



INDEX

A

aaa accounting dot1x command [2-1](#)
aaa authentication dot1x command [2-3](#)
aaa authorization network command [2-5](#)
AAA methods [2-3](#)
abort command [2-747](#)
access control entries
 See ACEs
access control lists
 See ACLs
access groups
 IP [2-146](#)
 MAC, displaying [2-509](#)
access list, IPv6 [2-207](#)
access map configuration mode [2-261](#)
access mode [2-690](#)
access ports [2-690](#)
ACEs [2-89](#), [2-329](#)
ACLs
 deny [2-87](#)
 displaying [2-384](#)
 for non-IP protocols [2-241](#)
 IP [2-146](#)
 matching [2-261](#)
 on Layer 2 interfaces [2-146](#)
 permit [2-327](#)
action command [2-6](#)
address aliasing [2-310](#)
aggregate-port learner [2-315](#)
allowed VLANs [2-710](#)
apply command [2-747](#)
archive copy-sw command [2-8](#)

archive download-sw command [2-11](#)
archive tar command [2-15](#)
archive upload-sw command [2-18](#)
arp access-list command [2-20](#)
audience [xix](#)
authentication failed VLAN
 See dot1x auth-fail vlan
auth-fail max-attempts
 See dot1x auth-fail max-attempts
auth-fail vlan
 See dot1x auth-fail vlan
authorization state of controlled port [2-122](#)
autonegotiation of duplex mode [2-131](#)
auto qos voip command [2-22](#)

B

BackboneFast, for STP [2-617](#)
backup interfaces
 configuring [2-685](#)
 displaying [2-451](#)
boot (boot loader) command [A-2](#)
boot auto-copy-sw command [2-27](#)
boot boothlpr command [2-28](#)
boot config-file command [2-29](#)
boot enable-break command [2-30](#)
boot helper command [2-31](#)
boot helper-config file command [2-32](#)
booting
 Cisco IOS image [2-35](#)
 displaying environment variables [2-394](#)
 interrupting [2-30](#)
 manually [2-33](#)

boot loader

accessing [A-1](#)

booting

Cisco IOS image [A-2](#)helper image [2-31](#)

directories

creating [A-16](#)displaying a list of [A-7](#)removing [A-20](#)

displaying

available commands [A-12](#)memory heap utilization [A-14](#)version [A-27](#)

environment variables

described [A-21](#)displaying settings [A-21](#)location of [A-22](#)setting [A-21](#)unsetting [A-25](#)

files

copying [A-5](#)deleting [A-6](#)displaying a list of [A-7](#)displaying the contents of [A-4, A-17, A-24](#)renaming [A-18](#)

file system

formatting [A-10](#)initializing flash [A-9](#)running a consistency check [A-11](#)loading helper images [A-13](#)prompt [A-1](#)resetting the system [A-19](#)boot manual command [2-33](#)boot private-config-file command [2-34](#)boot system command [2-35](#)BPDU filtering, for spanning tree [2-618, 2-653](#)BPDU guard, for spanning tree [2-620, 2-653](#)broadcast storm control [2-673](#)

C

candidate switches

See clusters

cat (boot loader) command [A-4](#)caution, description [xx](#)CDP, enabling protocol tunneling for [2-225](#)channel-group command [2-37](#)channel-protocol command [2-41](#)

Cisco Network Assistant

See Network Assistant [xx](#)

Cisco SoftPhone

auto-QoS configuration [2-22](#)trusting packets sent from [2-301](#)class command [2-42](#)class-map command [2-44](#)

class maps

creating [2-44](#)defining the match criteria [2-263](#)displaying [2-398](#)

class of service

See CoS

clear dot1x command [2-46](#)clear eap command [2-47](#)clear ip arp inspection log command [2-48](#)clear ip arp inspection statistics command [2-49](#)clear ipc command [2-51](#)clear ip dhcp snooping database command [2-50](#)clear l2protocol-tunnel counters command [2-52](#)clear lacp command [2-53](#)clear mac address-table command [2-54, 2-56](#)clear pagp command [2-57](#)clear port-security command [2-58](#)clear spanning-tree counters command [2-60](#)clear spanning-tree detected-protocols command [2-61](#)clear vmps statistics command [2-62](#)clear vtp counters command [2-63](#)cluster commander-address command [2-64](#)cluster discovery hop-count command [2-66](#)

- cluster enable command [2-67](#)
- cluster holdtime command [2-69](#)
- cluster member command [2-70](#)
- cluster outside-interface command [2-72](#)
- cluster requirements [xxi](#)
- cluster run command [2-73](#)
- clusters
 - adding candidates [2-70](#)
 - binding to HSRP group [2-74](#)
 - building manually [2-70](#)
 - communicating with
 - devices outside the cluster [2-72](#)
 - members by using Telnet [2-356](#)
 - debug messages, display [B-5](#)
 - displaying
 - candidate switches [2-401](#)
 - debug messages [B-5](#)
 - member switches [2-403](#)
 - status [2-399](#)
 - hop-count limit for extended discovery [2-66](#)
 - HSRP standby groups [2-74](#)
 - redundancy [2-74](#)
 - SNMP trap [2-607](#)
- cluster standby-group command [2-74](#)
- cluster timer command [2-76](#)
- command modes defined [1-2](#)
- commands changed in Cisco IOS Release 12.2(18)SE [1-6](#)
- command switch
 - See clusters
- configuration, initial
 - See getting started guide and hardware installation guide
- configuration files
 - password recovery disable considerations [A-1](#)
 - specifying the name [2-29, 2-34](#)
- configuring multiple interfaces [2-142](#)

- config-vlan mode
 - commands [2-733](#)
 - description [1-4](#)
 - entering [2-732](#)
 - summary [1-2](#)
- conventions
 - command [xx](#)
 - for examples [xx](#)
 - publication [xx](#)
 - text [xx](#)
- copy (boot loader) command [A-5](#)
- CoS
 - assigning default value to incoming packets [2-271](#)
 - assigning to Layer 2 protocol packets [2-228](#)
 - overriding the incoming value [2-271](#)
- CoS-to-DSCP map [2-275](#)
- CPU ASIC statistics, displaying [2-405](#)
- crashinfo files [2-137](#)

D

- debug auto qos command [B-2](#)
- debug backup command [B-4](#)
- debug cluster command [B-5](#)
- debug dot1x command [B-7](#)
- debug dtp command [B-9](#)
- debug eap command [B-10](#)
- debug etherchannel command [B-12](#)
- debug ilpower command [B-14](#)
- debug interface command [B-17](#)
- debug ip dhcp snooping command [B-15](#)
- debug ip igmp filter command [B-19](#)
- debug ip igmp max-groups command [B-20](#)
- debug ip igmp snooping command [B-21](#)
- debug ip verify source packet command [B-16](#)
- debug lacp command [B-22](#)
- debug mac-notification command [B-23](#)
- debug matm command [B-24](#)
- debug matm move update command [B-25](#)

