanking plate.



Note: The Cajun P330 switch must not be operated with the expansion slot open; the expansion sub-module slot should be covered with the supplied blanking plate if necessary.



Note: Expansion sub-modules are hot swappable and can be inserted or removed in an operating base unit.

Powering On – Cajun P330 Module AC

For the AC input version of the Cajun P330, insert the power cord into the power inlet in the back of the unit. The unit powers up.

- 1 If you are using a BUPS, insert a power cord from the BUPS into the BUPS connector in the back of the unit. The unit powers up.
- 2 After power up or reset, the Cajun P330 performs a self test procedure.

Powering On – Cajun P330 Module DC

For the DC input version of the Cajun P330, connect the power cable to the switch at the input terminal block.

- 1 The terminals are marked “+”, “-“ and the IEC 5019a Ground symbol.
- 2 The size of the three screws in the terminal block is M3.5.
- 3 The pitch between each screw is 9.5mm.



Warning: Before performing any of the following procedures, ensure that DC power is OFF.



Caution: This product is intended for installation in restricted access areas and is approved for use with 18 AWG copper conductors only. The installation must comply with all applicable codes.

- 4 Attach the appropriate lugs at the wire end of the power supply cord.
- 5 Wire the DC power supply to the terminal block.



Warning: The proper wiring sequence is ground to ground, positive to positive (line to L), and negative to negative (neutral to N). Note that the ground wire should always be connected first and disconnected last.

Configuring the Switch

The Cajun P330 may be configured using the text-based Command Line Interface (CLI) utility, the built-in Cajun P330 Device Manager (Embedded Web) or CajunView™.

For instructions on the text-based utility, see the CLI chapter.

For instructions on installation of the graphical user interfaces, see the Cajun P330 Device Manager Appendix. For instructions on the use of the graphical user interfaces, refer to the Manager User's Guide on the Management CD.

Cajun P330 Default Settings

The default settings for the Cajun P330 switch and its ports are determined by the Cajun P330 software. These default settings are subject to change in newer versions of the Cajun P330 software. See the Release Notes for the most up-to-date settings.

Switch Settings

Table 4.1 Default Switch Settings

Function	Default Setting
Cajun P330 IP address	149.49.32.134
Default gateway	0.0.0.0
VLANs	VLAN 1
Spanning tree	Enabled
Bridge priority for Spanning Tree	32768
NTP server IP address	0.0.0.0
Timezone offset	0 hours
Read-only SNMP community string	Public
Read-write SNMP community string	Public
Trap SNMP community string	Public
SNMP retries number	3
SNMP timeout	2000 Seconds
SNMP authentication trap	Disabled
CLI timeout	15 Minutes

Port Settings

Table 4.2 Default Port Settings

Function	Default Setting		
	10/100Base-TX ports	100Base-F ports	1000 Base-X ports
Duplex mode	Full duplex	Full duplex	Full duplex only
Speed mode	100M	100M	1000M
Flow control	Off	Off	Off
Flow control advertisement	Off	N/A	Off (No pause)
Backpressure	On (only in Half duplex)	Not Applicable	Not Applicable
Autopartitioning	Disabled (only in Half duplex)	N/A	N/A
Auto-negotiation	Enable	Not Applicable	Enable ¹
Administration status	Enable	Enable	Enable
Port VLAN	1	1	1
Tagging mode	Clear	Clear	Clear
Port priority	Regular	Regular	Regular
Spanning Tree cost	20	20	4
Spanning Tree port priority	128	128	128

¹Ensure that the other side is also set to Autonegotiation Enabled

Functions operate in their default settings unless configured otherwise.

Cabling

Cajun P330 modules include the following types of ports (according to the speed and standard they support): 10Base-T, 100Base-TX, 100Base-FX, 1000Base-SX and 1000Base-LX.



Note: To interconnect Cajun P330 switches with twisted pairs, crossed cables are required.

- The maximum UTP cable length connected to a 10/100 Mbps port operating as 10Base-T, is 100 m (328 ft.).
- A UTP Category 5 cable must be connected to any 100Base-TX port, via an RJ45 connector. The maximum UTP cable length connected to a 10/100 Mbps port operating as 100Base-TX, is 100 m (328 ft.).
- A fiberoptic cable must be connected to any 100Base-FX port, via a pair of SC connectors. The maximum fiber cable length connected to a 100Base-FX port is 412 m (1,352 ft) when operating in half duplex, and 2 km (6,562 ft) when operating in full duplex.

Appropriate cables are available from your local supplier.

Table 4.3 Gigabit Ethernet Cabling

Gigabit Interface	Fiber Type	Diameter (μm)	Modal Bandwidth	Maximum Distance (m)
1000BASE-SX	MM	62.5	160	220
1000BASE-SX	MM	62.5	200	275
1000BASE-SX	MM	50	400	500
1000BASE-SX	MM	50	500	550
1000BASE-LX	MM	62.5	500	550
1000BASE-LX	MM	50	500	550
1000BASE-LX	SM	9	NA	5,000
1000BASE-SLX	SM	9	NA	10,000

*1000BASE-LX over Multimode fiber requires a special Patch cord cable which you can obtain from your local cable supplier.

Connecting to the Serial Port

Cajun P330 has one serial port on the front of the switch for connecting a terminal, a terminal emulator, or a modem (future software release) using the supplied adapter.



Note: Modem connection will require a modem adapter which will be supplied by Lucent upon request (future version).

The RJ-45 port on the front of the switch is labeled “Console”, and may be used to configure the switch using the built-in Command Line Interface (CLI, Terminal Emulation). In the future, this connector will also be used for out-of-band SNMP management, via a modem.

The port settings are as follows:

- Baud Rate - 9600 bps
- Character Size - 8
- Parity - None
- Stop Bit - 1
- Flow Control - None
- We recommend using a VT-100 terminal to enable access to all CLI features.

The terminal connected to the serial port must be configured with the same settings; this setting will work with any PC COM port over a DB9 to RJ45 connector.

Assigning Cajun P330's IP Stack Address



Note: All Cajun P330 switches are shipped with the same default IP address. You must change the IP address of the Master Cajun P330 switch in a stack in order to guarantee that the stack has its own unique IP address in the network.

Changing the IP Address using Command Line Interface (CLI, Terminal Emulation)

Use the CLI to assign the Cajun P330 stack an IP address and net mask. The CajunView station may establish communications with the stack once this address had been assigned and the stack inserted into the network.

- 1 Establish a serial connection by connecting a terminal to the Master Cajun P330 switch as described in the “Command Line Interface” chapter.
- 2 When you see the “Welcome to P330” menu and are prompted for a Login Name, enter the default name `root`
- 3 When you are prompted for a password, enter the User Level password `root`
- 4 At the User level prompt, type `enable` to enter the Privileged level.
- 5 At the Privileged level prompt, type:

```
set interface inband <vlan> <ip_address> <netmask>
```

 Replace `<vlan>`, `<ip_address>` and `<netmask>` with the VLAN, IP address and net mask of the stack.
- 6 Press Enter to save the IP address and net mask.
- 7 At the Privileged level prompt, type `reset` and press Enter to reset the stack. After the Reset, log in again to the Privileged level as described above.
- 8 At the Privileged level prompt, type `set ip route <dest> <gateway>` and replace `<dest>` and `<gateway>` with the destination and gateway IP addresses.
- 9 Press Enter to save the destination and gateway IP addresses.



Note: If there are any errors, the new configuration settings will not be saved. To save the new configuration settings, you must correct the errors by repeating the command.

- 10 At the Privileged level prompt, type `exit` or `disable` to exit the Privileged level, and press Enter. You are now back in the User level.
- 11 Exit the CLI session.
- 12 Insert the Cajun P330 stack into your network.

Cajun Campus CLI – Layer 2

This chapter provides instructions for the configuration of your Cajun P330 using the text-based Cajun Campus Command Line Interface (CLI or Terminal Emulation). You can also configure your Cajun P330 using the Cajun P330 Manager with its graphical user interface (see Appendix A).

The configuration procedure involves establishing a Telnet session or a serial connection and then using the Cajun P330's internal CLI. The CLI is command-line driven and does not have any menus. To activate a configuration option, you must type the desired command at the prompt and press Enter.

Conventions Used

The following conventions are used in this document to convey instructions and information:

- Mandatory keywords are in boldface
- Variables that you supply are in pointed brackets <>
- Optional keywords are in square brackets []
- Alternative but mandatory keywords are grouped in braces { } and separated by a vertical bar |
- If you enter an alphanumeric string of two words or more, for example in the Set system location Command on Page 65, enclose the string in inverted commas.
- Information displayed on screen is displayed in text font

Establishing a Serial Connection for Configuration

Perform the following steps to connect a VT-100 terminal or PC with VT-100 emulation to the Cajun P330 master switch Console port for configuration of stack parameters:

- 1 Use the serial cable supplied to attach the RJ-45 console connector to the Console port of the Cajun P330 master switch (indicated by a lit SYS LED) and the DB-9 connector to the serial (COM) port on your PC/terminal.
- 2 Make sure that the serial port settings on the PC are 9600 baud, 8 bits, 1 stop bit and no parity.
- 3 If you connected a PC, run a VT-100 emulation session. (You can use the Windows® HyperTerminal.)
- 4 When you see the “Welcome to P330” menu and are prompted for a Login Name, enter the default name `root`
- 5 When you are prompted for a password, enter the User Level password `root`

Establishing a Telnet Session

- 1 Connect your PC to the network
- 2 Verify that you can communicate with the Cajun P330 using Ping to the IP of the Cajun P330. If there is no response using Ping, check the IP address and default gateway of both the Cajun P330 and the PC.



Note: The Cajun P330 default IP address is 149.49.32.134 and default subnet mask is 255.255.255.0.

- 3 From the Microsoft Windows[®] taskbar of your PC click **Start** and then **Run** (or from the DOS prompt of your PC), then start the Telnet session by typing:
`telnet <Cajun_P330_IP_address>`
For example: `telnet 149.49.32.134`



Note: One of the possible reasons that you cannot establish a Telnet session to the Cajun P330, may be because there is already a session in progress.

- 4 When you see the “Welcome to P330” menu and are prompted for a Login Name, enter the default name `root`
- 5 When you are prompted for a password, enter the User Level password `root` or `norm` in lower case letters (do NOT use uppercase letters). The User level prompt will appear when you have established communications with the Cajun P330.
- 6 Enter the Cajun P330 Privileged level by typing `enable`
You can now configure the Cajun P330 stack and change its default IP address.

Command Line Prompt

When you start the CLI, the initial prompt shows the number of the Master module in the Cajun P330 stack. For example, if the stack Master is Module 5, counting from the bottom up, then the prompt is:

```
Cajun_P330-5>
```

In this document the Module number in the prompt is generic and is represented by “N”.

If you wish to open a session with a Cajun P333R routing module in the stack or reopen a session with the Master module, use the `session` command (see Page 31).

The command prompt is *not* hierarchical in structure. If you wish to use several commands, each beginning with the same keyword, you must retype all parts of the command each time. For example, if after you want to set the system contact and the system name you must type both `set system contact` and `set system name` . However, you can use command abbreviations – see Section Command Abbreviations above.

Security Levels

There are three security access levels – User, Privileged and Supervisor.

- The User access level is a general access level used only to show system parameter values.
- The Privileged level is used by site personnel to access stack configuration options.
- The Supervisor level is intended for the System Administrator and includes commands for resetting the passwords of all levels.

A login name and password are always required to access the User level. By default Privileged and Supervisor levels do not require a password unless you configure it.

Entering the User Level

The User level is the entry level to the Cajun Campus CLI. When you enter the User level, you are asked for a Login name. Type `root` as the Login name and the default password `root` (in lowercase letters):

```

Welcome to Cajun P330

Login: root
Password: ****
Password accepted.
Cajun_P330-N>
```

Entering the Privileged Level

To enter the Privileged level, type `enable` . You can add password protection for this level using the `set enablepass` command.

```
Cajun_P330-N> enable
Cajun_P330-N#
```

The Privileged level prompt (with a #, shown above) displays, indicating that you are in Privileged level.

