



INDEX

A

- aaa accounting dot1x command [2-1](#)
- aaa authentication dot1x command [2-3](#)
- aaa authorization network command [2-5, 2-27, 2-34, 2-36, 2-39, 2-41, 2-43, 2-180, 2-364, 2-581, B-7, B-41](#)
- AAA methods [2-3](#)
- access control entries
 - See ACEs
- access control lists
 - See ACLs
- access groups
 - IP [2-237](#)
 - MAC, displaying [2-725](#)
- access list, IPv6 [2-314](#)
- access map configuration mode [2-381](#)
- access mode [2-934](#)
- access ports [2-934](#)
- ACEs [2-154, 2-471](#)
- ACLs
 - deny [2-152](#)
 - displaying [2-562](#)
 - for non-IP protocols [2-368](#)
 - IP [2-237](#)
 - matching [2-381](#)
 - on Layer 2 interfaces [2-237](#)
 - permit [2-469](#)
- action command [2-8](#)
- address aliasing [2-439](#)
- aggregate-port learner [2-455](#)
- allowed VLANs [2-954](#)
- archive copy-sw command [2-10](#)
- archive download-sw command [2-13](#)
- archive tar command [2-18](#)
- archive upload-sw command [2-21](#)
- arp (boot loader) command [A-2](#)
- arp access-list command [2-23](#)
- authentication command bounce-port ignore [2-25](#)
- authentication command disable-port ignore [2-26](#)
- authentication control-direction command [2-27](#)
- authentication event command [2-29](#)
- authentication event linksec fail action command [2-33](#)
- authentication failed VLAN
 - See dot1x auth-fail vlan
- authentication fallback command [2-34](#)
- authentication host-mode command [2-36](#)
- authentication linksec policy command [2-38](#)
- authentication mac-move permit command [2-39](#)
- authentication open command [2-41](#)
- authentication order command [2-43](#)
- authentication periodic command [2-45](#)
- authentication port-control command [2-47](#)
- authentication priority command [2-49](#)
- authentication timer command [2-51](#)
- authentication violation command [2-53](#)
- auth-fail max-attempts
 - See dot1x auth-fail max-attempts
- auth-fail vlan
 - See dot1x auth-fail vlan
- auth open command [2-41](#)
- auth order command [2-43](#)
- authorization state of controlled port [2-197](#)
- auth timer command [2-51](#)
- autonegotiation of duplex mode [2-211](#)
- auto qos classify command [2-55](#)
- auto qos trust command [2-58](#)

auto qos video command [2-61](#)
 auto qos voip command [2-64](#)

B

BackboneFast, for STP [2-854](#)

backup interfaces

configuring [2-928](#)
 displaying [2-649](#)

boot (boot loader) command [A-3](#)

boot auto-copy-sw command [2-71](#)

boot auto-download-sw command [2-72](#)

boot config-file command [2-75](#)

boot enable-break command [2-76](#)

boot helper command [2-77](#)

boot helper-config file command [2-78](#)

booting

Cisco IOS image [2-81](#)
 displaying environment variables [2-575](#)
 interrupting [2-76](#)
 manually [2-79](#)

boot loader

accessing [A-1](#)

booting

Cisco IOS image [A-3](#)
 helper image [2-77](#)

directories

creating [A-19](#)
 displaying a list of [A-8](#)
 removing [A-23](#)

displaying

available commands [A-13](#)
 memory heap utilization [A-14](#)
 version [A-30](#)

environment variables

described [A-24](#)
 displaying settings [A-24](#)
 location of [A-25](#)
 setting [A-24](#)

unsetting [A-28](#)

files

copying [A-6](#)
 deleting [A-7](#)
 displaying a list of [A-8](#)
 displaying the contents of [A-5, A-20, A-27](#)
 renaming [A-21](#)

file system

formatting [A-11](#)
 initializing flash [A-10](#)
 running a consistency check [A-12](#)

prompt [A-1](#)

resetting the system [A-22](#)

boot manual command [2-79](#)

boot private-config-file command [2-80](#)

boot system command [2-81](#)

boot time-copy-sw command [2-70](#)

BPDU filtering, for spanning tree [2-855, 2-889](#)

BPDU guard, for spanning tree [2-857, 2-889](#)

broadcast storm control [2-912](#)

C

candidate switches

See clusters

cat (boot loader) command [A-5](#)

CDP, enabling protocol tunneling for [2-341](#)

channel-group command [2-85](#)

channel-protocol command [2-89](#)

Cisco Redundant Power System 2300

configuring [2-494](#)
 managing [2-494](#)

Cisco SoftPhone

auto-QoS configuration [2-64](#)
 trusting packets sent from [2-428](#)

CISP

See Client Information Signalling Protocol

cisp

debug platform cisp command [B-41](#)

- cisp enable command [2-90](#)
- class command [2-91](#)
- class-map command [2-94](#)
- class maps
 - creating [2-94](#)
 - defining the match criteria [2-383](#)
 - displaying [2-582](#)
- class of service
 - See CoS
- clear dot1x command [2-96](#)
- clear eap sessions command [2-97](#)
- clear errdisable interface [2-98](#)
- clear ip arp inspection log command [2-99](#)
- clear ip arp inspection statistics command [2-100](#)
- clear ipc command [2-103](#)
- clear ip dhcp snooping database command [2-101](#)
- clear ipv6 dhcp conflict command [2-104](#)
- clear l2protocol-tunnel counters command [2-105](#)
- clear lacp command [2-106](#)
- clear logging onboard command [2-107](#)
- clear logging smartlog statistics interface command [2-108](#)
- clear mac address-table command [2-109, 2-110](#)
- clear macsec counters interface command [2-111](#)
- clear mka command [2-112](#)
- clear nmsp statistics command [2-114](#)
- clear pagp command [2-115, 2-119](#)
- clear port-security command [2-116](#)
- clear psp counter [2-118](#)
- clear psp counter command [2-118](#)
- clear spanning-tree counters command [2-120](#)
- clear spanning-tree detected-protocols command [2-121](#)
- clear vmpls statistics command [2-122](#)
- clear vtp counters command [2-123](#)
- Client Information Signalling Protocol [2-90, 2-180, 2-581, B-7, B-41](#)
- cluster commander-address command [2-124](#)
- cluster discovery hop-count command [2-126](#)
- cluster enable command [2-127](#)
- cluster holdtime command [2-129](#)
- cluster member command [2-130](#)
- cluster outside-interface command [2-132](#)
- cluster run command [2-133](#)
- clusters
 - adding candidates [2-130](#)
 - binding to HSRP group [2-134](#)
 - building manually [2-130](#)
 - communicating with
 - devices outside the cluster [2-132](#)
 - members by using Telnet [2-516](#)
 - debug messages, display [B-8](#)
 - displaying
 - candidate switches [2-585](#)
 - debug messages [B-8](#)
 - member switches [2-587](#)
 - status [2-583](#)
 - hop-count limit for extended discovery [2-126](#)
 - HSRP standby groups [2-134](#)
 - redundancy [2-134](#)
 - SNMP trap [2-843](#)
- cluster standby-group command [2-134](#)
- cluster timer command [2-136](#)
- command modes defined [1-2](#)
- command switch
 - See clusters
- confidentiality-offset command [2-139](#)
- configuration files
 - password recovery disable considerations [A-1](#)
 - specifying the name [2-75, 2-80](#)
- configuring multiple interfaces [2-233](#)
- config-vlan mode
 - commands [2-980](#)
- copy (boot loader) command [A-6](#)
- copy logging onboard command [2-137](#)
- CoS
 - assigning default value to incoming packets [2-398](#)
 - assigning to Layer 2 protocol packets [2-344](#)
 - overriding the incoming value [2-398](#)
- CoS-to-DSCP map [2-402](#)

CPU ASIC statistics, displaying [2-589](#)
 crashinfo files [2-223](#)
 critical VLAN [2-31](#)