- debug monitor command [B-26](#)
- debug mvrdbg command [B-28](#)
- debug nvram command [B-29](#)
- debug pagp command [B-30](#)
- debug platform acl command [B-31](#)
- debug platform backup interface command [B-32](#)
- debug platform cli-redirection main command [B-33](#)
- debug platform configuration command [B-34, B-42](#)
- debug platform cpu-queues command [B-35](#)
- debug platform device-manager command [B-37](#)
- debug platform dot1x command [B-38](#)
- debug platform etherchannel command [B-39](#)
- debug platform fallback-bridging command [B-40](#)
- debug platform forw-tcam command [B-41](#)
- debug platform ip arp inspection command [B-44](#)
- debug platform ipc command [B-52](#)
- debug platform ip dhcp command [B-45](#)
- debug platform ip igmp snooping command [B-46](#)
- debug platform ip multicast command [B-48](#)
- debug platform ip unicast command [B-50](#)
- debug platform led command [B-53](#)
- debug platform matm command [B-54](#)
- debug platform messaging application command [B-56](#)
- debug platform phy command [B-58](#)
- debug platform pm command [B-60](#)
- debug platform port-asic command [B-62](#)
- debug platform port-security command [B-63](#)
- debug platform qos-acl-tcam command [B-64](#)
- debug platform remote-commands command [B-65](#)
- debug platform resource-manager command [B-66](#)
- debug platform snmp command [B-67](#)
- debug platform span command [B-68](#)
- debug platform stack-manager command [B-69](#)
- debug platform supervisor-asic command [B-70](#)
- debug platform sw-bridge command [B-71](#)
- debug platform tcam command [B-72](#)
- debug platform udd command [B-75](#)
- debug platform vlan command [B-76](#)
- debug pm command [B-77](#)
- debug port-security command [B-79](#)
- debug qos-manager command [B-80](#)
- debug spanning-tree backbonefast command [B-83](#)
- debug spanning-tree bpd command [B-84](#)
- debug spanning-tree bpd-opt command [B-85](#)
- debug spanning-tree command [B-81](#)
- debug spanning-tree mstp command [B-86](#)
- debug spanning-tree switch command [B-88](#)
- debug spanning-tree uplinkfast command [B-90](#)
- debug sw-vlan command [B-91](#)
- debug sw-vlan ifs command [B-93](#)
- debug sw-vlan notification command [B-95](#)
- debug sw-vlan vtp command [B-97](#)
- debug udd command [B-99](#)
- debug vqpc command [B-101](#)
- define interface-range command [2-77](#)
- delete (boot loader) command [A-6](#)
- delete command [2-79](#)
- deny (ARP access-list configuration) command [2-80](#)
- deny (IPv6) command [2-82](#)
- deny command [2-87](#)
- detect mechanism, causes [2-132](#)
- device manager requirements [xx](#)
- DHCP snooping
 - accepting untrusted packets from edge switch [2-171](#)
 - enabling
 - on a VLAN [2-177](#)
 - option 82 [2-169, 2-171](#)
 - trust on an interface [2-175](#)
 - error recovery timer [2-134](#)
 - rate limiting [2-174](#)
- DHCP snooping binding database
 - binding file, configuring [2-167](#)
 - bindings
 - adding [2-165](#)
 - deleting [2-165](#)
 - displaying [2-468](#)
 - clearing database agent statistics [2-50](#)
 - database agent, configuring [2-167](#)

- displaying
 - binding entries [2-468](#)
 - database agent status [2-470](#)
 - renewing [2-363](#)
- dir (boot loader) command [A-7](#)
- directories, deleting [2-79](#)
- documentation, related [xx](#)
- document conventions [xx](#)
- domain name, VTP [2-758, 2-762](#)
- dot1x auth-fail max-attempts [2-99](#)
- dot1x auth-fail vlan [2-101](#)
- dot1x command [2-97](#)
- dot1x control-direction command [2-103](#)
- dot1x critical global configuration command [2-105](#)
- dot1x critical interface configuration command [2-107](#)
- dot1x default command [2-109](#)
- dot1x guest-vlan command [2-110](#)
- dot1x host-mode command [2-113](#)
- dot1x initialize command [2-115](#)
- dot1x mac-auth-bypass command [2-116](#)
- dot1x max-reauth-req command [2-118](#)
- dot1x max-req command [2-119](#)
- dot1x multiple-hosts command [2-120](#)
- dot1x pae command [2-121](#)
- dot1x port-control command [2-122](#)
- dot1x re-authenticate command [2-124](#)
- dot1x re-authentication command [2-125](#)
- dot1x reauthentication command [2-126](#)
- dot1x timeout command [2-127](#)
- dropping packets, with ACL matches [2-6](#)
- drop threshold, Layer 2 protocol tunneling [2-225](#)
- DSCP-to-CoS map [2-275](#)
- DSCP-to-DSCP-mutation map [2-275](#)
- DTP [2-691](#)
- DTP flap
 - error detection for [2-132](#)
 - error recovery timer [2-134](#)
- DTP negotiation [2-695](#)
- dual IPv4 and IPv6 templates [2-321](#)
- duplex command [2-130](#)
- dynamic-access ports
 - configuring [2-683](#)
 - restrictions [2-684](#)
- dynamic ARP inspection
 - ARP ACLs
 - apply to a VLAN [2-151](#)
 - define [2-20](#)
 - deny packets [2-80](#)
 - display [2-389](#)
 - permit packets [2-319](#)
 - clear
 - log buffer [2-48](#)
 - statistics [2-49](#)
 - display
 - ARP ACLs [2-389](#)
 - configuration and operating state [2-464](#)
 - log buffer [2-464](#)
 - statistics [2-464](#)
 - trust state and rate limit [2-464](#)
 - enable per VLAN [2-161](#)
 - error detection for [2-132](#)
 - error recovery timer [2-134](#)
 - log buffer
 - clear [2-48](#)
 - configure [2-155](#)
 - display [2-464](#)
 - rate-limit incoming ARP packets [2-153](#)
 - statistics
 - clear [2-49](#)
 - display [2-464](#)
 - trusted interface state [2-157](#)
 - type of packet logged [2-162](#)
 - validation checks [2-159](#)
- dynamic auto VLAN membership mode [2-690](#)
- dynamic desirable VLAN membership mode [2-690](#)

Dynamic Host Configuration Protocol (DHCP)

See DHCP snooping

Dynamic Trunking Protocol

See DTP

E

EAP-request/identity frame

maximum number to send [2-119](#)response time before retransmitting [2-127](#)encapsulation methods [2-710](#)environment variables, displaying [2-394](#)errdisable detect cause command [2-132](#)errdisable recovery command [2-134](#)error conditions, displaying [2-439](#)error disable detection [2-132](#)error-disabled interfaces, displaying [2-451](#)

EtherChannel

assigning Ethernet interface to channel group [2-37](#)creating port-channel logical interface [2-140](#)debug EtherChannel/PAgP, display [B-12](#)debug platform-specific events, display [B-39](#)displaying [2-443](#)

enabling Layer 2 protocol tunneling for

LACP [2-226](#)PAgP [2-226](#)UDLD [2-226](#)interface information, displaying [2-451](#)