Exiting the Privileged Level

To exit the Privileged level and return to the User level, type the command `exit` or `disable`.

Entering the Supervisor Level

To enter the Supervisor level, type `super` . You can add password protection for this level using the `set superpass` command. You can access the Supervisor level both from the User and Privileged levels.

Cajun_P330-N> super

Cajun_P330-N(super)#

The Supervisor level prompt displays (with `(super)` #, shown above) indicating that you are in Supervisor level.

Exiting the Supervisor Level

To exit the Supervisor level and return to the User level, type the command `exit` or `disable` . To return to the Privileged level type `enable` .



Note: If keyboard activity is not detected, for the amount of time set using the `set logout` command in Telnet mode, you are automatically removed from the Privileged level or Supervisor level and returned to the User level.

Entering the Technician Level

This level is can only be accessed from the Privileged and Supervisor levels not from the User level.

This feature is not documented and is for use by Lucent Technical Support only.

Navigation, Cursor Movement and Shortcuts

The CLI contains a simple text editor with these functions:

Table 5.1 Navigation, Cursor Movement and Shortcuts

Keyboard	Functions
Backspace	Deletes the previous character
Up arrow/Down arrow	Scrolls back and forward through the command history buffer
Left arrow/Right arrow	Moves the cursor left or right
Tab	Completes the abbreviated command. Type the minimum number of characters unique to the command. An exception is the <code>reset system</code> command which you must type in full.
Enter	Executes a single-line command

Getting Help

On-line help may be obtained at any time by entering a question mark `?` or the word `help` on the command line. To obtain help for a specific command type the command followed by a space and a question mark or the word `help`.

Command Syntax

Commands are not case-sensitive. That is, uppercase and lowercase characters may be interchanged freely.

Command Abbreviations

All commands and parameters in the CLI can be truncated to an abbreviation of any length, as long as the abbreviation is not ambiguous. For example, `version` can be abbreviated `ver`.

For ambiguous commands, type the beginning letters on the command line and then use the Tab key to toggle through all the possible commands beginning with these letters.

Universal Commands

Retstatus command

Use the `retstatus` command to show whether the last CLI command you performed was successful or not (shows the return status of the previous command).

The syntax for this command is:

retstatus

Example:

```
Cajun_P330-N# set port negotiation 2/4 disable
Link negotiation protocol disabled on port 2/4.
Cajun_P330-N# retstatus
Succeeded
```

Tree command

The `tree` command displays the commands that are available at your current location in the CLI hierarchy.

The syntax for this command is:

tree

User Level Commands

This section describes all commands that are available from the User level.

Following is a Table of the User Level commands and command groups (all commands are also available at the higher levels).

• <code>session</code>	Opens a session to another Cajun P330 module or X330 ATM Access module	Page 31
• <code>terminal width</code>	Display or set the width of the terminal display	Page 32
• <code>terminal length</code>	Display or set the length of the terminal display	Page 32
• <code>clear screen</code>	Clears the current terminal display	Page 32
• <code>show</code> ¹	Shows the current switch parameters	Page 33
• <code>super</code>	Enter the Supervisor level	Page 51
• <code>enable</code>	Enter the Privileged level	Page 51
• <code>ping</code>	Sends ICMP echo request packets to another node on the network	Page 32
• <code>dir</code>	Show files in the System	Page 51

¹ This command corresponds to a group of commands and is shown in a separate Table on Page 33

Session Command

Use the `session` command to open a session with a specific entity in a module of the stack. For example, you can open a session with the Routing entity of a Cajun P333R module in the stack, or with an the X330 ATM module entity plugged into a specific module.

The syntax for this command is:

```
session [ <mod_num> [switch|router|atm] ]
```

<code>mod_num</code>	(optional) Number of the module. If you do not specify this parameter, you will get the default entity of the stack (Layer 2 session to the Master)
<code>switch router atm</code>	(optional) The entity to which you want to open a session If you do not specify this parameter, you will get the default entity of the specific module: <code>switch</code> - Layer 2 entity of the module (see Note below) <code>router</code> - Cajun P333R Routing entity <code>atm</code> - X330 Access module ATM entity



Note: Layer 2 commands are only available if you open a `switch` session with the Master module.

Router commands are described in the Cajun P333R User's Guide.

Example:

```
Cajun_P330-N# session 2 router
```



Note: When you use the `session` command the security level stays the same.

Terminal Commands

Use the `terminal width` and `terminal length` commands to set the width and length of the terminal display in characters

The syntax for this command is:

```
terminal {width|length} [<characters>]
```

Clear screen Command

The clear screen command clears the current terminal display.

Ping Command

Use the `ping` command to to send ICMP echo request packets to another node on the network.

The syntax for this command is:

```
ping [host[number]]
```

host Host IP address/Internet address of route destination. If missing then the last host IP is used.

number Number of packets to send. If missing then the last number is used



Note: You can use this command via the Master module only.

Example:

To ping the IP number 149.49.48.1 ten times:

```
Cajun_P330-N> ping 149.49.48.1 10
```

```
ping 149.49.48.1 10: 56 databytes
```

```
64 bytes from 149.49.48.1: icmp_seq=0. time=8 ms
```

Show Commands Summary Table

Following is a table of the `show` commands:

• <code>show time</code>	Show current time	Page 34
• <code>show timezone</code>	Show the current timezone offset	Page 34
• <code>show ntp</code>	Display the current Network Time Protocol (NTP) status and parameters	Page 35
• <code>show ip route</code>	Show IP routing table entries	Page 35
• <code>show image version</code>	Show the image version	Page 36
• <code>show download status</code>	Show download status	Page 36
• <code>show snmp</code>	Show SNMP community strings	Page 37
• <code>show snmp retries</code>	Show SNMP retries number	Page 37
• <code>show snmp timeout</code>	Show SNMP timeout	Page 38
• <code>show timeout</code>	Show CLI timeout setting	Page 38
• <code>show interface</code>	Show the interfaces of the device	Page 38
• <code>show port</code>	Show settings and status for all ports	Page 39
• <code>show port trap</code>	Show port trap	Page 40
• <code>show port channel</code>	Show port channel	Page 40
• <code>show port redundancy</code>	Use the <code>show port redundancy</code> command to display info on redundancy schemes	Page 41
• <code>show port mirror</code>	Show mirroring info	Page 41
• <code>show module</code>	Show module	Page 42
• <code>show flowcontrol</code>	Show flowcontrol	Page 43
• <code>show cam</code>	Show CAM	Page 44
• <code>show trunk</code>	Show trunk (VLAN tagging)	Page 45
• <code>show spantree</code>	Show Spanning Tree Protocol (STP) setting	Page 45
• <code>show system</code>	Show system parameters	Page 47
• <code>show internal buffering</code>	Show current internal buffering capacity	Page 48
• <code>show rmon statistics</code>	Show the traffic statistics of an interface	Page 48

• show rmon history	Show the existing history entries	Page 49
• show rmon alarm	Shows the existing alarm entries	Page 49
• show rmon event	Shows the existing event entries	Page 50
• show tftp upload/ download status	Show status of the TFTP upload/ download configuration per module	Page 50
• show tftp download software status	Show status of the TFTP software download of the Device Manager software to the module	Page 50
• show web aux-files-url	Show the location (url/directory) of the Cajun P330 Device Manager Help files	Page 51

Show time Command

Use the `show time` command to display the current stack time.

The syntax for this command is:

show time

Example:

```
Cajun_P330-N> show time  
10:32:34 27 JAN 2000 GMT
```

Show timezone Command

Use the `show timezone` command to display the current stack timezone.

The syntax for this command is:

show timezone

Example:

```
Cajun_P330-N> show timezone  
Timezone set to 'GMT', offset from UTC is 0 hours
```

Show ntp Command

Use the `show ntp` command to display the address of the Network Time Protocol (NTP) server in addition to other time related status information.

The syntax for this command is:

show ntp

Example:

```
Cajun_P330-N> show ntp
Current time: 10:37:04 27 JAN 2000 GMT
Timezone set to 'GMT', offset from UTC is 0 hours
NTP-Server: 149.49.52.134
```

Show ip route Command

Use the `show ip route` command to display IP routing table entries.

The syntax for this command is:

show ip route

Example:

```
Cajun_P330-N> show ip route

Destination      Gateway
-----
149.49.1.1       172.20.22.201
190.20.0.0       172.20.22.202
172.20.0.0       172.20.22.96
```

Show image version Command

Use the `show image version` command to display the software version of the image on both memory banks of a specified module.

The syntax for this command is:

show image version [`<mod_num>`]

If no module number is specified, the image version of the all modules will be displayed.

Example:

```
Cajun_P330-N> show image version 1
```

Mod	Module-Type	Bank	Version
1	24x10/100Base-T with optional expansion slot	A	2.0.3
1	24x10/100Base-T with optional expansion slot	B	2.0.3

Show download status Command

Use the `show download` command to display the status of the download process. Only one download session can be active on the system.

The syntax for this command is:

show download status [`<mod_num>`]

If no module number is specified, the status of all modules will be displayed.

Example:

```
Cajun_P330-N# show download status
```

Mod	Bank	Download State	Activity Status	Download Size
1	B	tftp-running-ip	Downloading	46233

Mod	Version	Host	File
1	1.0.2	149.49.1.1	/users/download/p330t

Show snmp Command

Use the `show snmp` command to display SNMP information.

The syntax for this command is:

show snmp

Example:

```
Cajun_P330-N> show snmp
Authentication trap disabled
```

```
Community-Access      Community-String
-----
read-only              public
read-write             public
trap                   public

Trap-Rec-Address      Traps Enabled
-----
1.1.1.1                config
                       fault
                       etc...
```

Show snmp retries Command

Use the `show snmp retries` command to display the number of retries initiated by the Device Manager application when it tries to send SNMP messages to the device.

The syntax for this command is:

show snmp retries

Example:

```
Cajun_P330-N> show snmp retries
the SNMP Retries Number is 3
```

Show snmp timeout Command

Use the `show snmp timeout` command to display the default SNMP timeout in seconds. This command is useful for access using the Device Manager.

The syntax for this command is:

```
show snmp timeout
```

Example:

```
Cajun_P330-N> show snmp timeout  
the SNMP Timeout is 2000
```

Show timeout Command

Use the `show timeout` command to display the amount of time the CLI can remain idle before timing out in minutes. If the result is 0, there is no timeout limit.

The syntax for this command is:

```
show timeout
```

Example:

```
Cajun_P330-N> show timeout  
CLI timeout is 10 minutes
```

Show interface Command

Use the `show interface` command to display information on network interfaces.

The syntax for this command is:

```
show interface
```

Example:

To display the interface:

```
Cajun_P330-N> show interface  
IP Addresses & Netmasks  
-----  
Cajun_P330-1# inband, vlan 1, IP address: 149.49.43.210, netmask:  
255.255.255.0
```

Show port Command

Use the `show port` command to display port status.

The syntax for this command is:

```
show port [ <mod_num> [ /<port_num> ] ]
```

mod_num (Optional) Number of the module. If you do not specify a number, the ports on all modules are shown.

port_num (Optional) Number of the port on the module. If you do not specify a number, all the ports on the module are shown. You can also specify a range of ports separated by a dash, e.g. 5-13 for ports 5 to 13.

Example:

To display the status for port 4 on module 3:

```
Cajun_P330-N> show port 3/4
```

Port	Name	Status	Vlan	Level	Neg	Dup.	Spd.	Type
3/4	John	connected	1	normal	enable	half	10M	10/100Base-Tx

Show Port Output Fields

Field	Description
Port	Module and port number
Name	The name you assigned to the port
Status	Status of the port (connected, faulty, disabled)
VLAN	VLAN ID of the port
Level	Priority level of the port (normal or high)
Neg	The autonegotiation status of the port (enable, disable)
Duplex	Duplex setting for the port (fdx, hdx)
Speed	Speed setting for the port (10, 100).
Type	Port type, for example, 10BaseT, 10BaseFL, 100BaseTX, 100BaseFX MM, 100BaseFX SM, 10/100BaseTX

Show port trap Command

Use the `show port trap` command to display information on SNMP generic link up/down traps sent for a specific port.

