

# ***ZyXEL***

**Firmware Release Note**

**P964 CR**

**Release 3.60(YC.21)C0**

**Date:** Sep 28, 2006  
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# **ZyXEL P964CR Standard Version**

## **release 3.60(YC.21)C0**

### **Release Note**

**Date:** Sep 28, 2006

#### **Supported Platforms :**

ZyXEL P964CR

#### **Versions:**

F/W : 360YC21C0.img | 9/28/2006 19:23:02 1,370,875 bytes

#### **Notes:**

1. An “arpFlush” must be added to the last line of VSIF configuration file.
2. Before using “remote\_manage” and “pfwd\_enable” commands on CLI, users must check the DHCP server and DHCP Pool under the same SUBNET.
3. DHCP server only supports a temporary IP for DHCP clients for diagnostic purpose when P964 can not get on line.
4. Reset to factory button can only work when cable is off line and scanning down stream.

#### **Features:**

##### **Modification in 3.60(YC.21)C0 | 9/28/2006**

1. [CHANGE]  
Change b2 to C0 version.

##### **Modification in 3.60(YC.21)b2 | 9/25/2006**

1. [Known Issue] (SPR: 060822320)  
Symptom: Unusual response message.  
Condition: Client PC telnet connect device often have unusual response message.  
CM> Not logging event ID 66060100, control for level 7 is 0.  
Logging event: Map Reject - Downstream Traffic Flow Not Mapped to BPI+ SAID (EC=8)
2. [Known Issue] (SPR: 060822321)  
Symptom: Port Trigger test failed.  
Condition: Setup trigger ranges only <UDP Protocol> transference, Lan PC triggers Wan PC

connect ok. After Wan PC connect Lan PC Failed.

3. [ENHANCE] from MSO

Symptom: Device response is nu-stable with snmp function.

Condition: MSO can get OID sometimes, but they cannot get them sometimes.

Action : Because the factofy mode is opened.The f/w is for deployed devices.

**Modification in 3.60(YC.21)b1 | 8/21/2006**

2. [Fixed]

TACACS packet is dropped while TACACS format is not correct.

**Modification in 3.60(YC.18)C4 | 10/27/2005**

3. [CHANGE]

Change back snmp access through static IP, but response from CM IP.

**Modification in 3.60(YC.18)C3 | 10/25/2005**

4. [CHANGE]

Remove snmp access through static IP.

**Modification in 3.60(YC.18)C2 | 10/12/2005**

5. [CHANGE]

Remove snmp\_set command.

**Modification in 3.60(YC.18)C1 | 9/22/2005**

6. [BUG FIXED]

Modify code for upgrade from 3.60.11. No side effect happened as P-964APR because 3.60.11 has no such feature.

**Modification in 3.60(YC.18)B6 | 7/28/2005**

7. [BUG FIXED]

If we set trigger range only <UDP protocol> for port trig forwarding, but TCP packet can also pass through the port range too.

8. [CHANGE]

Remove the Filter Proxy function.

9. [BUG FIXED]

Find VSIF function is missed.

10. [CHANGE]

Modify VSIF to support both 00:02:CF and 00:13:49

5. [BUG FIXED]

“show\_conf” and “cmd\_show” have some wrong showing information.

**Modification in 3.60(YC.18)B5 | 7/11/2005**

1. [BUG FIXED]

There is a wrong example in “dload” command example.

2. [BUG FIXED]

Public manage IP can't be accessed by LAN and WAN side.

3. [BUG FIXED]

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The wl\_show command don't show the correct MAC address of access point.

4. [BUG FIXED]  
In the webpage, the current system time wrong.
5. [BUG FIXED]  
In the Wireless – Basic webpage, the country code and channel is opened to user use.
6. [BUG FIXED]  
In the Firewall – web Filter webpage, Filter JavaApplets fail.
7. [BUG FIXED]  
In the Firewall – web Filter webpage, Filter ActiveX fail.
8. [BUG FIXED]  
In the Firewall – web Filter webpage, Filter Popup Windows fail.
9. [BUG FIXED]  
In the Firewall – web Filter webpage, Block Framented IP Packets fail.
10. [BUG FIXED]  
In the Firewall – web Filter webpage, PortScan Detection fail.
11. [CHANGE]  
Remove the Trust Computer function.

**Modification in 3.60(YC.18)B4 | 7/6/2005**

1. [BUG FIXED]  
There is no command prompt when user telnet to the cable modem.
2. [BUG FIXED]  
The show\_conf command will show the HTTP user name and password.
3. [BUG FIXED]  
“dsdiag” command show the wrong unit of power level.
4. [BUG FIXED]  
“monitor” command show the wrong unit of power level.
5. [BUG FIXED]  
In the Firewall – ToD Filter page, the block function do not work.

**Modification in 3.60(YC.18)B0 | 6/24/2005**

1. [BUG FIXED]  
Remote management fails in “Public DHCP mode”.
2. [BUG FIXED]  
DHCP commands are not necessary for “Basic static IP mode”.
3. [BUG FIXED]  
RIP commands are not necessary when RIP is disabled.
4. [ENHANCE]  
Change the prompt to match the host name.

5. [ENHANCE]  
Extended TACACS string length to 32 bytes
6. [ENHANCE]  
Add firewall enable CLI commands and related web pages.
7. [ENHANCE]  
Speed up through put as twice as before.

### **Modification in 3.60(YD.17) | 6/09/2005**

1. [BUG FIXED]  
Eliminate verbose debugging messages. “monitor” can benefit from it.
2. [BUG FIXED]  
Modify “defaults” command reset button to real factory defaults. It includes pflt, pfwd, rip, passthrough, dns, and scan band.
3. [BUG FIXED]  
Fix ”pfwd\_enable”, ”pfwd\_disable”, ”pfwd\_show” commands defect.
4. [BUG FIXED]  
”pflt\_enable”, ”pflt\_disable”, ”pflt\_show” commands defect.
5. [BUG FIXED]  
“routeShow” command now will show static route.
6. [BUG FIXED]  
Fix “sysObjectID” to ZyXEL MIB code.
7. [BUG FIXED]  
Fix 3.60.15 and 3.60.16 “ip\_blk”, “trust\_ip” nonvol location error.

## **Change List:**

### **Functional Changes in 3.60.16**

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- (1) Fix Cisco GRE VPN interoperate issue.
- (2) Modify Telnet messages when users are rejected to connect to. The new message is “Connection Refused...”
- (3) Add “trust\_add”, “trust\_clear”, and “trust\_show” commands. “trust\_add” specify a specific IP subnet which a host can TELNET to a P964 in the subnet. “trust\_clear” clears all trusted IP subnets. And “trust\_show” shows all trusted IP subnets.

- (4) Add “arpFlush” to clear the ARP table.

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**Functional Changes in 3.60.15**

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- (5) Base on P964 CR firmware release 3.60.14 to add/fix the following functions
- (6) Add “ipblk\_add”, “ipblk\_clear”, and “ipblk\_show” commands. “ipblk\_add” will block a specific static IP from access Internet. “ipblk\_clear” will clear all blocked IPs. And “ipblk\_show” will show all blocked IPs.
- (7) Change the messages, “A CPE (Ethernet) is attempting to hijack the MAC : address for IP Stack1! Thwarting the villain's malicious plot...”, to as follows:  
“An IP/MAC conflict has been detected. Please check the IP address of any connected device and make sure it is not using an IP address of another connected device.

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**Functional Changes in 3.60.14**

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- (8) Modify the RIP packet broadcast/multicast to WAN port, Cable side, only. This fix prevents  
RIP packet flooding to LAN port, Ethernet side.