LACP

clearing channel-group information [2-53](#)debug messages, display [B-22](#)displaying [2-503](#)modes [2-37](#)port priority for hot-standby ports [2-229](#)restricting a protocol [2-41](#)system priority [2-231](#)load-distribution methods [2-337](#)

PAgP

aggregate-port learner [2-315](#)clearing channel-group information [2-57](#)debug messages, display [B-30](#)displaying [2-554](#)error detection for [2-132](#)error recovery timer [2-134](#)learn method [2-315](#)modes [2-37](#)physical-port learner [2-315](#)priority of interface for transmitted traffic [2-317](#)Ethernet controller, internal register display [2-407](#)Ethernet statistics, collecting [2-365](#)examples, conventions for [xx](#)exception crashinfo command [2-137](#)exit command [2-747](#)extended discovery of candidate switches [2-66](#)

extended-range VLANs

and allowed VLAN list [2-710](#)and pruning-eligible list [2-710](#)configuring [2-732](#)extended system ID for STP [2-626](#)

Ffan information, displaying [2-434](#)file name, VTP [2-758](#)files, deleting [2-79](#)flash_init (boot loader) command [A-9](#)

Flex Links

configuring [2-685](#)displaying [2-451](#)flowcontrol command [2-138](#)format (boot loader) command [A-10](#)forwarding packets, with ACL matches [2-6](#)forwarding results, display [C-6](#)

frame forwarding information, displaying [C-6](#)
 front-end controller
 counter and status information [C-8](#)
 fsck (boot loader) command [A-11](#)

G

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

H

hardware ACL statistics [2-384](#)
 health monitoring diagnostic tests
 configuring [2-90](#)
 help (boot loader) command [A-12](#)
 hierarchical policy maps [2-335](#)
 hop-count limit for clusters [2-66](#)
 host connection, port configuration [2-689](#)
 host ports, private VLANs [2-693](#)
 Hot Standby Router Protocol
 See HSRP
 HSRP
 binding HSRP group to cluster [2-74](#)
 standby group [2-74](#)

I

IEEE 802.1Q trunk ports and native VLANs [2-749](#)
 IEEE 802.1Q tunnel ports
 configuring [2-690](#)
 displaying [2-424](#)
 limitations [2-691](#)
 IEEE 802.1x
 and switchport modes [2-691](#)
 violation error recovery [2-134](#)
 See also port-based authentication
 IEEE 802.1X Port Based Authentication
 enabling guest VLAN supplicant [2-100](#)

IGMP filters
 applying [2-180](#)
 debug messages, display [B-19](#)
 IGMP groups, setting maximum [2-181](#)
 IGMP maximum groups, debugging [B-20](#)
 IGMP profiles
 creating [2-183](#)
 displaying [2-472](#)
 IGMP snooping
 adding ports as a static member of a group [2-199](#)
 displaying [2-473, 2-478, 2-480](#)
 enabling [2-185](#)
 enabling the configurable-leave timer [2-187](#)
 enabling the Immediate-Leave feature [2-196](#)
 flooding query count [2-193](#)
 interface topology change notification behavior [2-195](#)
 multicast table [1-6, 2-476](#)
 querier [2-189](#)
 query solicitation [2-193](#)
 report suppression [2-191](#)
 switch topology change notification behavior [2-193](#)
 images
 See software images
 Immediate-Leave feature, MVR [2-312](#)
 Immediate-Leave processing
 IPv6 [2-221](#)
 immediate-leave processing [2-196](#)
 initial configuration
 See getting started guide and hardware installation guide
 interface configuration mode [1-2, 1-4](#)
 interface port-channel command [2-140](#)
 interface range command [2-142](#)
 interface-range macros [2-77](#)
 interfaces
 assigning Ethernet interface to channel group [2-37](#)
 configuring [2-130](#)
 configuring multiple [2-142](#)
 creating port-channel logical [2-140](#)
 debug messages, display [B-17](#)

- disabling [2-605](#)
- displaying the MAC address table [2-521](#)
- restarting [2-605](#)
- interface speed, configuring [2-663](#)
- interface vlan command [2-144](#)
- internal registers, displaying [2-407, 2-417](#)
- Internet Group Management Protocol
 - See IGMP
- invalid GBIC
 - error detection for [2-132](#)
 - error recovery timer [2-134](#)
- ip access-group command [2-146](#)
- ip address command [2-149](#)
- IP addresses, setting [2-149](#)
- IP address matching [2-261](#)
- ip arp inspection filter vlan command [2-151](#)
- ip arp inspection limit command [2-153](#)
- ip arp inspection log-buffer command [2-155](#)
- ip arp inspection trust command [2-157](#)
- ip arp inspection validate command [2-159](#)
- ip arp inspection vlan command [2-161](#)
- ip arp inspection vlan logging command [2-162](#)
- IP DHCP snooping
 - See DHCP snooping
- ip dhcp snooping binding command [2-165](#)
- ip dhcp snooping command [2-164](#)
- ip dhcp snooping database command [2-167](#)
- ip dhcp snooping information option allow-untrusted command [2-171](#)
- ip dhcp snooping information option command [2-169](#)
- ip dhcp snooping information option format remote-id command [2-173](#)
- ip dhcp snooping limit rate command [2-174](#)
- ip dhcp snooping trust command [2-175](#)
- ip dhcp snooping verify command [2-176](#)
- ip dhcp snooping vlan command [2-177](#)
- ip dhcp snooping vlan information option format-type circuit-id string command [2-178](#)
- ip igmp filter command [2-180](#)
- ip igmp max-groups command [2-181](#)
- ip igmp profile command [2-183](#)
- ip igmp snooping command [2-185](#)
- ip igmp snooping last-member-query-interval command [2-187](#)
- ip igmp snooping querier command [2-189](#)
- ip igmp snooping report-suppression command [2-191](#)
- ip igmp snooping tcn command [2-193](#)
- ip igmp snooping tcn flood command [2-195](#)
- ip igmp snooping vlan immediate-leave command [2-196](#)
- ip igmp snooping vlan mrouter command [2-197](#)
- ip igmp snooping vlan static command [2-199](#)
- IP multicast addresses [2-309](#)
- IP phones
 - auto-QoS configuration [2-22](#)
 - trusting packets sent from [2-301](#)
- IP-precedence-to-DSCP map [2-275](#)
- ip snap forwarding command [2-201](#)
- ip source binding command [2-202](#)
- IP source guard
 - disabling [2-206](#)
 - displaying
 - binding entries [2-482](#)
 - configuration [2-484](#)
 - dynamic binding entries only [2-468](#)
 - enabling [2-206](#)
 - static IP source bindings [2-202](#)
- ip ssh command [2-204](#)
- IPv6 access list
 - deny conditions [2-82](#)
- ipv6 access-list command [2-207](#)
- ipv6 mld snooping command [2-209](#)
- ipv6 mld snooping last-listener-query count command [2-211](#)
- ipv6 mld snooping last-listener-query-interval command [2-213](#)
- ipv6 mld snooping listener-message-suppression command [2-215](#)
- ipv6 mld snooping robustness-variable command [2-217](#)
- ipv6 mld snooping tcn command [2-219](#)
- ipv6 mld snooping vlan command [2-221](#)

