

INDEX

A

aaa accounting dot1x command [1-1](#)
 aaa authentication dot1x command [1-3](#)
 aaa authorization network command [1-5, 1-27, 1-34, 1-36, 1-39, 1-41, 1-43, 1-180, 1-364, 1-579, 1-7, 1-41](#)
 AAA methods [1-3](#)
 access control entries
 See ACEs
 access control lists
 See ACLs
 access groups
 IP [1-237](#)
 MAC, displaying [1-724](#)
 access list, IPv6 [1-314](#)
 access map configuration mode [1-381](#)
 access mode [1-934](#)
 access ports [1-934](#)
 ACEs [1-154, 1-471](#)
 ACLs
 deny [1-152](#)
 displaying [1-560](#)
 for non-IP protocols [1-368](#)
 IP [1-237](#)
 matching [1-381](#)
 on Layer 2 interfaces [1-237](#)
 permit [1-469](#)
 action command [1-8](#)
 address aliasing [1-439](#)
 aggregate-port learner [1-455](#)
 allowed VLANs [1-954](#)
 archive copy-sw command [1-10](#)
 archive download-sw command [1-13](#)
 archive tar command [1-18](#)
 archive upload-sw command [1-21](#)
 arp (boot loader) command [1-2](#)
 arp access-list command [1-23](#)

authentication command bounce-port ignore [1-25](#)
 authentication command disable-port ignore [1-26](#)
 authentication control-direction command [1-27](#)
 authentication event command [1-29](#)
 authentication event linksec fail action command [1-33](#)
 authentication failed VLAN
 See dot1x auth-fail vlan
 authentication fallback command [1-34](#)
 authentication host-mode command [1-36](#)
 authentication linksec policy command [1-38](#)
 authentication mac-move permit command [1-39](#)
 authentication open command [1-41](#)
 authentication order command [1-43](#)
 authentication periodic command [1-45](#)
 authentication port-control command [1-47](#)
 authentication priority command [1-49](#)
 authentication timer command [1-51](#)
 authentication violation command [1-53](#)
 auth-fail max-attempts
 See dot1x auth-fail max-attempts
 auth-fail vlan
 See dot1x auth-fail vlan
 auth open command [1-41](#)
 auth order command [1-43](#)
 authorization state of controlled port [1-197](#)
 auth timer command [1-51](#)
 autonegotiation of duplex mode [1-211](#)
 auto qos classify command [1-55](#)
 auto qos trust command [1-58](#)
 auto qos video command [1-61](#)
 auto qos voip command [1-64](#)

B

BackboneFast, for STP [1-853](#)
 backup interfaces
 configuring [1-928](#)
 displaying [1-648](#)
 boot (boot loader) command [1-3](#)

- boot auto-copy-sw command [1-71](#)
 - boot auto-download-sw command [1-72](#)
 - boot config-file command [1-75](#)
 - boot enable-break command [1-76](#)
 - boot helper command [1-77](#)
 - boot helper-config file command [1-78](#)
 - booting
 - Cisco IOS image [1-81](#)
 - displaying environment variables [1-573](#)
 - interrupting [1-76](#)
 - manually [1-79](#)
 - boot loader
 - accessing [1-1](#)
 - booting
 - Cisco IOS image [1-3](#)
 - helper image [1-77](#)
 - directories
 - creating [1-19](#)
 - displaying a list of [1-8](#)
 - removing [1-23](#)
 - displaying
 - available commands [1-13](#)
 - memory heap utilization [1-14](#)
 - version [1-30](#)
 - environment variables
 - described [1-24](#)
 - displaying settings [1-24](#)
 - location of [1-25](#)
 - setting [1-24](#)
 - unsetting [1-28](#)
 - files
 - copying [1-6](#)
 - deleting [1-7](#)
 - displaying a list of [1-8](#)
 - displaying the contents of [1-5, 1-20, 1-27](#)
 - renaming [1-21](#)
 - file system
 - formatting [1-11](#)
 - initializing flash [1-10](#)
 - running a consistency check [1-12](#)
 - prompt [1-1](#)
 - resetting the system [1-22](#)
 - boot manual command [1-79](#)
 - boot private-config-file command [1-80](#)
 - boot system command [1-81](#)
 - boot time-copy-sw command [1-70](#)
 - BPDU filtering, for spanning tree [1-854, 1-888](#)
 - BPDU guard, for spanning tree [1-856, 1-888](#)
 - broadcast storm control [1-911](#)
-
- ## C
- candidate switches
 - See clusters
 - cat (boot loader) command [1-5](#)
 - CDP, enabling protocol tunneling for [1-341](#)
 - channel-group command [1-85](#)
 - channel-protocol command [1-89](#)
 - Cisco Redundant Power System 2300
 - configuring [1-493](#)
 - managing [1-493](#)
 - Cisco SoftPhone
 - auto-QoS configuration [1-64](#)
 - trusting packets sent from [1-428](#)
 - CISP
 - See Client Information Signalling Protocol
 - cisp
 - debug platform cisp command [1-41](#)
 - cisp enable command [1-90](#)
 - class command [1-91](#)
 - class-map command [1-94](#)
 - class maps
 - creating [1-94](#)
 - defining the match criteria [1-383](#)
 - displaying [1-580](#)
 - class of service
 - See CoS
 - clear dot1x command [1-96](#)

- clear eap sessions command [1-97](#)
 - clear errdisable interface [1-98](#)
 - clear ip arp inspection log command [1-99](#)
 - clear ip arp inspection statistics command [1-100](#)
 - clear ipc command [1-103](#)
 - clear ip dhcp snooping database command [1-101](#)
 - clear ipv6 dhcp conflict command [1-104](#)
 - clear l2protocol-tunnel counters command [1-105](#)
 - clear lacp command [1-106](#)
 - clear logging onboard command [1-107](#)
 - clear logging smartlog statistics interface command [1-108](#)
 - clear mac address-table command [1-109, 1-110](#)
 - clear macsec counters interface command [1-111](#)
 - clear mka command [1-112](#)
 - clear nmsp statistics command [1-114](#)
 - clear pagp command [1-115, 1-119](#)
 - clear port-security command [1-116](#)
 - clear psp counter [1-118](#)
 - clear psp counter command [1-118](#)
 - clear spanning-tree counters command [1-120](#)
 - clear spanning-tree detected-protocols command [1-121](#)
 - clear vmpls statistics command [1-122](#)
 - clear vtp counters command [1-123](#)
 - Client Information Signalling Protocol [1-90, 1-180, 1-579, 1-7, 1-41](#)
 - cluster commander-address command [1-124](#)
 - cluster discovery hop-count command [1-126](#)
 - cluster enable command [1-127](#)
 - cluster holdtime command [1-129](#)
 - cluster member command [1-130](#)
 - cluster outside-interface command [1-132](#)
 - cluster run command [1-133](#)
 - clusters
 - adding candidates [1-130](#)
 - binding to HSRP group [1-134](#)
 - building manually [1-130](#)
 - communicating with
 - devices outside the cluster [1-132](#)
 - members by using Telnet [1-515](#)
 - debug messages, display [1-8](#)
 - displaying
 - candidate switches [1-583](#)
 - debug messages [1-8](#)
 - member switches [1-585](#)
 - status [1-581](#)
 - hop-count limit for extended discovery [1-126](#)
 - HSRP standby groups [1-134](#)
 - redundancy [1-134](#)
 - SNMP trap [1-842](#)
 - cluster standby-group command [1-134](#)
 - cluster timer command [1-136](#)
 - command modes defined [1-2](#)
 - command switch
 - See clusters
 - confidentiality-offset command [1-139](#)
 - configuration files
 - password recovery disable considerations [1-1](#)
 - specifying the name [1-75, 1-80](#)
 - configuring multiple interfaces [1-233](#)
 - config-vlan mode
 - commands [1-981](#)
 - copy (boot loader) command [1-6](#)
 - copy logging onboard command [1-137](#)
 - CoS
 - assigning default value to incoming packets [1-398](#)
 - assigning to Layer 2 protocol packets [1-344](#)
 - overriding the incoming value [1-398](#)
 - CoS-to-DSCP map [1-402](#)
 - CPU ASIC statistics, displaying [1-587](#)
 - crashinfo files [1-223](#)
 - critical VLAN [1-31](#)
-
- ## D
- debug authentication [1-2](#)
 - debug auto qos command [1-4](#)
 - debug backup command [1-6](#)
 - debug cisp command [1-7](#)