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**Functional Changes in 3.60.13**

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- (9) Base on P964CR firmware release 3.60.11 to add/fix the following functions
- (10) Fix “wan\_ip” by adding a third gateway parameter and enable RIP. Although RIP is enabled it is not necessary for CMTS to enable RIP. Besides users can lengthen the RIP report interval up to 65535 seconds to avoid network traffic. “wan\_ip” functions the same as P944S’s WAN static mode.
- (11) Add “dhcp\_enable” an extra lease time parameter. User can assign a dhcp server lease time for CPEs range from 3600 to 65535 seconds. For backward compatibility issues this parameter is optional and its default value is 3600 seconds.
- (12) Add “hostname” command to assign P964 a hostname, its length is up to 254 bytes. And tie it with SNMP MIB “sys.Name”.
- (13) Add CPU usage and Cable/LAN TX/RX information in “monitor” command.
- (14) Add VSIF function.
- (15) Fix ARP packet flooding.
- (16) Add accessing SNMP from trusted IP and correct community string.
- (17) Always enable hardware reset function. Cancel “fac\_enable” command.

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**Functional Changes in 3.60.12**

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- (18) Base on P964CR firmware release 3.60.11 to add/fix the following functions

- (19) Fix “wan\_ip” by adding a third gateway parameter and enable RIP. Although RIP is enabled it is not necessary for CMTS to enable RIP. Besides users can lengthen the RIP report interval up to 65535 seconds to avoid network traffic. “wan\_ip” functions the same as P944S’s WAN static mode.
- (20) Add “dhcp\_enable” an extra lease time parameter. User can assign a dhcp server lease time for CPEs range from 3600 to 65535 seconds. For backward compatibility issues this parameter is optional and its default value is 3600 seconds.
- (21) Add “hostname” command to assign P964 a hostname, its length is up to 254 bytes.

### **Functional Changes in 3.60.11**

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- (22) Base on P964CR firmware release 3.60.10 to add/fix the following functions
- (23) Fix ARP interoperability issue with VSG1000, CISCO PIX and other routers.
- (24) Fix pressing reset button to reset to factory default without customers’ proprietary information. To use this function, users should follow the following procedure: unplug the HFC then power on P964CR. Press the reset button and hold at least 10 seconds when P964CR’s CABLE LED starting slow flash (2 seconds interval). After P964CR rebooted, the P964CR will be back to factory default. The “fac\_reset” will also reset to be disabled.
- (25) Add “cmd\_show” to show commands that set the current configuration.
- (26) Add “rip2\_broadcast” command to support broadcast and RIP report time interval.
- (27) Add “cmd\_tftp” to tftp commands that set the current configuration to a tftp server.
- (28) Add “man\_ip” to configure a static IP for management, e.g. TELNET.
- (29) Add “tel\_conf” to accept telnet from WAN, LAN or BOTH.
- (30) Add “tel\_port” to configure TELNET servers’ listening port.
- (31) Add “tel\_ip” to accept only this IP to connect TELNET server.
- (32) Re-involve the “scan” plan functions.
- (33) Add one to one NAT function, including commands “nat11”, “nat\_add”, “nat\_remove” and “nat\_show”.
- (34) Add static route, include a command “route\_add”. Obsolete commands “static\_ip2”  
“static\_ip3”, but there is no harm to use them.

- (35) Add “wan\_ip” command for some customers who use only one static IP with RIP disabled.
- (36) Fix “ping” now cannot work properly in windows/Linux TELNET client sessions.

### **Functional Changes in 3.60.10**

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- (37) Base on P964CR firmware release 3.60.05r1 to add/fix the following functions
- (38) Rip key string length changes from 16 bytes to 24 bytes.
- (39) Hold Reset button exceed 10 secodes will reset user name and password back to factory default.  
  
This function is disabled again from 3.60.05 to 3.60.10.
- (40) Add bootdelay commands which make P964CR delay 15 seconds when booting.
- (41) Base on P964CR firmware release 3.60.05(20040108) to add/fix the following functions
- (42) Add a system status monitor function. Please refer to the operators’ guide.
- (43) Add a fac\_reset command. Operators can enable/disable reset button function.
- (44) Add WAN-DATA interface TELNET support when P964CR is in IP SHARING mode.
- (45) Add port forwarding commands, which does same things as web page.
  - 1. pfwd\_enable
  - 2. pfwd\_disable
  - 3. pfwd\_show
- (46) Add port filtering commands, which does same things as web page.
  - 1. pflt\_enable
  - 2. pflt\_disable
  - 3. pflt\_show
- (47) Do not show the RIP/TACACS key string and TELNET password when show\_conf
- (48) Add static IP support for SNMP
- (49) Fix RF reading problem
- (50) Move the web service to port 8080
- (51) Fix LED behavior issue
- (52) Fix Mutex error



## Appendix 1: CLI Command List

**Note: 802.11 HAL commands and wl\_\* commands and only valid in P-964APR.**

Command Class List Table		
<a href="#">Root</a>	<a href="#">802.11 HAL</a>	<a href="#">Heap Manager</a>
<a href="#">Cable Home</a>	<a href="#">CM HAL</a>	<a href="#">Docsis Control</a>
<a href="#">Ethernet HAL</a>	<a href="#">Event Log</a>	<a href="#">Forwarder</a>
<a href="#">IP HAL</a>	<a href="#">Message Log</a>	<a href="#">Ping Helper</a>
<a href="#">Propane Control</a>	<a href="#">Remote Access</a>	<a href="#">SNMP</a>
<a href="#">USB HAL</a>		

### Root commands

[Home](#)

Command		Description
add_passthrough	[ index ] [ MAC address]	Add a MAC address which will not be NATed or Routed but pass through the CM directly.
arpflush		Clear the current ARP table information
arpshow		Displays current arp table information.
bootdelay	[true false]	In some environment the CMTS can not sense that CM is rebooting. Use this command to let CMTS has much more time to know that CM is rebooting.
cmd_show		Show current setting command
cmd_tftp		Backup current setting commands to tftp server
defaults		This command is to reset the configuration to default. The P964CR must be rebooted to make it effective.
del_passthrough	[Passthrough Index{1..20}]	Delete an entry which was added by “add_passthrough” command.
dhcp_enable	[true false] [Lease time{3600..65535}]	This command is to enable or disable the LAN DHCP service and DHCP lease time in seconds, from 3600 to 65535, for CPEs. The LeaseTime parameter is optional and its default value is 3600 seconds.
dhcp_pool	[DhcpStart] [DhcpSize{1..65536}]	Set LAN DHCP IP range starting from [DhcpStartAddress]. The pool size is [IpSize] IpSize: IpSize number, range between 1..65535.
dhcp_server	[DhcpServer] [DhcpNetmask]	Set LAN DHCP server IP address and its net mask. It is also the LAN IP address. It can be set even when DHCP server is disabled.
dns_server	[DnsServer1] [DnsServer2] [DnsServer3]	This command is to setup the DNS server IP addresses. The IP address will be included in the DHCP reply to pc.
exit		Stop showing system status monitor.
hostname	[HostName{0..254}]	Set static Wan hostname
hostshow		Display current host table.
icmpshow		Display current icmp stat information.
ifshow		Displays current interface information.
ip_sharing	[true false]	Enable/disable IP sharing mode. If disabled, the P964CR will not assign IP address for its WAN interface. This value will be true when “router_enable” is setting true. For Time Warner static IP services, this must be set to false.
ipblk_add	[Index{1..5}] [BlockIP]	Add IP block.
ipblk_clear		Clear IP Block Table

