



INDEX

A

aaa accounting dot1x command [2-1](#)
aaa authentication dot1x command [2-3](#)
aaa authorization network command [2-5, 2-18, 2-24, 2-26, 2-28, 2-30, 2-32, 2-101, 2-243, 2-397, B-7, B-30](#)
AAA methods [2-3](#)
access control entries
 See ACEs
access control lists
 See ACLs
access groups
 IP [2-149](#)
 MAC, displaying [2-501](#)
access list, IPv6 [2-207](#)
access map configuration mode [2-268](#)
access mode [2-677](#)
access ports [2-677](#)
ACEs [2-92, 2-342](#)
ACLs
 deny [2-90](#)
 displaying [2-383](#)
 for non-IP protocols [2-247](#)
 IP [2-149](#)
 matching [2-268](#)
 on Layer 2 interfaces [2-149](#)
 permit [2-340](#)
action command [2-6](#)
address aliasing [2-317](#)
aggregate-port learner [2-330](#)
allowed VLANs [2-697](#)
archive download-sw command [2-8](#)
archive tar command [2-11](#)

archive upload-sw command [2-14](#)
audience [xix](#)
authentication command bounce-port ignore [2-16](#)
authentication command disable-port ignore [2-17](#)
authentication control-direction command [2-18](#)
authentication event command [2-20](#)
authentication failed VLAN
 See dot1x auth-fail vlan
authentication fallback command [2-24](#)
authentication host-mode command [2-26](#)
authentication mac-move permit command [2-28](#)
authentication open command [2-30](#)
authentication order command [2-32](#)
authentication periodic command [2-34](#)
authentication port-control command [2-36](#)
authentication priority command [2-38](#)
authentication timer command [2-40](#)
authentication violation command [2-42](#)
auth-fail max-attempts
 See dot1x auth-fail max-attempts
auth-fail vlan
 See dot1x auth-fail vlan
auth open command [2-30](#)
auth order command [2-32](#)
authorization state of controlled port [2-118](#)
auth timer command [2-40](#)
autonegotiation of duplex mode [2-129](#)
auto qos voip command [2-44](#)

B

BackboneFast, for STP [2-609](#)

- backup interfaces
 - configuring [2-670](#)
 - displaying [2-438](#)
 - boot (boot loader) command [A-2](#)
 - boot config-file command [2-48](#)
 - boot enable-break command [2-49](#)
 - boot helper command [2-50](#)
 - boot helper-config file command [2-51](#)
 - booting
 - Cisco IOS image [2-54](#)
 - displaying environment variables [2-395](#)
 - interrupting [2-49](#)
 - manually [2-52](#)
 - boot loader
 - accessing [A-1](#)
 - booting
 - Cisco IOS image [A-2](#)
 - helper image [2-50](#)
 - directories
 - creating [A-15](#)
 - displaying a list of [A-7](#)
 - removing [A-19](#)
 - displaying
 - available commands [A-12](#)
 - memory heap utilization [A-13](#)
 - version [A-26](#)
 - environment variables
 - described [A-20](#)
 - displaying settings [A-20](#)
 - location of [A-21](#)
 - setting [A-20](#)
 - unsetting [A-24](#)
 - files
 - copying [A-5](#)
 - deleting [A-6](#)
 - displaying a list of [A-7](#)
 - displaying the contents of [A-4, A-16, A-23](#)
 - renaming [A-17](#)
 - file system
 - formatting [A-10](#)
 - initializing flash [A-9](#)
 - running a consistency check [A-11](#)
 - resetting the system [A-18](#)
 - boot manual command [2-52](#)
 - boot private-config-file command [2-53](#)
 - boot system command [2-54](#)
 - BPDU filtering, for spanning tree [2-610, 2-643](#)
 - BPDU guard, for spanning tree [2-612, 2-643](#)
 - break key detection [2-373, A-1](#)
 - broadcast storm control [2-661](#)
-
- ## C
- cat (boot loader) command [A-4](#)
 - caution, description [xx](#)
 - CDP, enabling protocol tunneling for [2-225](#)
 - channel-group command [2-55](#)
 - channel-protocol command [2-58](#)
 - Cisco SoftPhone
 - auto-QoS configuration [2-44](#)
 - trusting packets sent from [2-308](#)
 - CISP
 - See Client Information Signalling Protocol
 - cisp
 - debug platform cisp command [B-30](#)
 - cisp enable command [2-59](#)
 - class command [2-60](#)
 - class-map command [2-62](#)
 - class maps
 - creating [2-62](#)
 - defining the match criteria [2-270](#)
 - displaying [2-398](#)
 - class of service
 - See CoS
 - clear dot1x command [2-64](#)
 - clear eap sessions command [2-65](#)
 - clear errdisable interface [2-66](#)

clear ipc command [2-67](#)

clear ip dhcp snooping database command [2-69](#)

clear l2protocol-tunnel counters command [2-68](#)

clear lacp command [2-71](#)

clear mac address-table command [2-72, 2-73](#)

clear nmsp statistics command [2-74](#)

clear pagp command [2-75](#)

clear port-security command [2-76](#)

clear spanning-tree counters command [2-78](#)

clear spanning-tree detected-protocols command [2-79](#)

clear vmmps statistics command [2-80](#)

clear vtp counters command [2-81](#)

Client Information Signalling Protocol [2-59, 2-101, 2-397, B-7, B-30](#)

clusters

- SNMP trap [2-599](#)

command modes defined [1-1](#)

configuration, initial

- See getting started guide and hardware installation guide

configuration files

- password recovery disable considerations [A-1](#)
- specifying the name [2-48, 2-53](#)

configuring multiple interfaces [2-145](#)

config-vlan mode

- commands [2-717](#)
- description [1-4](#)
- entering [2-716](#)
- 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 [2-278](#)
- assigning to Layer 2 protocol packets [2-228](#)
- overriding the incoming value [2-278](#)

CoS-to-DSCP map [2-282](#)

CPU ASIC statistics, displaying [2-399](#)

crashinfo files [2-138](#)

critical VLAN [2-21](#)