- debug cluster command [1-8](#)
- debug device-sensor command [1-10](#)
- debug dot1x command [1-12](#)
- debug dtp command [1-13](#)
- debug eap command [1-14](#)
- debug etherchannel command [1-15](#)
- debug fastethernet command [1-16](#)
- debug ilpower command [1-17](#)
- debug interface command [1-18](#)
- debug ip dhcp snooping command [1-19](#)
- debug ip igmp filter command [1-21](#)
- debug ip igmp max-groups command [1-22](#)
- debug ip igmp snooping command [1-23](#)
- debug ip verify source packet command [1-20](#)
- debug lacp command [1-24](#)
- debug lldp packets command [1-25](#)
- debug mac-notification command [1-27](#)
- debug masec command [1-28](#)
- debug matm command [1-29](#)
- debug matm move update command [1-30](#)
- debug mka command [1-31](#)
- debug monitor command [1-33](#)
- debug mvrdbg command [1-34](#)
- debug nmsp command [1-35](#)
- debug nvram command [1-36](#)
- debug pagp command [1-37](#)
- debug platform acl command [1-38](#)
- debug platform backup interface command [1-40](#)
- debug platform cisp command [1-41](#)
- debug platform cli-redirection main command [1-42](#)
- debug platform configuration command [1-43, 1-51](#)
- debug platform cpu-queues command [1-44](#)
- debug platform device-manager command [1-46](#)
- debug platform dot1x command [1-47](#)
- debug platform etherchannel command [1-48](#)
- debug platform fallback-bridging command [1-49](#)
- debug platform forw-tcam command [1-50](#)
- debug platform ip arp inspection command [1-52](#)
- debug platform ipc command [1-61](#)
- debug platform ip dhcp command [1-53](#)
- debug platform ip igmp snooping command [1-54](#)
- debug platform ip multicast command [1-56](#)
- debug platform ip unicast command [1-58](#)
- debug platform ip wccp command [1-60](#)
- debug platform led command [1-62](#)
- debug platform matm command [1-63](#)
- debug platform messaging application command [1-64](#)
- debug platform phy command [1-65](#)
- debug platform pm command [1-67](#)
- debug platform port-asic command [1-69](#)
- debug platform port-security command [1-70](#)
- debug platform qos-acl-tcam command [1-71](#)
- debug platform remote-commands command [1-72](#)
- debug platform resource-manager command [1-73](#)
- debug platform snmp command [1-74](#)
- debug platform span command [1-75](#)
- debug platform stack-manager command [1-76](#)
- debug platform supervisor-asic command [1-77](#)
- debug platform sw-bridge command [1-78](#)
- debug platform tcam command [1-79](#)
- debug platform udd command [1-82](#)
- debug platform vlan command [1-83](#)
- debug pm command [1-84](#)
- debug port-security command [1-86](#)
- debug qos-manager command [1-87](#)
- debug spanning-tree backbonefast command [1-90](#)
- debug spanning-tree bpdu command [1-91](#)
- debug spanning-tree bpdu-opt command [1-92](#)
- debug spanning-tree command [1-88](#)
- debug spanning-tree mstp command [1-93](#)
- debug spanning-tree switch command [1-95](#)
- debug spanning-tree uplinkfast command [1-97](#)
- debug sw-vlan command [1-98](#)
- debug sw-vlan ifs command [1-100](#)
- debug sw-vlan notification command [1-101](#)
- debug sw-vlan vtp command [1-103](#)
- debug udd command [1-105](#)
- debug vqpc command [1-107](#)

- default policy, MKA [1-389](#)
- define interface-range command [1-140](#)
- delete (boot loader) command [1-7](#)
- delete command [1-142](#)
- deny (ARP access-list configuration) command [1-145](#)
- deny (IPv6) command [1-147](#)
- deny command [1-152](#)
- detect mechanism, causes [1-214](#)
- device-sensor accounting command [1-155](#)
- device-sensor filter-list command [1-156](#)
- device-sensor filter-list dhcp command [1-159](#)
- device-sensor filter-spec command [1-161](#)
- device-sensor notify command [1-163](#)
- DHCP snooping
 - accepting untrusted packets from edge switch [1-271](#)
 - enabling
 - on a VLAN [1-277](#)
 - option 82 [1-269, 1-271](#)
 - trust on an interface [1-275](#)
 - error recovery timer [1-219](#)
 - rate limiting [1-274](#)
- DHCP snooping binding database
 - binding file, configuring [1-267](#)
 - bindings
 - adding [1-265](#)
 - deleting [1-265](#)
 - displaying [1-671](#)
 - clearing database agent statistics [1-101](#)
 - database agent, configuring [1-267](#)
 - displaying
 - binding entries [1-671](#)
 - database agent status [1-673, 1-675](#)
 - renewing [1-523](#)
- Digital Optical Monitoring
 - see DoM
- dir (boot loader) command [1-8](#)
- directories, deleting [1-142](#)
- DoM
 - displaying supported transceivers [1-662](#)
- domain name, VTP [1-996](#)
- dot1x auth-fail max-attempts [1-174](#)
- dot1x auth-fail vlan [1-176](#)
- dot1x command [1-172](#)
- dot1x control-direction command [1-178](#)
- dot1x credentials (global configuration) command [1-180](#)
- dot1x critical global configuration command [1-181](#)
- dot1x critical interface configuration command [1-183](#)
- dot1x default command [1-185](#)
- dot1x fallback command [1-186](#)
- dot1x guest-vlan command [1-187](#)
- dot1x host-mode command [1-189](#)
- dot1x initialize command [1-190](#)
- dot1x mac-auth-bypass command [1-191](#)
- dot1x max-reauth-req command [1-193](#)
- dot1x max-req command [1-195](#)
- dot1x pae command [1-196](#)
- dot1x port-control command [1-197](#)
- dot1x re-authenticate command [1-199](#)
- dot1x reauthentication command [1-200](#)
- dot1x supplicant controlled transient command [1-201](#)
- dot1x supplicant force-multicast command [1-203](#)
- dot1x test eapol-capable command [1-204](#)
- dot1x test timeout command [1-205](#)
- dot1x timeout command [1-206](#)
- dot1x violation-mode command [1-209](#)
- dropping packets, with ACL matches [1-8](#)
- drop threshold, Layer 2 protocol tunneling [1-341](#)
- DSCP-to-CoS map [1-402](#)
- DSCP-to-DSCP-mutation map [1-402](#)
- DTP [1-935](#)
- DTP flap
 - error detection for [1-214](#)
 - error recovery timer [1-219](#)
- DTP negotiation [1-939](#)
- dual IPv4 and IPv6 templates [1-463](#)
- duplex command [1-210](#)
- dynamic-access ports
 - configuring [1-923](#)

restrictions [1-924](#)

dynamic ARP inspection

- ARP ACLs
 - apply to a VLAN [1-245](#)
 - define [1-23](#)
 - deny packets [1-145](#)
 - display [1-564](#)
 - permit packets [1-461](#)
- clear
 - log buffer [1-99](#)
 - statistics [1-100](#)
- display
 - ARP ACLs [1-564](#)
 - configuration and operating state [1-666](#)
 - log buffer [1-666](#)
 - statistics [1-666](#)
 - trust state and rate limit [1-666](#)
- enable per VLAN [1-257](#)
- error detection for [1-214](#)
- error recovery timer [1-219](#)
- log buffer
 - clear [1-99](#)
 - configure [1-249](#)
 - display [1-666](#)
- rate-limit incoming ARP packets [1-247](#)
- statistics
 - clear [1-100](#)
 - display [1-666](#)
- trusted interface state [1-253](#)
- type of packet logged [1-258](#)
- validation checks [1-255](#)

dynamic auto VLAN membership mode [1-934](#)

dynamic desirable VLAN membership mode [1-934](#)

Dynamic Host Configuration Protocol (DHCP)