D

debug authentication [B-2](#)
 debug auto qos command [B-4](#)
 debug backup command [B-6](#)
 debug cisp command [B-7](#)
 debug cluster command [B-8](#)
 debug device-sensor command [B-10](#)
 debug dot1x command [B-12](#)
 debug dtp command [B-13](#)
 debug eap command [B-14](#)
 debug etherchannel command [B-15](#)
 debug fastethernet command [B-16](#)
 debug ilpower command [B-17](#)
 debug interface command [B-18](#)
 debug ip dhcp snooping command [B-19](#)
 debug ip igmp filter command [B-21](#)
 debug ip igmp max-groups command [B-22](#)
 debug ip igmp snooping command [B-23](#)
 debug ip verify source packet command [B-20](#)
 debug lacp command [B-24](#)
 debug lldp packets command [B-25](#)
 debug mac-notification command [B-27](#)
 debug macsec command [B-28](#)
 debug matm command [B-29](#)
 debug matm move update command [B-30](#)
 debug mka command [B-31](#)
 debug monitor command [B-33](#)
 debug mvrdbg command [B-34](#)
 debug nmsp command [B-35](#)
 debug nvram command [B-36](#)
 debug pagp command [B-37](#)
 debug platform acl command [B-38](#)
 debug platform backup interface command [B-40](#)
 debug platform cisp command [B-41](#)
 debug platform cli-redirect main command [B-42](#)
 debug platform configuration command [B-43](#), [B-51](#)
 debug platform cpu-queues command [B-44](#)
 debug platform device-manager command [B-46](#)
 debug platform dot1x command [B-47](#)
 debug platform etherchannel command [B-48](#)
 debug platform fallback-bridging command [B-49](#)
 debug platform forw-tcam command [B-50](#)
 debug platform ip arp inspection command [B-52](#)
 debug platform ipc command [B-61](#)
 debug platform ip dhcp command [B-53](#)
 debug platform ip igmp snooping command [B-54](#)
 debug platform ip multicast command [B-56](#)
 debug platform ip unicast command [B-58](#)
 debug platform ip wecp command [B-60](#)
 debug platform led command [B-62](#)
 debug platform matm command [B-63](#)
 debug platform messaging application command [B-64](#)
 debug platform phy command [B-65](#)
 debug platform pm command [B-67](#)
 debug platform port-asic command [B-69](#)
 debug platform port-security command [B-70](#)
 debug platform qos-acl-tcam command [B-71](#)
 debug platform remote-commands command [B-72](#)
 debug platform resource-manager command [B-73](#)
 debug platform snmp command [B-74](#)
 debug platform span command [B-75](#)
 debug platform stack-manager command [B-76](#)
 debug platform supervisor-asic command [B-77](#)
 debug platform sw-bridge command [B-78](#)
 debug platform tcam command [B-79](#)
 debug platform udd command [B-82](#)
 debug platform vlan command [B-83](#)
 debug pm command [B-84](#)
 debug port-security command [B-86](#)
 debug qos-manager command [B-87](#)
 debug spanning-tree backbonefast command [B-90](#)
 debug spanning-tree bpdu command [B-91](#)
 debug spanning-tree bpdu-opt command [B-92](#)

- debug spanning-tree command [B-88](#)
- debug spanning-tree mstp command [B-93](#)
- debug spanning-tree switch command [B-95](#)
- debug spanning-tree uplinkfast command [B-97](#)
- debug sw-vlan command [B-98](#)
- debug sw-vlan ifs command [B-100](#)
- debug sw-vlan notification command [B-101](#)
- debug sw-vlan vtp command [B-103](#)
- debug udd command [B-105](#)
- debug vqpc command [B-107](#)
- default policy, MKA [2-389](#)
- define interface-range command [2-140](#)
- delete (boot loader) command [A-7](#)
- delete command [2-142](#)
- deny (ARP access-list configuration) command [2-145](#)
- deny (IPv6) command [2-147](#)
- deny command [2-152](#)
- detect mechanism, causes [2-214](#)
- device-sensor accounting command [2-155](#)
- device-sensor filter-list command [2-156](#)
- device-sensor filter-list dhcp command [2-159](#)
- device-sensor filter-spec command [2-161](#)
- device-sensor notify command [2-163](#)
- DHCP snooping
 - accepting untrusted packets from edge switch [2-271](#)
 - enabling
 - on a VLAN [2-277](#)
 - option 82 [2-269, 2-271](#)
 - trust on an interface [2-275](#)
 - error recovery timer [2-219](#)
 - rate limiting [2-274](#)
- DHCP snooping binding database
 - binding file, configuring [2-267](#)
 - bindings
 - adding [2-265](#)
 - deleting [2-265](#)
 - displaying [2-672](#)
 - clearing database agent statistics [2-101](#)
 - database agent, configuring [2-267](#)
 - displaying
 - binding entries [2-672](#)
 - database agent status [2-674, 2-676](#)
 - renewing [2-524](#)
- Digital Optical Monitoring
 - see DoM
- dir (boot loader) command [A-8](#)
- directories, deleting [2-142](#)
- DoM
 - displaying supported transceivers [2-663](#)
- domain name, VTP [2-995](#)
- dot1x auth-fail max-attempts [2-174](#)
- dot1x auth-fail vlan [2-176](#)
- dot1x command [2-172](#)
- dot1x control-direction command [2-178](#)
- dot1x credentials (global configuration) command [2-180](#)
- dot1x critical global configuration command [2-181](#)
- dot1x critical interface configuration command [2-183](#)
- dot1x default command [2-185](#)
- dot1x fallback command [2-186](#)
- dot1x guest-vlan command [2-187](#)
- dot1x host-mode command [2-189](#)
- dot1x initialize command [2-190](#)
- dot1x mac-auth-bypass command [2-191](#)
- dot1x max-reauth-req command [2-193](#)
- dot1x max-req command [2-195](#)
- dot1x pae command [2-196](#)
- dot1x port-control command [2-197](#)
- dot1x re-authenticate command [2-199](#)
- dot1x reauthentication command [2-200](#)
- dot1x supplicant controlled transient command [2-201](#)
- dot1x supplicant force-multicast command [2-203](#)
- dot1x test eapol-capable command [2-204](#)
- dot1x test timeout command [2-205](#)
- dot1x timeout command [2-206](#)
- dot1x violation-mode command [2-209](#)
- dropping packets, with ACL matches [2-8](#)
- drop threshold, Layer 2 protocol tunneling [2-341](#)
- DSCP-to-CoS map [2-402](#)

DSCP-to-DSCP-mutation map [2-402](#)

DTP [2-935](#)

DTP flap

error detection for [2-214](#)

error recovery timer [2-219](#)

DTP negotiation [2-939](#)

dual IPv4 and IPv6 templates [2-463](#)

duplex command [2-210](#)

dynamic-access ports

configuring [2-924](#)

restrictions [2-925](#)

dynamic ARP inspection

ARP ACLs

apply to a VLAN [2-245](#)

define [2-23](#)

deny packets [2-145](#)

display [2-566](#)

permit packets [2-461](#)

clear

log buffer [2-99](#)

statistics [2-100](#)

display

ARP ACLs [2-566](#)

configuration and operating state [2-667](#)

log buffer [2-667](#)

statistics [2-667](#)

trust state and rate limit [2-667](#)

enable per VLAN [2-257](#)

error detection for [2-214](#)

error recovery timer [2-219](#)

log buffer

clear [2-99](#)

configure [2-249](#)

display [2-667](#)

rate-limit incoming ARP packets [2-247](#)

statistics

clear [2-100](#)

display [2-667](#)

trusted interface state [2-253](#)

type of packet logged [2-258](#)

validation checks [2-255](#)

dynamic auto VLAN membership mode [2-934](#)

dynamic desirable VLAN membership mode [2-934](#)

Dynamic Host Configuration Protocol (DHCP)

See DHCP snooping

Dynamic Trunking Protocol

See DTP

E

EAP-request/identity frame

maximum number to send [2-195](#)

response time before retransmitting [2-206](#)

encapsulation methods [2-954](#)

environment variables, displaying [2-575](#)

epm access-control open [2-212](#)

errdisable detect cause command [2-214](#)

errdisable detect cause small-frame command [2-217](#)

errdisable recovery cause small-frame [2-222](#)

errdisable recovery command [2-219](#)

error conditions, displaying [2-635](#)

error disable detection [2-214](#)

error-disabled interfaces, displaying [2-648](#)