The syntax for this command is:

```
show port trap [<mod_num>[/<port_num>]]
```

Example:

```
Cajun_P330-N> show port trap 1/1  
Port 1/1 up/down trap is disabled
```

Show port channel Command

Use the `show port channel` command to display Link Agreggation Group (LAG) information for a specific module or port.

The syntax for this command is:

```
show port channel [<mod_num>[/<port_num>]]
```

Example:

```
show port channel 1
```

Port	Channel	Status	Channel Name
1/1	off		
1/2	off		
1/3	on		server1
1/4	on		server1
1/13	off		
1/14	off		
1/15	off		
1/16	off		
1/5	off		
etc...			



Note: Ports are listed and grouped according to the possible LAG membership.

Show port redundancy Command

Use the `show port redundancy` command to display information about all redundancy schemes defined for this stack.

The syntax for this command is:

show port redundancy

Example:

```
Cajun_P330-N> show port redundancy
```

Redundancy Name	Primary Port	Secondary Port	Status
uplink	1/7	2/12	enable

Show port mirror Command

Use the `show port mirror` command to display mirroring information for the stack.

The syntax for this command is:

show port mirror [`<mod_num>`[/`<port_num>`]]

Example:

```
Cajun_P330-N> show port mirror
port mirroring
```

Mirroring both Rx and Tx packets from port 1/2 to port 1/4 is enabled

Show module Command

Use the `show module` command to display module status and information. For each module with an expansion sub-module installed, both module and sub-module type and information are shown.

The syntax for this command is:

```
show module [ <mod_num> ]
```

mod_num (Optional) Number of the module. If you do not specify a number, all modules are shown.

Example:

```
Cajun_P330-N> show module
```

```
Mod Type          Ports Serial-Num C/S Sw      Boot Ver
-----
 1 CajunP333T     24    4171661    1.1 2.0.3   0.0.0
```

```
Mod Sub-Type          Sub-Ports Sub-C/S
-----
 1 CajunX330S2        2         1.1
```

Output Fields

Field	Description
Mod	Module number.
Module-Type/Sub-Type	Module Type/Expansion sub-module type.
Ports/Sub-Ports	Number of ports on the module/Expansion sub-module.
Serial-Num	Serial number of the module.
C/S / Sub-C/S	(Hardware) Configuration Symbol of the module/Expansion sub-module
Sw	Software version loaded into the module.
Boot Ver	Boot software version loaded into the module.

Show flowcontrol Command

Use the `show port flowcontrol` command to display per-port status information related to flow control.

The syntax for this command is:

```
show flowcontrol [<mod_num>[/<port_num>]]
```

Example:

```
Cajun_P330-N> show flowcontrol 3/2
Port      Send-Flowcontrol  Receive-Flowcontrol
          Admin Oper      Admin Oper
-----
3/2      off   off           off   off
```

Output Fields

Field	Description
Port	Module and port number.
Send-Flowcontrol-Admin	Send flow-control administration. Possible settings: <ul style="list-style-type: none"> ON indicates that the local port is allowed to send flow control frames to the far end OFF indicates that the local port is <i>not</i> allowed to send flow control frames to the far end
Send-Flowcontrol-Oper	Send flow-control operation mode. Possible modes: <ul style="list-style-type: none"> ON indicates that the local port will send flow control frames to the far end OFF indicates that the local port will <i>not</i> send flow control frames to the far end
Receive-Flowcontrol-Admin	Receive flow-control administration. Possible settings: <ul style="list-style-type: none"> ON indicates that the local port will act upon flow control indications if received from the far end OFF indicates that the local port will discard flow control frames if received from the far end
Receive-Flowcontrol-Oper	Receive flow-control operation mode. Possible modes: <ul style="list-style-type: none"> ON indicates that the local port will act upon flow control indications received from the far end OFF indicates that the local port will discard flow control frames received from the far end

Show cam Commands

Use the `show cam` commands to display the CAM table entries for a specific port or MAC Address.

The syntax for this command is:

```
show cam [<mod_num>[/<port_num>]]
```

and

```
show cam mac <mac_addr>
```

Example:

```
Cajun_P330-N> show cam 1/1
Dest MAC/Route Dest Destination Ports
-----
00-40-0d-59-03-78 1/1
00-d0-79-0a-0a-da 1/1
00-40-0d-43-1e-e9 1/1
etc...
```

```
Cajun_P330-N> show cam mac 00-40-0d-88-06-c8
Dest MAC/Route Dest Destination Ports
-----
00-40-0d-88-06-c8 1/1
Total Matching CAM Entries Displayed = 1
```

Show trunk Command

Use the `show trunk` command to display VLAN tagging information of the ports.

The syntax for this command is:

```
show trunk [<mod_num>[/<port_num>]]
```

Example:

```
Cajun_P330-N> show trunk 1/22
show trunk 1/22
Port    Mode  Native vlan Vlans allowed on trunk
-----
1/22   dot1q 1          1-3071
```

Following are the `show trunk` command output fields:

Field	Description
Port	Module and port number(s).
Mode	Tag status of the port (ON - dot1Q tagging mode, OFF - clear mode).
Native VLAN	Number of the Port VLAN ID (the VLAN to which received untagged traffic will be assigned). If the Port is in “clear mode” only frames of this VLAN will be transmitted.
VLANs allowed on trunk	Range of values allowed for the Native VLAN (1 to 3071).

Show spantree Command

Use the `show spantree` command to display spanning-tree information.

The syntax for this command is:

```
show spantree [<mod_num>[/<port_num>]]
```

Example:

```
Cajun_P330-N> show spantree
Spanning tree enabled

Designated Root: 00-40-0d-88-06-c8
Designated Root Priority: 32768
Designated Root Cost: 20
Designated Root Port: 1/1
```

```
Root Max Age: 20 Hello Time: 2
```

```
Bridge ID MAC ADDR: 00-40-0d-92-04-b4
```

```
Bridge ID priority: 32768
```

```
Port      State          Cost      Priority
-----
1 /1      Forwarding     20        128
1 /2      not-connected  20        128
1 /3      LAG-member     20        128
1 /4      LAG-member     20        128
1 /5      not-connected  20        128
1 /6      not-connected  20        128
etc...
```

Output Fields:

Field	Description
Spanning tree	Status of whether Spanning-Tree Protocol is enabled or disabled.
Designated Root	MAC address of the designated spanning-tree root bridge.
Designated Root Priority	Priority of the designated root bridge.
Designated Root Cost	Total path cost to reach the root.
Designated Root Port	Port through which the root bridge can be reached (shown only on nonroot bridges).
Root Max Age	Amount of time a BPDU packet should be considered valid.
Hello Time	Number of times the root bridge sends BPDUs.
Bridge ID MAC ADDR	Bridge MAC address used in the sent BPDUs.
Bridge ID Priority	Bridge priority.
Port	Port number.

State	Spanning-tree port state (disabled, inactive, not-connected, blocking, listening, learning, forwarding, bridging, or type-pvid-inconsistent).
Cost	Cost associated with the port.
Priority	Priority associated with the port.

Show system Command

Use the `show system` command to display the up time, system name, location, and contact person.

The syntax for this command is:

show system

Example:

```
Cajun_P330-N> show system
```

```
Uptime d,h:m:s
```

```
-----
```

```
0,2:40:55
```

```
System Name          System Location      System Contact
```

```
-----
```

```
P330T_version_2.0.3  Alpha LAB           Ygdal Naouri
```

```
Switch MAC address
```

```
-----
```

```
00 40 0d 8a 04 b4
```

```
Module   Main      Backup      Main      Backup PS
```

```
Number  Power Supply Power Supply Fans      Fans
```

```
-----
```

```
1       active      n/a         ok        n/a
```

Show internal buffering Command

This shows the size options (either Maximum or Minimum) of the Receive (Rx) buffer allocated to each port of the specified module.

The syntax for this command is:

```
show internal buffering [ <mod_num> ]
```

Example:

```
Cajun_P330-N> show internal buffering 1
Module  Internal Buffer
-----  -
1             min
```

RMON Tools

Following are a series of RMON commands, however we recommend using the Cajun P330 Device Manager.

Show rmon statistics Command

This command shows the RMON statistics counters for a certain interface number according to the MIB-2 interface table numbering scheme.

The syntax for this command is:

```
show rmon statistics <Interface Number>
```

Example:

```
Cajun_P330-N> show rmon statistics 1026
```

```
statistics
```

```
Interface 1026 is active, owned by Monitor
Monitors ifEntry.1.1026 which has
Received 26375085 octets, 222536 packets,
154821 broadcast and 53909 multicast packets,
0 undersize and 0 oversize packets,
0 fragments and 0 jabbers,
1 CRC alignment errors and 0 collisions,
# of dropped packet events (due to a lack of resources): 0
# of packets received of length (in octets):
64:94530, 65-127:85124, 128-255:25896,
256-511:10440, 512-1023:6057, 1024-1518:489,
```

Show rmon history Command

This command shows the most recent RMON history log for a given History Index. The history index is defined using the `rmon history` command on Page 81 or using an RMON management tool.

The syntax for this command is:

```
show rmon history [<History Index>]
```

Example:

```
Cajun_P330-N> show rmon history 1026  
history
```

```
Entry 1026 is active, owned by amir  
Monitors ifEntry.1.1026 every 30 seconds  
Requested # of time intervals, ie buckets, is 20  
Granted # of time intervals, ie buckets, is 20  
Sample # 1 began measuring at 2:53:9  
Received 62545 octets, 642 packets,  
391 broadcast and 145 multicast packets,  
0 undersize and 0 oversize packets,  
0 fragments and 0 jabbers,  
0 CRC alignment errors and 0 collisions,  
# of dropped packet events (due to a lack of resources): 0  
Network utilization is estimated at 0
```

Show rmon alarm Command

This command shows the parameters set for a specific alarm entry that was set using the `rmon alarm` command on Page 82 or using the Cajun P330 Device Manager.

The syntax for this command is:

```
show rmon alarm [<Alarm Index>]
```

Example:

```
Cajun_P330-N> show rmon alarm 1026  
alarm  
  
alarm 1026 is active, owned by amir  
Monitors ifEntry.1.1026 every 60 seconds  
Taking delta samples, last value was 1712  
Rising threshold is 10000, assigned to event # 1054  
Falling threshold is 10, assigned to event # 1054  
On startup enable rising or_falling alarms
```

Show rmon event Command

This command shows the parameters of an Event entry defined by the rmon event command on Page 83 or using the Cajun P330 Device Manager.

The syntax for this command is:

```
show rmon event [<Event Index>]
```

Example:

```
Cajun_P330-N> show rmon event 1054  
event
```

```
Event 1054 is active, owned by amir  
Description is event for monitoring amir's co  
Event firing causes log and trap to community public,last fired 0:0:0
```

Show tftp download/upload status Command

Use the `show tftp download status` and `show tftp upload status` commands to display the status of the current TFTP configuration file copy process into/from the device.

The syntax for this command is:

```
show tftp {download|upload} status [<mod_num>]
```

Example:

```
Cajun_P330-N> show tftp upload status 1  
Module           : 1  
Source file      : stack-config  
Destination file : c:\conf.cfg  
Host             : 149.49.36.200  
Running state    : Executing  
Failure display  : (null)  
Last warning     : No-warning
```

Show tftp download software status Command

Use the `show tftp download software status` commands to display the status of the current TFTP Device Manager S/W (Embedded Web)download process into the device.

The syntax for this command is:

```
show tftp download software status [<mod_num>]
```

Show web aux-files-url Command

Use the `show web aux-files-url` command to display the URL/Directory from where the Cajun P330 can access the Device Management auxiliary files (for example help files).

The syntax for this command is:

```
show web aux-files-url
```

Super Command

The `super` command is used to access the Supervisor level. At this level, additional commands are available. The Supervisor level prompt `(super)#` indicates that you are in the Supervisor level.