ipblk_show		Show IP Block Table
ipshow		Display current ip stat information.
load_config	[ IPAddress ] [ Filename ]	This command is to load a text based configuration from a TFTP server. After loaded, the commands inside the file will be executed line by line. This can be used for easy configuration.
logout		For Telnet clients, this lets the user log out cleanly.
man_ip	[ManageIP]	Set a static public for management the P964 router.
mbufshow		Display current mbuf allocation
memshow		Display current memory allocation.
monitor		Show system status monitor.
nat11	[true false]	This command is to enable/disable the 1 to 1 NAT
nat_add	[Private IP] [Public IP]	This command sets the 1 to 1 NAT mapping
nat_remove		This command removes all 1 to 1 NAT mapping entries.
nat_show		This command shows all 1 to 1 NAT mapping entries.
pflt_disable	[Entry{0..10}]	Disable port filter entry. Entry = 1 to 10
pflt_enable	[Entry{0..10}] [Start] [Port] [End] [Port] [Protocol]	Enable port filter entry. Entry = 1 to 10
pflt_show		Show port filter content.
pfwd_disable	[Entry]	Disable port forwarding entry.
pfwd_enable	[Entry] [IpAddress] [Start] [Port] [End] [Port] [Protocol]	Enable port forwarding entry.
pfwd_show		Show port forwarding table content.
ping	[IpAddress]	Ping the specified target IP address, sending 3 64-byte packets, and waiting up 5 seconds for a response. This is a basic 'standard' ping. For more option or control over ping parameters and behavior, you will need to go to the ping command table(cd pinghelper). In order for this to work, the CM must either have successfully completed DHCP, or must otherwise have been configured with a valid IP address. Note that this command causes the ping option to be reset to their default state. This may be disabled if the platform doesn't provide an implementation of ping.
ptrig_disable	[Entry{1..10}]	Disable trigger entry. Entry = 1 to 10.
ptrig_enable	[Entry{1..10}] [Start TrigPort{0..65534}] [End TrigPort{0..65534}] [Start Port{0..65}]	Enable trigger entry. Entry = 1 to 10. Start TrigPort = Set start TrigPort number End TrigPort = set end TrigPort number Sart Port = start port number End Port = End port number Protocol = 1→TCP, 2→UDP, 3→BOTH.
ptrig_show		Show trigger table content.
remote_manage	[true false]	This command is used to enable or disable remote access to the Prestige web interface through port 8080.
reset		This command is to resets the system (warm boot). The hardware reset line is triggered, causing the application to be reloaded from scratch. On host-based app simulators, this will cause the application to exit.
rip2_broadcast	[BroadcastFlag]	Set sending RIP2 packet broadcast(true) or

	[TimeInterval{30..65535}]	multicast(false)
rip2_debug	[true false]	This command is to enable/disable the RIP debug message. If enabled, the console will display RIP broadcast message every 30 seconds.
rip2_keyid	[KeyId{0..4294967294}]	This command is to set the RIP2 key id. The key-id number can be in range between 0..4294967294.
rip2_keystr	[KeyString{24}]	This command is to set the RIP2 key string. The parameter key-string can not exceed 24 characters.
rip2_md5	[true false]	This command is to enable/disable the RIP2 MD5 feature.
rip_enable	[true false]	This command is to enable/disable the RIP2 routing protocol.
route_add	[Index{1..2}] [NetworkIP] [NetMask Gateway]	Add static route to cable router. Sometimes we have subnets in LAN and need a function to route packets. We limit the number of subnets to 2, Index=1 or Index = 2.
router_enable	[true false]	Enables/disables the route mode. If enabled, the P964CR operates in router mode, otherwise bridge mode.
routeshow		Display current routing information.
run_app		If the application was stopped at the console (either via keypress or via non-vol setting that automatically stopped it), then this command will allow it to start running. This command is not available if the application is already running.
save		This command is to write the configuration into Flash ROM.
scan_band	[Band{0..31}]	The command is to set the predefined scanning frequency plan via the hexadecimal bitmap. 0x01: FREQ_PLAN_EIA 0x02: FREQ_PLAN_HRC 0x04: FREQ_PLAN_EURO 0x08: FREQ_PLAN_OIRT 0x10: FREQ_PLAN_BG
scan_set	[index{0..4}] [Band{1..5}] [start] [end] [freq_offset(for EURO)]	This command sets the predefined frequency range in a specified frequency plan. The Prestige supports 5 sets of predefined frequency ranges indexing from 0 to 4.
scan_set_clear		Clear the predefined frequency scanning set.
scan_show		Scan show
scan_stop		Stop downstream scan
shell		Causes the application to jump to vxwork shell
show_conf		This command is to show the current configuration.
snmp_set	[IP] [Community]	This command sets trust SNMP IP and community string which can connect to the P964's SNMP agent. The default values are 0.0.0.0 and "public". The IP 0.0.0.0 represents no limitation.
static_ip	[ IPAddress ] [ NetMask ]	Setup the static IP and netmask. It is used for setting a public IP subnet on P964CR
static_ip2	[ IPAddress ] [ NetMask ]	Setup the second static IP and netmask. It is used for setting the second public IP subnet on P964CR
static_ip3	[ IPAddress ] [ NetMask ]	Setup the third static IP and netmask. It is used for setting the third public IP subnet on P964CR
tac_enable	[ true   false ]	This command is used to disable or enable the

		TACACS authentication service.
tac_ip	[TACACS SourceIpType ]	This command is used to set the TACACS source Ip Type value.
tac_key	[ TACACS Keystring ]	This command is used to set the TACACS MD5 key string value. Of cause it is only needed when MD5 encryption is used.
tac_md5	[true false]	This command is used to disable or enable the TACACS authentication service with MD5 encryption.
tac_server	[ IPAddress ] [ IPAddress ]	This command setup TACACS servers. The primary server is necessary and the secondary is optional
tcpshow		Display current tcp stat information
tel_conf	[setting]	This command is to set telnet to accept connection request from LAN, WAN, or BOTH.
tel_ip	[ IPAddress ]	This command is to set a IP which TELNET server can trust.
tel_port	[Port]	This command is to set telnet to listen on a specific port.
telnet_pass	[Password]	This command is to set telnet password.
telnet_user	[Username]	This command is to set the telnet user name.
trust_add	[Index{1..5}] [TrustedIpNet] [TrustedIpMsk]	Add trusted TELNET IP subnet
trust_clear		Clear trusted TELNET IP subnet table.
trust_show		Show trusted TELNET IP subnet table.
udpshow		Display current udp stat information
version		Display the current firmware version.
wan_ip	[IPAddress NetMask Gateway]	Setup the static wan IP, netmask, and gateway.
web_admin_id	[ WebAdminId ]	This command is to set the user name for Administrator web.
web_admin_password	[ WebAdminPass ]	This command is to set the password for Administrator web.
web_enable	[true false]	This command is used to enable or disable the Web interface.
web_user	[ WebUserId ] [ WebUserPass ]	This command is to set the user name and password for User web page.
wl_auth	[ [ [disable] [WEP64 WEP128] [Pass Phrase Key Index(1..4)] [Key1 Key2 Key3 Key4] ]   [ [802.1x] [ Radius Server IP] [Port(0..65535)] [Key] ]   [ [WPA] [ Radius Server IP] [Port] [Key] [Re-Key Interval(0..65535)] [AES TKIP] ]   [ [WPA-PSK] [WPA Pre-Shared Key] [Re-Key Interval] [AES TKIP] ] ]	Enable wireless LAN authentication.
wl_beacon	[Number{0..65535}]	Sets the beacon interval (0-65535 ms).
wl_country	[ country ] [ Channel ]	Set Country code and it associated channel. The following is the wireless LAN channel defined by countries <div style="margin-left: 40px;"> country      channel  worldwide    1~13  Thailand      1~14  Israel        5~7  Jordan        10~13  China         1~13  Japan         1~14  USA           1~11  Europe        1~13  All channel   1~14 </div>