EtherChannel

assigning Ethernet interface to channel group [2-85](#)

creating port-channel logical interface [2-231](#)

debug EtherChannel/PAGP, display [B-15](#)

debug platform-specific events, display [B-48](#)

displaying [2-638](#)

enabling Layer 2 protocol tunneling for

LACP [2-342](#)

PAGP [2-342](#)

UDLD [2-342](#)

interface information, displaying [2-648](#)

LACP

clearing channel-group information [2-106, 2-107](#)

debug messages, display [B-24](#)

displaying [2-709](#)

- modes [2-85](#)
- port priority for hot-standby ports [2-345](#)
- restricting a protocol [2-89](#)
- system priority [2-347](#)

load-distribution methods [2-479](#)

PAgP

- aggregate-port learner [2-455](#)
- clearing channel-group information [2-115](#)
- debug messages, display [B-37](#)
- displaying [2-781](#)
- error detection for [2-214](#)
- error recovery timer [2-219](#)
- learn method [2-455](#)
- modes [2-85](#)
- physical-port learner [2-455](#)
- priority of interface for transmitted traffic [2-457](#)

Ethernet controller, internal register display [2-591, 2-598](#)

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

Ethernet statistics, collecting [2-543](#)

exception crashinfo command [2-223, 2-228](#)

extended discovery of candidate switches [2-126](#)

extended-range VLANs

- and allowed VLAN list [2-954](#)
- and pruning-eligible list [2-954](#)
- configuring [2-979](#)

extended system ID for STP [2-863](#)

F

- fallback profile command [2-224](#)
- fallback profiles, displaying [2-641](#)
- fan information, displaying [2-626](#)
- file name, VTP [2-995](#)
- files, deleting [2-142](#)
- flash_init (boot loader) command [A-10](#)
- flexible authentication ordering [2-43](#)

Flex Links

- configuring [2-928](#)
- displaying [2-649](#)

- flow-based SPAN [2-433](#)
- flowcontrol command [2-226](#)
- format (boot loader) command [A-11](#)
- forwarding packets, with ACL matches [2-8](#)
- forwarding results, display [C-7](#)
- frame forwarding information, displaying [C-7](#)
- front-end controller counter and status information [C-9](#)
- fsck (boot loader) command [A-12](#)

FSPAN [2-433](#)

G

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

H

- hardware ACL statistics [2-562](#)
- health monitoring diagnostic tests [2-165](#)
- help (boot loader) command [A-13](#)
- hierarchical policy maps [2-477](#)
- hop-count limit for clusters [2-126](#)
- host connection, port configuration [2-933](#)
- host ports, private VLANs [2-937](#)

Hot Standby Router Protocol

- See HSRP

HSRP

- binding HSRP group to cluster [2-134](#)
- standby group [2-134](#)

hw-module switch command [2-230](#)

I

- IEEE 802.1Q trunk ports and native VLANs [2-986](#)
- IEEE 802.1Q tunnel ports

 - configuring [2-934](#)
 - displaying [2-616](#)
 - limitations [2-935](#)

- IEEE 802.1x

- and switchport modes [2-935](#)
- violation error recovery [2-219](#)
- See also port-based authentication
- IGMP filters
 - applying [2-281](#)
 - debug messages, display [B-21](#)
- IGMP groups, setting maximum [2-282](#)
- IGMP maximum groups, debugging [B-22](#)
- IGMP profiles
 - creating [2-284](#)
 - displaying [2-679](#)
- IGMP snooping
 - adding ports as a static member of a group [2-300](#)
 - displaying [2-680, 2-684, 2-685](#)
 - enabling [2-286](#)
 - enabling the configurable-leave timer [2-288](#)
 - enabling the Immediate-Leave feature [2-297](#)
 - flooding query count [2-294](#)
 - interface topology change notification behavior [2-296](#)
 - multicast table [2-682](#)
 - querier [2-290](#)
 - query solicitation [2-294](#)
 - report suppression [2-292](#)
 - switch topology change notification behavior [2-294](#)
- images
 - See software images
- Immediate-Leave processing
 - IGMP [2-297](#)
 - IPv6 [2-337](#)
 - MVR [2-441](#)
- interface configuration mode [1-2, 1-4](#)
- interface port-channel command [2-231](#)
- interface range command [2-233](#)
- interface-range macros [2-140](#)
- interfaces
 - assigning Ethernet interface to channel group [2-85](#)
 - configuring [2-210](#)
 - configuring multiple [2-233](#)
 - creating port-channel logical [2-231](#)
 - debug messages, display [B-18](#)
 - disabling [2-839](#)
 - displaying the MAC address table [2-733](#)
 - restarting [2-839](#)
- interface speed, configuring [2-900](#)
- interface vlan command [2-235](#)
- internal power supplies
 - See power supplies
- internal registers, displaying [2-591, 2-598, 2-605](#)
- Internet Group Management Protocol
 - See IGMP
- invalid GBIC
 - error detection for [2-214](#)
 - error recovery timer [2-219](#)
- ip access-group command [2-237](#)
- ip address command [2-240](#)
- IP addresses, setting [2-240](#)
- IP address matching [2-381](#)
- ip admission command [2-242](#)
- ip admission name proxy http command [2-243](#)
- ip arp inspection filter vlan command [2-245](#)
- ip arp inspection limit command [2-247](#)
- ip arp inspection log-buffer command [2-249](#)
- ip arp inspection trust command [2-253](#)
- ip arp inspection validate command [2-255](#)
- ip arp inspection vlan command [2-257](#)
- ip arp inspection vlan logging command [2-258](#)
- ip device tracking command [2-260](#)
- ip device tracking probe command [2-262](#)
- IP DHCP snooping
 - See DHCP snooping
- ip dhcp snooping binding command [2-265](#)
- ip dhcp snooping command [2-264](#)
- ip dhcp snooping database command [2-267](#)
- ip dhcp snooping information option allow-untrusted command [2-271](#)
- ip dhcp snooping information option command [2-269](#)
- ip dhcp snooping information option format remote-id command [2-273](#)

- ip dhcp snooping limit rate command [2-274](#)
 - ip dhcp snooping trust command [2-275](#)
 - ip dhcp snooping verify command [2-276](#)
 - ip dhcp snooping vlan command [2-277](#)
 - ip dhcp snooping vlan information option format-type circuit-id string command [2-279](#)
 - ip igmp filter command [2-281](#)
 - ip igmp max-groups command [2-282](#), [2-307](#), [2-309](#)
 - ip igmp profile command [2-284](#)
 - ip igmp snooping command [2-286](#)
 - ip igmp snooping last-member-query-interval command [2-288](#)
 - ip igmp snooping querier command [2-290](#)
 - ip igmp snooping report-suppression command [2-292](#)
 - ip igmp snooping tcn command [2-294](#)
 - ip igmp snooping tcn flood command [2-296](#)
 - ip igmp snooping vlan immediate-leave command [2-297](#)
 - ip igmp snooping vlan mrouter command [2-298](#)
 - ip igmp snooping vlan static command [2-300](#)
 - IP multicast addresses [2-438](#)
 - IP phones
 - auto-QoS configuration [2-64](#)
 - trusting packets sent from [2-428](#)
 - IP-precedence-to-DSCP map [2-402](#)
 - ip snap forwarding command [2-302](#)
 - ip source binding command [2-303](#)
 - IP source guard
 - disabling [2-311](#)
 - displaying
 - binding entries [2-687](#)
 - configuration [2-688](#)
 - dynamic binding entries only [2-672](#)
 - enabling [2-311](#)
 - static IP source bindings [2-303](#)
 - ip ssh command [2-305](#)
 - IPv4 and IPv6
 - port-based trust [2-429](#)
 - IPv6 access list, deny conditions [2-147](#)
 - ipv6 access-list command [2-314](#)
 - ipv6 address dhcp command [2-317](#)
 - ipv6 dhcp client request vendor command [2-318](#)
 - ipv6 dhcp ping packets command [2-319](#)
 - ipv6 dhcp pool command [2-321](#)
 - ipv6 dhcp server command [2-324](#)
 - ipv6 mld snooping command [2-326](#)
 - ipv6 mld snooping last-listener-query count command [2-328](#)
 - ipv6 mld snooping last-listener-query-interval command [2-330](#)
 - ipv6 mld snooping listener-message-suppression command [2-332](#)
 - ipv6 mld snooping robustness-variable command [2-333](#)
 - ipv6 mld snooping tcn command [2-335](#)
 - ipv6 mld snooping vlan command [2-337](#)
 - IPv6 QoS
 - enabling [2-394](#)
 - IPv6 SDM template [2-545](#)
 - ipv6 traffic-filter command [2-339](#)
 - ip verify source command [2-311](#)
 - ip verify source smartlog command [2-313](#)
-
- ## J
- jumbo frames
 - See MTU
-
- ## L
- l2protocol-tunnel command [2-341](#)
 - l2protocol-tunnel cos command [2-344](#)
 - LACP
 - See EtherChannel
 - lacp port-priority command [2-345](#)
 - lacp system-priority command [2-347](#)
 - Layer 2 mode, enabling [2-922](#)
 - Layer 2 protocol ports, displaying [2-707](#)
 - Layer 2 protocol-tunnel
 - error detection for [2-214](#)