D

debug authentication [B-2](#)

debug auto qos command [B-4](#)

debug backup command [B-6](#)

debug cisp command [B-7](#)

debug dot1x command [B-8](#)

debug dtp command [B-9](#)

debug eap command [B-10](#)

debug etherchannel command [B-11](#)

debug interface command [B-14](#)

debug ip dhcp snooping command [B-12](#)

debug ip igmp filter command [B-15](#)

debug ip igmp max-groups command [B-16](#)

debug ip igmp snooping command [B-17](#)

debug ip verify source packet command [B-13](#)

debug lacp command [B-18](#)

debug lldp packets command [B-19](#)

debug mac-notification command [B-20](#)

debug matm command [B-21](#)

debug matm move update command [B-22](#)

debug monitor command [B-23](#)

debug mvrdbg command [B-24](#)

debug nmsp command [B-25](#)

debug nvram command [B-26](#)

debug pagp command [B-27](#)

debug platform acl command [B-28](#)

debug platform backup interface command [B-29](#)

debug platform cisp command [B-30](#)

debug platform cli-redirect main command [B-31](#)

debug platform cpu-queues command [B-32](#)

debug platform dot1x command [B-34](#)

debug platform etherchannel command [B-35](#)

debug platform fallback-bridging command [B-36](#)

- debug platform forw-tcam command [B-37](#)
- debug platform ip arp inspection command [B-38](#)
- debug platform ipc command [B-46](#)
- debug platform ip dhcp command [B-39](#)
- debug platform ip igmp snooping command [B-40](#)
- debug platform ip multicast command [B-42](#)
- debug platform ip unicast command [B-44](#)
- debug platform led command [B-47](#)
- debug platform matm command [B-48](#)
- debug platform messaging application command [B-49](#)
- debug platform phy command [B-50](#)
- debug platform pm command [B-52](#)
- debug platform port-asic command [B-54](#)
- debug platform port-security command [B-55](#)
- debug platform qos-acl-tcam command [B-56](#)
- debug platform remote-commands command [B-57](#)
- debug platform resource-manager command [B-58](#)
- debug platform snmp command [B-59](#)
- debug platform span command [B-60](#)
- debug platform supervisor-asic command [B-61](#)
- debug platform sw-bridge command [B-62](#)
- debug platform tcam command [B-63](#)
- debug platform uddl command [B-66](#)
- debug platform vlan command [B-67](#)
- debug pm command [B-68](#)
- debug port-security command [B-70](#)
- debug qos-manager command [B-71](#)
- debug spanning-tree backbonefast command [B-74](#)
- debug spanning-tree bpdu command [B-75](#)
- debug spanning-tree bpdu-opt command [B-76](#)
- debug spanning-tree command [B-72](#)
- debug spanning-tree mstp command [B-77](#)
- debug spanning-tree switch command [B-79](#)
- debug spanning-tree uplinkfast command [B-81](#)
- debug sw-vlan command [B-82](#)
- debug sw-vlan ifs command [B-84](#)
- debug sw-vlan notification command [B-85](#)
- debug sw-vlan vtp command [B-86](#)
- debug uddl command [B-88](#)
- debug vqpc command [B-90](#)
- define interface-range command [2-82](#)
- delete (boot loader) command [A-6](#)
- delete command [2-84](#)
- deny (IPv6) command [2-85](#)
- deny command [2-90](#)
- detect mechanism, causes [2-130](#)
- device manager requirements [xx](#)
- DHCP snooping
 - accepting untrusted packets from edge switch [2-165](#)
 - enabling
 - on a VLAN [2-171](#)
 - option 82 [2-163, 2-165](#)
 - trust on an interface [2-169](#)
 - error recovery timer [2-135](#)
 - rate limiting [2-168](#)
- DHCP snooping binding database
 - binding file, configuring [2-161](#)
 - bindings
 - adding [2-159](#)
 - deleting [2-159](#)
 - displaying [2-452](#)
 - clearing database agent statistics [2-69](#)
 - database agent, configuring [2-161](#)
 - displaying
 - binding entries [2-452](#)
 - database agent status [2-454, 2-456](#)
 - renewing [2-366](#)
- dir (boot loader) command [A-7](#)
- directories, deleting [2-84](#)
- documentation, related [xx](#)
- document conventions [xx](#)
- domain name, VTP [2-733](#)
- dot1x auth-fail max-attempts [2-95](#)
- dot1x auth-fail vlan [2-97](#)
- dot1x command [2-93](#)
- dot1x control-direction command [2-99](#)
- dot1x credentials (global configuration) command [2-101](#)
- dot1x critical global configuration command [2-102](#)

- dot1x critical interface configuration command [2-104](#)
- dot1x default command [2-106](#)
- dot1x fallback command [2-107](#)
- dot1x guest-vlan command [2-109](#)
- dot1x host-mode command [2-111](#)
- dot1x initialize command [2-112](#)
- dot1x mac-auth-bypass command [2-113](#)
- dot1x max-reauth-req command [2-115](#)
- dot1x max-req command [2-116](#)
- dot1x pae command [2-117](#)
- dot1x port-control command [2-118](#)
- dot1x re-authenticate command [2-120](#)
- dot1x reauthentication command [2-121](#)
- dot1x supplicant force-multicast command [2-108](#)
- dot1x test eapol-capable command [2-122](#)
- dot1x test timeout command [2-123](#)
- dot1x timeout command [2-124](#)
- dot1x violation-mode command [2-127](#)
- dropping packets, with ACL matches [2-6](#)
- drop threshold, Layer 2 protocol tunneling [2-225](#)
- DSCP-to-CoS map [2-282](#)
- DSCP-to-DSCP-mutation map [2-282](#)
- DTP [2-678](#)
- DTP flap
 - error detection for [2-130](#)
 - error recovery timer [2-135](#)
- DTP negotiation [2-682](#)
- dual IPv4 and IPv6 templates [2-334](#)
- duplex command [2-128](#)
- dynamic-access ports
 - configuring [2-666](#)
 - restrictions [2-666](#)
- dynamic ARP inspection
 - error detection for [2-130](#)
- dynamic auto VLAN membership mode [2-677](#)
- dynamic desirable VLAN membership mode [2-677](#)
- Dynamic Host Configuration Protocol (DHCP)
 - See DHCP snooping