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wl_dtim	[Number{1..255}]	Sets the DTIM interval (1-255).
wl_enable	[ true false ]	Enable wireless LAN interface or not.
wl_frag	[Number{256..2346}]	Sets the fragmentation threshold (256-2346 bytes).
wl_mac	StationNum{1..16} [MacAddress]	StationNum{1..16} [MacAddress]
wl_mode	[compatibility gonly performance]	Sets the mode of the 54g interface.
wl_power	[Number{25..100}]	Sets the output power level(25, 50, 75, 100)
wl_protect	[off auto]	Sets 54g Protection mode
wl_rate	[Number{0..54000}]	Sets rate control
wl_restrict	[disabled allow deny]	Sets behavior of MAC table
wl_rts	[Number{0..3000}]	Sets the RTS threshold (0-3000).
wl_show		Show the Settings of Wireless.
wl_ssid	[ ssid ]	This command is to set wireless LAN SSID. The maximum length of SSID is 32 bytes.
wl_type	[ open closed ]	Set P964APR to a closed network true, if you do not want to send SSID on air.
zone	[bitmask{0xffff}]	Prints or sets the hal debug zones; this determines what debug messages will be display by HAL driver. This bit correspond to the HAL debug zones: 0x0001 – INIt 0x0002 – TEST1 0x0004 – TEST2 0x0008 –TEST3 0x0010 – TEST4 0x0020 – TEST5 0x0040 – TEST6 0x0080 – BPI 0x0100 – DOWNSTREAM 0x0200 – UPSTREAM 0x0400 – TUNNER 0x0800 – RANGING 0x1000 – TESTSRAM 0x2000 – TESTREG 0x4000 – WARNING 0x8000 – ERROR

## 802.11 Hal relation

[Home](#)

Command		Description
antenna	[AntSelect]	Causes the 802.11 HAL to set/display its current antenna setting.
bssid		Causes the 802.11 HAL to display the current BSSID address.
channel	[ChanNum]	Causes the 802.11 HAL to set/display its current channel setting.
clr_counts		Causes the 802.11 HAL to clear driver maintained statistics.
csenable	[CsEn]	Causes the 802.11 HAL to set/display the carrier suppression transmit setting.
hal_show		Causes the 802.11 HAL to display its internal state.
Regdomain		Causes the 802.11 HAL to display the current regulatory domain.
Rxenable	[RxEn]	Causes the 802.11 HAL to set/display the force radio receive only setting. 0 = Stop RX only test 1 = Start RX only test
Rxfer		Causes the 802.11 HAL to display the current FER counter.
show		Causes the HalIf object to display its state.
ssid		Causes the 802.11 HAL to display its current SSID string.
txenable	[TxEn] [Rate]	Causes the 802.11 HAL to set/display the force radio transmit setting. First Parameter: 0 = CW Transmit Test 1 = EVM Transmit Test 2 = Turn Off all Tests Second parameter (for EVM only): test rate in MBits (1, 2, 5.5, 11).
txpwrlevel	[TxPower]	Causes the 802.11 HAL to set/display the current transmit power level.
wl	[CmdLine{31}]	Sends commands to the 802.11 diagnostic and manufacturing utility.

## Heap Manager

[Home](#)

Command		Description
bcheck		Runs a bounds check in the heap manager (if compiled in).
bcheck_crash	[true false]	Sets the behavior when an on-the-fly bounds checking error is detected. Turning this on will cause the offending thread to crash after we print relevant information.
bcheck_enable	[true false]	Turns on-the-fly bounds checking on or off in the heap manager (if compiled in). When this is on, we will validate pointers, seed values, and other heap state during each alloc and free. When off, you must run bcheck manually to detect errors.
last_error		Displays the last error that was detected by the heap manager.
maxAlloc		Displays the maximum number of bytes that can currently be allocated in a single call to malloc.

		This takes into account all of the overhead for node tracking and bounds checking, as well as the current fragmentation state of the heap.
memShow		Displays summary of available heap.
stats		Displays detailed heap manager counters and statistics.
walk		Displays all of the free memory blocks.
walk_alloc		Displays all of the allocated memory blocks. WARNING: This can print a LOT of information!

**Cable Home**[Home](#)

Command		Description
arp_show		Displays the current ARP table information.
arppacket_show		Displays the current ARP Packet information.
capt_show		Displays the current CAPT (Passthrough) contents.
debug_kerb	[DebugLevel{0..3360}]	Sets the Kerberos debug level where level is an int from 0 (silent) to 9 (verbose).
dhcps_add_lease		Adds a Dhcp server lease associating client id with Ip address.
dhcps_remove_lease		Removes a Dhcp server lease, the user will be prompted for a client id
dhcps_show		Displays the current DHCP server information.
dns_debug	[number{0..1}]	Enables/Disables DNS debug information.
dns_show		Displays current DNS information.
fwr_show		Displays current firewall ruleset.
kerb_test	[Realm] [KDC IP Addr] [ProvServer IP Addr]	Start kerberos for SNMP (debug).
nat_show		Displays the current NAT info.
reload_lan_config		This reconfigures the LAN side using the current non-vol settings.
reload_routedsubnet		This reconfigures the routed subnets using the current non-vol settings.
rip_show		Displays current RIP (Routing Information Protocol) settings.
route_entry	[-d]	Prompts user to add or remove a route.
routed_subnet_show		Displays current Routed Subnet settings.
upnp_show		Displays current UPnP (Universal Plug-n-Plug) settings.
usfs_show		Displays the current USFS table contents.
wandata_show		Displays the current Wan Data Address table contents.

**CM Hal**[Home](#)

Command		Description
bcmalloc_show	[-c]	Displays a snapshot of the current BcmAlloc memory pool statistics. If -c is specified, then the counters are also cleared.
bist_test		Runs the CM MAC h/w BIST Tests.
cache_test		Tests cache flush/invalidate performance.
change	[-s] [-c] cos[cls phs flow] [index]	Changes information about Classifiers, Service Flows, PHS, DOCSIS 1.0 Class of Service, and other objects in the system. cos -- Selects the DOCSIS 1.0 Class of Service object. cls -- Selects Classifiers. phs -- Selects PHS Rules. flow -- Selects Service Flows.