- error recovery timer [2-219](#)
- Layer 2 protocol tunnel counters [2-105](#)
- Layer 2 protocol tunneling error recovery [2-342](#)
- Layer 2 traceroute
 - IP addresses [2-969](#)
 - MAC addresses [2-966](#)
- Layer 3 mode, enabling [2-922](#)
- license boot command [2-349](#)
- line configuration mode [1-3, 1-5](#)
- Link Aggregation Control Protocol
 - See EtherChannel
- link flap
 - error detection for [2-214](#)
 - error recovery timer [2-219](#)
- link-security authentication [2-33](#)
- link-security policies [2-38](#)
- link state group command [2-351](#)
- link state track command [2-353](#)
- load-distribution methods for EtherChannel [2-479](#)
- location (global configuration) command [2-354](#)
- location (interface configuration) command [2-356](#)
- logging event command [2-358](#)
- logging event power-inline-status command [2-359](#)
- logging file command [2-360](#)
- logical interface [2-231](#)
- loopback error
 - detection for [2-214](#)
 - recovery timer [2-219](#)
- loop guard, for spanning tree [2-865, 2-869](#)

M

- mab request format attribute 32 command [2-364](#)
- mac access-group command [2-366](#)
- MAC access-groups, displaying [2-725](#)
- MAC access list configuration mode [2-368](#)
- mac access-list extended command [2-368](#)
- MAC access lists [2-152](#)
- MAC addresses

- disabling MAC address learning per VLAN [2-371](#)
- displaying
 - aging time [2-729](#)
 - all [2-728](#)
 - dynamic [2-732](#)
 - MAC address-table move updates [2-735](#)
 - notification settings [2-734, 2-736](#)
 - number of addresses in a VLAN [2-731](#)
 - per interface [2-733](#)
 - per VLAN [2-740](#)
 - static [2-738](#)
 - static and dynamic entries [2-726](#)
- dynamic
 - aging time [2-370](#)
 - deleting [2-109](#)
 - displaying [2-732](#)
- enabling MAC address notification [2-375](#)
- enabling MAC address-table move update [2-373](#)
- matching [2-381](#)
- persistent stack [2-908](#)
- static
 - adding and removing [2-377](#)
 - displaying [2-738](#)
 - dropping on an interface [2-378](#)
- tables [2-728](#)
- MAC address notification, debugging [B-27](#)
- mac address-table aging-time [2-366, 2-381](#)
- mac address-table aging-time command [2-370](#)
- mac address-table learning command [2-371](#)
- mac address-table move update command [2-373](#)
- mac address-table notification command [2-375](#)
- mac address-table static command [2-377](#)
- mac address-table static drop command [2-378](#)
- MAC frames
 - See MTU
- macros
 - interface range [2-140, 2-233](#)
- MACsec
 - counters [2-111, 2-601](#)

- debugging [B-28](#)
- displaying [2-742](#)
- enabling [2-380](#)
- registers [2-601](#)
- macsec command [2-380](#)
- maps
 - QoS
 - defining [2-402](#)
 - displaying [2-765](#)
 - VLAN
 - creating [2-984](#)
 - defining [2-381](#)
 - displaying [2-829](#)
- match (access-map configuration) command [2-381](#)
- match (class-map configuration) command [2-383](#)
- maximum transmission unit
 - See MTU
- mdix auto command [2-386](#)
- Media Access Control Security
 - See MACsec.
- media-type rj45 command [2-388](#)
- member switches
 - See clusters
- memory (boot loader) command [A-14](#)
- mgmt_clr (boot loader) command [A-16](#)
- mgmt_init (boot loader) command [A-17, A-18](#)
- MKA
 - confidentiality [2-139](#)
 - debugging [B-31](#)
 - displaying default policy [2-744](#)
 - displaying policies [2-746](#)
 - displaying sessions [2-749](#)
 - displaying sessions and statistics [2-755](#)
 - displaying statistics [2-752](#)
 - policy configuration mode [2-390](#)
- MKA, enabling [2-392](#)
- mka default policy command [2-389](#)
- mka policy global configuration command [2-390](#)
- mka policy interface configuration command [2-392](#)
- mkdir (boot loader) command [A-19](#)
- MLD snooping
 - configuring [2-332, 2-333](#)
 - configuring queries [2-328, 2-330](#)
 - configuring topology change notification [2-335](#)
 - displaying [2-697, 2-699, 2-701, 2-703](#)
 - enabling [2-326](#)
 - enabling on a VLAN [2-337](#)
- mls qos aggregate-policer command [2-396](#)
- mls qos command [2-394](#)
- mls qos cos command [2-398](#)
- mls qos dscp-mutation command [2-400](#)
- mls qos map command [2-402](#)
- mls qos queue-set output buffers command [2-406](#)
- mls qos queue-set output threshold command [2-408](#)
- mls qos rewrite ip dscp command [2-410](#)
- mls qos srr-queue input bandwidth command [2-412](#)
- mls qos srr-queue input buffers command [2-414](#)
- mls qos-srr-queue input cos-map command [2-416](#)
- mls qos srr-queue input dscp-map command [2-418](#)
- mls qos srr-queue input priority-queue command [2-420](#)
- mls qos srr-queue input threshold command [2-422](#)
- mls qos-srr-queue output cos-map command [2-424](#)
- mls qos srr-queue output dscp-map command [2-426](#)
- mls qos trust command [2-428](#)
- mls qos vlan-based command [2-430](#)
- mode, MVR [2-438](#)
- Mode button, and password recovery [2-549](#)
- mode command [2-431](#)
- modes, commands [1-2](#)
- monitor session command [2-433](#)
- more (boot loader) command [A-20](#)
- MSTP
 - displaying [2-801](#)
 - interoperability [2-121](#)
 - link type [2-867](#)
 - MST region
 - aborting changes [2-873](#)
 - applying changes [2-873](#)

- configuration name [2-873](#)
- configuration revision number [2-873](#)
- current or pending display [2-873](#)
- displaying [2-801](#)
- MST configuration mode [2-873](#)
- VLANs-to-instance mapping [2-873](#)
- path cost [2-875](#)
- protocol mode [2-871](#)
- restart protocol migration process [2-121](#)
- root port
 - loop guard [2-865](#)
 - preventing from becoming designated [2-865](#)
 - restricting which can be root [2-865](#)
 - root guard [2-865](#)
- root switch
 - affects of extended system ID [2-863](#)
 - hello-time [2-878, 2-885](#)
 - interval between BPDU messages [2-879](#)
 - interval between hello BPDU messages [2-878, 2-885](#)
 - max-age [2-879](#)
 - maximum hop count before discarding BPDU [2-880](#)
 - port priority for selection of [2-881](#)
 - primary or secondary [2-885](#)
 - switch priority [2-884](#)
- state changes
 - blocking to forwarding state [2-892](#)
 - enabling BPDU filtering [2-855, 2-889](#)
 - enabling BPDU guard [2-857, 2-889](#)
 - enabling Port Fast [2-889, 2-892](#)
 - forward-delay time [2-877](#)
 - length of listening and learning states [2-877](#)
 - rapid transition to forwarding [2-867](#)
 - shutting down Port Fast-enabled ports [2-889](#)
- state information display [2-800](#)