Dynamic Trunking Protocol

See DTP

E

- EAP-request/identity frame
 - maximum number to send [2-116](#)
 - response time before retransmitting [2-124](#)
- encapsulation methods [2-697](#)
- environment variables, displaying [2-395](#)
- errdisable detect cause command [2-130](#)
- errdisable detect cause small-frame command [2-132](#)
- errdisable recovery cause small-frame [2-134](#)
- errdisable recovery command [2-135](#)
- error conditions, displaying [2-425](#)
- error disable detection [2-130](#)
- error-disabled interfaces, displaying [2-438](#)
- EtherChannel
 - assigning Ethernet interface to channel group [2-55](#)
 - creating port-channel logical interface [2-143](#)
 - debug EtherChannel/PAGP, display [B-11](#)
 - debug platform-specific events, display [B-35](#)
 - displaying [2-429](#)
 - enabling Layer 2 protocol tunneling for
 - LACP [2-226](#)
 - PAGP [2-226](#)
 - UDLD [2-226](#)
 - interface information, displaying [2-438](#)
- LACP
 - clearing channel-group information [2-71](#)
 - debug messages, display [B-18](#)
 - displaying [2-490](#)
 - modes [2-55](#)
 - port priority for hot-standby ports [2-229](#)
 - restricting a protocol [2-58](#)
 - system priority [2-231](#)
- load-distribution methods [2-350](#)

PAgP

- aggregate-port learner [2-330](#)
- clearing channel-group information [2-75](#)
- debug messages, display [B-27](#)
- displaying [2-553](#)
- error detection for [2-130](#)
- error recovery timer [2-135](#)
- learn method [2-330](#)
- modes [2-55](#)
- physical-port learner [2-330](#)
- priority of interface for transmitted traffic [2-332](#)

Ethernet controller, internal register display [2-401](#)

Ethernet statistics, collecting [2-369](#)

examples, conventions for [xx](#)

exception crashinfo command [2-138](#)

extended-range VLANs

- and allowed VLAN list [2-697](#)

- and pruning-eligible list [2-697](#)

- configuring [2-716](#)

extended system ID for STP [2-618](#)

F

fallback profile command [2-139](#)

fallback profiles

- displaying [2-432](#)

file name, VTP [2-733](#)

files, deleting [2-84](#)

flash_init (boot loader) command [A-9](#)

flexible authentication ordering [2-32](#)

Flex Links

- configuring [2-670](#)

- configuring preferred VLAN [2-672](#)

- displaying [2-438](#)

flowcontrol command [2-141](#)

format (boot loader) command [A-10](#)

forwarding packets, with ACL matches [2-6](#)

forwarding results, display [C-6](#)

frame forwarding information, displaying [C-6](#)

fsck (boot loader) command [A-11](#)

G

global configuration mode [1-2, 1-3](#)

H

hardware ACL statistics [2-383](#)

help (boot loader) command [A-12](#)

hierarchical policy maps [2-348](#)

host connection, port configuration [2-676](#)

host ports, private VLANs [2-680](#)

I

IEEE 802.1Q trunk ports and native VLANs [2-725](#)

IEEE 802.1Q tunnel ports

- configuring [2-677](#)

- displaying [2-412](#)

- limitations [2-678](#)

IEEE 802.1x

- and switchport modes [2-678](#)

- violation error recovery [2-135](#)

See also port-based authentication

IEEE 802.1X Port Based Authentication

- enabling guest VLAN supplicant [2-96, 2-107, 2-140](#)

IGMP filters

- applying [2-174](#)

- debug messages, display [B-15](#)

IGMP groups, setting maximum [2-176](#)

IGMP maximum groups, debugging [B-16](#)

IGMP profiles

- creating [2-178](#)

- displaying [2-459](#)

- IGMP snooping
 - adding ports as a static member of a group [2-194](#)
 - displaying [2-460, 2-465, 2-467](#)
 - enabling [2-180](#)
 - enabling the configurable-leave timer [2-182](#)
 - enabling the Immediate-Leave feature [2-191](#)
 - flooding query count [2-188](#)
 - interface topology change notification behavior [2-190](#)
 - multicast table [2-463](#)
 - querier [2-184](#)
 - query solicitation [2-188](#)
 - report suppression [2-186](#)
 - switch topology change notification behavior [2-188](#)
- images
 - See software images
- Immediate-Leave feature, MVR [2-319](#)
- Immediate-Leave processing
 - IPv6 [2-221](#)
- immediate-leave processing [2-191](#)
- initial configuration
 - See getting started guide and hardware installation guide
- interface configuration mode [1-2, 1-4](#)
- interface port-channel command [2-143](#)
- interface range command [2-145](#)
- interface-range macros [2-82](#)
- interfaces
 - assigning Ethernet interface to channel group [2-55](#)
 - configuring [2-128](#)
 - configuring multiple [2-145](#)
 - creating port-channel logical [2-143](#)
 - debug messages, display [B-14](#)
 - disabling [2-595](#)
 - displaying the MAC address table [2-513](#)
 - restarting [2-595](#)
- interface speed, configuring [2-653](#)
- interface vlan command [2-147](#)
- internal registers, displaying [2-401, 2-408](#)
- Internet Group Management Protocol
 - See IGMP
- invalid GBIC
 - error detection for [2-130](#)
 - error recovery timer [2-135](#)
- ip access-group command [2-149](#)
- ip address command [2-152](#)
- IP addresses, setting [2-152](#)
- IP address matching [2-268](#)
- ip admission command [2-154](#)
- ip admission name proxy http command [2-155](#)
- IP DHCP snooping
 - See DHCP snooping
- ip dhcp snooping binding command [2-159](#)
- ip dhcp snooping command [2-158](#)
- ip dhcp snooping database command [2-161](#)
- ip dhcp snooping information option allow-untrusted command [2-165](#)
- ip dhcp snooping information option command [2-163](#)
- ip dhcp snooping information option format remote-id command [2-167](#)
- ip dhcp snooping limit rate command [2-168](#)
- ip dhcp snooping trust command [2-169](#)
- ip dhcp snooping verify command [2-170](#)
- ip dhcp snooping vlan command [2-171](#)
- ip dhcp snooping vlan information option format-type circuit-id string command [2-172](#)
- ip igmp filter command [2-174](#)
- ip igmp max-groups command [2-176, 2-201, 2-203](#)
- ip igmp profile command [2-178](#)
- ip igmp snooping command [2-180](#)
- ip igmp snooping last-member-query-interval command [2-182](#)
- ip igmp snooping querier command [2-184](#)
- ip igmp snooping report-suppression command [2-186](#)
- ip igmp snooping tcn command [2-188](#)
- ip igmp snooping tcn flood command [2-190](#)
- ip igmp snooping vlan immediate-leave command [2-191](#)
- ip igmp snooping vlan mrouter command [2-192](#)
- ip igmp snooping vlan static command [2-194](#)

IP multicast addresses [2-316](#)

IP phones

- auto-QoS configuration [2-44](#)
- trusting packets sent from [2-308](#)