IPv6 SDM template [2-366](#)

ipv6 traffic-filter command [2-223](#)

ip verify source command [2-206](#)

J

jumbo frames

See MTU

L

l2protocol-tunnel command [2-225](#)

l2protocol-tunnel cos command [2-228](#)

LACP

See EtherChannel

lacp port-priority command [2-229](#)

lacp system-priority command [2-231](#)

Layer 2 mode, enabling [2-681](#)

Layer 2 protocol ports, displaying [2-500](#)

Layer 2 protocol-tunnel

error detection for [2-132](#)

error recovery timer [2-134](#)

Layer 2 protocol tunnel counters [2-52](#)

Layer 2 protocol tunneling error recovery [2-226](#)

Layer 2 traceroute

IP addresses [2-723](#)

MAC addresses [2-720](#)

Layer 3 mode, enabling [2-681](#)

line configuration mode [1-3, 1-5](#)

Link Aggregation Control Protocol

See EtherChannel

link flap

error detection for [2-132](#)

error recovery timer [2-134](#)

link state group command [2-233](#)

link state track command [2-235](#)

load_helper (boot loader) command [A-13](#)

load-distribution methods for EtherChannel [2-337](#)

logging event power-inline-status command [2-236](#)

logging file command [2-237](#)

logical interface [2-140](#)

loopback error

detection for [2-132](#)

recovery timer [2-134](#)

loop guard, for spanning tree [2-628, 2-632](#)

M

mac access-group command [2-239](#)

MAC access-groups, displaying [2-509](#)

MAC access list configuration mode [2-241](#)

mac access-list extended command [2-241](#)

MAC access lists [2-87](#)

MAC addresses

displaying

aging time [2-515](#)

all [2-513](#)

dynamic [2-519](#)

MAC address-table move updates [2-523](#)

notification settings [2-525](#)

number of addresses in a VLAN [2-517](#)

per interface [2-521](#)

per VLAN [2-529](#)

static [2-527](#)

static and dynamic entries [2-511](#)

dynamic

aging time [2-243](#)

deleting [2-54](#)

displaying [2-519](#)

enabling MAC address notification [2-246](#)

enabling MAC address-table move update [2-244](#)

matching [2-261](#)

persistent stack [2-671](#)

static

adding and removing [2-248](#)

- displaying [2-527](#)
- dropping on an interface [2-249](#)
- tables [2-513](#)
- MAC address notification, debugging [B-23](#)
- mac address-table aging-time [2-239, 2-261](#)
- mac address-table aging-time command [2-243](#)
- mac address-table move update command [2-244](#)
- mac address-table notification command [2-246](#)
- mac address-table static command [2-248](#)
- mac address-table static drop command [2-249](#)
- macro apply command [2-251](#)
- macro description command [2-254](#)
- macro global command [2-255](#)
- macro global description command [2-258](#)
- macro name command [2-259](#)
- macros
 - adding a description [2-254](#)
 - adding a global description [2-258](#)
 - applying [2-255](#)
 - creating [2-259](#)
 - displaying [2-556](#)
 - interface range [2-77, 2-142](#)
 - specifying parameter values [2-255](#)
 - tracing [2-255](#)
- manual
 - audience [xix](#)
 - purpose of [xix](#)
- maps
- QoS
 - defining [2-275](#)
 - displaying [2-539](#)
- VLAN
 - creating [2-744](#)
 - defining [2-261](#)
 - displaying [2-595](#)
- match (access-map configuration) command [2-261](#)
- match (class-map configuration) command [2-263](#)
- maximum transmission unit
 - See MTU
- mdix auto command [2-265](#)
- MDL snooping
 - displaying [2-494](#)
- member switches
 - See clusters
- memory (boot loader) command [A-14](#)
- mkdir (boot loader) command [A-16](#)
- MLD snooping
 - configuring [2-215, 2-217](#)
 - configuring queries [2-211, 2-213](#)
 - configuring topology change notification [2-219](#)
 - displaying [2-492, 2-496, 2-498](#)
 - enabling [2-209](#)
- MLD snooping on a VLAN
 - enabling [2-221](#)
- mls qos aggregate-policer command [2-269](#)
- mls qos command [2-267](#)
- mls qos cos command [2-271](#)
- mls qos dscp-mutation command [2-273](#)
- mls qos map command [2-275](#)
- mls qos queue-set output buffers command [2-279](#)
- mls qos queue-set output threshold command [2-281](#)
- mls qos rewrite ip dscp command [2-283](#)
- mls qos srr-queue input bandwidth command [2-285](#)
- mls qos srr-queue input buffers command [2-287](#)
- mls qos-srr-queue input cos-map command [2-289](#)
- mls qos srr-queue input dscp-map command [2-291](#)
- mls qos srr-queue input priority-queue command [2-293](#)
- mls qos srr-queue input threshold command [2-295](#)
- mls qos-srr-queue output cos-map command [2-297](#)
- mls qos srr-queue output dscp-map command [2-299](#)
- mls qos trust command [2-301](#)
- mls qos vlan-based command [2-303](#)
- mode, MVR [2-309](#)
- Mode button, and password recovery [2-371](#)
- modes, commands [1-2](#)
- monitor session command [2-304](#)

more (boot loader) command [A-17](#)

MSTP

displaying [2-573, 2-574](#)

interoperability [2-61](#)

link type [2-630](#)

MST region

aborting changes [2-636](#)

applying changes [2-636](#)

configuration name [2-636](#)

configuration revision number [2-636](#)

current or pending display [2-636](#)

displaying [2-573, 2-574](#)

MST configuration mode [2-636](#)

VLANs-to-instance mapping [2-636](#)

path cost [2-638](#)

protocol mode [2-634](#)

restart protocol migration process [2-61](#)

root port

loop guard [2-628](#)

preventing from becoming designated [2-628](#)

restricting which can be root [2-628](#)

root guard [2-628](#)

root switch

affects of extended system ID [2-626](#)

hello-time [2-641, 2-649](#)

interval between BPDU messages [2-642](#)

interval between hello BPDU messages [2-641, 2-649](#)

max-age [2-642](#)

maximum hop count before discarding BPDU [2-643](#)

port priority for selection of [2-645](#)

primary or secondary [2-649](#)

switch priority [2-648](#)

state changes

blocking to forwarding state [2-655](#)

enabling BPDU filtering [2-618, 2-653](#)

enabling BPDU guard [2-620, 2-653](#)

enabling Port Fast [2-653, 2-655](#)

forward-delay time [2-640](#)

length of listening and learning states [2-640](#)

rapid transition to forwarding [2-630](#)

shutting down Port Fast-enabled ports [2-653](#)

state information display [2-572](#)

MTU

configuring size [2-717](#)

displaying global setting [2-584](#)

Multicast Listener Discovery

See MLD

multicast group address, MVR [2-312](#)

multicast groups, MVR [2-310](#)

Multicast Listener Discovery

See MLD

multicast router learning method [2-197](#)

multicast router ports

IPv6 [2-221](#)

multicast router ports, configuring [2-197](#)

multicast storm control [2-673](#)

multicast VLAN, MVR [2-309](#)

multicast VLAN registration

See MVR

multiple hosts on authorized port [2-113](#)