The syntax for this command is:

```
super
```

Example:

```
Cajun_P330-N> super  
Cajun_P330-N(super)#
```

Enable Command

The `enable` command is used to enter the Privileged level. In this level, additional commands are available, and certain commands display additional information. The Privileged level prompt, `#` indicates that you are in the Privileged level.

The syntax for this command is:

```
enable
```

Example:

```
Cajun_P330-N> enable  
Cajun_P330-N#
```

Dir Command

The `dir` command is used to show the file types that have been downloaded to the module.

The syntax for this command is:

```
dir [ <mod_num> ]
```

Example:

```
Cajun_P330-N> dir
```

M#	file	ver num	file type	file location	file description
1	module-config	N/A	Running Conf	Ram	Module Configuration
1	stack-config	N/A	Running Conf	Ram	Stack Configuration
1	EW_Archive	N/A	SW Web Image	Nv-Ram	WEB Download

Output Fields:

Field	Description
M#	Module number
file	There are several files loaded into modules memory: <ul style="list-style-type: none"> • module-config – file which contains the configuration settings made to this module • stack-config – file which contains the configuration settings made at the stack level (for example IP address of the stack) • EW_Archive – file which contains the Device Manager (Embedded Web) software
ver num	S/W Version number – relevant only for the Device Management S/W
file type	There are several file types: <ul style="list-style-type: none"> • Running Conf – the configuration currently in use. This is also the startup configuration in the Cajun P333T. • SW Web Image – Device Manager S/W archive file
file location	Type of internal memory into which the file is loaded
file description	Description of the file.



Note: If the N/A is displayed for the EW_Archive file this means that the Device Manager S/W is not loaded correctly. Download the Device Manager S/W again.

Privileged Level Commands

Following is a Table of the Privileged Level commands. This level includes all the commands from the User Level described above (see the User Level Commands Section for a description of these common commands).

• no hostname	Return the prompt to its default	Page 54
• no rmon history	Deletes an existing history entry	Page 54
• no rmon alarm	Deletes an existing alarm entry	Page 54
• no rmon event	Deletes an existing event entry	Page 54
• hostname	Displays or sets a new prompt	Page 55
• clear ¹	Clears current settings (group of commands)	Page 55
• set ²	Set the module parameters (group of commands)	Page 58
• sync time	Synchronizes the time between modules	Page 78
• get time	Gets the time from the time server	Page 78
• download	Download S/W image into the module	Page 78
• reset	Restarts the system or a module	Page 79
• nvram initialize	Initialize the NVRAM to its factory defaults	Page 80
• configure	Currently not used in the Layer 2 CLI.	Page 80
• tech	Enter Technician level – Lucent personnel only	–
• disable	Return to the User level	Page 80
• rmon history	Creates a history entry	Page 81
• rmon alarm	Creates an alarm entry	Page 82
• rmon event	Creates an event entry	Page 83
• copy stack- config tftp	Upload stack configuration to a file (using tftp). The file must exist before you Upload.	Page 83
• copy module- config tftp	Upload module configuration to a file (using tftp). The file must exist before you Upload.	Page 84

- `copy tftp stack-config` Download a stack configuration file (using TFTP) into the device Page 84
- `copy tftp module-config` Download a module configuration file (using TFTP) Page 85
- `copy tftp EW_Archive` Download the Device Manager S/W (Embedded Web Archive file), using TFTP, into the device Page 85

- 1 The `clear` command corresponds to a group of commands and is shown in a separate Table on Page 55.
- 2 The `set` command corresponds to a group of commands and is shown in a separate Table on Page 58.

No hostname Command

Use the `no hostname` command to return the CLI prompt to its default.

The syntax for this command is:

no hostname

No rmon history Command

Use the `no rmon history` command to delete an existing RMON history entry.

The syntax for this command is:

no rmon history <History Index>

No rmon alarm Command

Use the `no rmon alarm` command to delete an existing RMON alarm entry.

The syntax for this command is:

no rmon alarm <Alarm Index>

No rmon event Command

Use the `no rmon event` command to delete an existing RMON event entry.

The syntax for this command is:

no rmon event <Event Index>

Hostname Command

Use the `hostname` command to change the Command Line Interface (CLI) prompt. The current module number always appears at the end of the prompt.

The syntax for this command is:

```
hostname [<hostname_string>]
```

`hostname_string` **none** – displays current hostname
 string – the string to be used as the hostname
 (up to 20 characters).

Clear Commands Summary Table

Following is a Table of the Privileged Level `clear` commands.

• <code>clear timezone</code>	Returns the timezone to its default, UTC	Page 55
• <code>clear ip route</code>	Clear IP routing table entries	Page 55
• <code>clear snmp trap</code>	Clear SNMP trap on the system	Page 56
• <code>clear vlan</code>	Clears VLAN entries	Page 56
• <code>clear cam</code>	Clears all the CAM entries	Page 57
• <code>clear log</code>	Clears the Log entries of a module	Page 57
• <code>clear port mirror</code>	Cancel port mirroring	Page 57

Clear timezone Command

Returns the timezone to its default, Coordinated Universal Time (UTC)

Clear ip route Command

Use the `clear ip route` command to delete IP routing table entries.

The syntax for this command is:

```
clear ip route <destination> <gateway>
```

`destination` IP address of the network, or specific host to be added
`gateway` IP address of the router.

Example:

To delete the route table entries using the clear ip route command:

```
Cajun_P330-N# clear ip route 134.12.3.0 192.1.1.1
Route deleted.
```

Clear snmp trap Command

Use the `clear snmp trap` command to clear an entry from the SNMP trap receiver table.

The syntax for this command is:

```
clear snmp trap {<rcvr_addr>|all}
```

rcvr_addr IP address or IP alias of the trap receiver (the SNMP management station) to clear.

all Keyword that specifies every entry in the SNMP trap receiver table

Example:

```
Cajun_P330-N# clear snmp trap 192.122.173.82
SNMP trap receiver deleted.
```

Clear vlan Command

Use the `clear vlan` command to delete an existing VLAN and return ports from this VLAN to the default VLAN # 1. When you clear a VLAN, all ports assigned to that VLAN are assigned to the default VLAN # 1.

The syntax for this command is:

```
clear vlan [VLAN_num]
```

VLAN_num Number of the VLAN (range is 1to 3071).

Example:

This example shows how you can delete an existing VLAN (VLAN 4) from a management domain:

```
Cajun_P330-N# clear vlan 4
```

This command will assign all ports on VLAN 4 to their default in the entire management domain

```
Do you want to continue (y/n) [n]? y
```

```
VLAN 4 deletion successful
```

Clear cam Command

Use the `clear cam` command to delete all entries from the CAM table.

The syntax for this command is:

```
clear cam
```

Example:

```
Cajun_P330-N# clear cam  
CAM table entry cleared.
```

Clear log Command

Use the `clear log` command to delete the Log file of a module.

The syntax for this command is:

```
clear log [<mod_num>]
```

Clear port mirror Command

Use the `clear port mirror` command to cancel port mirroring.

The syntax for this command is:

```
clear port mirror <source-module>/<source-port>/<dest-  
module>/<dest-port>
```

Example:

```
Cajun_P330-N# clear port mirror 1/2/1/4  
this command will delete the port mirror entry  
- do you want to continue (Y/N)? y
```

Mirroring packets from port 1/2 to port 1/4 is cleared

Set Commands Summary Table

Following is a Table of the Privileged Level `set` commands.

• <code>set enablepass</code>	Define a new password for the Privileged Level	Page 60
• <code>set password</code>	Define a new password for the User Level	Page 60
• <code>set logout</code>	Set the number of minutes before an inactive CLI session automatically logs out	Page 61
• <code>set timezone</code>	Set the timezone for the system	Page 61
• <code>set ntp server</code>	Set the NTP server address	Page 62
• <code>set ip route</code>	Add IP addresses to the IP routing table	Page 62
• <code>set snmp community</code>	Set the SNMP community strings	Page 63
• <code>set snmp trap</code>	Set the SNMP trap of the system or add/delete an entry into/from the SNMP trap receiver table	Page 64
• <code>set snmp trap auth</code>	Enable/Disable the SNMP authentication trap	Page 65
• <code>set snmp retries</code>	Set the number of SNMP retries	Page 65
• <code>set snmp timeout</code>	Set the SNMP timeout	Page 65
• <code>set system location</code>	Set the system location	Page 65
• <code>set system name</code>	Set the system name	Page 66
• <code>set system contact</code>	Set the system contact person	Page 66
• <code>set interface</code>	Configure the management interface of the device	Page 66
• <code>set port level</code>	Set the priority level of a port	Page 67
• <code>set port negotiation</code>	Set the autonegotiation mode of a port	Page 67
• <code>set port enable</code>	Administratively enable a port	Page 68
• <code>set port disable</code>	Administratively disable a port	Page 68
• <code>set port speed</code>	Set the speed for a 10/100 port	Page 68

• set port duplex	Set the duplex mode of a port	Page 69
• set port name	Assign a name to a port	Page 69
• set port trap	Enable/Disable the SNMP up/down link traps sent for port	Page 70
• set port vlan	Assign the Port VLAN ID (PVID)	Page 70
• set port channel	Define a LAG interface	Page 71
• set port redundancy on/off	Define/Delete a link redundancy entry	Page 71
• set port redundancy	Enables/Disables all the defined link redundancy schemes	Page 72
• set port mirror	Set a port mirroring source-destination pair in the stack	Page 72
• set inband vlan	Set the management VLAN ID	Page 73
• set flowcontrol	Set the flow control mode of a port	Page 73
• set auto-negotiation-flowcontrol-advertisement	Set the flowcontrol advertising capabilities of a Gigabit port	Page 74
• set trunk	Set the tagging mode of a port	Page 75
• set spantree	Enable/Disable Spanning Tree Protocol (STP)	Page 76
• set spantree priority	Set the STP Bridge priority level	Page 76
• set autopartition	To enable or disable autopartitioning for all the ports in half-duplex mode	Page 76
• set license	Enter a license number for the stack	Page 76
• set internal buffering	Set internal buffering capacity to maximum/minimum	Page 77
• set web aux-files-url	Set the location (url/directory) of the Cajun P330 Device Manager Help files	Page 77

Set enablepass Command

Use the `set enablepass` command to create or change the password for the Privileged level of the CLI. This command prompts you to enter the old password. If the password you enter is valid, you are prompted to enter a new password and to verify the new password. The password should contain at least four characters. By default, or if you define the password as “enable”, then no password is required to enter the Privileged level.

The syntax for this command is:

```
set enablepass
```

Example:

```
Cajun_P330-N# set enablepass
Enter old password: <old_password>
Enter new password: <new_password>
Retype new password: <new_password>
Password changed.
```



Note: To reset this password to its default (no password), press the Enter/Return key when you are prompted for the new password.

Set password Command

Use the `set password` command to create or change the password for the User level of the CLI. This command prompts you to enter the old password. If the password you enter is valid, you are prompted to enter a new password and to verify the new password. The password should contain at least four characters. The default User level password is `root`.

The syntax for this command is:

```
set password
```

Example:

```
Cajun_P330-N# set password
Enter old password: <old_password>
Enter new password: <new_password>
Retype new password: <new_password>
Password changed.
```

Set logout Command

The `set logout` command is used to set the number of minutes until the system automatically disconnects an idle session.

The syntax for this command is:

```
set logout <timeout>
```

timeout	Number of minutes (0 to 999) until the system automatically disconnects an idle session. Setting the value to 0 disables the automatic disconnection of idle sessions (default is 15 minutes)
----------------	---

Example:

To set the number of minutes until the system disconnects an idle session automatically:

```
Cajun_P330-N# set logout 20
```

Sessions will be automatically logged out after 20 minutes of idle time.

To disable the automatic disconnection of idle sessions:

```
Cajun_P330-N# set logout 0
```

Sessions will not be automatically logged out.

Set timezone Command

Use the `set timezone` command to assign a timezone name and set the time difference of your Cajun P330 relative to the Coordinated Universal Time (UTC/GMT). The minutes parameter can only be set to 30.