MTU

- configuring size [2-962](#)
- displaying global setting [2-818](#)

- MAC [2-963](#)
- system jumbo [2-963](#)
- system routing [2-963](#)
- Multicast Listener Discovery
 - See MLD
- multicast group address, MVR [2-441](#)
- multicast groups, MVR [2-439](#)
- Multicast Listener Discovery
 - See MLD
- multicast router learning method [2-298](#)
- multicast router ports, configuring [2-298](#)
- multicast router ports, IPv6 [2-337](#)
- multicast storm control [2-912](#)
- multicast VLAN, MVR [2-438](#)
- multicast VLAN registration
 - See MVR
- multiple hosts on authorized port [2-189](#)
- Multiple Spanning Tree Protocol
 - See MSTP
- MVR
 - and address aliasing [2-439](#)
 - configuring [2-438](#)
 - configuring interfaces [2-441](#)
 - debug messages, display [B-34](#)
 - displaying [2-772](#)
 - displaying interface information [2-773](#)
 - members, displaying [2-775](#)
- mvr (global configuration) command [2-438](#)
- mvr (interface configuration) command [2-441](#)
- mvr vlan group command [2-442](#)

N

- native VLANs [2-954](#)
- native VLAN tagging [2-986](#)
- network-policy (global configuration) command [2-445](#)
- network-policy command [2-444](#)
- network-policy profile (network-policy configuration) command [2-446](#)

nmsp attachment suppress command [2-449](#)
 nmsp command [2-448](#)
 no authentication logging verbose [2-450](#)
 no dot1x logging verbose [2-451](#)
 no mab logging verbose [2-452](#)
 nonegotiate
 DTP messaging [2-939](#)
 speed [2-900](#)
 non-IP protocols
 denying [2-152](#)
 forwarding [2-469](#)
 non-IP traffic access lists [2-368](#)
 non-IP traffic forwarding
 denying [2-152](#)
 permitting [2-469](#)
 non-stop forwarding [2-453](#)
 normal-range VLANs [2-979](#)
 no vlan command [2-979](#)
 nsf command [2-453](#)

O

online diagnostics
 configuring health monitoring diagnostic tests [2-165](#)
 displaying
 configured boot-up coverage level [2-611](#)
 current scheduled tasks [2-611](#)
 event logs [2-611](#)
 supported test suites [2-611](#)
 test ID [2-611](#)
 test results [2-611](#)
 test statistics [2-611](#)
 enabling
 scheduling [2-167](#)
 syslog messages [2-165](#)
 global configuration mode
 clearing health monitoring diagnostic test
 schedule [2-165](#)
 clearing test-based testing schedule [2-167](#)

 setting health monitoring diagnostic
 testing [2-165](#)
 setting test-based testing [2-167](#)
 setting up health monitoring diagnostic test
 schedule [2-165](#)
 setting up test-based testing [2-167](#)
 removing scheduling [2-167](#)
 scheduled switchover
 disabling [2-167](#)
 enabling [2-167](#)
 setting test interval [2-167](#)
 specifying health monitoring diagnostic tests [2-165](#)
 starting testing [2-169](#)

P

PAgP
 See EtherChannel
 pagp learn-method command [2-455](#)
 pagp port-priority command [2-457](#)
 password, VTP [2-996](#)
 password-recovery mechanism, enabling and
 disabling [2-549](#)
 permit (ARP access-list configuration) command [2-461](#)
 permit (IPv6) command [2-463](#)
 permit (MAC access-list configuration) command [2-469](#)
 per-VLAN spanning-tree plus
 See STP
 physical-port learner [2-455](#)
 PID, displaying [2-666](#)
 PIM-DVMRP, as multicast router learning method [2-298](#)
 PoE
 configuring the power budget [2-484](#)
 configuring the power management mode [2-481](#)
 displaying controller register values [2-603](#)
 displaying power management information [2-786](#)
 error detection for [2-214](#)
 error recovery timer [2-219](#)
 logging of status [2-359](#)

- monitoring power [2-488](#)
- policing power consumption [2-488](#)
- police aggregate command [2-474](#)
- police command [2-472](#)
- policed-DSCP map [2-402](#)
- policy-map command [2-476](#)
- policy maps
 - applying to an interface [2-551, 2-557](#)
 - creating [2-476](#)
 - displaying [2-783](#)
 - hierarchical [2-477](#)
 - policers
 - displaying [2-759](#)
 - for a single class [2-472](#)
 - for multiple classes [2-396, 2-474](#)
 - policed-DSCP map [2-402](#)
 - traffic classification
 - defining the class [2-91](#)
 - defining trust states [2-971](#)
 - setting DSCP or IP precedence values [2-555](#)
- Port Aggregation Protocol
 - See EtherChannel
- port-based authentication
 - AAA method list [2-3](#)
 - configuring violation modes [2-209](#)
 - debug messages, display [B-12](#)
 - enabling guest VLAN supplicant [2-175, 2-186](#)
 - enabling IEEE 802.1x
 - globally [2-172](#)
 - per interface [2-197](#)
 - guest VLAN [2-187](#)
 - host modes [2-189](#)
 - IEEE 802.1x AAA accounting methods [2-1](#)
 - initialize an interface [2-190, 2-205](#)
 - MAC authentication bypass [2-191](#)
 - manual control of authorization state [2-197](#)
 - multiple hosts on authorized port [2-189](#)
 - PAE as authenticator [2-196](#)
 - periodic re-authentication
 - enabling [2-200](#)
 - time between attempts [2-206](#)
 - quiet period between failed authentication exchanges [2-206](#)
 - re-authenticating IEEE 802.1x-enabled ports [2-199](#)
 - resetting configurable IEEE 802.1x parameters [2-185](#)
 - switch-to-authentication server retransmission time [2-206](#)
 - switch-to-client frame-retransmission number [2-193 to 2-195](#)
 - switch-to-client retransmission time [2-206](#)
 - test for IEEE 802.1x readiness [2-204](#)
- port-based trust
 - IPv4 and IPv6 [2-429](#)
- port-channel load-balance command [2-479](#)
- Port Fast, for spanning tree [2-892](#)
- port ranges, defining [2-137, 2-140](#)
- ports, debugging [B-84](#)
- ports, protected [2-952](#)
- port security
 - aging [2-946](#)
 - debug messages, display [B-86](#)
 - enabling [2-941](#)
 - violation error recovery [2-219](#)
- port trust states for QoS [2-428](#)
- port types, MVR [2-441](#)
- power information, displaying [2-626](#)
- power inline command [2-481](#)
- power inline consumption command [2-484](#)
- power inline four-pair forced command [2-487](#)
- power inline police command [2-488](#)
- Power over Ethernet
 - See PoE
- power-priority command [2-491](#)
- power rps command (global configuration) [2-497](#)
- power rps command (user EXEC) [2-493](#)
- power supply
 - configuring [2-495](#)
 - managing [2-495](#)
- power supply command [2-495](#)

power xps command privileged EXEC) [2-499](#)
 power xps port command [2-501](#)
 priority-queue command [2-503](#)
 priority value, stack member [2-811, 2-917](#)
 private-vlan command [2-505](#)
 private-vlan mapping command [2-508](#)
 private VLANs
 association [2-950](#)
 configuring [2-505](#)
 configuring ports [2-937](#)
 displaying [2-824](#)
 host ports [2-937](#)
 mapping
 configuring [2-950](#)
 displaying [2-648](#)
 promiscuous ports [2-937](#)
 privileged EXEC mode [1-2, 1-3](#)
 product identification information, displaying [2-666](#)
 promiscuous ports, private VLANs [2-937](#)
 protected ports, displaying [2-653](#)
 pruning
 VLANs [2-954](#)
 VTP
 enabling [2-996](#)
 pruning-eligible VLAN list [2-956](#)
 psp [2-510](#)
 psp command [2-510](#)
 PVST+
 See STP