- See DHCP snooping

Dynamic Trunking Protocol

- See DTP

E

EAP-request/identity frame

- maximum number to send [1-195](#)
- response time before retransmitting [1-206](#)

encapsulation methods [1-954](#)

environment variables, displaying [1-573](#)

epm access-control open [1-212](#)

errdisable detect cause command [1-214](#)

errdisable detect cause small-frame command [1-217](#)

errdisable recovery cause small-frame [1-222](#)

errdisable recovery command [1-219](#)

error conditions, displaying [1-634](#)

error disable detection [1-214](#)

error-disabled interfaces, displaying [1-647](#)

EtherChannel

- assigning Ethernet interface to channel group [1-85](#)
- creating port-channel logical interface [1-231](#)
- debug EtherChannel/PAgP, display [1-15](#)
- debug platform-specific events, display [1-48](#)
- displaying [1-637](#)
- enabling Layer 2 protocol tunneling for
 - LACP [1-342](#)
 - PAgP [1-342](#)
 - UDLD [1-342](#)
- interface information, displaying [1-647](#)

LACP

- clearing channel-group information [1-106, 1-107](#)
- debug messages, display [1-24](#)
- displaying [1-708](#)
- modes [1-85](#)
- port priority for hot-standby ports [1-345](#)
- restricting a protocol [1-89](#)
- system priority [1-347](#)

load-distribution methods [1-479](#)

PAgP

- aggregate-port learner [1-455](#)
- clearing channel-group information [1-115](#)
- debug messages, display [1-37](#)

- displaying [1-780](#)
- error detection for [1-214](#)
- error recovery timer [1-219](#)
- learn method [1-455](#)
- modes [1-85](#)
- physical-port learner [1-455](#)
- priority of interface for transmitted traffic [1-457](#)

Ethernet controller, internal register display [1-589, 1-597](#)

Ethernet Management port, debugging [1-16](#)

Ethernet statistics, collecting [1-541](#)

exception crashinfo command [1-223, 1-228](#)

extended discovery of candidate switches [1-126](#)

extended-range VLANs

- and allowed VLAN list [1-954](#)
- and pruning-eligible list [1-954](#)
- configuring [1-980](#)

extended system ID for STP [1-862](#)

F

fallback profile command [1-224](#)

fallback profiles, displaying [1-640](#)

fan information, displaying [1-625](#)

file name, VTP [1-996](#)

files, deleting [1-142](#)

flash_init (boot loader) command [1-10](#)

flexible authentication ordering [1-43](#)

Flex Links

- configuring [1-928](#)
- displaying [1-648](#)

flow-based SPAN [1-433](#)

flowcontrol command [1-226](#)

format (boot loader) command [1-11](#)

forwarding packets, with ACL matches [1-8](#)

forwarding results, display [1-7](#)

frame forwarding information, displaying [1-7](#)

front-end controller counter and status information [1-9](#)

fsck (boot loader) command [1-12](#)

FSPAN [1-433](#)

G

global configuration mode [1-2, 1-4](#)

H

hardware ACL statistics [1-560](#)

health monitoring diagnostic tests [1-165](#)

help (boot loader) command [1-13](#)

hierarchical policy maps [1-477](#)

hop-count limit for clusters [1-126](#)

host connection, port configuration [1-933](#)

host ports, private VLANs [1-937](#)

Hot Standby Router Protocol

- See HSRP

HSRP

- binding HSRP group to cluster [1-134](#)
- standby group [1-134](#)

hw-module switch command [1-230](#)

I

IEEE 802.1Q trunk ports and native VLANs [1-987](#)

IEEE 802.1Q tunnel ports

- configuring [1-934](#)
- displaying [1-615](#)
- limitations [1-935](#)

IEEE 802.1x

- and switchport modes [1-935](#)
- violation error recovery [1-219](#)
- See also port-based authentication

IGMP filters

- applying [1-281](#)
- debug messages, display [1-21](#)

IGMP groups, setting maximum [1-282](#)

IGMP maximum groups, debugging [1-22](#)

IGMP profiles

- creating [1-284](#)
- displaying [1-678](#)

IGMP snooping

- adding ports as a static member of a group [1-300](#)
- displaying [1-679, 1-683, 1-684](#)
- enabling [1-286](#)
- enabling the configurable-leave timer [1-288](#)
- enabling the Immediate-Leave feature [1-297](#)
- flooding query count [1-294](#)
- interface topology change notification behavior [1-296](#)
- multicast table [1-681](#)
- querier [1-290](#)
- query solicitation [1-294](#)
- report suppression [1-292](#)
- switch topology change notification behavior [1-294](#)

images

See software images

Immediate-Leave processing

- IGMP [1-297](#)
- IPv6 [1-337](#)
- MVR [1-441](#)

interface configuration mode [1-2, 1-4](#)interface port-channel command [1-231](#)interface range command [1-233](#)interface-range macros [1-140](#)

interfaces

- assigning Ethernet interface to channel group [1-85](#)
- configuring [1-210](#)
- configuring multiple [1-233](#)
- creating port-channel logical [1-231](#)
- debug messages, display [1-18](#)
- disabling [1-837](#)
- displaying the MAC address table [1-732](#)
- restarting [1-837](#)

interface speed, configuring [1-899](#)interface vlan command [1-235](#)

internal power supplies

See power supplies

internal registers, displaying [1-589, 1-597, 1-604](#)

Internet Group Management Protocol

See IGMP

invalid GBIC

- error detection for [1-214](#)
- error recovery timer [1-219](#)

ip access-group command [1-237](#)ip address command [1-240](#)IP addresses, setting [1-240](#)IP address matching [1-381](#)ip admission command [1-242](#)ip admission name proxy http command [1-243](#)ip arp inspection filter vlan command [1-245](#)ip arp inspection limit command [1-247](#)ip arp inspection log-buffer command [1-249](#)ip arp inspection trust command [1-253](#)ip arp inspection validate command [1-255](#)ip arp inspection vlan command [1-257](#)ip arp inspection vlan logging command [1-258](#)ip device tracking command [1-260](#)ip device tracking probe command [1-262](#)

IP DHCP snooping

See DHCP snooping

ip dhcp snooping binding command [1-265](#)ip dhcp snooping command [1-264](#)ip dhcp snooping database command [1-267](#)ip dhcp snooping information option allow-untrusted command [1-271](#)ip dhcp snooping information option command [1-269](#)ip dhcp snooping information option format remote-id command [1-273](#)ip dhcp snooping limit rate command [1-274](#)ip dhcp snooping trust command [1-275](#)ip dhcp snooping verify command [1-276](#)ip dhcp snooping vlan command [1-277](#)ip dhcp snooping vlan information option format-type circuit-id string command [1-279](#)ip igmp filter command [1-281](#)ip igmp max-groups command [1-282, 1-307, 1-309](#)ip igmp profile command [1-284](#)ip igmp snooping command [1-286](#)ip igmp snooping last-member-query-interval command [1-288](#)

ip igmp snooping querier command [1-290](#)
 ip igmp snooping report-suppression command [1-292](#)
 ip igmp snooping tcn command [1-294](#)
 ip igmp snooping tcn flood command [1-296](#)
 ip igmp snooping vlan immediate-leave command [1-297](#)
 ip igmp snooping vlan mrouter command [1-298](#)
 ip igmp snooping vlan static command [1-300](#)
 IP multicast addresses [1-438](#)
 IP phones
 auto-QoS configuration [1-64](#)
 trusting packets sent from [1-428](#)
 IP-precedence-to-DSCP map [1-402](#)
 ip snap forwarding command [1-302](#)
 ip source binding command [1-303](#)
 IP source guard
 disabling [1-311](#)
 displaying
 binding entries [1-686](#)
 configuration [1-687](#)
 dynamic binding entries only [1-671](#)
 enabling [1-311](#)
 static IP source bindings [1-303](#)
 ip ssh command [1-305](#)
 IPv4 and IPv6
 port-based trust [1-429](#)
 IPv6 access list, deny conditions [1-147](#)
 ipv6 access-list command [1-314](#)
 ipv6 address dhcp command [1-317](#)
 ipv6 dhcp client request vendor command [1-318](#)
 ipv6 dhcp ping packets command [1-319](#)
 ipv6 dhcp pool command [1-321](#)
 ipv6 dhcp server command [1-324](#)
 ipv6 mld snooping command [1-326](#)
 ipv6 mld snooping last-listener-query count
 command [1-328](#)
 ipv6 mld snooping last-listener-query-interval
 command [1-330](#)
 ipv6 mld snooping listener-message-suppression
 command [1-332](#)
 ipv6 mld snooping robustness-variable command [1-333](#)

ipv6 mld snooping tcn command [1-335](#)
 ipv6 mld snooping vlan command [1-337](#)
 IPv6 QoS
 enabling [1-394](#)
 IPv6 SDM template [1-543](#)
 ipv6 traffic-filter command [1-339](#)
 ip verify source command [1-311](#)
 ip verify source smartlog command [1-313](#)

