



INDEX

A

aaa accounting dot1x command [2-1](#)
aaa authentication dot1x command [2-3](#)
AAA methods [2-3](#)
access control entries
 See ACEs
access control lists
 See ACLs
access groups
 IP [2-133](#)
 MAC, displaying [2-514](#)
 matching for QoS classification [2-270](#)
access list, IPv6 [2-203](#)
access mode [2-675](#)
access ports [2-675](#)
ACEs [2-85, 2-314](#)
ACLs
 as match criteria for QoS classes [2-270](#)
 deny [2-83](#)
 displaying [2-391](#)
 for non-IP protocols [2-248](#)
 IP [2-133](#)
 on Layer 2 interfaces [2-133](#)
 permit [2-312](#)
action command [2-5](#)
address aliasing [2-291](#)
aggregate policers
 applying [2-323](#)
 creating [2-319](#)
 displaying [2-549](#)
 QoS [2-320](#)
aggregate-port learner [2-301](#)

allowed VLANs [2-691](#)
archive download-sw command [2-7](#)
archive tar command [2-10](#)
archive upload-sw command [2-13](#)
arp access-list command [2-15](#)
attaching policy maps to interfaces [2-373](#)
authorization state of controlled port [2-93](#)
autonegotiation of duplex mode [2-105](#)

B

backup interfaces
 configuring [2-667](#)
 displaying [2-442](#)
bandwidth, configuring for QoS [2-17](#)
bandwidth command [2-17](#)
boot (boot loader) command [A-2](#)
boot config-file command [2-21](#)
boot enable-break command [2-22](#)
boot helper command [2-23](#)
boot helper-config file command [2-24](#)
booting
 Cisco IOS image [2-27](#)
 displaying environment variables [2-396](#)
 interrupting [2-22](#)
 manually [2-25](#)
boot loader
 accessing [A-1](#)
 booting
 Cisco IOS image [A-2](#)
 helper image [2-23](#)

- directories
 - creating [A-14](#)
 - displaying a list of [A-7](#)
 - removing [A-18](#)
 - displaying
 - available commands [A-12](#)
 - memory heap utilization [A-13](#)
 - version [A-25](#)
 - environment variables
 - described [A-19](#)
 - displaying settings [A-19](#)
 - location of [A-20](#)
 - setting [A-19](#)
 - unsetting [A-23](#)
 - files
 - copying [A-5](#)
 - deleting [A-6](#)
 - displaying a list of [A-7](#)
 - displaying the contents of [A-4, A-15, A-22](#)
 - renaming [A-16](#)
 - file system
 - formatting [A-10](#)
 - initializing flash [A-9](#)
 - running a consistency check [A-11](#)
 - prompt [A-1](#)
 - resetting the system [A-17](#)
 - boot manual command [2-25](#)
 - boot private-config-file command [2-26](#)
 - boot system command [2-27](#)
 - BPDU filtering, for spanning tree [2-612, 2-650](#)
 - BPDU guard, for spanning tree [2-614, 2-650](#)
 - broadcast storm control [2-660](#)
 - bundling characteristics, UNI [2-116](#)
 - burst bytes, in QoS policers [2-315, 2-319](#)
 - CDP, enabling protocol tunneling for [2-228](#)
 - CFM [2-300](#)
 - CFM as OAM protocol [2-300](#)
 - channel-group command [2-28](#)
 - channel-protocol command [2-32](#)
 - child policy maps [2-375](#)
 - class-based traffic shaping [2-389](#)
 - class-based weighted fair queuing
 - See CBWFQ
 - class command [2-34](#)
 - class-map command [2-36](#)
 - class-map configuration mode [2-36](#)
 - class maps
 - creating [2-36](#)
 - defining the match criteria [2-271](#)
 - displaying [2-400](#)
 - matching in [2-36](#)
 - class of service
 - See CoS
 - clear ip arp inspection log command [2-38](#)
 - clear ip arp inspection statistics command [2-39](#)
 - clear ipc command [2-42](#)
 - clear ipv6 dhcp conflict command [2-43](#)
 - clear l2protocol-tunnel counters command [2-44](#)
 - clear lacp command [2-45](#)
 - clear mac address-table command [2-46, 2-47](#)
 - clear pagp command [2-48, 2-52](#)
 - clear policer cpu uni-eni counters command [2-49](#)
 - clear port-security command [2-50](#)
 - clear spanning-tree counters command [2-53](#)
 - clear spanning-tree detected-protocols command [2-54](#)
 - clear vmps statistics command [2-56](#)
 - command modes defined [1-1](#)
 - committed information rate in QoS policers [2-315, 2-319](#)
 - configuration files
 - password recovery disable considerations [A-1](#)
 - specifying the name [2-21, 2-26](#)
 - configuring multiple interfaces [2-129](#)
 - conform-action command [2-57](#)
-
- C**
- cat (boot loader) command [A-4](#)
 - CBWFQ, configuring [2-17](#)