Q

QoS

auto-QoS
 configuring [2-64](#)
 debug messages, display [B-4](#)
 displaying [2-571](#)
 auto-QoS trust
 configuring [2-58](#)

auto-QoS video
 configuring [2-61](#)
 class maps
 creating [2-94](#)
 defining the match criteria [2-383](#)
 displaying [2-582](#)
 defining the CoS value for an incoming packet [2-398](#)
 displaying configuration information [2-571, 2-758](#)
 DSCP transparency [2-410](#)
 DSCP trusted ports
 applying DSCP-to-DSCP-mutation map to [2-400](#)
 defining DSCP-to-DSCP-mutation map [2-402](#)
 egress queues
 allocating buffers [2-406](#)
 defining the CoS output queue threshold map [2-424](#)
 defining the DSCP output queue threshold map [2-426](#)
 displaying buffer allocations [2-761](#)
 displaying CoS output queue threshold map [2-765](#)
 displaying DSCP output queue threshold map [2-765](#)
 displaying queueing strategy [2-761](#)
 displaying queue-set settings [2-768](#)
 enabling bandwidth shaping and scheduling [2-904](#)
 enabling bandwidth sharing and scheduling [2-906](#)
 limiting the maximum output on a port [2-902](#)
 mapping a port to a queue-set [2-511](#)
 mapping CoS values to a queue and threshold [2-424](#)
 mapping DSCP values to a queue and threshold [2-426](#)
 setting maximum and reserved memory allocations [2-408](#)
 setting WTD thresholds [2-408](#)
 enabling [2-394](#)
 enabling IPv6 QoS [2-394](#)
 ingress queues

- allocating buffers [2-414](#)
 - assigning SRR scheduling weights [2-412](#)
 - defining the CoS input queue threshold map [2-416](#)
 - defining the DSCP input queue threshold map [2-418](#)
 - displaying buffer allocations [2-761](#)
 - displaying CoS input queue threshold map [2-765](#)
 - displaying DSCP input queue threshold map [2-765](#)
 - displaying queuing strategy [2-761](#)
 - displaying settings for [2-760](#)
 - enabling the priority queue [2-420](#)
 - mapping CoS values to a queue and threshold [2-416](#)
 - mapping DSCP values to a queue and threshold [2-418](#)
 - setting WTD thresholds [2-422](#)
 - maps
 - defining [2-402](#), [2-416](#), [2-418](#), [2-424](#), [2-426](#)
 - displaying [2-765](#)
 - policy maps
 - applying an aggregate policer [2-474](#)
 - applying to an interface [2-551](#), [2-557](#)
 - creating [2-476](#)
 - defining policers [2-396](#), [2-472](#)
 - displaying policers [2-759](#)
 - displaying policy maps [2-783](#)
 - hierarchical [2-477](#)
 - policed-DSCP map [2-402](#)
 - setting DSCP or IP precedence values [2-555](#)
 - traffic classifications [2-91](#)
 - trust states [2-971](#)
 - port trust states [2-428](#)
 - queues, enabling the expedite [2-503](#)
 - statistics
 - in-profile and out-of-profile packets [2-761](#)
 - packets enqueued or dropped [2-761](#)
 - sent and received CoS values [2-761](#)
 - sent and received DSCP values [2-761](#)
 - trusted boundary for IP phones [2-428](#)
 - VLAN-based [2-430](#)
 - quality of service
 - See QoS
 - querytime, MVR [2-438](#)
 - queue-set command [2-511](#)
-
- ## R
- radius-server dead-criteria command [2-512](#)
 - radius-server host command [2-514](#)
 - rapid per-VLAN spanning-tree plus
 - See STP
 - rapid PVST+
 - See STP
 - rcommand command [2-516](#)
 - re-authenticating IEEE 802.1x-enabled ports [2-199](#)
 - re-authentication
 - periodic [2-200](#)
 - time between attempts [2-206](#)
 - receiver ports, MVR [2-441](#)
 - receiving flow-control packets [2-226](#)
 - recovery mechanism
 - causes [2-219](#)
 - display [2-98](#), [2-578](#), [2-633](#), [2-636](#)
 - timer interval [2-220](#)
 - redundancy for cluster switches [2-134](#)
 - redundant power supply
 - See RPS
 - redundant power system
 - See Cisco Redundant Power System 2300
 - reload command [2-518](#)
 - remote command [2-520](#)
 - remote-span command [2-522](#)
 - Remote Switched Port Analyzer
 - See RSPAN
 - rename (boot loader) command [A-21](#)
 - renew ip dhcp snooping database command [2-524](#)
 - rep admin vlan command [2-526](#)

- rep block port command [2-527](#)
- replay protection, MACsec [2-540](#)
- replay-protection command [2-540](#)
- rep lsl-age-timer command [2-531](#)
- rep preempt delay command [2-532](#)
- rep preempt segment command [2-534](#)
- rep segment command [2-535](#)
- rep stcn command [2-538](#)
- reset (boot loader) command [A-22](#)
- restricted VLAN
 - See dot1x auth-fail vlan
- rmdir (boot loader) command [A-23](#)
- rmon collection stats command [2-543](#)
- root guard, for spanning tree [2-865](#)
- routed ports
 - IP addresses on [2-241](#)
 - number supported [2-241](#)
- routing frames
 - See MTU
- RPS
 - See Cisco Redundant Power System 2300
- RPS 2300
 - configuring [2-493](#), [2-499](#), [2-501](#)
 - managing [2-493](#), [2-499](#), [2-501](#)
 - See Cisco Redundant Power System 2300
- RSPAN
 - configuring [2-433](#)
 - displaying [2-770](#)
 - filter RSPAN traffic [2-433](#)
 - remote-span command [2-522](#)
 - sessions
 - add interfaces to [2-433](#)
 - displaying [2-770](#)
 - start new [2-433](#)
- rsu command [2-544](#)
- disabling [2-167](#)
 - enabling [2-167](#)
- SDM mismatch mode [2-546](#), [2-812](#)
- sdm prefer command [2-545](#)
- SDM templates
 - allowed resources [2-547](#)
 - and stacking [2-546](#)
 - displaying [2-796](#)
 - dual IPv4 and IPv6 [2-545](#)
- secure ports, limitations [2-943](#)
- sending flow-control packets [2-226](#)
- service password-recovery command [2-549](#)
- service-policy command [2-551](#)
- session command [2-554](#)
- set (boot loader) command [A-24](#)
- set command [2-555](#)
- setup command [2-557](#)
- setup express command [2-560](#)
- show access-lists command [2-562](#)
- show archive status command [2-565](#)
- show arp access-list command [2-566](#)
- show authentication command [2-567](#)
- show auto qos command [2-571](#)
- show boot command [2-575](#)
- show cable-diagnostics tdr command [2-578](#)
- show cisp command [2-581](#)
- show class-map command [2-582](#)
- show cluster candidates command [2-585](#)
- show cluster command [2-583](#)
- show cluster members command [2-587](#)
- show controllers cpu-interface command [2-589](#)
- show controllers ethernet-controller command [2-591](#)
- show controllers ethernet-controller fastethernet command [2-598](#)
- show controllers ethernet phy macsec command [2-601](#)
- show controllers power inline command [2-603](#)
- show controllers team command [2-605](#)
- show controller utilization command [2-607](#)
- show device-sensor cache command [2-609](#)
- show dot1q-tunnel command [2-616](#)