Multiple Spanning Tree Protocol

See MSTP

MVR

and address aliasing [2-310](#)

configuring [2-309](#)

configuring interfaces [2-312](#)

debug messages, display [B-28](#)

displaying [2-548](#)

displaying interface information [2-550](#)

members, displaying [2-552](#)

mvr (global configuration) command [2-309](#)

mvr (interface configuration) command [2-312](#)

mvr vlan group command [2-313](#)

N

native VLANs [2-710](#)
 native VLAN tagging [2-749](#)
 Network Assistant requirements **xx**
 negotiate
 DTP messaging [2-695](#)
 negotiate, speed [2-663](#)
 non-IP protocols
 denying [2-87](#)
 forwarding [2-327](#)
 non-IP traffic access lists [2-241](#)
 non-IP traffic forwarding
 denying [2-87](#)
 permitting [2-327](#)
 normal-range VLANs [2-732, 2-738](#)
 note, description **xx**
 no vlan command [2-732, 2-742](#)

O

online diagnostics
 configuring
 health monitoring diagnostic tests [2-90](#)
 displaying
 configured boot-up coverage level [2-421](#)
 current scheduled tasks [2-421](#)
 event logs [2-421](#)
 supported test suites [2-421](#)
 test ID [2-421](#)
 test results [2-421](#)
 test statistics [2-421](#)
 enabling
 scheduling [2-93](#)
 syslog messages [2-90](#)
 global configuration mode
 clearing health monitoring diagnostic test
 schedule [2-90](#)
 clearing test-based testing schedule [2-93](#)

 setting health monitoring diagnostic testing [2-90](#)
 setting test-based testing [2-93](#)
 setting up health monitoring diagnostic test
 schedule [2-90](#)
 setting up test-based testing [2-93](#)
 removing
 scheduling [2-93](#)
 scheduled switchover
 disabling [2-93](#)
 enabling [2-93](#)
 setting
 test interval [2-93](#)
 specifying
 health monitoring diagnostic tests [2-90](#)
 starting testing [2-95](#)

P

PAgP
 See EtherChannel
 pagp learn-method command [2-315](#)
 pagp port-priority command [2-317](#)
 password, VTP [2-758, 2-762](#)
 password-recovery mechanism, enabling and
 disabling [2-371](#)
 permit (ARP access-list configuration) command [2-319](#)
 permit (IPv6) command [2-321](#)
 permit (MAC access-list configuration) command [2-327](#)
 per-VLAN spanning-tree plus
 See STP
 physical-port learner [2-315](#)
 PID, displaying [2-463](#)
 PIM-DVMRP, as multicast router learning method [2-197](#)
 PoE
 configuring the power budget [2-342](#)
 configuring the power management mode [2-339](#)
 displaying controller register values [2-415](#)
 displaying power management information [2-564](#)
 logging of status [2-236](#)

- police aggregate command [2-332](#)
- police command [2-330](#)
- policed-DSCP map [2-275](#)
- policy-map command [2-334](#)
- policy maps
 - applying to an interface [2-373, 2-379](#)
 - creating [2-334](#)
 - displaying [2-559](#)
 - hierarchical [2-335](#)
 - policers
 - displaying [2-532](#)
 - for a single class [2-330](#)
 - for multiple classes [2-269, 2-332](#)
 - policed-DSCP map [2-275](#)
 - traffic classification
 - defining the class [2-42](#)
 - defining trust states [2-725](#)
 - setting DSCP or IP precedence values [2-377](#)
- Port Aggregation Protocol
 - See EtherChannel
- port-based authentication
 - AAA method list [2-3](#)
 - debug messages, display [B-7](#)
 - enabling IEEE 802.1x
 - globally [2-97](#)
 - per interface [2-122](#)
 - guest VLAN [2-110](#)
 - host modes [2-113](#)
 - IEEE 802.1x AAA accounting methods [2-1](#)
 - initialize an interface [2-115](#)
 - MAC authentication bypass [2-116](#)
 - manual control of authorization state [2-122](#)
 - multiple hosts on authorized port [2-113](#)
 - PAE as authenticator [2-121](#)
 - periodic re-authentication
 - enabling [2-126](#)
 - time between attempts [2-127](#)
 - quiet period between failed authentication exchanges [2-127](#)
 - re-authenticating IEEE 802.1x-enabled ports [2-124](#)
 - resetting configurable IEEE 802.1x parameters [2-109](#)
 - switch-to-authentication server retransmission time [2-127](#)
 - switch-to-client frame-retransmission number [2-118 to 2-119](#)
 - switch-to-client retransmission time [2-127](#)
- port-channel load-balance command [2-337](#)
- Port Fast, for spanning tree [2-655](#)
- port ranges, defining [2-77](#)
- ports, debugging [B-77](#)
- ports, protected [2-708](#)
- port security
 - aging [2-702](#)
 - debug messages, display [B-79](#)
 - enabling [2-697](#)
 - violation error recovery [2-134](#)
- port trust states for QoS [2-301](#)
- port types, MVR [2-312](#)
- power information, displaying [2-434](#)
- power inline command [2-339](#)
- power inline consumption command [2-342](#)
- Power over Ethernet
 - See PoE
- priority-queue command [2-344](#)
- priority value, stack member [2-581, 2-676](#)
- private-vlan command [2-346](#)
- private-vlan mapping command [2-349](#)
- private VLANs
 - association [2-706](#)
 - configuring [2-346](#)
 - configuring ports [2-693](#)
 - displaying [2-590](#)
 - host ports [2-693](#)
 - mapping
 - configuring [2-706](#)
 - displaying [2-451](#)
 - promiscuous ports [2-693](#)
- privileged EXEC mode [1-2, 1-3](#)

product identification information, displaying [2-463](#)

promiscuous ports, private VLANs [2-693](#)

protected ports, displaying [2-457](#)

pruning

VLANs [2-710](#)

VTP

displaying interface information [2-451](#)

enabling [2-758, 2-762](#)

pruning-eligible VLAN list [2-712](#)

PVST+

See STP

Q

QoS

auto-QoS

configuring [2-22](#)

debug messages, display [1-6, B-2](#)

displaying [2-390](#)

class maps

creating [2-44](#)

defining the match criteria [2-263](#)

displaying [2-398](#)

defining the CoS value for an incoming packet [2-271](#)

displaying configuration information [2-390, 2-531](#)

DSCP transparency [2-283](#)