control-plane policer [2-49](#)
control-plane policer information, displaying [2-550](#)
control-plane security [2-325](#)
control plane statistics, clearing [2-49](#)
copy (boot loader) command [A-5](#)
CoS
 as match criteria for QoS groups [2-271](#)
 for QoS classification [2-378](#)
 setting value in policy maps [2-378](#)
CoS value, assigning to Layer 2 protocol packets [2-231](#)
CPU ASIC statistics, displaying [2-401](#)
CPU protection policers, displaying [C-26](#)
cpu traffic qos cos command [2-59](#)
cpu traffic qos dscp command [2-63](#)
cpu traffic qos precedence command [2-68](#)
cpu traffic qos qos-group command [2-71](#)

D

debug backup command [B-2](#)
debug dot1x command [B-3](#)
debug etherchannel command [B-4](#)
debug interface command [B-7](#)
debug ip dhcp snooping command [B-8](#)
debug ip igmp filter command [B-9](#)
debug ip igmp max-groups command [B-10](#)
debug ip igmp snooping command [B-11](#)
debug ip sla error twamp connection command [B-12](#)
debug ip sla error twamp control reflector command [B-14](#)
debug ip sla error twamp control server command [B-16](#)
debug ip sla error twamp session command [B-18](#)
debug ip sla trace twamp connection command [B-20](#)
debug ip sla trace twamp control reflector command [B-22](#)
debug ip sla trace twamp control server command [B-24](#)
debug ip sla trace twamp session command [B-26](#)
debug ip verify source packet command [B-28](#)
debug lacp command [B-29](#)
debug mac-notification command [B-30](#)
debug matm command [B-31](#)
debug matm move update command [B-32](#)
debug monitor command [B-33](#)
debug mvrdbg command [B-34](#)
debug nvram command [B-35](#)
debug pagp command [B-36](#)
debug platform acl command [B-37](#)
debug platform backup interface command [B-38](#)
debug platform cfm command [B-39](#)
debug platform cpu-queues command [B-40](#)
debug platform dot1x command [B-42](#)
debug platform etherchannel command [B-43](#)
debug platform forw-tcam command [B-44](#)
debug platform ip arp inspection command [B-45](#)
debug platform ipc command [B-54](#)
debug platform ip dhcp command [B-46](#)
debug platform ip igmp snooping command [B-47](#)
debug platform ip multicast command [B-49](#)
debug platform ip source-guard command [B-51](#)
debug platform led command [B-55](#)
debug platform matm command [B-56](#)
debug platform messaging application command [B-57](#)
debug platform phy command [B-58](#)
debug platform pm command [B-60](#)
debug platform policer cpu uni-eni command [B-62](#)
debug platform port-asic command [B-63](#)
debug platform port-security command [B-64](#)
debug platform qos-acl-tcam command [B-65](#)
debug platform remote-commands command [B-66](#)
debug platform rep command [B-67](#)
debug platform resource-manager command [B-68](#)
debug platform snmp command [B-69](#)