IP-precedence-to-DSCP map [2-282](#)

ip snap forwarding command [2-196](#)

ip source binding command [2-197](#)

IP source guard

- disabling [2-205](#)
- displaying
 - binding entries [2-469](#)
 - configuration [2-471](#)
 - dynamic binding entries only [2-452](#)
- enabling [2-205](#)
- static IP source bindings [2-197](#)

ip ssh command [2-199](#)

IPv6 access list

- deny conditions [2-85](#)

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 [2-370](#)

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

ip verify source command [2-205](#)

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 [2-664](#)

Layer 2 protocol ports, displaying [2-487](#)

Layer 2 protocol-tunnel

- error detection for [2-130](#)
- error recovery timer [2-135](#)

Layer 2 protocol tunnel counters [2-68](#)

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

Layer 2 traceroute

- IP addresses [2-707](#)
- MAC addresses [2-704](#)

Layer 3 mode, enabling [2-664](#)

line configuration mode [1-2, 1-5](#)

Link Aggregation Control Protocol

- See EtherChannel

link flap

- error detection for [2-130](#)
- error recovery timer [2-135](#)

link state group command [2-237](#)

link state track command [2-239](#)

load-distribution methods for EtherChannel [2-350](#)

location (global configuration) command [2-233](#)

location (interface configuration) command [2-235](#)

logging event command [2-240](#)

logging file command [2-241](#)

logical interface [2-143](#)

loopback error

- detection for [2-130](#)
- recovery timer [2-135](#)

loop guard, for spanning tree [2-619, 2-623](#)

M

mab request format attribute 32 command [2-243](#)

mac access-group command [2-245](#)

MAC access-groups, displaying [2-501](#)

MAC access list configuration mode [2-247](#)

mac access-list extended command [2-247](#)

MAC access lists [2-90](#)

MAC addresses

disabling MAC address learning per VLAN [2-250](#)

displaying

aging time [2-507](#)

all [2-505](#)

dynamic [2-511](#)

MAC address-table move updates [2-516](#)

notification settings [2-515, 2-518](#)

number of addresses in a VLAN [2-509](#)

per interface [2-513](#)

per VLAN [2-523](#)

static [2-521](#)

static and dynamic entries [2-503](#)

dynamic

aging time [2-249](#)

deleting [2-72](#)

displaying [2-511](#)

enabling MAC address notification [2-254](#)

enabling MAC address-table move update [2-252](#)

matching [2-268](#)

static

adding and removing [2-256](#)

displaying [2-521](#)

dropping on an interface [2-257](#)

tables [2-505](#)

mac address notification, debugging [B-20](#)

mac address-table aging-time [2-245, 2-268](#)

mac address-table aging-time command [2-249](#)

mac address-table learning command [2-250](#)

mac address-table move update command [2-252](#)

mac address-table notification command [2-254](#)

mac address-table static command [2-256](#)

mac address-table static drop command [2-257](#)

macro apply command [2-259](#)

macro description command [2-262](#)

macro global command [2-263](#)

macro global description command [2-265](#)

macro name command [2-266](#)

macros

adding a description [2-262](#)

adding a global description [2-265](#)

applying [2-263](#)

creating [2-266](#)

displaying [2-555](#)

interface range [2-82, 2-145](#)

specifying parameter values [2-263](#)

tracing [2-263](#)

manual

audience [xix](#)

purpose of [xix](#)

maps

QoS

defining [2-282](#)

displaying [2-533](#)

VLAN

creating [2-722](#)

defining [2-268](#)

displaying [2-586](#)

match (access-map configuration) command [2-268](#)

match (class-map configuration) command [2-270](#)

maximum transmission unit

See MTU

mdix auto command [2-272](#)

MDL snooping

displaying [2-481](#)

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

mkdir (boot loader) command [A-15](#)

MLD snooping

- configuring [2-215, 2-217](#)
- configuring queries [2-211, 2-213](#)
- configuring topology change notification [2-219](#)
- displaying [2-479, 2-483, 2-485](#)
- enabling [2-209](#)

MLD snooping on a VLAN

- enabling [2-221](#)

mls qos aggregate-policer command [2-276](#)

mls qos command [2-274](#)

mls qos cos command [2-278](#)

mls qos dscp-mutation command [2-280](#)

mls qos map command [2-282](#)

mls qos queue-set output buffers command [2-286](#)

mls qos queue-set output threshold command [2-288](#)

mls qos rewrite ip dscp command [2-290](#)

mls qos srr-queue input bandwidth command [2-292](#)

mls qos srr-queue input buffers command [2-294](#)

mls qos-srr-queue input cos-map command [2-296](#)

mls qos srr-queue input dscp-map command [2-298](#)

mls qos srr-queue input priority-queue command [2-300](#)

mls qos srr-queue input threshold command [2-302](#)

mls qos-srr-queue output cos-map command [2-304](#)

mls qos srr-queue output dscp-map command [2-306](#)

mls qos trust command [2-308](#)

mls qos vlan-based command [2-310](#)

mode, MVR [2-316](#)

Mode button, and password recovery [2-373](#)

modes, commands [1-1](#)

monitor session command [2-311](#)

more (boot loader) command [A-16](#)

MSTP

- displaying [2-567](#)
- interoperability [2-79](#)
- link type [2-621](#)

MST region

- aborting changes [2-627](#)
- applying changes [2-627](#)
- configuration name [2-627](#)

MST Region (continued)

- configuration revision number [2-627](#)
- current or pending display [2-627](#)
- displaying [2-567](#)
- MST configuration mode [2-627](#)
- VLANs-to-instance mapping [2-627](#)

path cost [2-629](#)

protocol mode [2-625](#)

restart protocol migration process [2-79](#)

root port

- loop guard [2-619](#)
- preventing from becoming designated [2-619](#)
- restricting which can be root [2-619](#)
- root guard [2-619](#)

root switch

- affects of extended system ID [2-618](#)
- hello-time [2-632, 2-639](#)
- interval between BPDU messages [2-633](#)
- interval between hello BPDU messages [2-632, 2-639](#)
- max-age [2-633](#)
- maximum hop count before discarding BPDU [2-634](#)
- port priority for selection of [2-635](#)
- primary or secondary [2-639](#)
- switch priority [2-638](#)

state changes

- blocking to forwarding state [2-645](#)
- enabling BPDU filtering [2-610, 2-643](#)
- enabling BPDU guard [2-612, 2-643](#)
- enabling Port Fast [2-643, 2-645](#)
- forward-delay time [2-631](#)
- length of listening and learning states [2-631](#)
- rapid transition to forwarding [2-621](#)
- shutting down Port Fast-enabled ports [2-643](#)

state information display [2-566](#)