DSCP trusted ports

applying DSCP-to-DSCP-mutation map to [2-273](#)

defining DSCP-to-DSCP-mutation map [2-275](#)

egress queues

allocating buffers [2-279](#)

defining the CoS output queue threshold map [2-297](#)

defining the DSCP output queue threshold map [2-299](#)

displaying buffer allocations [2-535](#)

displaying CoS output queue threshold map [2-539](#)

displaying DSCP output queue threshold map [2-539](#)

displaying queueing strategy [2-535](#)

displaying queue-set settings [2-542](#)

enabling bandwidth shaping and scheduling [2-667](#)

enabling bandwidth sharing and scheduling [2-669](#)

limiting the maximum output on a port [2-665](#)

mapping a port to a queue-set [2-351](#)

mapping CoS values to a queue and threshold [2-297](#)

mapping DSCP values to a queue and threshold [2-299](#)

setting maximum and reserved memory
allocations [2-281](#)

setting WTD thresholds [2-281](#)

enabling [2-267](#)

ingress queues

allocating buffers [2-287](#)

assigning SRR scheduling weights [2-285](#)

defining the CoS input queue threshold map [2-289](#)

defining the DSCP input queue threshold map [2-291](#)

displaying buffer allocations [2-535](#)

displaying CoS input queue threshold map [2-539](#)

displaying DSCP input queue threshold map [2-539](#)

displaying queueing strategy [2-535](#)

displaying settings for [2-533](#)

enabling the priority queue [2-293](#)

mapping CoS values to a queue and threshold [2-289](#)

mapping DSCP values to a queue and threshold [2-291](#)

setting WTD thresholds [2-295](#)

maps

defining [2-275, 2-289, 2-291, 2-297, 2-299](#)

displaying [2-539](#)

policy maps

applying an aggregate policer [2-332](#)

applying to an interface [2-373, 2-379](#)

creating [2-334](#)

defining policers [2-269, 2-330](#)

displaying policers [2-532](#)

displaying policy maps [2-559](#)

hierarchical [2-335](#)

policed-DSCP map [2-275](#)

setting DSCP or IP precedence values [2-377](#)

traffic classifications [2-42](#)

trust states [2-725](#)

port trust states [2-301](#)

- queues, enabling the expedite [2-344](#)
- statistics
 - in-profile and out-of-profile packets [2-535](#)
 - packets enqueued or dropped [2-535](#)
 - sent and received CoS values [2-535](#)
 - sent and received DSCP values [2-535](#)
- trusted boundary for IP phones [2-301](#)
- VLAN-based [2-303](#)
- quality of service
 - See QoS
- querytime, MVR [2-309](#)
- queue-set command [2-351](#)

R

- radius-server dead-criteria command [2-352](#)
- radius-server host command [2-354](#)
- rapid per-VLAN spanning-tree plus
 - See STP
- rapid PVST+
 - See STP
- rcommand command [2-356](#)
- re-authenticating IEEE 802.1x-enabled ports [2-124](#)
- re-authentication
 - periodic [2-126](#)
 - time between attempts [2-127](#)
- receiver ports, MVR [2-312](#)
- receiving flow-control packets [2-138](#)
- recovery mechanism
 - causes [2-134](#)
 - display [2-396, 2-437, 2-441](#)
 - timer interval [2-135](#)
- redundancy for cluster switches [2-74](#)
- reload command [2-358](#)
- remote command [2-360](#)
- remote-span command [2-361](#)
- Remote Switched Port Analyzer
 - See RSPAN
- rename (boot loader) command [A-18](#)

- renew ip dhcp snooping database command [2-363](#)
- requirements
 - cluster [xxi](#)
 - device manager [xx](#)
 - Network Assistant [xx](#)
- reset (boot loader) command [A-19](#)
- reset command [2-747](#)
- resource templates, displaying [2-567](#)
- restricted VLAN
 - See dot1x auth-fail vlan
- rmdir (boot loader) command [A-20](#)
- rmon collection stats command [2-365](#)
- root guard, for spanning tree [2-628](#)
- routed ports
 - IP addresses on [2-150](#)
 - number supported [2-150](#)
- RSPAN
 - configuring [2-304](#)
 - displaying [2-545](#)
 - filter RSPAN traffic [2-304](#)
 - remote-span command [2-361](#)
 - sessions
 - add interfaces to [2-304](#)
 - displaying [2-545](#)
 - start new [2-304](#)

S

- scheduled switchover
 - disabling [2-93, 2-94](#)
 - enabling [2-93, 2-94](#)
- SDM mismatch mode [2-367, 2-582](#)
- sdm prefer command [2-366](#)
- SDM templates
 - allowed resources [2-368](#)
 - and stacking [2-367](#)
 - displaying [2-567](#)
 - dual IPv4 and IPv6 [2-366](#)
- secure ports, limitations [2-699](#)

- sending flow-control packets [2-138](#)
- service password-recovery command [2-371](#)
- service-policy command [2-373](#)
- session command [2-376](#)
- set (boot loader) command [A-21](#)
- set command [2-377](#)
- setup command [2-379](#)
- setup express command [2-382](#)
- show access-lists command [2-384](#)
- show archive status command [2-387](#)
- show arp access-list command [2-389](#)
- show auto qos command [2-390](#)
- show boot command [2-394](#)
- show cable-diagnostics tdr command [2-396](#)
- show changes command [2-747](#)
- show class-map command [2-398](#)
- show cluster candidates command [2-401](#)
- show cluster command [2-399](#)
- show cluster members command [2-403](#)
- show controllers cpu-interface command [2-405](#)
- show controllers ethernet-controller command [2-407](#)
- show controllers power inline command [2-415](#)
- show controllers team command [2-417](#)
- show controller utilization command [2-419](#)
- show current command [2-747](#)
- show dot1q-tunnel command [2-424](#)
- show dot1x command [2-425](#)
- show dtp [2-429](#)
- show eap command [2-431](#)
- show env command [2-434](#)
- show errdisable detect command [2-437](#)
- show errdisable flap-values command [2-439](#)
- show errdisable recovery command [2-441](#)
- show etherchannel command [2-443](#)
- show flowcontrol command [2-446](#)
- show idprom command [2-448](#)
- show interfaces command [2-451](#)
- show interfaces counters command [2-460](#)
- show inventory command [2-463](#)
- show ip arp inspection command [2-464](#)
- show ipc command [2-486](#)
- show ip dhcp snooping binding command [2-468](#)
- show ip dhcp snooping command [2-467](#)
- show ip dhcp snooping database command [2-470](#)
- show ip igmp profile command [2-472](#)
- show ip igmp snooping address command [2-494](#)
- show ip igmp snooping command [2-473, 2-492](#)
- show ip igmp snooping groups command [2-476](#)
- show ip igmp snooping mrouter command [2-478, 2-496](#)
- show ip igmp snooping querier command [2-480, 2-498](#)
- show ip source binding command [2-482](#)
- show ipv6 access-list command [2-490](#)
- show ip verify source command [2-484](#)
- show l2protocol-tunnel command [2-500](#)
- show lacp command [2-503](#)
- show link state group command [2-507](#)
- show mac access-group command [2-509](#)
- show mac address-table address command [2-513](#)
- show mac address-table aging time command [2-515](#)
- show mac address-table command [2-511](#)
- show mac address-table count command [2-517](#)
- show mac address-table dynamic command [2-519](#)
- show mac address-table interface command [2-521](#)
- show mac address-table move update command [2-523](#)
- show mac address-table notification command [2-56, 2-525, B-25](#)
- show mac address-table static command [2-527](#)
- show mac address-table vlan command [2-529](#)
- show mls qos aggregate-policer command [2-532](#)
- show mls qos command [2-531](#)
- show mls qos input-queue command [2-533](#)
- show mls qos interface command [2-535](#)
- show mls qos maps command [2-539](#)
- show mls qos queue-set command [2-542](#)
- show mls qos vlan command [2-544](#)
- show monitor command [2-545](#)
- show mvr command [2-548](#)
- show mvr interface command [2-550](#)