debug platform span command [B-70](#)
debug platform supervisor-asic command [B-71](#)
debug platform sw-bridge command [B-72](#)
debug platform tcam command [B-73](#)
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-81](#)
- debug rep command [B-80](#)
- debug spanning-tree bpdu command [B-84](#)
- debug spanning-tree bpdu-opt command [B-85](#)
- debug spanning-tree command [B-82](#)
- debug spanning-tree mstp command [B-86](#)
- debug spanning-tree switch command [B-88](#)
- debug sw-vlan command [B-90](#)
- debug sw-vlan ifs command [B-91](#)
- debug sw-vlan notification command [B-92](#)
- debug udd command [B-94](#)
- debug vqpc command [B-96](#)
- default policer configuration
 - NNIs [C-28](#)
 - UNIs [C-27](#)
- define interface-range command [2-73](#)
- delete (boot loader) command [A-6](#)
- delete command [2-75](#)
- deny (ARP access-list configuration) command [2-76](#)
- deny (IPv6) command [2-78](#)
- deny command [2-83](#)
- detect mechanism, causes [2-106](#)
- DHCP snooping
 - accepting untrusted packets from edge switch [2-159](#)
 - enabling
 - on a VLAN [2-165](#)
 - option 82 [2-157, 2-159](#)
 - trust on an interface [2-163](#)
 - error recovery timer [2-110](#)
 - rate limiting [2-162](#)
- DHCP snooping binding database
 - binding file, configuring [2-155](#)
 - bindings
 - adding [2-153](#)
 - deleting [2-153](#)
 - displaying [2-465](#)
 - clearing database agent statistics [2-40](#)
 - database agent, configuring [2-155](#)
 - displaying
 - binding entries [2-465](#)
 - database agent status [2-467, 2-469](#)
 - renewing [2-349](#)
 - differentiated service code point
 - See DSCP
 - Digital Optical Monitoring
 - see DoM
 - dir (boot loader) command [A-7](#)
 - directories, deleting [2-75](#)
 - DoM
 - displaying supported transceivers [2-454, 2-602, 2-603](#)
 - domains, CFM [2-300](#)
 - dot1x default command [2-86](#)
 - dot1x host-mode command [2-87](#)
 - dot1x initialize command [2-89](#)
 - dot1x max-req command [2-90, 2-92](#)
 - dot1x port-control command [2-93](#)
 - dot1x re-authenticate command [2-95](#)
 - dot1x reauthentication command [2-96](#)
 - dot1x supplicant force-multicast command [2-97](#)
 - dot1x system-auth-control command [2-98](#)
 - dot1x test eapol-capable command [2-99](#)
 - dot1x test timeout command [2-100](#)
 - dot1x timeout command [2-101](#)
 - dot1x violation-mode command [2-103](#)
 - dropping packets, with ACL matches [2-5](#)
 - drop threshold, Layer 2 protocol tunneling [2-228](#)
 - DSCP
 - as match criteria for QoS groups [2-273, 2-279](#)
 - for QoS traffic marking [2-380](#)
 - setting in policy maps [2-380](#)
 - dual IPv4 and IPv6 templates [2-307](#)
 - dual-purpose uplink ports, selecting the type [2-284](#)
 - duplex command [2-104](#)
 - dynamic-access ports
 - configuring [2-665](#)
 - restrictions [2-666](#)