J

jumbo frames
 See MTU

L

l2protocol-tunnel command [1-341](#)
 l2protocol-tunnel cos command [1-344](#)
 LACP
 See EtherChannel
 lacp port-priority command [1-345](#)
 lacp system-priority command [1-347](#)
 Layer 2 mode, enabling [1-921](#)
 Layer 2 protocol ports, displaying [1-706](#)
 Layer 2 protocol-tunnel
 error detection for [1-214](#)
 error recovery timer [1-219](#)
 Layer 2 protocol tunnel counters [1-105](#)
 Layer 2 protocol tunneling error recovery [1-342](#)
 Layer 2 traceroute
 IP addresses [1-970](#)
 MAC addresses [1-967](#)
 Layer 3 mode, enabling [1-921](#)
 license boot command [1-349](#)
 line configuration mode [1-3, 1-5](#)
 Link Aggregation Control Protocol
 See EtherChannel
 link flap

- error detection for [1-214](#)
- error recovery timer [1-219](#)
- link-security authentication [1-33](#)
- link-security policies [1-38](#)
- link state group command [1-351](#)
- link state track command [1-353](#)
- load-distribution methods for EtherChannel [1-479](#)
- location (global configuration) command [1-354](#)
- location (interface configuration) command [1-356](#)
- logging event command [1-358](#)
- logging event power-inline-status command [1-359](#)
- logging file command [1-360](#)
- logical interface [1-231](#)
- loopback error
 - detection for [1-214](#)
 - recovery timer [1-219](#)
- loop guard, for spanning tree [1-864, 1-868](#)

M

- mab request format attribute 32 command [1-364](#)
- mac access-group command [1-366](#)
- MAC access-groups, displaying [1-724](#)
- MAC access list configuration mode [1-368](#)
- mac access-list extended command [1-368](#)
- MAC access lists [1-152](#)
- MAC addresses
 - disabling MAC address learning per VLAN [1-371](#)
 - displaying
 - aging time [1-728](#)
 - all [1-727](#)
 - dynamic [1-731](#)
 - MAC address-table move updates [1-734](#)
 - notification settings [1-733, 1-735](#)
 - number of addresses in a VLAN [1-730](#)
 - per interface [1-732](#)
 - per VLAN [1-739](#)
 - static [1-737](#)
 - static and dynamic entries [1-725](#)
- dynamic
 - aging time [1-370](#)
 - deleting [1-109](#)
 - displaying [1-731](#)
- enabling MAC address notification [1-375](#)
- enabling MAC address-table move update [1-373](#)
- matching [1-381](#)
- persistent stack [1-907](#)
- static
 - adding and removing [1-377](#)
 - displaying [1-737](#)
 - dropping on an interface [1-378](#)
- tables [1-727](#)
- MAC address notification, debugging [1-27](#)
- mac address-table aging-time [1-366, 1-381](#)
- mac address-table aging-time command [1-370](#)
- mac address-table learning command [1-371](#)
- mac address-table move update command [1-373](#)
- mac address-table notification command [1-375](#)
- mac address-table static command [1-377](#)
- mac address-table static drop command [1-378](#)
- MAC frames
 - See MTU
- macros
 - interface range [1-140, 1-233](#)
- MACsec
 - counters [1-111, 1-600](#)
 - debugging [1-28](#)
 - displaying [1-741](#)
 - enabling [1-380](#)
 - registers [1-600](#)
- macsec command [1-380](#)
- maps
 - QoS
 - defining [1-402](#)
 - displaying [1-764](#)
 - VLAN
 - creating [1-985](#)
 - defining [1-381](#)

- displaying [1-828](#)
- match (access-map configuration) command [1-381](#)
- match (class-map configuration) command [1-383](#)
- maximum transmission unit
 - See MTU
- mdix auto command [1-386](#)
- Media Access Control Security
 - See MACsec.
- media-type rj45 command [1-388](#)
- member switches
 - See clusters
- memory (boot loader) command [1-14](#)
- mgmt_clr (boot loader) command [1-16](#)
- mgmt_init (boot loader) command [1-17, 1-18](#)
- MKA
 - confidentiality [1-139](#)
 - debugging [1-31](#)
 - displaying default policy [1-743](#)
 - displaying policies [1-745](#)
 - displaying sessions [1-748](#)
 - displaying sessions and statistics [1-754](#)
 - displaying statistics [1-751](#)
 - policy configuration mode [1-390](#)
- MKA, enabling [1-392](#)
- mka default policy command [1-389](#)
- mka policy global configuration command [1-390](#)
- mka policy interface configuration command [1-392](#)
- mkdir (boot loader) command [1-19](#)
- MLD snooping
 - configuring [1-332, 1-333](#)
 - configuring queries [1-328, 1-330](#)
 - configuring topology change notification [1-335](#)
 - displaying [1-696, 1-698, 1-700, 1-702](#)
 - enabling [1-326](#)
 - enabling on a VLAN [1-337](#)
- mls qos aggregate-policer command [1-396](#)
- mls qos command [1-394](#)
- mls qos cos command [1-398](#)
- mls qos dscp-mutation command [1-400](#)
- mls qos map command [1-402](#)
- mls qos queue-set output buffers command [1-406](#)
- mls qos queue-set output threshold command [1-408](#)
- mls qos rewrite ip dscp command [1-410](#)
- mls qos srr-queue input bandwidth command [1-412](#)
- mls qos srr-queue input buffers command [1-414](#)
- mls qos srr-queue input cos-map command [1-416](#)
- mls qos srr-queue input dscp-map command [1-418](#)
- mls qos srr-queue input priority-queue command [1-420](#)
- mls qos srr-queue input threshold command [1-422](#)
- mls qos srr-queue output cos-map command [1-424](#)
- mls qos srr-queue output dscp-map command [1-426](#)
- mls qos trust command [1-428](#)
- mls qos vlan-based command [1-430](#)
- mode, MVR [1-438](#)
- Mode button, and password recovery [1-547](#)
- mode command [1-431](#)
- modes, commands [1-2](#)
- monitor session command [1-433](#)
- more (boot loader) command [1-20](#)
- MSTP
 - displaying [1-800](#)
 - interoperability [1-121](#)
 - link type [1-866](#)
 - MST region
 - aborting changes [1-872](#)
 - applying changes [1-872](#)
 - configuration name [1-872](#)
 - configuration revision number [1-872](#)
 - current or pending display [1-872](#)
 - displaying [1-800](#)
 - MST configuration mode [1-872](#)
 - VLANs-to-instance mapping [1-872](#)
 - path cost [1-874](#)
 - protocol mode [1-870](#)
 - restart protocol migration process [1-121](#)
 - root port
 - loop guard [1-864](#)
 - preventing from becoming designated [1-864](#)

- restricting which can be root [1-864](#)
- root guard [1-864](#)
- root switch
 - affects of extended system ID [1-862](#)
 - hello-time [1-877, 1-884](#)
 - interval between BPDU messages [1-878](#)
 - interval between hello BPDU messages [1-877, 1-884](#)
 - max-age [1-878](#)
 - maximum hop count before discarding BPDU [1-879](#)
 - port priority for selection of [1-880](#)
 - primary or secondary [1-884](#)
 - switch priority [1-883](#)
- state changes
 - blocking to forwarding state [1-891](#)
 - enabling BPDU filtering [1-854, 1-888](#)
 - enabling BPDU guard [1-856, 1-888](#)
 - enabling Port Fast [1-888, 1-891](#)
 - forward-delay time [1-876](#)
 - length of listening and learning states [1-876](#)
 - rapid transition to forwarding [1-866](#)
 - shutting down Port Fast-enabled ports [1-888](#)
- state information display [1-799](#)