- show mvr members command [2-552](#)
- show pagp command [2-554](#)
- show parser macro command [2-556](#)
- show platform acl command [C-2](#)
- show platform backup interface command [C-3](#)
- show platform configuration command [C-4](#)
- show platform etherchannel command [C-5](#)
- show platform forward command [C-6](#)
- show platform frontend-controller command [C-8](#)
- show platform igmp snooping command [C-9](#)
- show platform ipc trace command [C-16](#)
- show platform ip multicast command [C-11](#)
- show platform ip unicast command [C-12](#)
- show platform ipv6 unicast command [C-17](#)
- show platform layer4op command [C-19](#)
- show platform mac-address-table command [C-20](#)
- show platform messaging command [C-21](#)
- show platform monitor command [C-22](#)
- show platform mvr table command [C-23](#)
- show platform pm command [C-24](#)
- show platform port-asic command [C-25](#)
- show platform port-security command [C-30](#)
- show platform qos command [C-31](#)
- show platform resource-manager command [C-32](#)
- show platform snmp counters command [C-34](#)
- show platform spanning-tree command [C-35](#)
- show platform stack-manager command [C-37](#)
- show platform stp-instance command [C-36](#)
- show platform tb command [C-39](#)
- show platform tcam command [C-41](#)
- show platform vlan command [C-44](#)
- show policy-map command [2-559](#)
- show port security command [2-561](#)
- show power inline command [2-564](#)
- show proposed command [2-747](#)
- show sdm prefer command [2-567](#)
- show setup express command [2-571](#)
- show spanning-tree command [2-572](#)
- show storm-control command [2-579](#)
- show switch command [2-581](#)
- show system mtu command [2-584](#)
- show trust command [2-725](#)
- show uddl command [2-585](#)
- show version command [2-588](#)
- show vlan access-map command [2-595](#)
- show vlan command [2-590](#)
- show vlan command, fields [2-592](#)
- show vlan filter command [2-596](#)
- show vmps command [2-597](#)
- show vtp command [2-600](#)
- shutdown command [2-605](#)
- shutdown threshold, Layer 2 protocol tunneling [2-225](#)
- shutdown vlan command [2-606](#)
- Smartports macros
 - See macros
- SNMP host, specifying [2-611](#)
- SNMP informs, enabling the sending of [2-607](#)
- snmp-server enable traps command [2-607](#)
- snmp-server host command [2-611](#)
- snmp trap mac-notification command [2-615](#)
- SNMP traps
 - enabling MAC address notification trap [2-615](#)
 - enabling the MAC address notification feature [2-246](#)
 - enabling the sending of [2-607](#)
- SoftPhone
 - See Cisco SoftPhone
- software images
 - copying [2-8](#)
 - deleting [2-79](#)
 - downloading [2-11](#)
 - upgrading [2-8, 2-11](#)
 - uploading [2-18](#)
- software version, displaying [2-588](#)
- source ports, MVR [2-312](#)
- SPAN
 - configuring [2-304](#)
 - debug messages, display [B-26](#)
 - displaying [2-545](#)

- filter SPAN traffic [2-304](#)
- sessions
 - add interfaces to [2-304](#)
 - displaying [2-545](#)
 - start new [2-304](#)
- spanning [2-657](#)
- spanning-tree backbonefast command [2-617](#)
- spanning-tree bpduguard command [2-618](#)
- spanning-tree bpduguard command [2-620](#)
- spanning-tree cost command [2-622](#)
- spanning-tree etherchannel command [2-624](#)
- spanning-tree extend system-id command [2-626](#)
- spanning-tree guard command [2-628](#)
- spanning-tree link-type command [2-630](#)
- spanning-tree loopguard default command [2-632](#)
- spanning-tree mode command [2-634](#)
- spanning-tree mst configuration command [2-636](#)
- spanning-tree mst cost command [2-638](#)
- spanning-tree mst forward-time command [2-640](#)
- spanning-tree mst hello-time command [2-641](#)
- spanning-tree mst max-age command [2-642](#)
- spanning-tree mst max-hops command [2-643](#)
- spanning-tree mst port-priority command [2-645](#)
- spanning-tree mst pre-standard command [2-647](#)
- spanning-tree mst priority command [2-648](#)
- spanning-tree mst root command [2-649](#)
- spanning-tree portfast (global configuration) command [2-653](#)
- spanning-tree portfast (interface configuration) command [2-655](#)
- spanning-tree port-priority command [2-651](#)
- Spanning Tree Protocol
 - See STP
- spanning-tree transmit hold-count command [2-657](#)
- spanning-tree uplinkfast command [2-658](#)
- spanning-tree vlan command [2-660](#)
- speed command [2-663](#)
- srr-queue bandwidth limit command [2-665](#)
- srr-queue bandwidth shape command [2-667](#)
- srr-queue bandwidth share command [2-669](#)
- SSH, configuring version [2-204](#)
- stack-mac persistent timer command [2-671](#)
- stack member
 - access [2-376](#)
 - number [2-581, 2-679](#)
 - priority value [2-676](#)
 - provisioning [2-677](#)
 - reloading [2-358](#)
- stacks, switch
 - MAC address [2-671](#)
 - provisioning a new member [2-677](#)
 - reloading [2-358](#)
 - stack member access [2-376](#)
 - stack member number [2-581, 2-679](#)
 - stack member priority value [2-581, 2-676](#)
- static-access ports, configuring [2-683](#)
- statistics, Ethernet group [2-365](#)
- sticky learning, enabling [2-697](#)
- storm-control command [2-673](#)
- STP
 - BackboneFast [2-617](#)
 - counters, clearing [2-60](#)
 - debug messages, display
 - BackboneFast events [B-83](#)
 - MSTP [B-86](#)
 - optimized BPDUs handling [B-85](#)
 - spanning-tree activity [B-81](#)
 - switch shim [B-88](#)
 - transmitted and received BPDUs [B-84](#)
 - UplinkFast [B-90](#)
 - detection of indirect link failures [2-617](#)
 - enabling protocol tunneling for [2-225](#)
 - EtherChannel misconfiguration [2-624](#)
 - extended system ID [2-626](#)
 - path cost [2-622](#)
 - protocol modes [2-634](#)