- dynamic ARP inspection
 - ARP ACLs
 - apply to a VLAN [2-138](#)
 - define [2-15](#)
 - deny packets [2-76](#)
 - display [2-395](#)
 - permit packets [2-305](#)
 - clear
 - log buffer [2-38](#)
 - statistics [2-39](#)
 - display
 - ARP ACLs [2-395](#)
 - configuration and operating state [2-460](#)
 - log buffer [2-460](#)
 - statistics [2-460](#)
 - trust state and rate limit [2-460](#)
 - enable per VLAN [2-148](#)
 - error detection for [2-106](#)
 - error recovery timer [2-110](#)
 - log buffer
 - clear [2-38](#)
 - configure [2-142](#)
 - display [2-460](#)
 - rate-limit incoming ARP packets [2-140](#)
 - statistics
 - clear [2-39](#)
 - display [2-460](#)
 - trusted interface state [2-144](#)
 - type of packet logged [2-149](#)
 - validation checks [2-146](#)
- Dynamic Host Configuration Protocol (DHCP)
 - See DHCP snooping
- E-LMI
 - enabling [2-114](#)
 - mapping [2-116](#)
- environment variables, displaying [2-396](#)
- errdisable detect cause command [2-106](#)
- errdisable detect cause small-frame command [2-108](#)
- errdisable recovery cause small-frame [2-112](#)
- errdisable recovery command [2-110](#)
- error conditions, displaying [2-425](#)
- error disable detection [2-106](#)
- error-disabled interfaces, displaying [2-442](#)
- EtherChannel
 - assigning Ethernet interface to channel group [2-28](#)
 - creating port-channel logical interface [2-127](#)
 - debug EtherChannel/PAGP, display [B-4](#)
 - debug platform-specific events, display [B-43](#)
 - displaying [2-429](#)
 - enabling Layer 2 protocol tunneling for
 - LACP [2-229](#)
 - PAGP [2-229](#)
 - UDLD [2-229](#)
 - interface information, displaying [2-442](#)
- LACP
 - clearing channel-group information [2-45](#)
 - debug messages, display [B-29](#)
 - displaying [2-500](#)
 - modes [2-28](#)
 - port priority for hot-standby ports [2-232](#)
 - restricting a protocol [2-32](#)
 - system priority [2-234](#)
- load-distribution methods [2-330](#)

E

- EAP-request/identity frame
 - maximum number to send [2-92](#)
 - response time before retransmitting [2-101](#)

PAgP

- aggregate-port learner [2-301](#)
- clearing channel-group information [2-48](#)
- debug messages, display [B-36](#)
- displaying [2-545](#)
- error detection for [2-106](#)
- error recovery timer [2-110](#)
- learn method [2-301](#)
- modes [2-28](#)
- physical-port learner [2-301](#)
- priority of interface for transmitted traffic [2-303](#)

Ethernet controller, internal register display [2-403](#)

ethernet evc command [2-113](#)

ethernet lmi ce-vlan map command [2-114](#), [2-116](#)

ethernet lmi command [2-114](#)

ethernet lmi global command [2-114](#)

Ethernet Local Management Interface

See E-LMI

ethernet oam remote-failure command [2-118](#)

Ethernet service

debugging [B-5](#)

displaying [2-432](#)

Ethernet service instance [2-369](#)

Ethernet service interfaces [2-436](#)

Ethernet statistics, collecting [2-365](#)

Ethernet UNI configuration [2-120](#)

ethernet uni id command [2-122](#)

Ethernet virtual connections

See EVCs

EVC configuration mode [2-113](#)

EVCs [2-113](#)

and VLANs [2-120](#)

service instances [2-369](#)

UNI counts [2-712](#)

EVC service

point-to-multipoint [2-712](#)

point-to-point [2-712](#)

exceed-action command [2-123](#)

extended-range VLANs

and allowed VLAN list [2-691](#)

configuring [2-716](#)

extended system ID for STP [2-620](#)

F

fan information, displaying [2-420](#)

files, deleting [2-75](#)

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

Flex Links

configuring [2-667](#)

configuring preferred VLAN [2-669](#)

displaying [2-442](#)

flowcontrol command [2-125](#)