The syntax for this command is:

```
set timezone <zone_name> [-]<hours>[:30]
```

Example:

```
set timezone GMT -3:30
```

Timezone set to 'GMT', offset from UTC is -3:30 hours

Set ntp server Command

The `set ntp server` command is used to set the NTP server address.

The syntax for this command is:

```
set ntp server <ip>
```

ip IP address of the ntp server.

Set ip route Command

Use the `set ip route` command to add IP addresses to the IP routing table. You can configure from one to ten (10) default gateways for a Cajun P330 stack.

The syntax for this command is:

```
set ip route <destination> <gateway>
```

destination IP address of the network, or specific host to be added

gateway IP address of the router.

Example:

This example shows how to add a default route to the IP routing table:

```
Cajun_P330-N# set ip route 149.49.48.0 192.122.173.42
```

Route added.

Set snmp community Command

Use the `set snmp community` command to set SNMP communities and associated access types.

There are three configurable SNMP communities, one for each access type. If you do not specify the community string, the string configured for that access type is cleared. One community string different from the default (“public”) should be configured for *each* access type in order for secure SNMP access.

The syntax for this command is:

```
set snmp community {read-only|read-write|trap} [community_string]
```

<code>read-only</code>	Assign read-only access to the specified SNMP community.
<code>read-write</code>	Assign read-write access to the specified SNMP community.
<code>trap</code>	Assign SNMP community to trap.
<code>community_string</code>	(Optional) Name of the SNMP community. If no name is specified this command will clear any community for this access type.

The default configuration has the following communities and access types defined:

`read-only – public`

`read-write – public`

`public-trap – public`

Example:

To set read-write access to the SNMP community called snow:

```
Cajun_P330-N# set snmp community read-write snow
SNMP read-write community string set.
```

To clear the community string defined for read-only access:

```
Cajun_P330-N# set snmp community read-only
SNMP read-only community string cleared.
```

Set snmp trap Commands

Use the `set snmp trap` commands to add an entry into the SNMP trap receiver table and to enable or disable the different SNMP traps for a specific receiver. First add the `rcvr_addr` and then enable/disable the different traps for it.

The syntax for this command is:

```
set snmp trap <rcvr_addr>
```

```
set snmp trap <rcvr_addr> {enable|disable} {all|config|fault|...}
```

<code>enable</code>	Activate SNMP traps
<code>disable</code>	Deactivate SNMP traps
<code>all</code>	(Optional) Specify all trap types
<code>config</code>	(Optional) Specify the ConfigChange trap from the TRAP-MIB.
<code>fault</code>	(Optional) Specify the Fault trap from the TRAP-MIB.
<code>rcvr_addr</code>	IP address or IP alias of the system to receive SNMP traps

Example:

To enable SNMP ConfigChange traps to a specific manager:

```
Cajun_P330-N# set snmp trap 192.122.173.42 enable config
SNMP config change traps enabled.
```

To enable all traps to a specific manager:

```
Cajun_P330-N# set snmp trap 192.122.173.42 enable all
All SNMP traps enabled.
```

To disable SNMP config traps to a specific manager:

```
Cajun_P330-N# set snmp trap 192.122.173.42 disable config
SNMP config traps disabled.
```

To add an entry in the SNMP trap receiver table with default:

```
Cajun_P330-N# set snmp trap 192.122.173.42
SNMP trap receiver added.
```

Set snmp trap auth Command

Use the `set snmp trap auth` commands to enable/disable the sending of SNMP traps upon SNMP authentication failure.

The syntax for this command is:

```
set snmp trap {enable|disable} auth
```

Example:

```
Cajun_P330-N# set snmp trap enable auth
Authentication trap enabled
```

Set snmp retries Command

Use the `set snmp retries` command to set the number of retries initiated by the Device Manager application when it tries to send SNMP messages to the device.

The syntax for this command is:

```
set snmp retries <number>
```

Set snmp timeout Command

Use the `set snmp timeout` command to set the SNMP timeout in seconds. This command is useful for access using the Device Manager.

The syntax for this command is:

```
set snmp timeout <number>
```

Set system location Command

Use the `set system location` command to set the mib2 system location MIB variable.

The syntax for this command is:

```
set system location [<string>]
```

<code>string</code>	Location name. The location name is cleared if this field is left blank. A string of 2 words or more must be type in quotation marks – e.g. “Operations Floor”.
---------------------	---

Set system name Command

Use the `set system name` command to set mib2 system name MIB variable.

The syntax for this command is:

```
set system name [<string>]
```

<code>string</code>	System name. The system name is cleared if this field is left blank. A string of 2 words or more must be type in quotation marks – e.g. “Backbone Stack”.
---------------------	---

Set system contact Command

Use the `set system contact` command to set mib2 system contact MIB variable

The syntax for this command is:

```
set system contact [<string>]
```

<code>string</code>	Contact person. The contact person field is cleared if this field is blank. A string of 2 words or more must be type in quotation marks – e.g. “Ygdal Naouri”.
---------------------	--

Set interface Command

Use the `set interface` command to configure the management interface on the Master agent of the stack.

The syntax for this command is:

```
set interface inband <vlan> <ip_addr> <netmask>
```

<code>inband</code>	Interface name used for the management
<code>vlan</code>	The number of the VLAN to be used for management
<code>ip_addr</code>	IP address used for managing the stack
<code>netmask</code>	Subnet mask of the management interface

Example:

```
Cajun_P330-N# set interface inband 1 149.49.42.252 255.255.255.0  
Interface inband IP address set.
```

You must reset the device in order for the change to take effect.

Set port level Command

Use the `set port level` command to set the priority level of a port. Packets traveling through a port set at normal priority should be served only *after* packets traveling through a port set at high priority. Packets traveling with a 802.1p priority header are not affected by this command.

The syntax for this command is:

```
set port level <mod_num>/<port_num> {normal|high}
```

normal Set the port priority to regular.

high Set the port priority to high.

Example:

To set the priority level for port 2 on module 1 to high:

```
Cajun_P330-N# set port level 1/2 high
```

```
Port 1/2 port level set to high.
```

Set port negotiation Command

Use the `set port negotiation` command to enable or disable autonegotiation on a port. For 10/100Base-T ports, autonegotiation determines the speed and the duplex mode; for 1000Base-X ports it will determine the flow control (pause) mode only; meaningless for 100Base-F ports. If autonegotiation is disabled, you can set these port parameters using the relevant CLI commands (if autonegotiation is enabled, these commands have no effect).

```
set port negotiation <mod_num>/<port_num> {enable|disable}
```

Example:

To disable autonegotiation on port 1, module 4:

```
Cajun_P330-N# set port negotiation 4/1 disable
```

```
Link negotiation protocol disabled on port 4/1.
```

Set port enable Command

Use the `set port enable` command to enable a port or a range of ports.

The syntax for this command is:

```
set port enable [mod_num/port_num]
```

`mod_num` Number of the module

`port_num` Number of the port.

Example:

To enable port 3 on module 2:

```
Cajun_P330-N# set port enable 2/3
```

```
Port 2/3 enabled.
```

Set port disable Command

Use the `set port disable` command to disable a port.

The syntax for this command is:

```
set port disable <mod_num>/<port_num>
```

Example:

```
Cajun_P330-N# set port disable 5/10
```

```
Port 5/10 disabled.
```

Set port speed Command

Use the `set port speed` command to configure the speed of an 10/100Base-T port. You can configure the speed to either 10 Mbps or 100 Mbps. If autonegotiation mode is enabled for such ports, the port's speed is determined by autonegotiation, an error message is thus generated if you attempt to set the speed in this case.

The syntax for this command is:

```
set port speed <mod_num>/<port_num> {10MB|100MB}
```

Example:

To configure port 2 on module 2 port speed to 10 Mbps:

```
Cajun_P330-N# set port speed 2/2 10MB
```

```
Port 2/2 speed set to 10 Mbps.
```

Set port duplex Command

Use the `set port duplex` command to configure the duplex mode of an 10/100Base-T port. You can configure the duplex mode to either Half or Full duplex. If autonegotiation mode is enabled for such ports, the port's duplex mode is determined by autonegotiation, an error message is thus generated if you attempt to set the duplex mode in this case.

The syntax for this command is:

```
set port duplex <mod_num>/<port_num> {full|half}
```

Example:

To set port 1 on module 2 to full duplex:

```
Cajun_P330-N# set port duplex 2/1 full  
Port 2/1 set to full-duplex.
```

Set port name Command

Use the `set port name` to configure a name for a port. If you do not specify a name, the port name remains empty.

The syntax for this command is:

```
set port name <mod_num>/<port_num> [<name>]
```

name	Name assigned to the port.
-------------	----------------------------

Example:

```
Cajun_P330-N# set port name 1/21 arthur  
  
Port 1/21 name set.
```

Set port trap Command

Use the `set port trap` command to enable/disable generic SNMP uplink/downlink traps from a port.

The syntax for this command is:

```
set port trap <mod_num>/<port_num> {enable|disable}
```

Example:

```
Cajun_P330-N# set port trap 1/21 enable
```

```
Port 1/21 up/down trap enabled.
```

Set port vlan Command

Use the `set port vlan` command to set the Port's VLAN ID (PVID). The VLAN number must be within the range 1 to 3071.

The syntax for this command is:

```
set port vlan <VLAN_num> <mod_num>/<port_num>
```

VLAN_num Number between 1 and 3071, identifying the VLAN.

Example:

To set VLAN 850 to include ports 4 through 7 on module 3.

```
Cajun_P330-N# set port vlan 850 3/4-7
```

```
VLAN 850 modified.
```

```
VLAN    Mod/Ports
```

```
-----
```

```
850    3/4-7
```

Set port channel Command

Use the `set port channel` command to enable or disable a Link Aggregation Group (LAG) interface on the module. You can also add or remove a port from an existing LAG. Ensure that all ports in the LAG are configured with the same ports' parameters such as port speed, duplex mode, VLAN ID, tagging mode, priority level. When adding a port to an existing LAG, type the same LAG-name (or no LAG-name), otherwise you will get an error message. The added port must belong to the same connector octet - refer to the "LAG" indication on device's front panel.

The syntax for this command is:

```
set port channel <mod_num>/<port_list> {on|off} [<LAG-name>]
```

<code>port_list</code>	A list of ports to be aggregated, separated by commas
<code>LAG-name</code>	Optional name for the LAG interface

Example:

```
Cajun_P330-N# set port channel 1/6,18 on server2
Port 1/6 channel mode set to on
Port 1/18 was added to channel
```

Set port redundancy on/off Command

Use the `set port redundancy` command to define/remove redundancy schemes between a Primary and a Secondary link. The link can be any port that does not belong to a LAG, or a LAG interface. In either case, there should not be any redundancy scheme already defined on any of the links.

The syntax for this command is:

```
set port redundancy <mod_num>/<prim_port_num> <mod_num>/<second_port_num> {on/off} [<redundancy_name>]
```

<code>prim_port_num</code>	Primary link of the redundancy scheme
<code>second_port_num</code>	Secondary link of the redundancy scheme
<code>redundancy_name</code>	Name for the redundancy scheme (optional)

Example:

```
Cajun_P330-N# set port redundancy 1/7 2/12 on red1
uplink: Port 2/12 is redundant to port 1/7.

Port redundancy is active - entry is effective immediately
```

Set port redundancy Commands

Use the `set port redundancy` commands to enable or disable the defined redundancy schemes. Using this command will not delete existing redundancy entries.



Note: You must disable Spanning Tree before you can enable redundancy.

The syntax for this command is:

```
set port redundancy {enable|disable}
```

Example:

```
Cajun_P330-N# set port redundancy enable  
All redundancy schemes are now enabled
```

Set port mirror Command

Use the `set port mirror` command to define a port mirroring source-destination pair in the stack.