		<p>-s -- Changes the settings for the selected object (you will be prompted for the values).</p> <p>-c -- Clears the counters for the selected object.</p> <p>index -- Selects a specific instance of the object type.</p> <p>The index is shown when you list the objects with the 'show' command. You must specify one of each of the object type and -s or -c parameters; there are no defaults. The index is optional; if missing, all instances are changed.</p>
counters		Causes the CM HAL to print the hardware counter values.
cpe_add	[MacAddress]	Adds the specified MAC address to the CPE learning table. An SNMP MIB item is created for it, and it is added to the downstream data CAM. The address is added unassociated, since there isn't a good way to specify the Half that it should be associated with. The assoc will be locked in on the first packet that goes upstream.
cpe_del	[MacAddress] [index{-1..2147483647}]	Removes the CPE with the specified MAC address/table index from the learning table. The SNMP MIB item is also deleted. The index is 0-based, as printed by cpe_print. If you specify -1, all will be removed.
cpe_max	[max Cpe]	Sets/gets the max CPEs that can be added to the learning table.
cpe_print		Prints the CPE learning table.
ds_state		Prints the state of the DOCSIS downstream (frequency, modulation, etc.).
hal_show	[-l] [-s] [-c] [flow descr queue all] [index]	<p>Displays information about the CM DOCSIS HAL internal state: Service Flows, MA descriptors, Counters, HW/SW Queues. These are what the parameters mean:</p> <p>flow -- Selects Upstream Service Flow info</p> <p>descr -- Selects DMA Descriptor info</p> <p>queue -- Selects Hardware/Software Queue info</p> <p>-l -- lists the selected object(s)</p> <p>-s -- shows settings for the selected object(s)</p> <p>-c -- shows counters for the selected object(s)</p> <p>index -- selects a specific instance of the object type</p> <p>The index is shown when you list the objects; it is not valid with 'all' or with -l. 'all' and '-l' are the default options if none are specified.</p>
ldaix_read	[numTimes{1..4294967295}]	Prints the current values for the LDAIT, LDAII, and LDAIF registers. This is primarily used for downstream power calibration. You can have it repeat the read/print very quickly, in case you are concerned that the values change during the read. It is up to you to decide what to do with the values (average, median, etc.).
lock_ds	[Frequency] [numTimes{1..4294967295}]	Causes the CM HAL to lock to the Ds Freq specified. If the numTimes parameter is present, the CM will try to lock that number of times, and will print a success rate at the conclusion of the testing. Selecting a freq of 0 will just check the



		lock status without re-running the scripts. Use only in test mode!
log	[Bitmask{0x40007f}]	Configures the message log settings for this class to enable or disable various app-specific severities. These are the bits supported: 0x000001 -- Tx MacMgt Msg Packet 0x000002 -- Rx MacMgt Msg Packet 0x000004 -- Tx Data Packet 0x000008 -- Rx Data Packet 0x000010 -- Add/Chng/Del Service Flow 0x000020 -- MIB Filters 0x000040 -- Downstream Scan 0x400000 -- Other API calls into the HalIf
packets_queued	[sfid]	Queries the HAL for the number of packets queued on the specified upstream flow. If the SFID is 0 or missing, then it prints the number of packets queued on all flows.
qosParms	[-p priority{0..7}] [-r maxRateBps] [-b maxBurstBytes{1522..4294967295}] [-c maxC]	Changes the QoS parameters associated with the specified service flow. Request/Transmit Policy bits: 0x0001 -- Disable bcast request 0x0002 -- Disable priority request 0x0004 -- Disable req/data for requests 0x0008 -- Disable req/data for data 0x0010 -- Disable piggyback request 0x0020 -- Disable concatenation 0x0040 -- Disable fragmentation 0x0080 -- Disable PHS 0x0100 -- Drop UGS packets too big
read_mbr	[opcode] [numBytes{1..4}]	Reads the multibyte register specified by the 'read' opcode, displaying the number of bytes specified. You MUST specify a valid read opcode, and the number of bytes must be valid; failure to do this can lead to unpredictable results!
read_posted	[Register] [numBytes{1..4}]	Reads the posted downstream register specified by the Register parameter, displaying the number of bytes specified. You MUST specify a valid register, and the number of bytes must be valid; failure to do this can lead to unpredictable results!
scan_ds	[Frequency] [ScanMode{0..2}]	Causes the Scan Thread to try to acquire the Ds Freq specified. If the frequency parameter is 0, then the Scan Thread selects the starting frequency on its own. The ScanMode parameter tells the thread how to limit the frequency selection: 0 - Scan all frequencies until stopped (default) 1 - Scan specified frequency once 2 - Scan specified frequency until stopped.
scan_stop		Causes the Scan Thread to stop scanning downstream frequencies.
sdram_test	[bufferSize]	Runs the SDRAM tests (stepping 1's on cached/uncached space). NOTE: This test runs forever! You must reboot to stop it.
set_mode	[OID] [true false]	Calls the CM HAL SetMode entrypoint with the specified CM_HAL_MODE OID and the specified true/false value. The mode OID values come from cblmodem.h.
show	[-l] [-s] [-c] [cos cls phs flow all] [index]	Displays information about Classifiers, Service Flows, PHS, DOCSIS 1.0 Class of Service, and

		<p>other objects in the system.</p> <p>cos -- Selects the DOCSIS 1.0 Class of Service object info.</p> <p>cls -- Selects Classifier info.</p> <p>phs -- Selects PHS info.</p> <p>flow -- Selects Service Flow info.</p> <p>all -- Selects all DOCSIS objects in the system.</p> <p>-l -- Lists the selected object(s).</p> <p>-s -- Shows settings for the selected object(s).</p> <p>-c -- Shows counters for the selected object(s).</p> <p>index -- Selects a specific instance of the object type.</p> <p>The index is shown when you list the objects; it is not valid with 'all' or with -l. 'all' and '-l' are the default options if none are specified.</p>
show_halif		Causes the HalIf object to display its state.
test_bcmalloc		Tests the BcmAlloc/BcmFree module.
transmit	<p>[-s PacketSize{64..1518}] [-t NumSeconds] [-r TimeBetweenPacketsMs] [-p FillPatte]</p>	<p>Transmits packets out the upstream interface. The packets will have a reasonable UDP/IP header, but otherwise have garbage data in them, so you probably don't want to do this on a live network. Packets will be sent as fast as possible unless overridden by the -r flag; you can specify the packet size and/or the number of seconds over which to send packets. If not otherwise specified, it will send 1518 byte packets until the system is power cycled.</p> <p>Flags:</p> <p>-s : The packet size; if not specified, 1518 bytes.</p> <p>-t : Number of seconds you want to transmit; default (0) = infinite.</p> <p>-r : Controls the packet rate. Specify the time (in ms) between each packet. Note that this value will be quantized based on the OS clock tick resolution (usually 10ms), so 1ms, 8ms, and 12ms are all the same as 10ms. A value of 0 means 'as fast as possible', i.e. no delay between packets.</p> <p>-p : Specifies the fill pattern for the buffer. The value specified will be used to fill the buffer. If not specified, then the buffer is filled with increasing values.</p>
us_burst	<p>[qpsk 8qam 16qam 32qam 64qam 128qam 256qam] [symbolRate] [Frequency] [power_dB] [RS_N] [RS_T]</p>	Causes the CM HAL to constantly burst data upstream with the specified QAM/QPSK mode, symbol rate, frequency, and power level. The 3348 supports programmable RS_N and RS_T values. Use only in test mode!
us_cw_transmit	[Frequency] [power_dB]	Causes the CM HAL to constantly transmit a CW upstream at a specified frequency and power level. Use only in test mode!
us_debug	<p>[qpsk 8qam 16qam 32qam 64qam 128qam 256qam] [symbolRate] [Frequency] [power_dB]</p>	Causes the CM HAL to run an upstream debug sequence with the specified QAM/QPSK mode, symbol rate, frequency, and power level. Use only in test mode!
us_sweep	<p>[startFreqMHz] [endFreqMHz] [stepFreqMHz] [power_dB] [sweepTimeSecs]</p>	Causes the CM HAL to send an upstream sweep. The starting/ending frequencies, and the step size are specified in

		MHz. The duration of the sweep from start to end is specified in seconds. Power is in dB. Use only in test mode!
us_transmit	[qpsk 8qam 16qam 32qam 64qam 128qam 256qam] [symbolRate] [Frequency] [power_dB] [tdma sa]	Causes the CM HAL to constantly transmit a PRBS23 pattern upstream with the specified QAM/QPSK mode, symbol rate, frequency, and power level. Use only in test mode!
write_mbr	[opcode] [numBytes{1..4}] [value]	Writes the multibyte register specified by the 'write' opcode, sending the value and number of bytes specified. You MUST specify a valid write opcode, and the number of bytes must be valid; failure to do this can lead to unpredictable results!
write_posted	[Register] [numBytes{1..4}] [value]	Writes the posted downstream register specified by the Register parameter, sending the value and number of bytes specified. You MUST specify a valid register, and the number of bytes must be valid; failure to do this can lead to unpredictable results!