MTU

- configuring size [2-702](#)
- displaying global setting [2-574](#)

multicast group address, MVR [2-319](#)
 multicast groups, MVR [2-317](#)
 Multicast Listener Discovery
 See MLD
 multicast router learning method [2-192](#)
 multicast router ports
 IPv6 [2-221](#)
 multicast router ports, configuring [2-192](#)
 multicast storm control [2-661](#)
 multicast VLAN, MVR [2-316](#)
 multicast VLAN registration
 See MVR
 multiple hosts on authorized port [2-111](#)
 Multiple Spanning Tree Protocol
 See MSTP
 MVR
 and address aliasing [2-317](#)
 configuring [2-316](#)
 configuring interfaces [2-319](#)
 debug messages, display [B-24](#)
 displaying [2-542](#)
 displaying interface information [2-544](#)
 members, displaying [2-546](#)
 mvr (global configuration) command [2-316](#)
 mvr (interface configuration) command [2-319](#)
 mvr vlan group command [2-320](#)

N

native VLANs [2-697](#)
 native VLAN tagging [2-725](#)
 network-policy (global configuration) command [2-323](#)
 network-policy command [2-322](#)
 network-policy profile (network-policy configuration) command [2-325](#)
 nmsp attachment suppress command [2-329](#)
 nmsp command [2-327](#)
 nonegotiate
 DTP messaging [2-682](#)

nonegotiate, speed [2-653](#)
 non-IP protocols
 denying [2-90](#)
 forwarding [2-340](#)
 non-IP traffic access lists [2-247](#)
 non-IP traffic forwarding
 denying [2-90](#)
 permitting [2-340](#)
 normal-range VLANs [2-716, 2-721](#)
 note, description [xx](#)
 no vlan command [2-716](#)

O

online diagnostics
 displaying
 configured boot-up coverage level [2-412](#)
 current scheduled tasks [2-412](#)
 event logs [2-412](#)
 supported test suites [2-412](#)
 test ID [2-412](#)
 test results [2-412](#)
 test statistics [2-412](#)

P

PAgP
 See EtherChannel
 pagp learn-method command [2-330](#)
 pagp port-priority command [2-332](#)
 password, VTP [2-734](#)
 password-recovery mechanism, enabling and disabling [2-373](#)
 permit (IPv6) command [2-334](#)
 permit (MAC access-list configuration) command [2-340](#)
 per-VLAN spanning-tree plus
 See STP
 physical-port learner [2-330](#)
 PID, displaying [2-449](#)

- PIM-DVMRP, as multicast router learning method [2-192](#)
- police aggregate command [2-345](#)
- police command [2-343](#)
- policed-DSCP map [2-282](#)
- policy-map command [2-347](#)
- policy maps
 - applying to an interface [2-375, 2-380](#)
 - creating [2-347](#)
 - displaying [2-558](#)
 - hierarchical [2-348](#)
 - policers
 - displaying [2-526](#)
 - for a single class [2-343](#)
 - for multiple classes [2-276, 2-345](#)
 - policed-DSCP map [2-282](#)
 - traffic classification
 - defining the class [2-60](#)
 - defining trust states [2-709](#)
 - setting DSCP or IP precedence values [2-378](#)
- Port Aggregation Protocol
 - See EtherChannel
- port-based authentication
 - AAA method list [2-3](#)
 - configuring violation modes [2-127](#)
 - debug messages, display [B-8](#)
 - enabling IEEE 802.1x
 - globally [2-93](#)
 - per interface [2-118](#)
 - guest VLAN [2-109](#)
 - host modes [2-111](#)
 - IEEE 802.1x AAA accounting methods [2-1](#)
 - initialize an interface [2-112, 2-123](#)
 - MAC authentication bypass [2-113](#)
 - manual control of authorization state [2-118](#)
 - multiple hosts on authorized port [2-111](#)
 - PAE as authenticator [2-117](#)
 - periodic re-authentication
 - enabling [2-121](#)
 - time between attempts [2-124](#)
 - quiet period between failed authentication exchanges [2-124](#)
 - re-authenticating IEEE 802.1x-enabled ports [2-120](#)
 - resetting configurable IEEE 802.1x parameters [2-106](#)
 - switch-to-authentication server retransmission time [2-124](#)
 - switch-to-client frame-retransmission number [2-115 to 2-116](#)
 - switch-to-client retransmission time [2-124](#)
 - test for IEEE 802.1x readiness [2-122](#)
- port-channel load-balance command [2-350](#)
- Port Fast, for spanning tree [2-645](#)
- port ranges, defining [2-82](#)
- ports, debugging [B-68](#)
- ports, protected [2-695](#)
- port security
 - aging [2-689](#)
 - debug messages, display [B-70](#)
 - enabling [2-684](#)
 - violation error recovery [2-135](#)
- port trust states for QoS [2-308](#)
- port types, MVR [2-319](#)
- priority-queue command [2-352](#)
- private-vlan command [2-354](#)
- private-vlan mapping command [2-357](#)
- private VLANs
 - association [2-693](#)
 - configuring [2-354](#)
 - configuring ports [2-680](#)
 - displaying [2-580](#)
 - host ports [2-680](#)
 - mapping
 - configuring [2-693](#)
 - displaying [2-438](#)
 - promiscuous ports [2-680](#)
- privileged EXEC mode [1-2, 1-3](#)
- product identification information, displaying [2-449](#)
- promiscuous ports, private VLANs [2-680](#)
- protected ports, displaying [2-444](#)

pruning

VLANs [2-697](#)

VTP

displaying interface information [2-438](#)enabling [2-734](#)pruning-eligible VLAN list [2-699](#)

PVST+

See STP

Q

QoS

auto-QoS

configuring [2-44](#)debug messages, display [B-4](#)displaying [2-391](#)

class maps

creating [2-62](#)defining the match criteria [2-270](#)displaying [2-398](#)defining the CoS value for an incoming packet [2-278](#)displaying configuration information [2-391](#), [2-525](#)DSCP transparency [2-290](#)