The syntax for this command is:

```
set port mirror source-port <mod_num>/<port_num> mirror-port  
<mod_num>/<port_num> sampling {always|disable} direction {rx|both}
```

- | | |
|----------------------|---|
| <code>always</code> | Keyword to activate the port mirroring entry |
| <code>disable</code> | Keyword to change the status of the port mirroring entry to “not ready” |
| <code>rx</code> | Keyword to copy only incoming traffic |
| <code>both</code> | Keyword to copy both incoming and outgoing traffic |

Example:

```
Cajun_P330-N# set port mirror source-port 1/9 mirror-port 1/10  
sampling always direction both  
Mirroring both Rx and Tx packets from port 1/9 to port 1/10 is  
enabled
```

Set inband vlan Command

Use the `set inband vlan` command to set a value for the management vlan (from 1 to 3071).

The syntax for this command is:

```
set inband vlan <value>
```

value A VLAN number between 1 and 3071.

Example:

```
Cajun_P330-N# set inband vlan 1
Management VLAN number set to 1
```

Set flowcontrol Command

Use the `set flowcontrol` command to set the send/receive mode for flow-control frames (IEEE 802.3x or Lucent proprietary) for a full duplex port. Each direction (send or receive) can be configured separately only for Gigabit ports. Lucent proprietary flow control cannot be configured on Gigabit ports. The `set flowcontrol` command cannot be used on Gigabit ports for which autonegotiation is enabled.

The syntax for this command is:

```
set flowcontrol {receive|send|all} <mod_num>/<port_num>
{on|off|proprietary}
```

Field	Description
receive	Controls the receipt of IEEE802.3x flow-control frames on Gigabit ports only: <ul style="list-style-type: none"> • ON indicates that the local port will act upon flow control frames received from the far end • OFF indicates that the local port will discard flow control frames received from the far end
send	Controls the sending of IEEE802.3x flow-control frames from Gigabit ports only: <ul style="list-style-type: none"> • ON indicates that the local port is allowed to send flow control frames to the far end • OFF indicates that the local port is <i>not</i> allowed to send flow control frames to the far end

- all** Controls the sending and receipt of flow-control frames for any type of ports:
- ON indicates that the local port will both act upon and send IEEE802.3x flow control frames
 - OFF indicates that the local port will both discard and not send flow control frames (of any type)
 - PROPRIETARY indicates that the local port will both act upon and send Lucent proprietary flow control frames.

Example:

These examples show how to use the `set port flowcontrol` command set:

```
Cajun_P330-N# set flowcontrol receive 1/51 on
```

```
Port 1/51 flow control receive administration status set to on  
(port will require far end to send flowcontrol)
```

```
Cajun_P330-N# set flowcontrol send 1/51 off
```

```
Port 1/51 flow control send administration status set to off  
(port will send flowcontrol to far end)
```

```
Cajun_P330-N# set flowcontrol all 1/17 proprietary
```

```
Port 1/17 flow control administration status set to  
proprietary
```

Set auto-negotiation-flowcontrol-advertisement Command

The `set auto-negotiation-flowcontrol-advertisement` command sets the flowcontrol advertisement for a Gigabit port when performing autonegotiation.

The syntax for this command is:

```
set auto-negotiation-flowcontrol-advertisement <mod_num>/  
<port_num> {no-flowcontrol|asym-tx-only|sym-only|sym-and-asym-rx}
```

- | | |
|------------------------|---|
| no-flowcontrol | The port will advertise no pause capabilities |
| asym-tx-only | The port will advertise asymmetric Tx pause capabilities only |
| sym-only | The port will advertise symmetric pause capabilities only |
| sym-and-asym-rx | The port will advertise both symmetric and asymmetric Rx pause capabilities |

Example:

```
Cajun_P330-N# set auto-negotiation-flowcontrol-advertisement
1/51 asym-tx-only
```

```
Cajun_P330-N# Port 1/51 pause capabilities was set
```

Set trunk Command

Use the `set trunk` command to configure the tagging mode.

The syntax for this command is:

```
set trunk <mod_num>/<port_num> {off|dot1q}
```

- | | |
|--------------------|---|
| <code>off</code> | Forces the port to become a non-tagging port. The port is in the clear (tagging) mode: it will never send frames as tagged, but it will correctly interpret received tagged frames. |
| <code>dot1q</code> | Forces the port to become a 802.1Q tagging port. The port is in the tagging mode: it will send frames as tagged and will correctly interpret received untagged frames. |

Example:

```
Cajun_P330-N# set trunk 1/19 dot1q
Dot1Q VLAN tagging set on port 1/19.
```

```
Cajun_P330-N# set trunk 1/19 off
No VLAN tagging set on port 1/19.
```

Set spantree Commands

Use the `set spantree` command to enable/disable the spanning-tree protocol for the stack.

The syntax for this command is:

```
set spantree {enable|disable}
```

Example:

```
Cajun_P330-N# set spantree enable
bridge spanning tree enabled.
```

Set spantree priority Command

Use the `set spantree priority` command to set the bridge priority for STP.

The syntax for this command is:

```
set spantree priority <bridge_priority>
```

bridge_priority Number representing the priority of the bridge.
The priority level is from 0 to 65535, with 0 indicating high priority and 65535 indicating low priority.

Example:

This example shows how to set the bridge priority to 45000:

```
Cajun_P330-N# set spantree priority 45000  
Bridge priority set to 45000.
```

Set autopartition Command

Use the `set autopartition` command to enable or disable auto-partitioning on all the half duplex ports of the stack.

The syntax for this command is:

```
set autopartition {enable|disable}
```

Example:

```
Cajun_P330-N# set autopartition enable  
Auto-partition is enabled.
```

Set license Command

The `set license` command enables you to activate the SMON capability of the Cajun™ P330 stack. A Cajun P330 stack can include several Cajun P330 modules. One SMON license is required per Cajun P330 stack. Installing the license is very simple. It involves connecting a terminal to one of the Cajun P330 modules and typing in a valid license number (included in the SMON License pack) using the Command Line Interface (CLI).

For a full description of the SMON License and the installation procedure please refer to the Installation Guide provided with the SMON License.

Set internal buffering Command

The `set internal buffering` command allows you to set the size (either Maximum or Minimum) of the Receive (Rx) buffer allocated to each port of the specified module. This command is meaningless when any port of the module is operating with flow control ON.

The syntax for this command is:

```
set internal buffering <mod_num> {max|min}
```

- max** This keyword sets the internal receive buffer to its maximum size
- min** This keyword sets the internal receive buffer to its maximum size (this is the Default)

Example:

```
Cajun_P330-N> set internal buffering 1 max
```

Done.

Set web aux-files-url Command

Use the `set web aux-files-url` command allow the Device Manager to automatically locate the URL (the `http://www` address and path) of the Web server containing the Device Manager help files and Java plug-in.



Note: Ensure that the Web server is always accessible otherwise Web access to the device may take a few minutes.

The syntax for this command is:

```
set web aux-files-url <>//IP address/directory name>
```

Example:

```
Cajun_P330-N# set web aux-files-url //149.93.47.25/emweb-aux-files
```

Sync time Command

This command synchronizes the time used by all modules in a stack.

The syntax for this command is:

sync time

Example:

```
Cajun_P330-N# sync time
Time has been distributed.
```

Get time Command

This command retrieves the time from the network.

The syntax for this command is:

get time

Example:

```
Cajun_P330-N# get time
Time is already being acquired from network!
```

Download Command

Use the `download` command to copy a software image from a specified host to the Flash memory of a designated module.

The syntax for this command is:

download <host> <file> <mod_num>

host	Name or IP address of host
file	Name of file to be downloaded
mod_num	Number of the module to receive downloaded image



Note: You must reset the switch after performing the download.

Reset Command

Use the `reset` command to restart the system or an individual module. If no module number is defined or the module number of the Master is defined, the command resets the entire system. If the module number is defined, the command resets the specified module only.

The syntax for this command is:

```
reset [ <mod_num> ]
```

Example:

To reset the Master agent and force the entire system to reset:

```
Cajun_P330-N# reset
```

```
This command will force a switch-over to the master module and  
disconnect your telnet session.
```

```
Do you want to continue (y/n) [n]? y
```

```
Connection closed by foreign host.
```

```
host%
```

To reset module 4:

```
Cajun_P330-N# reset 4
```

```
This command will reset module 4 and may disconnect your  
telnet session.
```

```
Do you want to continue (y/n) [n]? y
```

```
Resetting module 4...
```

Nvram initialize Command

Use the `nvram initialize` command reset the Cajun P330 parameters to the factory defaults. If no options are specified for this command, only the Layer 2 parameters will be reset.

The syntax for this command is:

```
nvram initialize [switch|all]
```

- | | |
|---------------|--|
| switch | Resets all the switching level parameters (Layer 2 only) throughout the stack |
| all | Resets all parameters including routing parameters of the Cajun P333R modules present in the stack |

Example:

```
Cajun_P330-N# nvram initialize
```

```
This command will force a factory default and switch-over to the master module and disconnect your telnet session.
```

```
Do you want to continue (y/n) [n]? y
```

```
Connection closed by foreign host.
```

```
host%
```

Configure Command

The `configure` command is not used in the Cajun P333T switch but is used with the P333R Router (please see the P333R User Guide).

Disable Command

Use the `disable` command to return from Privileged or Supervisor levels to the User level.

The syntax for this command is:

```
disable
```

Example:

```
Cajun_P330-N# disable
```

```
Enter password:
```

```
Cajun_P330-N>
```

Rmon history Command

Use the `rmon history` command to create an RMON history entry.

The syntax for this command is:

```
rmon history <history index> <interface> interval <interval>  
buckets <number of buckets> owner <owner name>
```

<code>history_index</code>	This is the history index number of this entry (it is advisable to use the same interface number as your history index number)
<code>interface</code>	The Interface number is a unique number for each port which can be calculated as follows: 1024 x Module Number + Port Number For example: Port 3 in Module 1 has an Inter Number of 1027.
<code>interval</code>	The interval between 2 samples
<code>number of buckets</code>	The number of buckets defined
<code>owner name</code>	Owner name string

Example:

```
Cajun_P330-N# rmon history 1026 1026 interval 30 buckets 20  
owner amir  
history 1026 was created successfully
```

Rmon alarm Command

Use the `rmon alarm` command to create a new RMON alarm entry.

The syntax for this command is:

```
rmon alarm <Alarm Number> <variable> <interval> <sampletype>
rising-threshold <rising threshold> <rising event> falling-
threshold <falling threshold> <falling event> <startup alarm>
<owner>
```

alarm number	This is the alarm index number of this entry (it is advisable to use the same interface number as your alarm index number)
variable	This is the MIB variable which will be sampled by the alarm entry
interval	The interval between 2 samples
sample type	This can be set to either delta (the difference between 2 samples) or an absolute value
rising threshold	This sets the upper threshold for the alarm entry
rising event	The RMON event entry that will be notified if the upper threshold is passed
falling threshold	This sets the lower threshold for the alarm entry
falling event	The RMON event entry that will be notified if the lower threshold is passed
startup alarm	The instances in which the alarm will be activated. The possible parameters are: Rising, Falling, risingOrfalling
owner	Owner name string

Example:

```
Cajun_P330-N# rmon alarm 1026 1.3.6.1.2.1.16.1.1.1.5.1026 60
delta rising-threshold 10000 1054 falling-threshold 10 1054
risingOrFalling amir
alarm 1026 was created successfull
```

Rmon event Command

Use the `rmon event` command to create an RMON event entry.

The syntax for this command is:

```
rmon event <Event Number> <type> description <description>  
owner <owner>
```

event number	This is the event index number of this entry
type	The type of the event. The possible parameters are: trap, log, logAndTrap, none
description	a user description of this event
owner	Owner name string

Example:

```
Cajun_P330-N# rmon event 1054 logAndTrap description "event  
for monitoring amir's computer" owner amir  
event 1054 was created successfully
```

Copy stack-config tftp Command

Use the `copy stack-config tftp` command to upload the stack-level parameters from the current NVRAM running configuration into a file via TFTP.