**Docsis Control**[Home](#)

Command		Description
binarySfid	[true false]	Use binary SFID encoding in CM initiated DSD REQ.
bpiShow		Prints the BPI State Machine Parameters.
clear_image	[-i number{1..2}]	This causes the specified image (stored in flash memory) to be erased. The -i parameter specifies the image number to be cleared (number of images depends on the platform). WARNING: If you clear all images, then the system won't run!
clearcmcert		Clears the Cable Modem Certificate.
comp_mac_to_phy	[-v] [mac_bytes] [iuc{1..15}]	Runs the UCD-based MAC-to-PHY computation for the specified number of MAC bytes on the specified IUC code. If -v is specified, then verbose debug output will be displayed.
comp_phy_to_mac	[-v] [phy_mslots] [iuc{1..15}]	Runs the UCD-based PHY-to-MAC computation for the specified number of PHY minislots on the specified IUC code. If -v is specified, then verbose debug output will be displayed.
copy_image	[SourceImage{1..2}] [DestinationImage{1..2}]	This causes the specified source image (stored in flash memory) to be copied to the specified destination image. The source image must be valid, and must be small enough to fit in the dest image slot.
dload	[-i Number] [-s] [-l] [-f] [IpAddress] [Filename{127}]	Causes the CM DOCSIS Control thread to download and store the specified image file via TFTP from the specified TFTP Server IP address. When the download is completed, the next reboot will run this image. If you omit the filename and/or IP address parameters, then we will use the ones stored in non-vol settings. The -i parameter specifies the image number to be overwritten (number of images depends on the platform). If omitted then the default image for the platform will be used. If present, the -s causes Secure Download to be used. The -l flag selects image1 as the target and allows a large image to be loaded, if allowed by the flash driver. The -f flag forces

		the image to be loaded even if the signature or compression types are not valid for the platform.
dsdiag		Shows concise information about the downstream state.
dsx_show		Shows the current state of the DSx Helper object.
goto_ds	[Frequency]	Causes the CM to move to the Ds Freq specified. If the CM fails to lock at the specified frequency, then it will continue scanning. When it locks on a valid downstream, it will then range, perform IP initialization, and register. The value can be in units of Hz or MHz (if the value is less than 10,000, then it is assumed to be MHz).
igmpShow		Prints the IGMP Group Statistics.
ip_initialize	[dhcp]	This causes the IP stack to lock in it's canned DHCP settings (IP and router addresses), and enables forwarding of packets to all interfaces. If you use the 'dhcp' parameter, then it will do DHCP to get the address; otherwise, it will use the DHCP settings from non-vol memory.
ip_show		Shows the DHCP settings that are being used by the IP stack.
log_messages	[Bitmask{0xffff}]	Enables/disables logging of DOCSIS MAC Management messages, along with TLV parsing/generation associated with them. You can enable logging of multiple messages by setting their bits to 1. These are the bit definitions: 0x0001 -- UCD 0x0002 -- RNG-REQ 0x0004 -- RNG-RSP 0x0008 -- Config file contents 0x0010 -- REG-REQ/RSP/ACK 0x0020 -- UCC-REQ/RSP, DCC-REQ/RSP/ACK 0x0040 -- DSx-REQ/RSP/ACK 0x0080 -- DCI-REQ/RSP 0x0100 -- UP-DIS 0x0200 -- gathering set of useable UCD's 0x0400 -- TST-REQ 0x0800 -- US phy overhead computations 0x4000 -- Log raw message octets 0x8000 -- Show TLV parsing/generation
modem_caps		Prints the modem capabilities from the REG-RSP.
rate_shaping_enable	[true false]	This enables/disables DOCSIS 1.0 Class of Service or DOCSIS 1.1 QoS rate shaping. If disabled, then no rate shaping will be performed.
rng_rsp	[true false]	Enables/disables the one-line RNG-RSP messages that are displayed when a ranging response message is received from the CMTS.
scan_stop		Causes the CM to stop scanning for a downstream channel. You must use goto_ds to start scanning again.
showFlows		Prints the current Dynamic Flow STDs.
state		Shows the current state of the CM DOCSIS Control Thread.
stop_download		If a software download is in progress, this will stop it in its tracks. The storage for the partially downloaded image will be cleared.
ucddiag		Shows concise information about the UCD state.

ucdShow		Prints the current upstream channel description being used.
up_dis	[-t Number]	Causes the DOCSIS state to be reset, deleting all flows, stopping BPI, deregistering from CMTS, stopping ranging, etc. This is equivalent to receiving an UP-DIS message. RFI-N-01049 added the timeout paramer, which you can specify with the -t parameter.
us_phy_oh_show		Prints computed upstream phy overhead settings.
usdiag		Shows concise information about the upstream state.

**Docsis Control\Propane Control**[Home](#)

Command		Description
debug	[Enable]	Enables/disables internal Propane library debug printing.
discovery	[IpAddress] [PortNumber{0..65535}]	Simulates the CMTS sending a Propane Discovery packet to the CM. You must specify the IP address and TCP/UDP port number that the CMTS would have sent the packet from.
dsx_complete	[true false]	Simulates the completion of the DSC, with the specified result (success/fail).
oper_caps	[IpAddress] [PortNumber{0..65535}] [PropaneVersion{0..65535}] [PropaneCaps]	Simulates the CMTS sending a Propane Operational Capabilities packet to the CM. You must specify the IP address and TCP/UDP port number that the CMTS would have sent the packet from. See the Propane protocol docs for the version and caps values.
port_number	[Number{0..65535}]	Sets the TCP/UDP port number that we will bind our socket to. This takes effect the next time we get an IP Address Acquired event.
psi_grant	[IpAddress] [PortNumber{0..65535}] [TransactionId SFID] [NumberOfPsis{1..255}]	Simulates the CMTS sending a Propane PSI response packet to the CM. The PSI values are chosen automatically. You must specify the IP address and TCP/UDP port number that the CMTS would have sent the packet from.
release_psis	[TransactionId SFID] [NumberOfPsis{1..255}]	Simulates a request from the Propane Library to release PSIs back to the CMTS. This causes a PSI Release packet to be sent. The PSI values are chosen automatically.
request_psis	[TransactionId SFID] [NumberOfPsis{1..255}]	Simulates a request from the Propane Library to get more PSIs from the CMTS. This causes a PSI Request packet to be sent.
show		Shows the current state of the CM Propane Control Thread.
simulate	exit ip_acq ip_lost cm_oper not_oper	Sends the specified simulated event to the CM Propane Control Thread.