MTU

- configuring size [1-963](#)
- displaying global setting [1-817](#)

MAC [1-964](#)

- system jumbo [1-964](#)
- system routing [1-964](#)

Multicast Listener Discovery

- See MLD

multicast group address, MVR [1-441](#)

multicast groups, MVR [1-439](#)

Multicast Listener Discovery

- See MLD

multicast router learning method [1-298](#)

multicast router ports, configuring [1-298](#)

multicast router ports, IPv6 [1-337](#)

multicast storm control [1-911](#)

multicast VLAN, MVR [1-438](#)

multicast VLAN registration

- See MVR

multiple hosts on authorized port [1-189](#)

Multiple Spanning Tree Protocol

- See MSTP

MVR

- and address aliasing [1-439](#)
- configuring [1-438](#)
- configuring interfaces [1-441](#)
- debug messages, display [1-34](#)
- displaying [1-771](#)
- displaying interface information [1-772](#)
- members, displaying [1-774](#)

mvr (global configuration) command [1-438](#)

mvr (interface configuration) command [1-441](#)

mvr vlan group command [1-442](#)

N

native VLANs [1-954](#)

native VLAN tagging [1-987](#)

network-policy (global configuration) command [1-445](#)

network-policy command [1-444](#)

network-policy profile (network-policy configuration) command [1-446](#)

nmosp attachment suppress command [1-449](#)

nmosp command [1-448](#)

no authentication logging verbose [1-450](#)

no dot1x logging verbose [1-451](#)

no mab logging verbose [1-452](#)

nonegotiate

- DTP messaging [1-939](#)
- speed [1-899](#)

non-IP protocols

- denying [1-152](#)
- forwarding [1-469](#)

non-IP traffic access lists [1-368](#)

non-IP traffic forwarding

denying [1-152](#)

permitting [1-469](#)

non-stop forwarding [1-453](#)

normal-range VLANs [1-980](#)

no vlan command [1-980](#)

nsf command [1-453](#)

O

online diagnostics

configuring health monitoring diagnostic tests [1-165](#)

displaying

configured boot-up coverage level [1-610](#)

current scheduled tasks [1-610](#)

event logs [1-610](#)

supported test suites [1-610](#)

test ID [1-610](#)

test results [1-610](#)

test statistics [1-610](#)

enabling

scheduling [1-167](#)

syslog messages [1-165](#)

global configuration mode

clearing health monitoring diagnostic test schedule [1-165](#)

clearing test-based testing schedule [1-167](#)

setting health monitoring diagnostic testing [1-165](#)

setting test-based testing [1-167](#)

setting up health monitoring diagnostic test schedule [1-165](#)

setting up test-based testing [1-167](#)

removing scheduling [1-167](#)

scheduled switchover

disabling [1-167](#)

enabling [1-167](#)

setting test interval [1-167](#)

specifying health monitoring diagnostic tests [1-165](#)

starting testing [1-169](#)

P

PAGP

See EtherChannel

pagp learn-method command [1-455](#)

pagp port-priority command [1-457](#)

password, VTP [1-997](#)

password-recovery mechanism, enabling and disabling [1-547](#)

permit (ARP access-list configuration) command [1-461](#)

permit (IPv6) command [1-463](#)

permit (MAC access-list configuration) command [1-469](#)

per-VLAN spanning-tree plus

See STP

physical-port learner [1-455](#)

PID, displaying [1-665](#)

PIM-DVMRP, as multicast router learning method [1-298](#)

PoE

configuring the power budget [1-484](#)

configuring the power management mode [1-481](#)

displaying controller register values [1-602](#)

displaying power management information [1-785](#)

error detection for [1-214](#)

error recovery timer [1-219](#)

logging of status [1-359](#)

monitoring power [1-487](#)

policing power consumption [1-487](#)

police aggregate command [1-474](#)

police command [1-472](#)

policed-DSCP map [1-402](#)

policy-map command [1-476](#)

policy maps

applying to an interface [1-549, 1-555](#)

creating [1-476](#)

displaying [1-782](#)

hierarchical [1-477](#)

policers

- displaying [1-758](#)
- for a single class [1-472](#)
- for multiple classes [1-396, 1-474](#)
- policed-DSCP map [1-402](#)
- traffic classification
 - defining the class [1-91](#)
 - defining trust states [1-972](#)
 - setting DSCP or IP precedence values [1-553](#)
- Port Aggregation Protocol
 - See EtherChannel
- port-based authentication
 - AAA method list [1-3](#)
 - configuring violation modes [1-209](#)
 - debug messages, display [1-12](#)
 - enabling guest VLAN supplicant [1-175, 1-186](#)
 - enabling IEEE 802.1x
 - globally [1-172](#)
 - per interface [1-197](#)
 - guest VLAN [1-187](#)
 - host modes [1-189](#)
 - IEEE 802.1x AAA accounting methods [1-1](#)
 - initialize an interface [1-190, 1-205](#)
 - MAC authentication bypass [1-191](#)
 - manual control of authorization state [1-197](#)
 - multiple hosts on authorized port [1-189](#)
 - PAE as authenticator [1-196](#)
 - periodic re-authentication
 - enabling [1-200](#)
 - time between attempts [1-206](#)
 - quiet period between failed authentication exchanges [1-206](#)
 - re-authenticating IEEE 802.1x-enabled ports [1-199](#)
 - resetting configurable IEEE 802.1x parameters [1-185](#)
 - switch-to-authentication server retransmission time [1-206](#)
 - switch-to-client frame-retransmission number [1-193 to 1-195](#)
 - switch-to-client retransmission time [1-206](#)
 - test for IEEE 802.1x readiness [1-204](#)
- port-based trust
 - IPv4 and IPv6 [1-429](#)
 - port-channel load-balance command [1-479](#)
 - Port Fast, for spanning tree [1-891](#)
 - port ranges, defining [1-137, 1-140](#)
 - ports, debugging [1-84](#)
 - ports, protected [1-952](#)
 - port security
 - aging [1-946](#)
 - debug messages, display [1-86](#)
 - enabling [1-941](#)
 - violation error recovery [1-219](#)
 - port trust states for QoS [1-428](#)
 - port types, MVR [1-441](#)
 - power information, displaying [1-625](#)
 - power inline command [1-481](#)
 - power inline consumption command [1-484](#)
 - power inline police command [1-487](#)
 - Power over Ethernet
 - See PoE
 - power-priority command [1-490](#)
 - power rps command (global configuration) [1-496](#)
 - power rps command (user EXEC) [1-492](#)
 - power supply
 - configuring [1-494](#)
 - managing [1-494](#)
 - power supply command [1-494](#)
 - power xps command privileged EXEC) [1-498](#)
 - power xps port command [1-500](#)
 - priority-queue command [1-502](#)
 - priority value, stack member [1-810, 1-916](#)
 - private-vlan command [1-504](#)
 - private-vlan mapping command [1-507](#)
 - private VLANs
 - association [1-950](#)
 - configuring [1-504](#)
 - configuring ports [1-937](#)
 - displaying [1-823](#)
 - host ports [1-937](#)
 - mapping

- configuring [1-950](#)
 - displaying [1-647](#)
- promiscuous ports [1-937](#)
- privileged EXEC mode [1-2, 1-3](#)
- product identification information, displaying [1-665](#)
- promiscuous ports, private VLANs [1-937](#)
- protected ports, displaying [1-652](#)
- pruning
 - VLANs [1-954](#)
 - VTP
 - enabling [1-997](#)
- pruning-eligible VLAN list [1-956](#)
- psp [1-509](#)
- psp command [1-509](#)
- PVST+
 - See STP