S

scheduled switchover

- show dot1x command [2-617](#)
- show dtp [2-621](#)
- show eap command [2-623](#)
- show env command [2-626](#)
- show env xps command [2-629](#)
- show errdisable detect command [2-633](#)
- show errdisable flap-values command [2-635](#)
- show errdisable recovery command [2-636](#)
- show etherchannel command [2-638](#)
- show fallback profile command [2-641](#)
- show flowcontrol command [2-642](#)
- show hw-module switch command [2-644](#)
- show idprom command [2-646](#)
- show interface rep command [2-661](#)
- show interfaces command [2-648](#)
- show interfaces counters command [2-659](#)
- show interface transceivers command [2-663](#)
- show inventory command [2-666](#)
- show ip arp inspection command [2-667](#)
- show ipc command [2-690](#)
- show ip dhcp snooping binding command [2-672](#)
- show ip dhcp snooping command [2-671](#)
- show ip dhcp snooping database command [2-674, 2-676](#)
- show ip igmp profile command [2-679](#)
- show ip igmp snooping address command [2-699](#)
- show ip igmp snooping command [2-680, 2-697](#)
- show ip igmp snooping groups command [2-682](#)
- show ip igmp snooping mrouter command [2-684, 2-701](#)
- show ip igmp snooping querier command [2-685, 2-703](#)
- show ip source binding command [2-687](#)
- show ipv6 access-list command [2-694](#)
- show ipv6 dhcp conflict command [2-696](#)
- show ipv6 route updated [2-705](#)
- show ip verify source command [2-688](#)
- show l2protocol-tunnel command [2-707](#)
- show lacp command [2-709](#)
- show link state group command [2-713](#)
- show location [2-715](#)
- show location command [2-715](#)
- show logging onboard command [2-717](#)
- show logging smartlog command [2-722](#)
- show mac access-group command [2-725](#)
- show mac address-table address command [2-728](#)
- show mac address-table aging time command [2-729](#)
- show mac address-table command [2-726](#)
- show mac address-table count command [2-731](#)
- show mac address-table dynamic command [2-732](#)
- show mac address-table interface command [2-733](#)
- show mac address-table learning command [2-734](#)
- show mac address-table move update command [2-735](#)
- show mac address-table notification command [2-110, 2-736, B-30](#)
- show mac address-table static command [2-738](#)
- show mac address-table vlan command [2-740](#)
- show macsec command [2-742](#)
- show mka default-policy command [2-744](#)
- show mka policy command [2-746](#)
- show mka session command [2-749](#)
- show mka statistics command [2-752](#)
- show mka summary command [2-755](#)
- show mls qos aggregate-policer command [2-759](#)
- show mls qos command [2-758](#)
- show mls qos input-queue command [2-760](#)
- show mls qos interface command [2-761](#)
- show mls qos maps command [2-765](#)
- show mls qos queue-set command [2-768](#)
- show mls qos vlan command [2-769](#)
- show monitor command [2-770](#)
- show mvr command [2-772](#)
- show mvr interface command [2-773](#)
- show mvr members command [2-775](#)
- show network-policy profile command [2-777](#)
- show nmsp command [2-778](#)
- show pagp command [2-781](#)
- show platform acl command [C-2](#)
- show platform backup interface command [C-3](#)
- show platform configuration command [C-4](#)
- show platform dl command [C-5](#)

- show platform etherchannel command [C-6](#)
- show platform forward command [C-7](#)
- show platform frontend-controller command [C-9](#)
- show platform igmp snooping command [C-10](#)
- show platform ipc trace command [C-17](#)
- show platform ip multicast command [C-11](#)
- show platform ip unicast command [C-12](#)
- show platform ipv6 mld snooping command [C-18](#)
- show platform ipv6 unicast command [C-19](#)
- show platform ip wccp command [C-16](#)
- show platform layer4op command [C-21](#)
- show platform mac-address-table command [C-22](#)
- show platform messaging command [C-23](#)
- show platform monitor command [C-24](#)
- show platform mvr table command [C-25](#)
- show platform pm command [C-26](#)
- show platform port-asic command [C-27](#)
- show platform port-security command [C-32](#)
- show platform qos command [C-33](#)
- show platform resource-manager command [C-34](#)
- show platform snmp counters command [C-36](#)
- show platform spanning-tree command [C-37](#)
- show platform stack-manager command [C-39](#)
- show platform stp-instance command [C-38](#)
- show platform tb command [C-43](#)
- show platform tcam command [C-44](#)
- show platform vlan command [C-47](#)
- show policy-map command [2-783](#)
- show port security command [2-784](#)
- show power inline command [2-786, 2-806](#)
- show psp config [2-792](#)
- show psp config command [2-792](#)
- show psp statistics [2-793](#)
- show psp statistics command [2-793](#)
- show rep topology command [2-794](#)
- show sdm prefer command [2-796](#)
- show setup express command [2-799](#)
- show spanning-tree command [2-800](#)
- show storm-control command [2-809](#)
- show switch command [2-811](#)
- show switch service-modules command [2-816](#)
- show system mtu command [2-818](#)
- show trust command [2-971](#)
- show udd command [2-819](#)
- show version command [2-822](#)
- show vlan access-map command [2-829](#)
- show vlan command [2-824](#)
- show vlan command, fields [2-826](#)
- show vlan filter command [2-830](#)
- show vmps command [2-831](#)
- show vtp command [2-833](#)
- shutdown command [2-839](#)
- shutdown threshold, Layer 2 protocol tunneling [2-341](#)
- shutdown vlan command [2-840](#)
- small-frame violation rate command [2-841](#)
- SNMP host, specifying [2-848](#)
- SNMP informs, enabling the sending of [2-843](#)
- snmp-server enable traps command [2-843](#)
- snmp-server host command [2-848](#)
- snmp trap mac-notification change command [2-852](#)
- SNMP traps
 - enabling MAC address notification trap [2-852](#)
 - enabling the MAC address notification feature [2-375](#)
 - enabling the sending of [2-843](#)
- SoftPhone
 - See Cisco SoftPhone
- software images
 - copying [2-10](#)
 - deleting [2-142](#)
 - downloading [2-13](#)
 - upgrading [2-10, 2-13](#)
 - uploading [2-21](#)
- software version, displaying [2-822](#)
- source ports, MVR [2-441](#)
- SPAN
 - configuring [2-433](#)
 - debug messages, display [B-33](#)
 - displaying [2-770](#)

- filter SPAN traffic [2-433](#)
- sessions
 - add interfaces to [2-433](#)
 - displaying [2-770](#)
 - start new [2-433](#)
- spanning-tree backbonefast command [2-854](#)
- spanning-tree bpdudfilter command [2-855](#)
- spanning-tree bpduguard command [2-857](#)
- spanning-tree cost command [2-859](#)
- spanning-tree etherchannel command [2-861](#)
- spanning-tree extend system-id command [2-863](#)
- spanning-tree guard command [2-865](#)
- spanning-tree link-type command [2-867](#)
- spanning-tree loopguard default command [2-869](#)
- spanning-tree mode command [2-871](#)
- spanning-tree mst configuration command [2-873](#)
- spanning-tree mst cost command [2-875](#)
- spanning-tree mst forward-time command [2-877](#)
- spanning-tree mst hello-time command [2-878](#)
- spanning-tree mst max-age command [2-879](#)
- spanning-tree mst max-hops command [2-880](#)
- spanning-tree mst port-priority command [2-881](#)
- spanning-tree mst pre-standard command [2-883](#)
- spanning-tree mst priority command [2-884](#)
- spanning-tree mst root command [2-885](#)
- spanning-tree portfast (global configuration) command [2-889](#)
- spanning-tree portfast (interface configuration) command [2-892](#)
- spanning-tree port-priority command [2-887](#)
- Spanning Tree Protocol
 - See STP
- spanning-tree transmit hold-count command [2-894](#)
- spanning-tree uplinkfast command [2-895](#)
- spanning-tree vlan command [2-897](#)
- speed command [2-900](#)
- srr-queue bandwidth limit command [2-902](#)
- srr-queue bandwidth shape command [2-904](#)
- srr-queue bandwidth share command [2-906](#)
- SSH, configuring version [2-305](#)
- stack-mac persistent timer command [2-908](#)
- stack member
 - access [2-554](#)
 - number [2-811, 2-920](#)
 - priority value [2-917](#)
 - provisioning [2-918](#)
 - reloading [2-518](#)
- stacks, switch
 - disabling a member [2-915](#)
 - enabling a member [2-915](#)
 - MAC address [2-908](#)
 - provisioning a new member [2-918](#)
 - reloading [2-518](#)
 - stack member access [2-554](#)
 - stack member number [2-811, 2-920](#)
 - stack member priority value [2-811, 2-917](#)
- static-access ports, configuring [2-924](#)
- statistics, Ethernet group [2-543](#)
- sticky learning, enabling [2-941](#)
- storm-control command [2-912](#)
- STP
 - BackboneFast [2-854](#)
 - counters, clearing [2-120](#)
 - debug messages, display
 - BackboneFast events [B-90](#)
 - MSTP [B-93](#)
 - optimized BPDUs handling [B-92](#)
 - spanning-tree activity [B-88](#)
 - switch shim [B-95](#)
 - transmitted and received BPDUs [B-91](#)
 - UplinkFast [B-97](#)
 - detection of indirect link failures [2-854](#)
 - enabling protocol tunneling for [2-341](#)
 - EtherChannel misconfiguration [2-861](#)
 - extended system ID [2-863](#)
 - path cost [2-859](#)
 - protocol modes [2-871](#)
 - root port