**Ethernet Hal**[Home](#)

Command		Description
autoneg	[true false]	Turns Ethernet AutoNegotiation on or off.
force_link	[true false]	Enables/disables the link detection logic, forcing the PHY to think that there is a link when there really isn't.
full_duplex	[true false]	If autoneg is off, sets the Ethernet duplex to full/half.
hal_show		Causes the Ethernet HAL to display its internal state.

read_mii	[PhyAddr] [RegAddr]	Reads the specified ethernet MII register from the PHY specified.
show		Causes the HalIf object to display its state.
speed	[10 100]	If autoneg is off, sets the Ethernet link speed.
transmit	[-s PacketSize{64..1518}] [-t NumSeconds] [-r TimeBetweenPacketsMs] [-p FillPatte]	Transmits packets out the ethernet interface. The packets will have garbage data in them, so you probably don't want to do this on a live network. Packets will be sent as fast as possible unless overridden by the -r flag; you can specify the packet size and/or the number of seconds over which to send packets. If not otherwise specified, it will send 1518 byte packets until the system is power cycled. Flags: -s : The packet size; if not specified, 1518 bytes. -t : Number of seconds you want to transmit; default (0) = infinite. -r : Controls the packet rate. Specify the time (in ms) between each packet. Note that this value will be quantized based on the OS clock tick resolution (usually 10ms), so 1ms, 8ms, and 12ms are all the same as 10ms. A value of 0 means 'as fast as possible', i.e. no delay between packets. -p : Specifies the fill pattern for the buffer. The value specified will be used to fill the buffer. If not specified, then the buffer is filled with increasing values.
write_mii	[PhyAddr] [RegAddr] [Value]	Writes the specified value to the ethernet MII register, using the PHY specified. Note that if you want to mask bits on or off, then you will need to do the math yourself, using read_mii to show the current value.

**Event Hal**[Home](#)

Command	Description
control	[level{0..8}] [reporting{0..255}] Show or modify the contents of the control table.
flush	Flush the contents of the event log, including stored events.
log_event	eventId{15} [evParm1{127}] [evParm2{127}] [evParm3{127}] [evParm4{127}] [evParm5] Log an event with the specified event id to the event log. The event may have up to 4 event-specific text parameters; if your parameter has a space, then enclose it in quotes (e.g. "this is parm 1").
read	Read the event log from NV storage and rebuild the table.
show	Dump the contents of the event log to the console.
stress	Start a stress test for the selected event log object.
syslog	[IpAddress] Set the IP address of the syslog server. Use 0.0.0.0 to inhibit.

**Forwarder**[Home](#)

Command	Description
halif_show	[-s] [-d] Shows all of the HalIf objects that have been registered. If -s is specified, then it also prints a table of the interfaces, showing who can transmit to whom. Otherwise, it just prints the descriptions. If -d is specified, then it prints the detailed HalIf object contents, including counters, Snoops, etc.

log_packets	[true false] [from_interfaces] [to_interfaces]	This enables/disables logging for packets received from the specified interfaces and being sent to the specified interfaces. If enabled, then the contents of the packet will be displayed, and the forwarder will show info about the HalIf on which it was received/sent, as well as why the packet was dropped. If the from/to interfaces parameters are missing, then all will be done. The interfaces are a bitmask where 0x01 corresponds to the interface at index 0, 0x04 corresponds to the interface at index 2, etc.
lt_add	[mac_addr] [halif]	Adds an association between the specified MAC address and HalIf.
lt_clear		Clears out the learning table, removing all MAC->HalIf associations.
lt_delete	[mac_addr   index]	Deletes the association between the specified MAC address and its HalIf.
lt_max_entries	[max_entries]	Gets or sets the maximum number of learning table entries that will be allowed. If this is 0, then the number of entries is limited only by memory. Note that the IP stack occupies one entry, so if you want to allow 2 CPE devices, then you must specify a value of 3. Also note that no entries will be removed, even if you specify a value that is smaller than the number of entries that currently exist in the learning table.
lt_show		Displays the contents of the learning table.

**IP Hal**[Home](#)

Command		Description
bootloader	[-f] [IpAddress] [Filename{255}]	Downloads the specified bootloader image from the TFTP server and stores it to the bootloader region. The image must be valid for the platform, and must have a ProgramStore header (but no compression).
clientif_debug	[StackNumber{ 1..4294967295}] [true false]	Turns on debugging for the specified DHCP ClientIf object. This will show information related to processing leases, packet generation, packet processing, and timeouts.
dhcpc_debug	[true false]	Turns on debugging for the DHCP client thread. This will show information about timeouts and packets received from the network (but not the contents of the packets).
dhcpc_show	[StackNumber{ 1..4294967295}]	Shows the state of the DHCP ClientIf objects. You must specify the stack number of the ClientIf object.
dload	[-i Number] [-l] [-f] [IpAddress] [Filename{255}]	Downloads the specified s/w image from the TFTP server and stores it in the image slot specified. The image must be valid for the platform, and must not contain any security, encryption, or digital signatures. It must be a simple image file with only the normal ProgramStore compression header. Parameters: -i -- Specifies the image slot to store the image to. -l -- Allows a large image to be stored, spanning images 1 and 2, if allowed by the flash

		<p>driver configuration.</p> <p>-f -- Forces the given image to be accepted, as long as the CRCs are valid.</p> <p>Note that you must always specify the TFTP server address and filename; unlike the dload command in the Docsis directory, this command doesn't make use of any Docsis-specific nonvol settings, so it can't remember the last values used.</p>
hal_show		Causes the IP Stack HAL to display its internal state.
ipconfig	[-l Number] [StackNumber{ 1..4294967295 }] [renew release static] [IpAddress] [SubnetMask]	<p>Configures the specified IP stack: 'renew' starts DHCP (if not started) or renews the current lease. 'release' causes the current lease to be released, shutting down the IP stack. 'static' configures the stack with the IP address/subnet mask/router specified. When using 'static', you must specify the IP address parameter. The subnet and router are optional, but desirable.</p>
lease_show	[StackNumber{ 1..4294967295 }] [LeaseIndex]	<p>Shows the state of the lease controlled by the DHCP ClientIf object. You must specify the stack number of the ClientIf object, and the 0-based index of the lease. The lease index is shown via dhcpc_show. If you want to show all leases for the ClientIf, leave out the LeaseIndex parameter.</p>
show		Causes the HalIf object to display its state.
test	[all clientid settings lease other]	Runs tests on the specified component of the DHCP Client system.

**Message Log**[Home](#)

	Command	Description
fields	[Bitmask{ 0x3f }]	<p>Displays or sets the different message fields that are enabled for display. Message field bit definitions:</p> <p>0x01 -- The severity of the message (INFO, WARNING, ERROR, etc.)</p> <p>0x02 -- The instance name of the object that generated the message.</p> <p>0x04 -- The function/method in which the message was generated.</p> <p>0x08 -- The name of the module/class in which the message was generated.</p> <p>0x10 -- The system timestamp (millisecond, in hex).</p>
severities	[Bitmask]	<p>Displays or sets the different message severity levels that are enabled for display. Message logging bit definitions:</p> <p>0x00000001 -- Fatal Errors</p> <p>0x00000002 -- Errors</p> <p>0x00000004 -- Warnings</p> <p>0x00000008 -- Initialization</p> <p>0x00000010 -- Function entry/exit</p> <p>0x00000020 -- Informational</p> <p>0xffffffff -- All messages</p>
show_settings		Displays the current Message Log Settings.