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

forwarding packets, with ACL matches [2-5](#)

forwarding results, display [C-8](#)

frame forwarding information, displaying [C-8](#)

front-end controller counter and status information [C-10](#)

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

G

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

H

hardware ACL statistics [2-391](#)

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

host connection, port configuration [2-674](#)

host ports, private VLANs [2-678](#)

I

IEEE 802.1ag Connectivity Fault Management

See CFM

IEEE 802.1Q trunk ports and native VLANs [2-721](#)

- IEEE 802.1Q tunnel ports
 - configuring [2-675](#)
 - displaying [2-416](#)
 - limitations [2-676](#)
- IEEE 802.1x
 - and switchport modes [2-676](#)
 - violation error recovery [2-110](#)
 - See also port-based authentication
- IGMP filters
 - applying [2-168](#)
 - debug messages, display [B-9](#)
- IGMP groups, setting maximum [2-170](#)
- IGMP maximum groups, debugging [B-10](#)
- IGMP profiles
 - creating [2-172](#)
 - displaying [2-472](#)
- IGMP snooping
 - adding ports as a static member of a group [2-187](#)
 - displaying [2-473, 2-477, 2-479](#)
 - enabling [2-174](#)
 - enabling the configurable-leave timer [2-176](#)
 - enabling the Immediate-Leave feature [2-184](#)
 - flooding query count [2-182](#)
 - interface topology change notification behavior [2-183](#)
 - multicast table [2-475](#)
 - querier [2-178](#)
 - query solicitation [2-182](#)
 - report suppression [2-180](#)
 - switch topology change notification behavior [2-182](#)
- images
 - See software images
- Immediate-Leave feature, MVR [2-293](#)
- immediate-leave processing [2-184](#)
- Immediate-Leave processing, IPv6 [2-224](#)
- input policy maps
 - and ACL classification [2-270](#)
 - and aggregate policers [2-321](#)
 - commands not supported in [2-328](#)
 - configuration guidelines [2-328](#)
- interface command [2-131](#)
- interface configuration mode [1-2, 1-4](#)
- interface port-channel command [2-127](#)
- interface range command [2-129](#)
- interface-range macros [2-73](#)
- interfaces
 - assigning Ethernet interface to channel group [2-28](#)
 - configuring [2-104](#)
 - configuring multiple [2-129](#)
 - creating port-channel logical [2-127](#)
 - debug messages, display [B-7](#)
 - disabling [2-595](#)
 - displaying the MAC address table [2-526](#)
 - restarting [2-595](#)
- interface speed, configuring [2-658](#)
- internal registers, displaying [2-403, 2-410](#)
- Internet Group Management Protocol
 - See IGMP
- invalid GBIC
 - error detection for [2-106](#)
 - error recovery timer [2-110](#)
- ip address command [2-136](#)
- IP addresses, setting [2-136](#)
- IP address matching [2-268](#)
- ip arp inspection filter vlan command [2-138](#)
- ip arp inspection limit command [2-140](#)
- ip arp inspection log-buffer command [2-142](#)
- ip arp inspection trust command [2-144](#)
- ip arp inspection validate command [2-146](#)
- ip arp inspection vlan command [2-148](#)
- ip arp inspection vlan logging command [2-149](#)
- IP DHCP snooping
 - See DHCP snooping
- ip dhcp snooping binding command [2-153](#)
- ip dhcp snooping command [2-152](#)
- ip dhcp snooping database command [2-155](#)
- ip dhcp snooping information option allow-untrusted command [2-159](#)
- ip dhcp snooping information option command [2-157](#)

ip dhcp snooping information option format remote-id command [2-161](#)

ip dhcp snooping limit rate command [2-162](#)

ip dhcp snooping trust command [2-163](#)

ip dhcp snooping verify command [2-164](#)

ip dhcp snooping vlan command [2-165](#)

ip dhcp snooping vlan information option format-type circuit-id string command [2-166](#)

ip igmp filter command [2-168](#)