- root port
 - accelerating choice of new [2-658](#)
 - loop guard [2-628](#)
 - preventing from becoming designated [2-628](#)
 - restricting which can be root [2-628](#)
 - root guard [2-628](#)
 - UplinkFast [2-658](#)
 - root switch
 - affects of extended system ID [2-626, 2-661](#)
 - hello-time [2-660](#)
 - interval between BPDU messages [2-660](#)
 - interval between hello BPDU messages [2-660](#)
 - max-age [2-660](#)
 - port priority for selection of [2-651](#)
 - primary or secondary [2-660](#)
 - switch priority [2-660](#)
 - state changes
 - blocking to forwarding state [2-655](#)
 - enabling BPDU filtering [2-618, 2-653](#)
 - enabling BPDU guard [2-620, 2-653](#)
 - enabling Port Fast [2-653, 2-655](#)
 - enabling timer to recover from error state [2-134](#)
 - forward-delay time [2-660](#)
 - length of listening and learning states [2-660](#)
 - shutting down Port Fast-enabled ports [2-653](#)
 - state information display [2-572](#)
 - VLAN options [2-648, 2-660](#)
 - SVIs, creating [2-144](#)
 - Switched Port Analyzer
 - See SPAN
 - switching characteristics
 - modifying [2-681](#)
 - returning to interfaces [2-681](#)
 - switchport access command [2-683](#)
 - switchport backup interface command [2-685](#)
 - switchport block command [2-688](#)
 - switchport command [2-681](#)
 - switchport host command [2-689](#)
 - switchport mode command [2-690](#)
 - switchport mode private-vlan command [2-693](#)
 - switchport nonegotiate command [2-695](#)
 - switchport port-security aging command [2-702](#)
 - switchport port-security command [2-697](#)
 - switchport priority extend command [2-704](#)
 - switchport private-vlan command [2-706](#)
 - switchport protected command [2-708](#)
 - switchports, displaying [2-451](#)
 - switchport trunk command [2-710](#)
 - switchport voice vlan command [2-713](#)
 - switch priority command [2-676](#)
 - switch provision command [2-677](#)
 - switch renumber command [2-679](#)
 - system env temperature threshold yellow command [2-715](#)
 - system message logging [2-236](#)
 - system message logging, save message to flash [2-237](#)
 - system mtu command [2-717](#)
 - system resource templates [2-366](#)
-
- ## T
- tar files, creating, listing, and extracting [2-15](#)
 - TDR, running [2-719](#)
 - Telnet, using to communicate to cluster switches [2-356](#)
 - temperature information, displaying [2-434](#)
 - templates, system resources [2-366](#)
 - test cable-diagnostics tdr command [2-719](#)
 - traceroute mac command [2-720](#)
 - traceroute mac ip command [2-723](#)
 - trunking, VLAN mode [2-690](#)
 - trunk mode [2-690](#)
 - trunk ports [2-690](#)
 - trunks, to non-DTP device [2-691](#)
 - trusted boundary for QoS [2-301](#)
 - trusted port states for QoS [2-301](#)
 - tunnel ports, Layer 2 protocol, displaying [2-500](#)
 - type (boot loader) command [A-24](#)

U

UDLD

- aggressive mode [2-727, 2-729](#)
- debug messages, display [B-99](#)
- enable globally [2-727](#)
- enable per interface [2-729](#)
- error recovery timer [2-134](#)
- message timer [2-727](#)
- normal mode [2-727, 2-729](#)
- reset a shutdown interface [2-731](#)
- status [2-585](#)
- udld command [2-727](#)
- udld port command [2-729](#)
- udld reset command [2-731](#)
- unicast storm control [2-673](#)
- UniDirectional Link Detection
 - See UDLD
- unknown multicast traffic, preventing [2-688](#)
- unknown unicast traffic, preventing [2-688](#)
- unset (boot loader) command [A-25](#)
- upgrading
 - software images [2-8, 2-11](#)
 - monitoring status of [2-387](#)
- upgrading information
 - See release notes
- UplinkFast, for STP [2-658](#)
- user EXEC mode [1-2, 1-3](#)

V

- version (boot loader) command [A-27](#)
- version mismatch mode [2-582](#)
- VLAN
 - enabling guest VLAN supplicant [2-100](#)
- vlan (global configuration) command [2-732](#)
- vlan (VLAN configuration) command [2-738](#)
- vlan access-map command [2-744](#)
- VLAN access map configuration mode [2-744](#)
- VLAN access maps
 - actions [2-6](#)
 - displaying [2-595](#)
- VLAN-based QoS [2-303](#)
- VLAN configuration
 - rules [2-735, 2-740](#)
 - saving [2-732, 2-742](#)
- VLAN configuration mode
 - commands
 - VLAN [2-738](#)
 - VTP [2-762](#)
 - description [1-5](#)
 - entering [2-746](#)
 - summary [1-3](#)
- vlan database command [2-746](#)
- vlan dot1q tag native command [2-749](#)
- vlan filter command [2-751](#)
- VLAN filters, displaying [2-596](#)
- VLAN ID range [2-732, 2-738](#)
- VLAN maps
 - applying [2-751](#)
 - creating [2-744](#)
 - defining [2-261](#)
 - displaying [2-595](#)
- VLAN Query Protocol
 - See VQP
- VLANs
 - adding [2-732](#)
 - configuring [2-732, 2-738](#)
 - debug messages, display
 - ISL [B-95](#)
 - VLAN IOS file system error tests [B-93](#)
 - VLAN manager activity [B-91](#)
 - VTP [B-97](#)
 - displaying configurations [2-590](#)
 - extended-range [2-732](#)
 - MAC addresses
 - displaying [2-529](#)
 - number of [2-517](#)

- media types [2-735, 2-740](#)
- normal-range [2-732, 2-738](#)
- private [2-693](#)
 - configuring [2-346](#)
 - displaying [2-590](#)
 - See also private VLANs
- restarting [2-606](#)
- saving the configuration [2-732](#)
- shutting down [2-606](#)
- SNMP traps for VTP [2-609, 2-612](#)
- suspending [2-606](#)
- variables [2-738](#)
- VLAN Trunking Protocol
 - See VTP
- VM mode [2-582](#)
- VMPS
 - configuring servers [2-756](#)
 - displaying [2-597](#)
 - error recovery timer [2-135](#)
 - reconfirming dynamic VLAN assignments [2-753](#)
- vmpls reconfirm (global configuration) command [2-754](#)
- vmpls reconfirm (privileged EXEC) command [2-753](#)
- vmpls retry command [2-755](#)
- vmpls server command [2-756](#)
- voice VLAN
 - configuring [2-713](#)
 - setting port priority [2-704](#)
- VQP
 - and dynamic-access ports [2-684](#)
 - clearing client statistics [2-62](#)
 - displaying information [2-597](#)
 - per-server retry count [2-755](#)
 - reconfirmation interval [2-754](#)
 - reconfirming dynamic VLAN assignments [2-753](#)
- VTP
 - changing characteristics [2-758](#)
 - clearing pruning counters [2-63](#)
 - configuring
 - domain name [2-758, 2-762](#)
 - file name [2-758](#)
 - mode [2-758, 2-762](#)
 - password [2-758, 2-762](#)
 - counters display fields [2-601](#)
 - displaying information [2-600](#)
 - enabling
 - pruning [2-758, 2-762](#)
 - tunneling for [2-225](#)
 - Version 2 [2-758, 2-762](#)
 - mode [2-758, 2-762](#)
 - pruning [2-758, 2-762](#)
 - saving the configuration [2-732, 2-742](#)
 - statistics [2-600](#)
 - status [2-600](#)
 - status display fields [2-603](#)
 - vtp (global configuration) command [2-758](#)
 - vtp (VLAN configuration) command [2-762](#)

X

- XENPAK module serial EEPROM information [2-411, 2-448](#)