DSCP trusted ports

applying DSCP-to-DSCP-mutation map to [2-280](#)defining DSCP-to-DSCP-mutation map [2-282](#)

egress queues

allocating buffers [2-286](#)defining the CoS output queue threshold map [2-304](#)defining the DSCP output queue threshold map [2-306](#)displaying buffer allocations [2-529](#)displaying CoS output queue threshold map [2-533](#)displaying DSCP output queue threshold map [2-533](#)displaying queueing strategy [2-529](#)displaying queue-set settings [2-536](#)

egress queues (continued)

enabling bandwidth shaping and scheduling [2-657](#)enabling bandwidth sharing and scheduling [2-659](#)limiting the maximum output on a port [2-655](#)mapping a port to a queue-set [2-359](#)mapping CoS values to a queue and threshold [2-304](#)mapping DSCP values to a queue and threshold [2-306](#)setting maximum and reserved memory allocations [2-288](#)setting WTD thresholds [2-288](#)enabling [2-274](#)

ingress queues

allocating buffers [2-294](#)assigning SRR scheduling weights [2-292](#)defining the CoS input queue threshold map [2-296](#)defining the DSCP input queue threshold map [2-298](#)displaying buffer allocations [2-529](#)displaying CoS input queue threshold map [2-533](#)displaying DSCP input queue threshold map [2-533](#)displaying queueing strategy [2-529](#)displaying settings for [2-527](#)enabling the priority queue [2-300](#)mapping CoS values to a queue and threshold [2-296](#)mapping DSCP values to a queue and threshold [2-298](#)setting WTD thresholds [2-302](#)

maps

defining [2-282](#), [2-296](#), [2-298](#), [2-304](#), [2-306](#)displaying [2-533](#)

policy maps

applying an aggregate policer [2-345](#)applying to an interface [2-375](#), [2-380](#)creating [2-347](#)defining policers [2-276](#), [2-343](#)

policy maps (continued)

- displaying policers [2-526](#)
- displaying policy maps [2-558](#)
- hierarchical [2-348](#)
- policed-DSCP map [2-282](#)
- setting DSCP or IP precedence values [2-378](#)
- traffic classifications [2-60](#)
- trust states [2-709](#)

port trust states [2-308](#)

queues, enabling the expedite [2-352](#)

statistics

- in-profile and out-of-profile packets [2-529](#)
- packets enqueued or dropped [2-529](#)
- sent and received CoS values [2-529](#)
- sent and received DSCP values [2-529](#)

trusted boundary for IP phones [2-308](#)

VLAN-based [2-310](#)

quality of service

See QoS

querytime, MVR [2-316](#)

queue-set command [2-359](#)

R

radius-server dead-criteria command [2-360](#)

radius-server host command [2-362](#)

rapid per-VLAN spanning-tree plus

See STP

rapid PVST+

See STP

re-authenticating IEEE 802.1x-enabled ports [2-120](#)

re-authentication

periodic [2-121](#)

time between attempts [2-124](#)

receiver ports, MVR [2-319](#)

receiving flow-control packets [2-141](#)

recovery mechanism

causes [2-135](#)

display [2-66, 2-423, 2-427](#)

timer interval [2-136](#)

remote-span command [2-364](#)

Remote Switched Port Analyzer

See RSPAN

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

renew ip dhcp snooping database command [2-366](#)

requirements

device manager **xx**

reset (boot loader) command [A-18](#)

resource templates, displaying [2-563](#)

restricted VLAN

See dot1x auth-fail vlan

rmdir (boot loader) command [A-19](#)

rmon collection stats command [2-369](#)

root guard, for spanning tree [2-619](#)

routed ports

IP addresses on [2-153](#)

number supported [2-153](#)

RSPAN

configuring [2-311](#)

displaying [2-539](#)

filter RSPAN traffic [2-311](#)

remote-span command [2-364](#)

sessions

add interfaces to [2-311](#)

displaying [2-539](#)

start new [2-311](#)

S

sdm prefer command [2-370](#)

SDM templates

allowed resources [2-371](#)

displaying [2-563](#)

dual IPv4 and IPv6 [2-370](#)

secure ports, limitations [2-686](#)