Q

QoS

- auto-QoS
 - configuring [1-64](#)
 - debug messages, display [1-4](#)
 - displaying [1-569](#)
- auto-QoS trust
 - configuring [1-58](#)
- auto-QoS video
 - configuring [1-61](#)
- class maps
 - creating [1-94](#)
 - defining the match criteria [1-383](#)
 - displaying [1-580](#)
- defining the CoS value for an incoming packet [1-398](#)
- displaying configuration information [1-569, 1-757](#)
- DSCP transparency [1-410](#)
- DSCP trusted ports
 - applying DSCP-to-DSCP-mutation map to [1-400](#)
 - defining DSCP-to-DSCP-mutation map [1-402](#)
- egress queues

- allocating buffers [1-406](#)
- defining the CoS output queue threshold map [1-424](#)
- defining the DSCP output queue threshold map [1-426](#)
- displaying buffer allocations [1-760](#)
- displaying CoS output queue threshold map [1-764](#)
- displaying DSCP output queue threshold map [1-764](#)
- displaying queueing strategy [1-760](#)
- displaying queue-set settings [1-767](#)
- enabling bandwidth shaping and scheduling [1-903](#)
- enabling bandwidth sharing and scheduling [1-905](#)
- limiting the maximum output on a port [1-901](#)
- mapping a port to a queue-set [1-510](#)
- mapping CoS values to a queue and threshold [1-424](#)
- mapping DSCP values to a queue and threshold [1-426](#)
- setting maximum and reserved memory allocations [1-408](#)
- setting WTD thresholds [1-408](#)
- enabling [1-394](#)
- enabling IPv6 QoS [1-394](#)
- ingress queues
 - allocating buffers [1-414](#)
 - assigning SRR scheduling weights [1-412](#)
 - defining the CoS input queue threshold map [1-416](#)
 - defining the DSCP input queue threshold map [1-418](#)
 - displaying buffer allocations [1-760](#)
 - displaying CoS input queue threshold map [1-764](#)
 - displaying DSCP input queue threshold map [1-764](#)
 - displaying queueing strategy [1-760](#)
 - displaying settings for [1-759](#)
 - enabling the priority queue [1-420](#)
 - mapping CoS values to a queue and threshold [1-416](#)

- mapping DSCP values to a queue and threshold [1-418](#)
 - setting WTD thresholds [1-422](#)
 - maps
 - defining [1-402, 1-416, 1-418, 1-424, 1-426](#)
 - displaying [1-764](#)
 - policy maps
 - applying an aggregate policer [1-474](#)
 - applying to an interface [1-549, 1-555](#)
 - creating [1-476](#)
 - defining policers [1-396, 1-472](#)
 - displaying policers [1-758](#)
 - displaying policy maps [1-782](#)
 - hierarchical [1-477](#)
 - policed-DSCP map [1-402](#)
 - setting DSCP or IP precedence values [1-553](#)
 - traffic classifications [1-91](#)
 - trust states [1-972](#)
 - port trust states [1-428](#)
 - queues, enabling the expedite [1-502](#)
 - statistics
 - in-profile and out-of-profile packets [1-760](#)
 - packets enqueued or dropped [1-760](#)
 - sent and received CoS values [1-760](#)
 - sent and received DSCP values [1-760](#)
 - trusted boundary for IP phones [1-428](#)
 - VLAN-based [1-430](#)
 - quality of service
 - See QoS
 - querytime, MVR [1-438](#)
 - queue-set command [1-510](#)
-
- R**
- radius-server dead-criteria command [1-511](#)
 - radius-server host command [1-513](#)
 - rapid per-VLAN spanning-tree plus
 - See STP
 - rapid PVST+
 - See STP
 - rcommand command [1-515](#)
 - re-authenticating IEEE 802.1x-enabled ports [1-199](#)
 - re-authentication
 - periodic [1-200](#)
 - time between attempts [1-206](#)
 - receiver ports, MVR [1-441](#)
 - receiving flow-control packets [1-226](#)
 - recovery mechanism
 - causes [1-219](#)
 - display [1-98, 1-576, 1-632, 1-635](#)
 - timer interval [1-220](#)
 - redundancy for cluster switches [1-134](#)
 - redundant power supply
 - See RPS
 - redundant power system
 - See Cisco Redundant Power System 2300
 - reload command [1-517](#)
 - remote command [1-519](#)
 - remote-span command [1-521](#)
 - Remote Switched Port Analyzer
 - See RSPAN
 - rename (boot loader) command [1-21](#)
 - renew ip dhcp snooping database command [1-523](#)
 - rep admin vlan command [1-525](#)
 - rep block port command [1-527](#)
 - replay protection, MACsec [1-540](#)
 - replay-protection command [1-540](#)
 - rep lsl-age-timer command [1-531](#)
 - rep preempt delay command [1-532](#)
 - rep preempt segment command [1-534](#)
 - rep segment command [1-535](#)
 - rep stcn command [1-538](#)
 - reset (boot loader) command [1-22](#)
 - restricted VLAN
 - See dot1x auth-fail vlan
 - rmdir (boot loader) command [1-23](#)
 - rmon collection stats command [1-541](#)
 - root guard, for spanning tree [1-864](#)

- routed ports
 - IP addresses on [1-241](#)
 - number supported [1-241](#)
 - routing frames
 - See MTU
 - RPS
 - See Cisco Redundant Power System 2300
 - RPS 2300
 - configuring [1-492, 1-498, 1-500](#)
 - managing [1-492, 1-498, 1-500](#)
 - See Cisco Redundant Power System 2300
 - RSPAN
 - configuring [1-433](#)
 - displaying [1-769](#)
 - filter RSPAN traffic [1-433](#)
 - remote-span command [1-521](#)
 - sessions
 - add interfaces to [1-433](#)
 - displaying [1-769](#)
 - start new [1-433](#)
 - rsu command [1-542](#)
-
- S**
- scheduled switchover
 - disabling [1-167](#)
 - enabling [1-167](#)
 - SDM mismatch mode [1-544, 1-811](#)
 - sdm prefer command [1-543](#)
 - SDM templates
 - allowed resources [1-545](#)
 - and stacking [1-544](#)
 - displaying [1-795](#)
 - dual IPv4 and IPv6 [1-543](#)
 - secure ports, limitations [1-943](#)
 - sending flow-control packets [1-226](#)
 - service password-recovery command [1-547](#)
 - service-policy command [1-549](#)
 - session command [1-552](#)
 - set (boot loader) command [1-24](#)
 - set command [1-553](#)
 - setup command [1-555](#)
 - setup express command [1-558](#)
 - show access-lists command [1-560](#)
 - show archive status command [1-563](#)
 - show arp access-list command [1-564](#)
 - show authentication command [1-565](#)
 - show auto qos command [1-569](#)
 - show boot command [1-573](#)
 - show cable-diagnostics tdr command [1-576](#)
 - show cisg command [1-579](#)
 - show class-map command [1-580](#)
 - show cluster candidates command [1-583](#)
 - show cluster command [1-581](#)
 - show cluster members command [1-585](#)
 - show controllers cpu-interface command [1-587](#)
 - show controllers ethernet-controller command [1-589](#)
 - show controllers ethernet-controller fastethernet command [1-597](#)
 - show controllers ethernet phy macsec command [1-600](#)
 - show controllers power inline command [1-602](#)
 - show controllers tcam command [1-604](#)
 - show controller utilization command [1-606](#)
 - show device-sensor cache command [1-608](#)
 - show dot1q-tunnel command [1-615](#)
 - show dot1x command [1-616](#)
 - show dtp [1-620](#)
 - show eap command [1-622](#)
 - show env command [1-625](#)
 - show env xps command [1-628](#)
 - show errdisable detect command [1-632](#)
 - show errdisable flap-values command [1-634](#)
 - show errdisable recovery command [1-635](#)
 - show etherchannel command [1-637](#)
 - show fallback profile command [1-640](#)
 - show flowcontrol command [1-641](#)
 - show hw-module switch command [1-643](#)
 - show idprom command [1-645](#)