The syntax for this command is:

```
copy stack-config tftp <filename> <ip>
```

filename	file name (full path)
ip	The ip address of the host

Example:

```
Cajun_P330-N# copy stack-config tftp c:\conf.cfg 149.49.36.200  
Beginning upload operation ...  
This operation may take a few minutes...  
Please refrain from any other operation during this time.  
For more information , use 'show tftp upload status' command
```

```
*****  
* If you are currently running the P330 Device Manager application,*  
* it is recommended to exit from it before performing configuration*  
* download operations. *  
*****
```

Copy module-config tftp Command

Use the `copy module-config tftp` command to upload the module-level parameters from the current NVRAM running configuration into a file via TFTP.

The syntax for this command is:

```
copy module-config tftp <filename> <ip> <mod_num>
```

<code>filename</code>	file name (full path)
<code>ip</code>	The ip address of the host

Example:

```
Cajun_P330-N# copy module-config tftp c:\p333t\switch1.cfg
192.168.49.10 5
```

Beginning upload operation ...

This operation may take a few minutes...

Please refrain from any other operation during this time.

For more information , use 'show tftp upload status' command

```
*****
* If you are currently running the P330 Device Manager application,*
* it is recommended to exit from it before performing configuration*
* download operations.                                           *
*****
```

Copy tftp stack-config Command

Use the `copy tftp stack-config` command to download the stack-level configuration from a saved file into the current NVRAM running configuration, via TFTP.

The syntax for this command is:

```
copy tftp stack-config <filename> <ip>
```

<code>filename</code>	file name (full path)
<code>ip</code>	The ip address of the host

Example:

```
Cajun_P330-N# copy tftp stack-config c:\p333t\switch1.cfg
192.168.49.10
```

Copy tftp module-config Command

Use the `copy tftp module-config` command to download the module-level configuration from a saved file into the current NVRAM running configuration of a module, via TFTP.

The syntax for this command is:

```
copy tftp module-config <filename> <ip> <mod_num>
```

filename	file name (full path)
ip	The ip address of the TFTP host

Example:

```
Cajun_P330-N# copy tftp startup-config c:\p333t\switch1.cfg  
192.168.49.10 5
```

Copy tftp EW_archive Command

Use the `copy tftp EW_archive` command to download the P330 Device Manager application into the module via TFTP.

The syntax for this command is:

```
copy tftp EW_archive <filename> <ip> <mod_num>
```

filename	Embedded Web Manager image file name (full path)
ip	The ip address of the TFTP host
mod_num	Target module number

Example:

```
Cajun_P330-N# copy tftp EW_archive c:\p333t\p333Tweb201  
192.168.49.10 5
```

Supervisor Level Commands

This level includes all the commands of the User and Privileged Levels (including all `show` and `set` commands).

Set super password command

Use the `set superpass` command to change the supervisor password. You can only do this from within the Supervisor Level.

The syntax for this command is:

set superpass

Example:

```
Cajun_P330-N(super)# set superpass
Enter old password: <old password>
Enter new password: <new password>
Enter New Password again: <new password>
Password changed.
```



Note: To reset this password to its default (no password), press the Enter/Return key when you are prompted for the new password.

Set defpass command

Use the `set defpass` command to return the password for all levels to their default.

The syntax for this command is:

set defpass

Example:

```
Cajun_P330-N(super)# set defpass
Password changed.
Cajun_P330-N(super)#
```

Cajun P330 Embedded Web Manager

The Cajun P330 Embedded Web Manager provides the following:

- Device Configuration - Viewing and modifying the different device configurations.
- Virtual LANs - Viewing and editing Virtual LAN information.
- Link Aggregation Groups (LAGs) - Viewing and editing LAG information.
- Software Redundancy - Setting software redundancy for ports in a Cajun P330 Switch.
- Port Mirroring - Setting up port mirroring for ports in a Cajun P330 Switch.
- Trap Managers Configuration - Viewing and modifying the Trap Managers Table.
- Switch Connected Addresses - View devices connected to selected ports.

System Requirements

Minimum hardware and Operating System requirements are:

- Windows® 95 or NT® 4.0 or higher
- Pentium® 200-Mhz-based, computer with 64 Mb of RAM (Pentium-II recommended)
- Minimum screen resolution of 1024 x 768 pixels
- Microsoft® Internet Explorer 4 or higher **or** Netscape Navigator® 4.x or higher
- Sun Microsystems Java™ plug-in version 1.2.2 (supplied)



Note for users of Netscape Navigator: The Java plug-in requires certain services from **Windows 95** which are not present if **Internet Explorer** is not installed. In order to add these services to the operating system, please install Internet Explorer version 3 or higher. You can then use either browser to manage the switch.

Running the Embedded Manager



Note: You should assign an IP address to the switch before beginning this procedure.

- 1 Open your browser.
 - 2 Enter the url of the switch in the format `http://aaa.bbb.ccc.ddd` where `aaa.bbb.ccc.ddd` is the IP address of the switch.
-



Note: The user name is “root”
The default password for read-only access is “root”
The default passwords for read-write access are “enable” or “super”.



Note: The Web management passwords are the same as those of the CLI. If you change the passwords of the CLI then use those passwords for Web management as well.

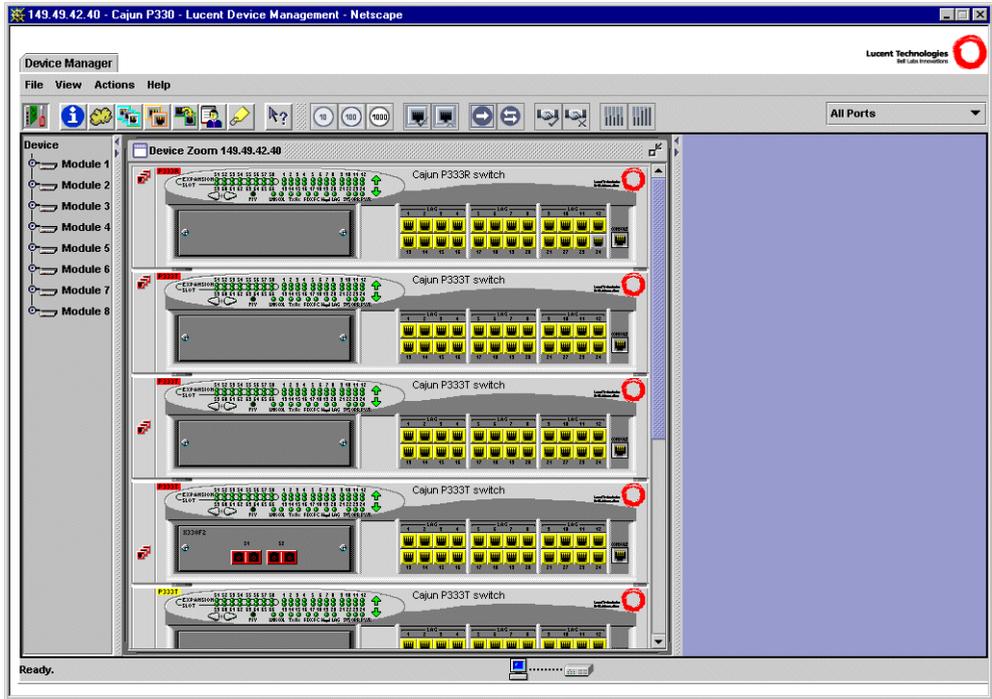
- 3 The welcome page is displayed:

Figure A.1 The Welcome Page



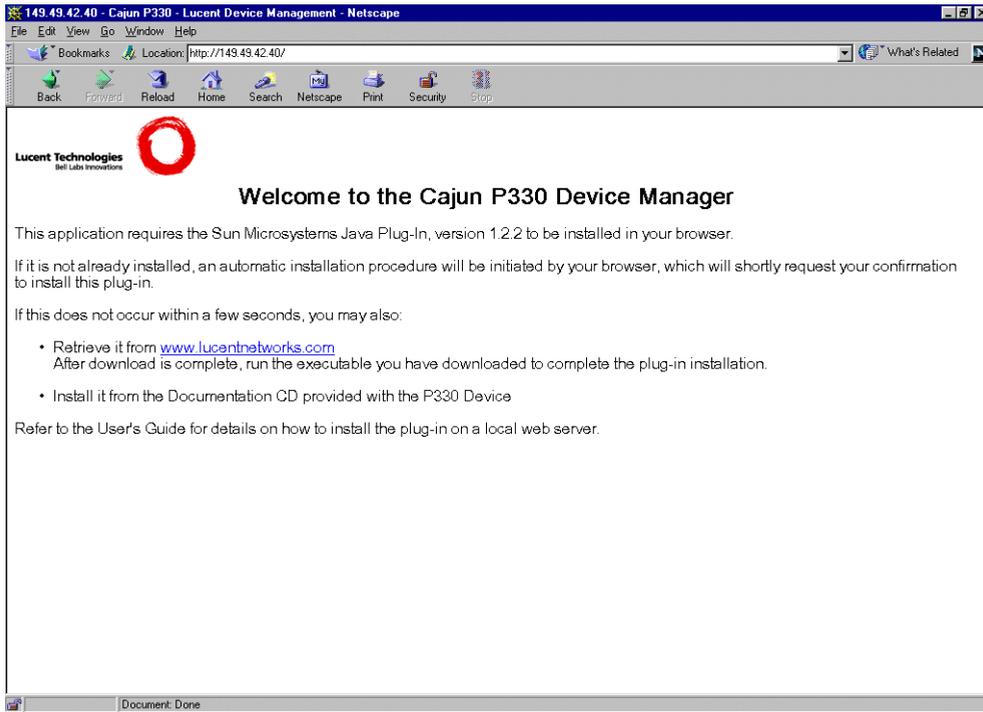
- If you have the Java plug-in installed, the Web-based manager should open in a new window (see Figure A.2)

Figure A.2 Web-based Manager



-
- If you do **not** have the Java plug-in installed, follow the instructions on the Welcome page that offers a variety of options to install the plug-in:

Figure A.3 Options for Installing the Java Plug-in



Installing the Java Plug-in

If the network manager has configured the system, the plug-in should be installed automatically.

If the plug-in is not installed automatically, then you have three options for installing it manually:

1 Installing from the Cajun P330 Documentation and Utilities CD

- 1 Close all unnecessary applications on your PC.
- 2 Insert the “Cajun P330 Documentation and Utilities” CD into the CD drive.
- 3 Click **Start** on the task bar.
- 4 Select **Run**.
- 5 Type `x:\emweb-aux-files\plug-in_1_2_2.exe` where `x:` is the CD drive letter.
- 6 Follow the instructions on screen.

2 Install from the Lucent Site

Click on the link in the Welcome page.

3 Install from your Local Web Site

Click on the link in the Welcome page.



Note: This option is only available if the network manager has placed the files on the local Web server.

Installing the On-Line Help and Java Plug-In on your Web Site



Note: This procedure is optional

Copying the help files and Java plug-in to a local Web server allows users to access the on-line help for the Embedded Manager and enables automatic installation of the Java plug-in the first time the users tries to manage the device.

- 1 Copy the `emweb-aux-files` directory from the “Cajun P330 Documentation and Utilities” CD to your local Web server. Please refer to your Web server documentation for full instructions.
- 2 Define the URL in the Cajun P330 using the following CLI command:
`set web aux-files-url //IP address/directory name`
where **`//IP address/directory name`** is the location of the directory from the previous step.
Refer to Chapter 5 for further details of the command.

Documentation

The Device Manager comes with a detailed User’s Guide including a Glossary of Terms and an overview of Data Communications concepts.

Software Download

You can perform software download using the CLI (see “Show download status Command” on page 36) or Cajun UpdateMaster (part of the CajunView Suite).

Specifications

Cajun P333T Switch

Physical

Height	2U (88 mm, 3.5")
Width	482.6 mm (19")
Depth	450 mm(17.7")
Weight	7.5 kg (16.5 lb)

Power Requirements – AC

Input voltage	100 to 240 VAC, 50/60 Hz
Power dissipation	150 W max
Input current	2 A@100 VAC 1 A@200 VAC
Inrush current	25 A@100 VAC (max.) 50 A@200VAC (max.)