ip igmp max-groups command [2-170](#), [2-197](#), [2-199](#)

ip igmp profile command [2-172](#)

ip igmp snooping command [2-174](#)

ip igmp snooping last-member-query-interval command [2-176](#)

ip igmp snooping querier command [2-178](#)

ip igmp snooping report-suppression command [2-180](#)

ip igmp snooping tcn command [2-182](#)

ip igmp snooping tcn flood command [2-183](#)

ip igmp snooping vlan immediate-leave command [2-184](#)

ip igmp snooping vlan mrouter command [2-185](#)

ip igmp snooping vlan static command [2-187](#)

IP multicast addresses [2-290](#)

IP precedence, as match criteria for QoS groups [2-275](#)

ip sla responder twamp command [2-189](#)

ip sla server twamp command [2-191](#)

ip source binding command [2-193](#)

IP source guard

- disabling [2-201](#)
- displaying
 - binding entries [2-486](#)
 - configuration [2-487](#)
- enabling [2-201](#)
- static IP source bindings [2-193](#)

IP source guard, displaying dynamic binding entries [2-465](#)

ip ssh command [2-195](#)

IPv6 access list, deny conditions [2-78](#)

ipv6 access-list command [2-203](#)

ipv6 address dhcp command [2-205](#)

ipv6 dhcp client request vendor command [2-206](#)

ipv6 dhcp ping packets command [2-207](#)

ipv6 dhcp pool command [2-208](#)

ipv6 dhcp server command [2-211](#)

ipv6 mld snooping command [2-213](#)

ipv6 mld snooping last-listener-query count command [2-215](#)

ipv6 mld snooping last-listener-query-interval command [2-217](#)

ipv6 mld snooping listener-message-suppression command [2-219](#)

ipv6 mld snooping robustness-variable command [2-220](#)

ipv6 mld snooping tcn command [2-222](#)

ipv6 mld snooping vlan command [2-224](#)

IPv6 SDM template [2-366](#)

ipv6 traffic-filter command [2-226](#)

ip verify source command [2-201](#)

J

jumbo frames
See MTU

L

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

l2protocol-tunnel cos command [2-231](#)

LACP

- See EtherChannel

lacp port-priority command [2-232](#)

lacp system-priority command [2-234](#)

Layer 2 mode, enabling [2-663](#)

Layer 2 protocol ports, displaying [2-498](#)

Layer 2 protocol-tunnel

- error detection for [2-106](#)
- error recovery timer [2-110](#)

Layer 2 protocol tunnel counters [2-44](#)

Layer 2 protocol tunneling error recovery [2-229](#)

Layer 2 traceroute

- IP addresses [2-705](#)
- MAC addresses [2-702](#)