- show interface rep command [1-660](#)
- show interfaces command [1-647](#)
- show interfaces counters command [1-658](#)
- show interface transceivers command [1-662](#)
- show inventory command [1-665](#)
- show ip arp inspection command [1-666](#)
- show ipc command [1-689](#)
- show ip dhcp snooping binding command [1-671](#)
- show ip dhcp snooping command [1-670](#)
- show ip dhcp snooping database command [1-673, 1-675](#)
- show ip igmp profile command [1-678](#)
- show ip igmp snooping address command [1-698](#)
- show ip igmp snooping command [1-679, 1-696](#)
- show ip igmp snooping groups command [1-681](#)
- show ip igmp snooping mrouter command [1-683, 1-700](#)
- show ip igmp snooping querier command [1-684, 1-702](#)
- show ip source binding command [1-686](#)
- show ipv6 access-list command [1-693](#)
- show ipv6 dhcp conflict command [1-695](#)
- show ipv6 route updated [1-704](#)
- show ip verify source command [1-687](#)
- show l2protocol-tunnel command [1-706](#)
- show lacp command [1-708](#)
- show link state group command [1-712](#)
- show location [1-714](#)
- show location command [1-714](#)
- show logging onboard command [1-716](#)
- show logging smartlog command [1-721](#)
- show mac access-group command [1-724](#)
- show mac address-table address command [1-727](#)
- show mac address-table aging time command [1-728](#)
- show mac address-table command [1-725](#)
- show mac address-table count command [1-730](#)
- show mac address-table dynamic command [1-731](#)
- show mac address-table interface command [1-732](#)
- show mac address-table learning command [1-733](#)
- show mac address-table move update command [1-734](#)
- show mac address-table notification command [1-110, 1-735, 1-30](#)
- show mac address-table static command [1-737](#)
- show mac address-table vlan command [1-739](#)
- show macsec command [1-741](#)
- show mka default-policy command [1-743](#)
- show mka policy command [1-745](#)
- show mka session command [1-748](#)
- show mka statistics command [1-751](#)
- show mka summary command [1-754](#)
- show mls qos aggregate-policer command [1-758](#)
- show mls qos command [1-757](#)
- show mls qos input-queue command [1-759](#)
- show mls qos interface command [1-760](#)
- show mls qos maps command [1-764](#)
- show mls qos queue-set command [1-767](#)
- show mls qos vlan command [1-768](#)
- show monitor command [1-769](#)
- show mvr command [1-771](#)
- show mvr interface command [1-772](#)
- show mvr members command [1-774](#)
- show network-policy profile command [1-776](#)
- show nmsp command [1-777](#)
- show pagp command [1-780](#)
- show platform acl command [1-2](#)
- show platform backup interface command [1-3](#)
- show platform configuration command [1-4](#)
- show platform dl command [1-5](#)
- show platform etherchannel command [1-6](#)
- show platform forward command [1-7](#)
- show platform frontend-controller command [1-9](#)
- show platform igmp snooping command [1-10](#)
- show platform ipc trace command [1-17](#)
- show platform ip multicast command [1-11](#)
- show platform ip unicast command [1-12](#)
- show platform ipv6 mld snooping command [1-18](#)
- show platform ipv6 unicast command [1-19](#)
- show platform ip wccp command [1-16](#)
- show platform layer4op command [1-21](#)
- show platform mac-address-table command [1-22](#)
- show platform messaging command [1-23](#)

- show platform monitor command [1-24](#)
- show platform mvr table command [1-25](#)
- show platform pm command [1-26](#)
- show platform port-asic command [1-27](#)
- show platform port-security command [1-32](#)
- show platform qos command [1-33](#)
- show platform resource-manager command [1-34](#)
- show platform snmp counters command [1-36](#)
- show platform spanning-tree command [1-37](#)
- show platform stack-manager command [1-39](#)
- show platform stp-instance command [1-38](#)
- show platform tb command [1-43](#)
- show platform tcam command [1-44](#)
- show platform vlan command [1-47](#)
- show policy-map command [1-782](#)
- show port security command [1-783](#)
- show power inline command [1-785, 1-805](#)
- show psp config [1-791](#)
- show psp config command [1-791](#)
- show psp statistics [1-792](#)
- show psp statistics command [1-792](#)
- show rep topology command [1-793](#)
- show sdm prefer command [1-795](#)
- show setup express command [1-798](#)
- show spanning-tree command [1-799](#)
- show storm-control command [1-808](#)
- show switch command [1-810](#)
- show switch service-modules command [1-815](#)
- show system mtu command [1-817](#)
- show trust command [1-972](#)
- show udd command [1-818](#)
- show version command [1-821](#)
- show vlan access-map command [1-828](#)
- show vlan command [1-823](#)
- show vlan command, fields [1-825](#)
- show vlan filter command [1-829](#)
- show vmps command [1-830](#)
- show vtp command [1-832](#)
- shutdown command [1-837](#)
- shutdown threshold, Layer 2 protocol tunneling [1-341](#)
- shutdown vlan command [1-839](#)
- small-frame violation rate command [1-840](#)
- SNMP host, specifying [1-847](#)
- SNMP informs, enabling the sending of [1-842](#)
- snmp-server enable traps command [1-842](#)
- snmp-server host command [1-847](#)
- snmp trap mac-notification change command [1-851](#)
- SNMP traps
 - enabling MAC address notification trap [1-851](#)
 - enabling the MAC address notification feature [1-375](#)
 - enabling the sending of [1-842](#)
- SoftPhone
 - See Cisco SoftPhone
- software images
 - copying [1-10](#)
 - deleting [1-142](#)
 - downloading [1-13](#)
 - upgrading [1-10, 1-13](#)
 - uploading [1-21](#)
- software version, displaying [1-821](#)
- source ports, MVR [1-441](#)
- SPAN
 - configuring [1-433](#)
 - debug messages, display [1-33](#)
 - displaying [1-769](#)
 - filter SPAN traffic [1-433](#)
 - sessions
 - add interfaces to [1-433](#)
 - displaying [1-769](#)
 - start new [1-433](#)
- spanning-tree backbonefast command [1-853](#)
- spanning-tree bpdudfilter command [1-854](#)
- spanning-tree bpduguard command [1-856](#)
- spanning-tree cost command [1-858](#)
- spanning-tree etherchannel command [1-860](#)
- spanning-tree extend system-id command [1-862](#)
- spanning-tree guard command [1-864](#)
- spanning-tree link-type command [1-866](#)

- spanning-tree loopguard default command [1-868](#)
- spanning-tree mode command [1-870](#)
- spanning-tree mst configuration command [1-872](#)
- spanning-tree mst cost command [1-874](#)
- spanning-tree mst forward-time command [1-876](#)
- spanning-tree mst hello-time command [1-877](#)
- spanning-tree mst max-age command [1-878](#)
- spanning-tree mst max-hops command [1-879](#)
- spanning-tree mst port-priority command [1-880](#)
- spanning-tree mst pre-standard command [1-882](#)
- spanning-tree mst priority command [1-883](#)
- spanning-tree mst root command [1-884](#)
- spanning-tree portfast (global configuration) command [1-888](#)
- spanning-tree portfast (interface configuration) command [1-891](#)
- spanning-tree port-priority command [1-886](#)
- Spanning Tree Protocol
 - See STP
- spanning-tree transmit hold-count command [1-893](#)
- spanning-tree uplinkfast command [1-894](#)
- spanning-tree vlan command [1-896](#)
- speed command [1-899](#)
- srr-queue bandwidth limit command [1-901](#)
- srr-queue bandwidth shape command [1-903](#)
- srr-queue bandwidth share command [1-905](#)
- SSH, configuring version [1-305](#)
- stack-mac persistent timer command [1-907](#)
- stack member
 - access [1-552](#)
 - number [1-810, 1-919](#)
 - priority value [1-916](#)
 - provisioning [1-917](#)
 - reloading [1-517](#)
- stacks, switch
 - disabling a member [1-914](#)
 - enabling a member [1-914](#)
 - MAC address [1-907](#)
 - provisioning a new member [1-917](#)
- reloading [1-517](#)
- stack member access [1-552](#)
- stack member number [1-810, 1-919](#)
- stack member priority value [1-810, 1-916](#)
- static-access ports, configuring [1-923](#)
- statistics, Ethernet group [1-541](#)
- sticky learning, enabling [1-941](#)
- storm-control command [1-911](#)
- STP
 - BackboneFast [1-853](#)
 - counters, clearing [1-120](#)
 - debug messages, display
 - BackboneFast events [1-90](#)
 - MSTP [1-93](#)
 - optimized BPDUs handling [1-92](#)
 - spanning-tree activity [1-88](#)
 - switch shim [1-95](#)
 - transmitted and received BPDUs [1-91](#)
 - UplinkFast [1-97](#)
 - detection of indirect link failures [1-853](#)
 - enabling protocol tunneling for [1-341](#)
 - EtherChannel misconfiguration [1-860](#)
 - extended system ID [1-862](#)
 - path cost [1-858](#)
 - protocol modes [1-870](#)
 - root port
 - accelerating choice of new [1-894](#)
 - loop guard [1-864](#)
 - preventing from becoming designated [1-864](#)
 - restricting which can be root [1-864](#)
 - root guard [1-864](#)
 - UplinkFast [1-894](#)
 - root switch
 - affects of extended system ID [1-862, 1-897](#)
 - hello-time [1-896](#)
 - interval between BDPU messages [1-896](#)
 - interval between hello BPDU messages [1-896](#)
 - max-age [1-896](#)
 - port priority for selection of [1-886](#)