- accelerating choice of new [2-895](#)
 - loop guard [2-865](#)
 - preventing from becoming designated [2-865](#)
 - restricting which can be root [2-865](#)
 - root guard [2-865](#)
 - UplinkFast [2-895](#)
 - root switch
 - affects of extended system ID [2-863, 2-898](#)
 - hello-time [2-897](#)
 - interval between BPDU messages [2-897](#)
 - interval between hello BPDU messages [2-897](#)
 - max-age [2-897](#)
 - port priority for selection of [2-887](#)
 - primary or secondary [2-897](#)
 - switch priority [2-897](#)
 - state changes
 - blocking to forwarding state [2-892](#)
 - enabling BPDU filtering [2-855, 2-889](#)
 - enabling BPDU guard [2-857, 2-889](#)
 - enabling Port Fast [2-889, 2-892](#)
 - enabling timer to recover from error state [2-219](#)
 - forward-delay time [2-897](#)
 - length of listening and learning states [2-897](#)
 - shutting down Port Fast-enabled ports [2-889](#)
 - state information display [2-800](#)
 - VLAN options [2-884, 2-897](#)
 - supplemental power command [2-910](#)
 - SVIs, creating [2-235](#)
 - SVI status calculation [2-926](#)
 - Switched Port Analyzer
 - See SPAN
 - switching characteristics
 - modifying [2-922](#)
 - returning to interfaces [2-922](#)
 - switchport access command [2-924](#)
 - switchport autostate exclude command [2-926](#)
 - switchport backup interface command [2-928](#)
 - switchport block command [2-931](#)
 - switchport command [2-922](#)
 - switchport host command [2-933](#)
 - switchport mode command [2-934](#)
 - switchport mode private-vlan command [2-937](#)
 - switchport nonegotiate command [2-939](#)
 - switchport port-security aging command [2-946](#)
 - switchport port-security command [2-941](#)
 - switchport priority extend command [2-948](#)
 - switchport private-vlan command [2-950](#)
 - switchport protected command [2-952](#)
 - switchports, displaying [2-648](#)
 - switchport trunk command [2-954](#)
 - switchport voice detect [2-957](#)
 - switchport voice vlan command [2-958](#)
 - switch priority command [2-915, 2-917](#)
 - switch provision command [2-918](#)
 - switch renumber command [2-920](#)
 - system env temperature threshold yellow command [2-960](#)
 - system message logging [2-359](#)
 - system message logging, save message to flash [2-360](#)
 - system mtu command [2-962](#)
 - system resource templates [2-545](#)
-
- ## T
- tar files, creating, listing, and extracting [2-18](#)
 - TDR, running [2-965](#)
 - Telnet, using to communicate to cluster switches [2-516](#)
 - temperature information, displaying [2-626](#)
 - templates, system resources [2-545](#)
 - test cable-diagnostics tdr command [2-965](#)
 - traceroute mac command [2-966](#)
 - traceroute mac ip command [2-969](#)
 - trunking, VLAN mode [2-934](#)
 - trunk mode [2-934](#)
 - trunk ports [2-934](#)
 - trunks, to non-DTP device [2-935](#)
 - trusted boundary for QoS [2-428](#)
 - trusted port states for QoS [2-428](#)
 - tunnel ports, Layer 2 protocol, displaying [2-707](#)

type (boot loader) command [A-27](#)

U

UDLD

- aggressive mode [2-973, 2-975](#)
- debug messages, display [B-105](#)
- enable globally [2-973](#)
- enable per interface [2-975](#)
- error recovery timer [2-220](#)
- message timer [2-973](#)
- normal mode [2-973, 2-975](#)
- reset a shutdown interface [2-977](#)
- status [2-819](#)

udld command [2-973](#)

udld port command [2-975](#)

udld reset command [2-977](#)

unicast storm control [2-912](#)

UniDirectional Link Detection

See UDLD

unknown multicast traffic, preventing [2-931](#)

unknown unicast traffic, preventing [2-931](#)

unset (boot loader) command [A-28](#)

upgrading

- copying software images [2-10](#)
- downloading software images [2-13](#)
- software images, monitoring status of [2-565](#)

UplinkFast, for STP [2-895](#)

usb-inactivity-timeout (console configuration) command [2-978](#)

user EXEC mode [1-2, 1-3](#)

V

version (boot loader) command [A-30](#)

version mismatch mode [2-812, C-40](#)

vlan (global configuration) command [2-979](#)

vlan access-map command [2-984](#)

VLAN access map configuration mode [2-984](#)

VLAN access maps

- actions [2-8](#)
- displaying [2-829](#)

VLAN-based QoS [2-430](#)

VLAN configuration

- rules [2-982](#)
- saving [2-979](#)

VLAN configuration mode

- description [1-4](#)
- entering [2-979](#)
- summary [1-3](#)

vlan dot1q tag native command [2-986](#)

vlan filter command [2-988](#)

VLAN filters, displaying [2-830](#)

VLAN ID range [2-979](#)

VLAN maps

- applying [2-988](#)
- creating [2-984](#)
- defining [2-381](#)
- displaying [2-829](#)

VLAN Query Protocol

See VQP

VLANs

- adding [2-979](#)
- configuring [2-979](#)
- debug messages, display
 - ISL [B-101](#)
 - VLAN IOS file system error tests [B-100](#)
 - VLAN manager activity [B-98](#)
 - VTP [B-103](#)

displaying configurations [2-824](#)

extended-range [2-979](#)

MAC addresses

- displaying [2-740](#)
- number of [2-731](#)

media types [2-982](#)

normal-range [2-979](#)

private [2-937](#)

- configuring [2-505](#)

- displaying [2-824](#)
 - See also private VLANs
 - restarting [2-840](#)
 - saving the configuration [2-979](#)
 - shutting down [2-840](#)
 - SNMP traps for VTP [2-846, 2-849](#)
 - suspending [2-840](#)
 - VLAN Trunking Protocol
 - See VTP
 - VM mode [2-812, C-40](#)
 - VMPS
 - configuring servers [2-993](#)
 - displaying [2-831](#)
 - error recovery timer [2-220](#)
 - reconfirming dynamic VLAN assignments [2-990](#)
 - vmpls reconfirm (global configuration) command [2-991](#)
 - vmpls reconfirm (privileged EXEC) command [2-990](#)
 - vmpls retry command [2-992](#)
 - vmpls server command [2-993](#)
 - voice VLAN
 - configuring [2-957, 2-958](#)
 - setting port priority [2-948](#)
 - VQP
 - and dynamic-access ports [2-925](#)
 - clearing client statistics [2-122](#)
 - displaying information [2-831](#)
 - per-server retry count [2-992](#)
 - reconfirmation interval [2-991](#)
 - reconfirming dynamic VLAN assignments [2-990](#)
 - VTP
 - changing characteristics [2-995](#)
 - clearing pruning counters [2-123](#)
 - configuring
 - domain name [2-995](#)
 - file name [2-995](#)
 - mode [2-995](#)
 - password [2-996](#)
 - counters display fields [2-834](#)
 - displaying information [2-833](#)
 - enabling
 - pruning [2-996](#)
 - tunneling for [2-341](#)
 - Version 2 [2-996](#)
 - enabling per port [2-1000](#)
 - mode [2-995](#)
 - pruning [2-996](#)
 - saving the configuration [2-979](#)
 - statistics [2-833](#)
 - status [2-833](#)
 - status display fields [2-836](#)
 - vtp (global configuration) command [2-995](#)
 - vtp interface configuration command [2-1000](#)
 - vtp primary command [2-1001](#)
-
- ## X
- XPS 2200
 - configuring [2-497](#)
 - naming [2-497](#)