- sending flow-control packets [2-141](#)
- service password-recovery command [2-373](#)
- service-policy command [2-375](#)
- set (boot loader) command [A-20](#)
- set command [2-378](#)
- setup command [2-380](#)
- show access-lists command [2-383](#)
- show archive status command [2-386](#)
- show authentication command [2-387](#)
- show auto qos command [2-391](#)
- show boot command [2-395](#)
- show cisp command [2-397](#)
- show class-map command [2-398](#)
- show controllers cpu-interface command [2-399](#)
- show controllers ethernet-controller command [2-401](#)
- show controllers team command [2-408](#)
- show controller utilization command [2-410](#)
- show dot1q-tunnel command [2-412](#)
- show dot1x command [2-413](#)
- show dtp [2-417](#)
- show eap command [2-419](#)
- show env command [2-422](#)
- show errdisable detect command [2-423](#)
- show errdisable flap-values command [2-425](#)
- show errdisable recovery command [2-427](#)
- show etherchannel command [2-429](#)
- show fallback profile command [2-432](#)
- show flowcontrol command [2-434](#)
- show idprom command [2-436](#)
- show interfaces command [2-438](#)
- show interfaces counters command [2-446](#)
- show inventory command [2-449](#)
- show ipc command [2-473](#)
- show ip dhcp snooping binding command [2-452](#)
- show ip dhcp snooping command [2-451](#)
- show ip dhcp snooping database command [2-454, 2-456](#)
- show ip igmp profile command [2-459](#)
- show ip igmp snooping address command [2-481](#)
- show ip igmp snooping command [2-460, 2-479](#)
- show ip igmp snooping groups command [2-463](#)
- show ip igmp snooping mrouter command [2-465, 2-483](#)
- show ip igmp snooping querier command [2-467, 2-485](#)
- show ip source binding command [2-469](#)
- show ipv6 access-list command [2-477](#)
- show ip verify source command [2-471](#)
- show l2protocol-tunnel command [2-487](#)
- show lacp command [2-490](#)
- show link state group command [2-497, 2-499](#)
- show location [2-494](#)
- show mac access-group command [2-501](#)
- show mac address-table address command [2-505](#)
- show mac address-table aging time command [2-507](#)
- show mac address-table command [2-503](#)
- show mac address-table count command [2-509](#)
- show mac address-table dynamic command [2-511](#)
- show mac address-table interface command [2-513](#)
- show mac address-table learning command [2-515](#)
- show mac address-table move update command [2-516](#)
- show mac address-table notification command [2-73, 2-518, B-22](#)
- show mac address-table static command [2-521](#)
- show mac address-table vlan command [2-523](#)
- show mls qos aggregate-policer command [2-526](#)
- show mls qos command [2-525](#)
- show mls qos input-queue command [2-527](#)
- show mls qos interface command [2-529](#)
- show mls qos maps command [2-533](#)
- show mls qos queue-set command [2-536](#)
- show mls qos vlan command [2-538](#)
- show monitor command [2-539](#)
- show mvr command [2-542](#)
- show mvr interface command [2-544](#)
- show mvr members command [2-546](#)
- show network-policy profile command [2-548](#)
- show nmsp command [2-550](#)
- show pagp command [2-553](#)
- show parser macro command [2-555](#)
- 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 igmp snooping command [C-8](#)
- show platform ipc trace command [C-15](#)
- show platform ip multicast command [C-10](#)
- show platform ip unicast command [C-11](#)
- show platform ipv6 unicast command [C-16](#)
- show platform layer4op command [C-18](#)
- show platform mac-address-table command [C-19](#)
- show platform messaging command [C-20](#)
- show platform monitor command [C-21](#)
- show platform mvr table command [C-22](#)
- show platform pm command [C-23](#)
- show platform port-asic command [C-24](#)
- show platform port-security command [C-29](#)
- show platform qos command [C-30](#)
- show platform resource-manager command [C-31](#)
- show platform snmp counters command [C-33](#)
- show platform spanning-tree command [C-34](#)
- show platform stp-instance command [C-35](#)
- show platform team command [C-36](#)
- show platform vlan command [C-39](#)
- show policy-map command [2-558](#)
- show port security command [2-560](#)
- show sdm prefer command [2-563](#)
- show spanning-tree command [2-566](#)
- show storm-control command [2-572](#)
- show system mtu command [2-574](#)
- show trust command [2-709](#)
- show uddl command [2-575](#)
- show version command [2-578](#)
- show vlan access-map command [2-586](#)
- show vlan command [2-580](#)
- show vlan command, fields [2-582](#)
- show vlan filter command [2-587](#)
- show vmps command [2-588](#)
- show vtp command [2-590](#)
- shutdown command [2-595](#)
- shutdown threshold, Layer 2 protocol tunneling [2-225](#)
- shutdown vlan command [2-596](#)
- small violation-rate command [2-597](#)
- Smartports macros
 - See macros
- SNMP host, specifying [2-603](#)
- SNMP informs, enabling the sending of [2-599](#)
- snmp-server enable traps command [2-599](#)
- snmp-server host command [2-603](#)
- snmp trap mac-notification change command [2-607](#)
- SNMP traps
 - enabling MAC address notification trap [2-607](#)
 - enabling the MAC address notification feature [2-254](#)
 - enabling the sending of [2-599](#)
- SoftPhone
 - See Cisco SoftPhone
- software images
 - deleting [2-84](#)
 - downloading [2-8](#)
 - upgrading [2-8](#)
 - uploading [2-14](#)
- software version, displaying [2-578](#)
- source ports, MVR [2-319](#)
- SPAN
 - configuring [2-311](#)
 - debug messages, display [B-23](#)
 - displaying [2-539](#)
 - filter SPAN traffic [2-311](#)
 - sessions
 - add interfaces to [2-311](#)
 - displaying [2-539](#)
 - start new [2-311](#)
- spanning [2-647](#)
- spanning-tree backbonefast command [2-609](#)
- spanning-tree bpdudfilter command [2-610](#)
- spanning-tree bpduguard command [2-612](#)
- spanning-tree cost command [2-614](#)
- spanning-tree etherchannel command [2-616](#)

- spanning-tree extend system-id command [2-618](#)
- spanning-tree guard command [2-619](#)
- spanning-tree link-type command [2-621](#)
- spanning-tree loopguard default command [2-623](#)
- spanning-tree mode command [2-625](#)
- spanning-tree mst configuration command [2-627](#)
- spanning-tree mst cost command [2-629](#)
- spanning-tree mst forward-time command [2-631](#)
- spanning-tree mst hello-time command [2-632](#)
- spanning-tree mst max-age command [2-633](#)
- spanning-tree mst max-hops command [2-634](#)
- spanning-tree mst port-priority command [2-635](#)
- spanning-tree mst pre-standard command [2-637](#)
- spanning-tree mst priority command [2-638](#)
- spanning-tree mst root command [2-639](#)
- spanning-tree portfast (global configuration) command [2-643](#)
- spanning-tree portfast (interface configuration) command [2-645](#)
- spanning-tree port-priority command [2-641](#)
- Spanning Tree Protocol
 - See STP
- spanning-tree transmit hold-count command [2-647](#)
- spanning-tree uplinkfast command [2-648](#)
- spanning-tree vlan command [2-650](#)
- speed command [2-653](#)
- srr-queue bandwidth limit command [2-655](#)
- srr-queue bandwidth shape command [2-657](#)
- srr-queue bandwidth share command [2-659](#)
- SSH, configuring version [2-199](#)
- static-access ports, configuring [2-666](#)
- statistics, Ethernet group [2-369](#)
- sticky learning, enabling [2-684](#)
- storm-control command [2-661](#)
- STP
 - BackboneFast [2-609](#)
 - counters, clearing [2-78](#)
- STP (continued)
 - debug messages, display
 - BackboneFast events [B-74](#)
 - MSTP [B-77](#)
 - optimized BPDUs handling [B-76](#)
 - spanning-tree activity [B-72](#)
 - switch shim [B-79](#)
 - transmitted and received BPDUs [B-75](#)
 - UplinkFast [B-81](#)
 - detection of indirect link failures [2-609](#)
 - enabling protocol tunneling for [2-225](#)
 - EtherChannel misconfiguration [2-616](#)
 - extended system ID [2-618](#)
 - path cost [2-614](#)
 - protocol modes [2-625](#)
 - root port
 - accelerating choice of new [2-648](#)
 - loop guard [2-619](#)
 - preventing from becoming designated [2-619](#)
 - restricting which can be root [2-619](#)
 - root guard [2-619](#)
 - UplinkFast [2-648](#)
 - root switch
 - affects of extended system ID [2-618, 2-651](#)
 - hello-time [2-650](#)
 - interval between BPDU messages [2-650](#)
 - interval between hello BPDU messages [2-650](#)
 - max-age [2-650](#)
 - port priority for selection of [2-641](#)
 - primary or secondary [2-650](#)
 - switch priority [2-650](#)
 - state changes
 - blocking to forwarding state [2-645](#)
 - enabling BPDU filtering [2-610, 2-643](#)
 - enabling BPDU guard [2-612, 2-643](#)
 - enabling Port Fast [2-643, 2-645](#)
 - enabling timer to recover from error state [2-135](#)