Power Requirements – DC

Input voltage	-36 to -72 VDC
Power dissipation	150 W max
Input current	5.1 A max
Inrush current	50 A max

Environmental

Operating Temp. 0 to 40°C (32 to 104°F)

Rel. Humidity 5% to 95% non-condensing

Safety

- UL for US approved according to UL1950 Std.
- C-UL(UL for Canada) approved according to C22.2 No.950 Std.
- CE for Europe approved according to EN 60950 Std.
- Laser components are “Class 1 Laser Products”:
 - EN-60825/IEC-825-1 for Europe
 - FDA 21 CFR 1040.10 and 1040.11 for USA.
- Overcurrent Protection: A readily accessible Listed safety-approved protective device with a 16A rating must be incorporated in series with building installation AC power wiring for the equipment under protection.

Cajun P330 DC Input Version

- Restricted Area Access: This device should only be installed in a restricted access area.
- Installation Codes: This device must be installed in accordance with the US National Electrical Code, Articles 110-26 and 110-27, and the Canadian Electrical Code, Section 12.
- Overcurrent Protection: A readily accessible Listed branch-circuit overcurrent protective device with a 15A rating must be incorporated in the building wiring.

EMC Emissions

Emissions

Approved according to:

- US -FCC Part 15 sub part B, class A
- Europe - EN55022 class A

Immunity

Approved according to:

- EN 50082-1

Interfaces

- 24 x 10/100BASE-T RJ45 port connectors.
- RS-232 for terminal setup via RJ45 connector on front panel.

Standards Compliance

The Cajun P330 complies with:

IEEE

- 802.3x Flow Control on all ports
- 802.1Q VLAN Tagging support on all ports and 802.1p compatible
- 802.1D Bridges and STA
- 803.2z Gigabit Ethernet ports
- 803.2u Ethernet/Fast Ethernet ports

IETF

- MIB-II - RFC 1213
- Bridge MIB for Spanning Tree - RFC 1493
- RMON - RFC 1757
- SMON - RFC 2613

Basic MTBF

- 140,000 hrs minimum (see Section MTBF in Various Configurations)

Stacking Sub-module

Table B.1 Stacking Sub-module

Name	Number of Ports
X330STK	2

Expansion Sub-modules

Gigabit Ethernet Expansion Sub-modules

Table B.2 Gigabit Ethernet Expansion Sub-modules

Name	Number of Ports	Interface
X330S2	2	1000Base-SX
X330L2	2	1000Base-LX
X330S1	1	1000Base-SX
X330L1	1	1000Base-LX

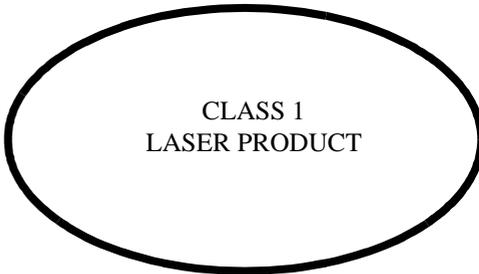
Laser Safety

The Cajun X330S1/S2 multi-mode transceivers and the Cajun X330L1/X330L2 single mode transceivers are Class 1 laser products.

They comply with IEC 825-1 and Food and Drug Administration (FDA) 21 CFR 1040.10 and 1040.11.

The transceivers must be operated under recommended operating conditions.

Laser Classification



Note: Class 1 lasers are inherently safe under reasonably foreseeable conditions of operation.



Caution: The use of optical instruments with this product will increase eye hazard.

Usage Restriction

The optical ports of the module must be terminated with an optical connector or a dust plug when not in use.

Laser Data

Cajun P330S2 Expansion Sub-modules

Wavelength: 850 nm

Output power dissipation: Max. 0.63W

Transmit power: Min. -9 dbm, Max. -4 dbm

Receive power: Min. -17 dbm, Max. 0 dbm

Cajun P330L1/2 Expansion Sub-modules

Wavelength: 1300 nm

Output power dissipation: Max. 0.68W

Transmit power (9 μ m SMF): Min. -9.5 dbm, Max. -3 dbm

Transmit power (62.5 μ m and 50 μ m MMF): Min. -11.5 dbm, Max. -3 dbm

Receive power (9 μ m SMF, 62.5 μ m and 50 μ m MMF): Min. -20 dbm, Max. -3 dbm

Fast Ethernet Fiber Expansion Sub-module

Table B.3 Fiber Fast Ethernet Expansion Sub-module

Name	Number of Ports	Interface
X330F2	2	100Base-FX

Ethernet/Fast Ethernet Expansion Sub-module

Table B.4 Ethernet/Fast Ethernet Expansion Sub-module

Name	Number of Ports	Interface
X330T16	16	10/100Base-T

GBIC Expansion Sub-module

The Cajun X330G2 Expansion Sub-Module is the GBIC (1.25 Gbit/s Gigabit Ethernet) Expansion sub-module for the Cajun P330 family of stackable switches.



Note: In order to use this module the Cajun P330 switch must have Embedded S/W Version 2.2 or higher. You can download this from:
<http://www.lucentnetworks.com/>

The X330G2 can be used either as a Gigabit Ethernet link or as a high Bandwidth backplane for connecting switches. The introduction of the GBIC interface to the Cajun P330 family presents an added value over the existing Gigabit Ethernet expansion modules. You can insert any of the Lucent-authorized GBIC transceivers into the X330G2 Expansion sub-module socket. This provides you with a highly modular and customisable Gigabit Ethernet interface. The GBIC transceivers are hot-swappable.

Safety Information

The multimode and single-mode GBIC transceivers are Class 1 Laser products. They comply with EN 60825-1 and Food and Drug Administration (FDA) 21 CFR 1040.10 and 1040.11.

The GBIC transceivers must be operated under recommended operating conditions.

Laser Classification



Note: Class 1 lasers are inherently safe under reasonably foreseeable conditions of operation.



Caution: The use of optical instruments with this product will increase eye hazard.

Usage Restriction

When a GBIC transceiver is inserted in the X330G2 Expansion sub-module but is not in use, then the Tx and Rx ports should be protected with an optical connector or a dust plug.



Caution: All Lucent approved GBICs are 5V. Do not insert a 3.3V GBIC.

Lucent supplies the following two GBIC transceivers for the Cajun P330 X330G2 Expansion Sub-modules. You can order these directly from your local Lucent representative using the PEC or COM Codes:

Type	Description	PEC Code	COM Code
GBIC SX Transceiver	Multimode Fiber 1000BaseSx (550 m)	4705-122	108659228
GBIC LX Transceiver	Single-mode Fiber 1000BaseLx (10 km)	4705-121	108659210

In addition, Lucent has tested and approved a number of GBIC transceivers from other manufacturers for use with the Cajun X330G2 Expansion sub-module. An up-to-date list can be found in in Lucent Networks' World-Wide Web site at the following address: <http://www.lucentnetworks.com/> Click on the "Supported Devices" icon.

Specifications

X330G2- LX GBIC Transceiver

A 9 μm or 10 μm single-mode fiber (SMF) cable may be connected to a 1000Base-LX GBIC port. The maximum length is 10 km (32,808 ft).

A 50 μm or 62.5 μm multimode (MMF) fiber cable may be connected to a 1000Base-LX GBIC port. The maximum length is 550 m (1,804 ft.) for 50 μm and 62.5 μm cable.

The LX transceiver has a Wavelength of 1300 nm, Transmission Rate of 1.25 Gbps and Input Power of 5V.

X330G2- SX GBIC Transceiver

A 50 μm or 62.5 μm multimode (MMF) fiber cable may be connected to a 1000Base-SX GBIC port. The maximum length is 500 m (1,640 ft.) for 50 μm cable and 220 m (722 ft.) for 62.5 μm cable.

The SX transceiver has a Wavelength of 850 nm, Transmission Rate of 1.25 Gbps and Input Power of 5V.

Agency Approval

The transceivers comply with:

- EMC Emission: US – FCC Part 15, Subpart B, Class A;
Europe – EN55022 class A
- Immunity: EN50082-1
- Safety: UL for US UL 1950 Std., C-UL (UL for Canada) C22.2 No.950 Std., Food and Drug Administration (FDA) 21 CFR 1040.10 and 1040.11, and CE for Europe EN60950 Std. Complies with EN 60825-1.

MTBF

The Mean Time Between Failures (MTBF) for the X330G2 Expansion Sub-module is 594,639 hours.

X330GT2 Gigabit Ethernet Expansion Sub-module

The X330GT2 Expansion sub-module provides two copper Gigabit Ethernet 1000Base-T ports.



Note: The X330GT2 module is only supported by Cajun P330 embedded software versions 2.4 and higher.

Installing the Expansion Sub-module in the Cajun P330

- 1 Remove the blanking plate or other sub-module (if installed).
- 2 Insert the sub-module gently into the slot, ensuring that the Printed Circuit Board (PCB) is aligned with the guide rails.
The PCB *not* the metal base plate fits into the guide rail.
- 3 Press the sub-module in firmly until it is completely inserted into the Cajun P330.
- 4 Gently tighten the two screws on the front panel of the expansion sub-module by turning the screws.



Note: The expansion sub-modules contain components sensitive to electrostatic discharge. Do not touch the circuit board unless instructed to do so.

Removing an Existing Expansion Sub-module

- 1 Loosen the screws by turning the knobs.
- 2 Grasp the two knobs one near each side of the front panel, and pull gently but firmly towards yourself.
- 3 Insert another expansion sub-module or the blanking plate.



Note: The Cajun P330 switch must not be operated with the expansion slot open; the expansion sub-module should be covered with the supplied blanking plate if necessary.



Note: X330GT2 sub-modules are hot swapable and can be inserted or removed in an operating base unit.

Cabling

A Category 5 copper cable with RJ-45 termination should be used. You should use all eight wires in the cable.

The maximum copper cable length connected to a 1000Base-T port is 100 m (328 ft.)

Backup Power Supply (BUPS)

Physical

Height	2U (88 mm, 3.5")
Width	482.6 mm (19")
Depth	450 mm(17.7")
Weight	10 kg (22 lb)

Power Requirements

Input voltage	100-240 VAC, 50/60 Hz
Input current	7.76 A@100 VAC 3.82 A@200 VAC
Inrush current	70 A@100 VAC (max.) 150 A@200 VAC (max.)
Output power	4 x 27 A@ 5.5 V
Output voltage	5.5V

Environmental

Operating Temp. 0-50⁰C (32-122⁰F)

Rel. Humidity 5% to 95% non-condensing

Safety

- UL for US approved according to UL1950 Std.
- C-UL(UL for Canada) approved according to C22.2 No.950 Std.
- CE for Europe approved according to EN 60950 Std.
- Overcurrent Protection: A readily accessible Listed safety-approved protective device with a 16A rating must be incorporated in series with building installation AC power wiring for the equipment under protection.

EMC Emissions

Emissions

Approved according to:

- Europe - EN55022 class A, 1994
- Europe - EN 6150-3-2 (Harmonics Current Emissions)
- Europe - EN 6150-3-3 (Flicker)

Immunity

Approved according to:

- EN 50082-1
- IEC 150-4-5

BUPS MTBF

- 125,194 hrs minimum (see Section MTBF in Various Configurations)

MTBF in Various Configurations

The following table provides the MTBF for the Cajun P333T in various configurations.

Table B.5 MTBF for the Cajun P333T in Various Configurations

Model	Without BUPS		With BUPS	
	Without X330STK	With X330STK	Without X330STK	With X330STK
P333T	199,774	166,311	313,000	250,000
P333T+X330T16	162,321	139,512	238,000	199,000
P333T+X330F2	155,898	134,741	228,000	193,000
P333T+X330L2/ X330S2	>145,146	>126,633	210,000	181,000
P333T+X330L1/ X330S1	>145,146	>126,633	>210,000	>181,000
P333T+X330G2	149,536	129,962	216,000	184,000

How to Contact Us

To contact Lucent's technical support, please call:

From the United States:

1-800-237-0016, press 0, then press 73300

From South America, and Central & Latin America (CALA):

1-727-217-2425 – 1 for Spanish

Outside North America:

+972 3 645 8458

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