**Message Log\remote Access**[Home](#)

	Command	Description
read_default_settings	[telnet]	Causes the Remote Access server to read and use



		the default settings from nonvol. Any existing connections are not changed. This undoes any configuration changes that were made at runtime (e.g. through a MIB, etc).
restart_server	[telnet]	Stops, then starts the specified Remote Access server. Any existing connections will be closed. This is the only way to get a Remote Access server to start using new settings from a Remote Access connection (e.g. change the Telnet settings from a Telnet connection).
start_server	[telnet]	Starts the specified Remote Access server if not already running.
stop_server	[telnet]	Stops the specified Remote Access server if it is running. Any existing connections will be closed.

## Ping Helper

[Home](#)

Command		Description
all_sizes		Configures the settings for sweeping all packet sizes from 64-1518, with waiting and verification enabled. The time between pings is set to 0 ms, the verbosity is set to full, and the reply wait time is set to 1/2 second. The IP address is not changed.
end_size	[size{64..1518}]	Sets or shows the size of the largest ping packet that will be sent (including LLC and IP header overhead). After the packet size is increased by the step amount, if it is larger than this value, then the size is reset to the start size. This must be between start_size..1518 (MTU), inclusive.
hs_nowait		Configures the settings for doing high-speed pings (infinite), without waiting for the reply. The display verbosity is set to 2 (display only a 'p'), the time between pings is set to 0, and waiting for replies is disabled. None of the other settings are changed.
hs_wait		Configures the settings for doing high-speed pings (infinite), waiting for the reply. The display verbosity is set to 2 (display only a 'p'), the time between pings is set to 0, and waiting for replies is enabled. None of the other settings are changed.
ip_address	[IpAddress]	Sets or shows the IP address of the device to be pinged.
ip_stack	[Number{0..255}]	Sets the IP stack number that the pings should be sent to. If 0, then the default stack will be used. The stackNum parameter must correspond to a valid IP stack that has been installed and initialized with an IP address.
ip_sweep	[Subnet] [StartingIp]	Pings all IP addresses on the specified subnet, starting with the address specified, reporting success or failure for each one. It changes the ping settings so that only a single ping is sent. This is often used to discover all of the IP addresses on the subnet. The address will be incremented from 1..254, skipping .0 and .255 since these are often used for local broadcast addresses.
number_of_pings	[Number{-1..2147483647}]	Sets or shows the number of pings to be sent. Note that 0 means infinite (you will need to press a

		key or type 'stop' to abort). A value of -1 causes the number of pings to be calculated based on the end size, start size, and step amount, so that it will span the range exactly once; $\text{num} = (\text{end} - \text{start} + 1) / \text{step}$ .
ping	[-s] [IpAddress]	Begins pinging the specified IP address, using the current settings. If the IP address is missing, then it uses the one that was previously set. If you specify -s, then pinging will happen in the background until you type stop. Otherwise, it will poll for a keypress.
restore_defaults		Restores all of the options to their default values (excluding the IP address, which is not modified). The default values cause ping to behave like most host-based ping utilities (3 packets, 64 bytes, wait 5 seconds, etc.).
show_settings		Displays the current ping settings.
start_size	[size{ 64..1518}]	Sets or shows the size of the first ping packet that will be sent (including LLC and IP header overhead). The packet size will be increased by the step amount for each packet. This must be between 64..end_size, inclusive.
stats		Displays the ping statistics summary from the last set of pings. This is the same summary that is displayed at the end of the pings (if verbosity is > 0).
step_amount	[size]	Sets or shows the amount that the packet size will be increased for each packet. This can be any number (including 0, which means to keep the size constant for every packet). Note that if you set it too large, then the packet size will wrap around to the start size every time, since it will never be allowed to be larger than the end_size. You can also specify a negative number which causes the ping size to start with the end size parameter and step down to the start size, then wrap back around to the end size.
stop		Stops the ping that is currently running. This is necessary if you used the -s parameter with ping.
time_between_pings	[Milliseconds]	Sets or shows the number of milliseconds that the ping helper will wait before sending the next ping. Note that this does not include time spent waiting for the reply or verifying it, or for time spent printing status information. The actual resolution and accuracy of this depends on the system (pSOS generally runs with a 10ms clock tick, so 10ms is the same as 15ms on that system).
verbosity	[Number{0..3}]	Sets the level of information that will be displayed while pinging. A higher number provides more information, but also slows down the rate at which pings can be sent. Most host-based ping utilities provide output equivalent to 3. For high-performance, high packet rate pings, values of 1 or 2 are best.
verify_enable	[true false]	Enables/disables verification of ping replies. If enabled, and if waiting for replies is enabled, then if a reply is received, it will verify that it matches the ping that was sent, and that all of the data is intact.
wait_enable	[true false]	Enables/disables waiting for ping replies. If

		enabled, the ping helper will wait a number of milliseconds for the reply, and will process it if received. This is true even if the timeout is 0ms; it will always check for and process the response. If disabled, then no attempt will be made to check for or process a response. This is generally only of interest when you need to send data very quickly, with no variability.
wait_time	[Milliseconds]	Sets or shows the number of milliseconds that the ping helper will wait for a ping response before continuing. This only takes effect if waiting is enabled. The actual resolution and accuracy of this depends on the system (pSOS generally runs with a 10ms clock tick, so 10ms is the same as 15ms on that system).

**SNMP**[Home](#)

Command		Description
debug	[level{0..9}]	Set the debug level of the non-portable agent.
delete	[name].[index]	Delete the specified object.
deregister	[name].[index]	De-register the bridge object for the specified MIB object.
direct_set		Test a direct SNMP set, like from the config file.
filters	[state] [hexmask]	Turn SNMP packet filtering on or off. The third argument, if specified, indicates which filters to enable or disable. If not specified, the state will apply to ALL filters. Otherwise... 0x01 -- CPE filters 0x02 -- IP filters 0x04 -- LLC filters 0x08 -- NM filters
get	[name].[index]	Get the specified SNMP object. If no index is specified, assumes '.0'. To query a table entry, use [tablename].[index], not [entryname].[index].
install_group	[vacmGroupName] [dhPublicKey]	Install one of the standard DOCSIS 1.1 groups. Supported groups are: docsisManager docsisOperator docsisMonitor docsisUser vacmGroupName is one of the above names. dhPublicKey is any old text string to use as the public key (no spaces).
log_events		Turn event log messages on or off.
log_filt		Turn SNMP packet filtering messages on or off.
log_nm		Turn SNMP NM access messages on or off.
log_req		Turn SNMP request messages on or off.
n2m	[trapId] [trapVersion] [destIP] [community]	Print the NetToMedia mappings to the console. Note that this is a superset of the ipNetToMediaTable, because it may contain off-net entries as well as on-net ones.
notify_setup		Setup Notify Mibs to enable SNMPv3 Notify. Uses default entries.
set	[name].[index] [type] [value]	Set the specified SNMP object to the specified value.
severities		List SNMP message log app-specific severity bits.
show		Print the SNMP agent's settings to the console.

test		This is a test command.
trap	[trapId] [trapVersion] [destIP] [community]	Send the specified trap of specified version to destIP with specified community string trapId -- 0=COLD_START trapId -- 1=WARM_START trapId -- 2=LINK_DOWN trapId -- 3=LINK_UP trapId -- 4=AUTH_FAILURE trapVersion -- 1=SNMPv1 trap
view_v1v2	[viewname]	Set the view used for SNMPv1/v2c queries for the specified agent.
write_access	[OID] [Access] or done	Test setting of SNMP write access, like from the config file.

## USB Hal

[Home](#)

Command		Description
hal_show		Causes the USB HAL to display its internal state.
show		Causes the HalIf object to display its state.