- state changes (continued)
 - forward-delay time [2-650](#)
 - length of listening and learning states [2-650](#)
 - shutting down Port Fast-enabled ports [2-643](#)
- state information display [2-566](#)
- VLAN options [2-638, 2-650](#)
- SVIs, creating [2-147](#)
- SVI status calculation [2-668](#)
- Switched Port Analyzer
 - See SPAN
- switching characteristics
 - modifying [2-664](#)
 - returning to interfaces [2-664](#)
- switchport access command [2-666](#)
- switchport autostate exclude command [2-668](#)
- switchport backup interface command [2-670](#)
- switchport block command [2-674](#)
- switchport command [2-664](#)
- switchport host command [2-676](#)
- switchport mode command [2-677](#)
- switchport mode private-vlan command [2-680](#)
- switchport nonegotiate command [2-682](#)
- switchport port-security aging command [2-689](#)
- switchport port-security command [2-684](#)
- switchport priority extend command [2-691](#)
- switchport private-vlan command [2-693](#)
- switchport protected command [2-695](#)
- switchports, displaying [2-438](#)
- switchport trunk command [2-697](#)
- switchport voice vlan command [2-700](#)
- system message logging, save message to flash [2-241](#)
- system mtu command [2-702](#)
- system resource templates [2-370](#)

T

- tar files, creating, listing, and extracting [2-11](#)
- templates, system resources [2-370](#)
- traceroute mac command [2-704](#)

- traceroute mac ip command [2-707](#)
- trunking, VLAN mode [2-677](#)
- trunk mode [2-677](#)
- trunk ports [2-677](#)
- trunks, to non-DTP device [2-678](#)
- trusted boundary for QoS [2-308](#)
- trusted port states for QoS [2-308](#)
- tunnel ports, Layer 2 protocol, displaying [2-487](#)
- type (boot loader) command [A-23](#)

U

- UDLD
 - aggressive mode [2-711, 2-713](#)
 - debug messages, display [B-88](#)
 - enable globally [2-711](#)
 - enable per interface [2-713](#)
 - error recovery timer [2-135](#)
 - message timer [2-711](#)
 - normal mode [2-711, 2-713](#)
 - reset a shutdown interface [2-715](#)
 - status [2-575](#)
- udld command [2-711](#)
- udld port command [2-713](#)
- udld reset command [2-715](#)
- unicast storm control [2-661](#)
- UniDirectional Link Detection
 - See UDLD
- unknown multicast traffic, preventing [2-674](#)
- unknown unicast traffic, preventing [2-674](#)
- unset (boot loader) command [A-24](#)
- upgrading
 - software images [2-8](#)
 - monitoring status of [2-386](#)
- upgrading information
 - See release notes
- UplinkFast, for STP [2-648](#)
- user EXEC mode [1-2, 1-3](#)

V

version (boot loader) command [A-26](#)

VLAN

enabling guest VLAN supplicant [2-96, 2-107](#)

vlan (global configuration) command [2-716](#)

vlan (VLAN configuration) command [2-721](#)

vlan access-map command [2-722](#)

VLAN access map configuration mode [2-722](#)

VLAN access maps

actions [2-6](#)

displaying [2-586](#)

VLAN-based QoS [2-310](#)

VLAN configuration

rules [2-719](#)

saving [2-716](#)

VLAN configuration mode

commands

VLAN [2-721](#)

VTP [2-739](#)

description [1-5](#)

entering [2-724](#)

summary [1-2](#)

vlan database command [2-724](#)

vlan dot1q tag native command [2-725](#)

vlan filter command [2-726](#)

VLAN filters, displaying [2-587](#)

VLAN ID range [2-716](#)

VLAN maps

applying [2-726](#)

creating [2-722](#)

defining [2-268](#)

displaying [2-586](#)

VLAN Query Protocol

See VQP

VLANs

adding [2-716](#)

configuring [2-716, 2-721](#)

debug messages, display

ISL [B-85](#)

VLAN IOS file system error tests [B-84](#)

VLAN manager activity [B-82](#)

VTP [B-86](#)

displaying configurations [2-580](#)

enabling guest VLAN supplicant [2-140](#)

extended-range [2-716](#)

MAC addresses

displaying [2-523](#)

number of [2-509](#)

media types [2-719](#)

normal-range [2-716, 2-721](#)

private [2-680](#)

configuring [2-354](#)

displaying [2-580](#)

See also private VLANs

restarting [2-596](#)

saving the configuration [2-716](#)

shutting down [2-596](#)

SNMP traps for VTP [2-601, 2-604](#)

suspending [2-596](#)

VLAN Trunking Protocol

See VTP

VMPS

configuring servers [2-731](#)

displaying [2-588](#)

error recovery timer [2-136](#)

reconfirming dynamic VLAN assignments [2-728](#)

vmmps reconfirm (global configuration) command [2-729](#)

vmmps reconfirm (privileged EXEC) command [2-728](#)

vmmps retry command [2-730](#)

vmmps server command [2-731](#)

voice VLAN

configuring [2-700](#)

setting port priority [2-691](#)

VQP

- and dynamic-access ports [2-666](#)
- clearing client statistics [2-80](#)
- displaying information [2-588](#)
- per-server retry count [2-730](#)
- reconfirmation interval [2-729](#)
- reconfirming dynamic VLAN assignments [2-728](#)

VTP

- changing characteristics [2-733](#)
 - clearing pruning counters [2-81](#)
 - configuring
 - domain name [2-733](#)
 - file name [2-733](#)
 - mode [2-733](#)
 - password [2-734](#)
 - counters display fields [2-591](#)
 - displaying information [2-590](#)
 - enabling
 - pruning [2-734](#)
 - tunneling for [2-225](#)
 - Version 2 [2-734](#)
 - enabling per port [2-738](#)
 - mode [2-733](#)
 - pruning [2-734](#)
 - saving the configuration [2-716](#)
 - statistics [2-590](#)
 - status [2-590](#)
 - status display fields [2-593](#)
- vtp (global configuration) command [2-733](#)
 - vtp (VLAN configuration) command [2-739](#)
 - vtp interface configuration command [2-738](#)
 - vtp primary command [2-740](#)

X

- XENPAK module serial EEPROM information [2-436](#)