- primary or secondary [1-896](#)
- switch priority [1-896](#)
- state changes
 - blocking to forwarding state [1-891](#)
 - enabling BPDU filtering [1-854, 1-888](#)
 - enabling BPDU guard [1-856, 1-888](#)
 - enabling Port Fast [1-888, 1-891](#)
 - enabling timer to recover from error state [1-219](#)
 - forward-delay time [1-896](#)
 - length of listening and learning states [1-896](#)
 - shutting down Port Fast-enabled ports [1-888](#)
- state information display [1-799](#)
- VLAN options [1-883, 1-896](#)
- supplemental power command [1-909](#)
- SVIs, creating [1-235](#)
- SVI status calculation [1-926](#)
- Switched Port Analyzer
 - See SPAN
- switching characteristics
 - modifying [1-921](#)
 - returning to interfaces [1-921](#)
- switchport access command [1-923](#)
- switchport autostate exclude command [1-926](#)
- switchport backup interface command [1-928](#)
- switchport block command [1-931](#)
- switchport command [1-921](#)
- switchport host command [1-933](#)
- switchport mode command [1-934](#)
- switchport mode private-vlan command [1-937](#)
- switchport nonegotiate command [1-939](#)
- switchport port-security aging command [1-946](#)
- switchport port-security command [1-941](#)
- switchport priority extend command [1-948](#)
- switchport private-vlan command [1-950](#)
- switchport protected command [1-952](#)
- switchports, displaying [1-647](#)
- switchport trunk command [1-954](#)
- switchport voice detect [1-957](#)
- switchport voice vlan command [1-958](#)

- switch priority command [1-914, 1-916](#)
- switch provision command [1-917](#)
- switch renumber command [1-919](#)
- system env temperature threshold yellow command [1-961](#)
- system message logging [1-359](#)
- system message logging, save message to flash [1-360](#)
- system mtu command [1-963](#)
- system resource templates [1-543](#)

T

- tar files, creating, listing, and extracting [1-18](#)
- TDR, running [1-966](#)
- Telnet, using to communicate to cluster switches [1-515](#)
- temperature information, displaying [1-625](#)
- templates, system resources [1-543](#)
- test cable-diagnostics tdr command [1-966](#)
- traceroute mac command [1-967](#)
- traceroute mac ip command [1-970](#)
- trunking, VLAN mode [1-934](#)
- trunk mode [1-934](#)
- trunk ports [1-934](#)
- trunks, to non-DTP device [1-935](#)
- trusted boundary for QoS [1-428](#)
- trusted port states for QoS [1-428](#)
- tunnel ports, Layer 2 protocol, displaying [1-706](#)
- type (boot loader) command [1-27](#)

U

- UDLD
 - aggressive mode [1-974, 1-976](#)
 - debug messages, display [1-105](#)
 - enable globally [1-974](#)
 - enable per interface [1-976](#)
 - error recovery timer [1-220](#)
 - message timer [1-974](#)
 - normal mode [1-974, 1-976](#)

- reset a shutdown interface [1-978](#)
- status [1-818](#)
- udld command [1-974](#)
- udld port command [1-976](#)
- udld reset command [1-978](#)
- unicast storm control [1-911](#)
- UniDirectional Link Detection
 - See UDLD
- unknown multicast traffic, preventing [1-931](#)
- unknown unicast traffic, preventing [1-931](#)
- unset (boot loader) command [1-28](#)
- upgrading
 - copying software images [1-10](#)
 - downloading software images [1-13](#)
 - software images, monitoring status of [1-563](#)
- UplinkFast, for STP [1-894](#)
- usb-inactivity-timeout (console configuration) command [1-979](#)
- user EXEC mode [1-2, 1-3](#)

V

- version (boot loader) command [1-30](#)
- version mismatch mode [1-811, 1-40](#)
- vlan (global configuration) command [1-980](#)
- vlan access-map command [1-985](#)
- VLAN access map configuration mode [1-985](#)
- VLAN access maps
 - actions [1-8](#)
 - displaying [1-828](#)
- VLAN-based QoS [1-430](#)
- VLAN configuration
 - rules [1-983](#)
 - saving [1-980](#)
- VLAN configuration mode
 - description [1-4](#)
 - entering [1-980](#)
 - summary [1-3](#)
- vlan dot1q tag native command [1-987](#)
- vlan filter command [1-989](#)
- VLAN filters, displaying [1-829](#)
- VLAN ID range [1-980](#)
- VLAN maps
 - applying [1-989](#)
 - creating [1-985](#)
 - defining [1-381](#)
 - displaying [1-828](#)
- VLAN Query Protocol
 - See VQP
- VLANs
 - adding [1-980](#)
 - configuring [1-980](#)
 - debug messages, display
 - ISL [1-101](#)
 - VLAN IOS file system error tests [1-100](#)
 - VLAN manager activity [1-98](#)
 - VTP [1-103](#)
 - displaying configurations [1-823](#)
 - extended-range [1-980](#)
 - MAC addresses
 - displaying [1-739](#)
 - number of [1-730](#)
 - media types [1-983](#)
 - normal-range [1-980](#)
 - private [1-937](#)
 - configuring [1-504](#)
 - displaying [1-823](#)
 - See also private VLANs
 - restarting [1-839](#)
 - saving the configuration [1-980](#)
 - shutting down [1-839](#)
 - SNMP traps for VTP [1-845, 1-848](#)
 - suspending [1-839](#)
- VLAN Trunking Protocol
 - See VTP
- VM mode [1-811, 1-40](#)
- VMPS
 - configuring servers [1-994](#)

- displaying [1-830](#)
- error recovery timer [1-220](#)
- reconfirming dynamic VLAN assignments [1-991](#)

vmmps reconfirm (global configuration) command [1-992](#)

vmmps reconfirm (privileged EXEC) command [1-991](#)

vmmps retry command [1-993](#)

vmmps server command [1-994](#)

voice VLAN

- configuring [1-957, 1-958](#)
- setting port priority [1-948](#)

VQP

- and dynamic-access ports [1-924](#)
- clearing client statistics [1-122](#)
- displaying information [1-830](#)
- per-server retry count [1-993](#)
- reconfirmation interval [1-992](#)
- reconfirming dynamic VLAN assignments [1-991](#)

VTP

- changing characteristics [1-996](#)
- clearing pruning counters [1-123](#)
- configuring
 - domain name [1-996](#)
 - file name [1-996](#)
 - mode [1-996](#)
 - password [1-997](#)
- counters display fields [1-833](#)
- displaying information [1-832](#)
- enabling
 - pruning [1-997](#)
 - tunneling for [1-341](#)
 - Version 2 [1-997](#)
- enabling per port [1-1001](#)
- mode [1-996](#)
- pruning [1-997](#)
- saving the configuration [1-980](#)
- statistics [1-832](#)
- status [1-832](#)
- status display fields [1-835](#)

vtp (global configuration) command [1-996](#)

vtp interface configuration command [1-1001](#)

vtp primary command [1-1002](#)

X

XPS 2200

- configuring [1-496](#)
- naming [1-496](#)