- Layer 3 mode, enabling [2-663](#)
 - line configuration mode [1-2, 1-4](#)
 - Link Aggregation Control Protocol
 - See EtherChannel
 - link flap
 - error detection for [2-106](#)
 - error recovery timer [2-110](#)
 - link state group command [2-236](#)
 - link state track command [2-238](#)
 - load-distribution methods for EtherChannel [2-330](#)
 - location (global configuration) command [2-239](#)
 - location (interface configuration) command [2-241](#)
 - logging event command [2-243](#)
 - logging file command [2-244](#)
 - logical interface [2-127](#)
 - loopback error
 - detection for [2-106](#)
 - recovery timer [2-110](#)
 - loop guard, for spanning tree [2-622, 2-626](#)
-
- M**
- mac access-group command [2-246](#)
 - MAC access-groups, displaying [2-514](#)
 - MAC access list configuration mode [2-248](#)
 - mac access-list extended command [2-248](#)
 - MAC access lists [2-83](#)
 - MAC addresses
 - disabling MAC address learning per VLAN [2-251](#)
 - displaying
 - aging time [2-520](#)
 - all [2-518](#)
 - dynamic [2-524](#)
 - MAC address-table move updates [2-529](#)
 - notification settings [2-528, 2-531](#)
 - number of addresses in a VLAN [2-522](#)
 - per interface [2-526](#)
 - per VLAN [2-535](#)
 - static [2-533](#)
 - static and dynamic entries [2-516](#)
 - dynamic
 - aging time [2-250](#)
 - deleting [2-46](#)
 - displaying [2-524](#)
 - enabling MAC address notification [2-255](#)
 - enabling MAC address-table move update [2-253](#)
 - matching [2-268](#)
 - static
 - adding and removing [2-257](#)
 - displaying [2-533](#)
 - dropping on an interface [2-258](#)
 - tables [2-518](#)
 - MAC address notification, debugging [B-30](#)
 - mac address-table aging-time [2-246, 2-268](#)
 - mac address-table aging-time command [2-250](#)
 - mac address-table learning command [2-251](#)
 - mac address-table move update command [2-253](#)
 - mac address-table notification command [2-255](#)
 - mac address-table static command [2-257](#)
 - mac address-table static drop command [2-258](#)
 - 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 [2-547](#)
- interface range [2-73, 2-129](#)
- specifying parameter values [2-263](#)
- tracing [2-263](#)

maintenance end points [2-712](#)

mapping tables, QoS [2-698](#)

maps

class

- creating [2-36](#)

VLAN

- creating [2-719](#)
- defining [2-268](#)
- displaying [2-590](#)

match access-group command [2-270](#)

match cos command [2-271](#)

match ip dscp command [2-273](#)

match ip precedence command [2-275](#)

match qos-group command [2-277](#)

match vlan command [2-279](#)

maximum transmission unit

See MTU

mdix auto command [2-282](#)

media-type command [2-284](#)

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

mkdir (boot loader) command [A-14](#)

MLD snooping

- configuring [2-219, 2-220](#)
- configuring queries [2-215, 2-217](#)
- configuring topology change notification [2-222](#)
- enabling [2-213](#)

MLD snooping on a VLAN, enabling [2-224](#)

mode, MVR [2-290](#)

modes, commands [1-1](#)

monitor session command [2-286](#)

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

MSTP

displaying [2-569](#)

interoperability [2-54](#)

link type [2-624](#)

MST region

- aborting changes [2-630](#)
- applying changes [2-630](#)
- configuration name [2-630](#)
- configuration revision number [2-631](#)
- current or pending display [2-631](#)
- displaying [2-569](#)
- MST configuration mode [2-630](#)
- VLANs-to-instance mapping [2-630](#)

path cost [2-632](#)

protocol mode [2-628](#)

restart protocol migration process [2-54](#)

root port

- loop guard [2-622](#)
- preventing from becoming designated [2-622](#)
- restricting which can be root [2-622](#)
- root guard [2-622](#)

root switch

- affects of extended system ID [2-620](#)
- hello-time [2-635, 2-646](#)
- interval between BDPU messages [2-637](#)
- interval between hello BPDU messages [2-635, 2-646](#)
- max-age [2-637](#)
- maximum hop count before discarding BPDU [2-639](#)
- port priority for selection of [2-641](#)
- primary or secondary [2-646](#)
- switch priority [2-644](#)

- state changes
 - blocking to forwarding state [2-653](#)
 - enabling BPDU filtering [2-612, 2-650](#)
 - enabling BPDU guard [2-614, 2-650](#)
 - enabling Port Fast [2-650, 2-653](#)
 - forward-delay time [2-634](#)
 - length of listening and learning states [2-634](#)
 - rapid transition to forwarding [2-624](#)
 - shutting down Port Fast-enabled ports [2-650](#)
- state information display [2-568](#)
- MTU
 - configuring size [2-695](#)
 - displaying global setting [2-576](#)
- multicast group address, MVR [2-293](#)
- multicast groups, MVR [2-291](#)
- Multicast Listener Discovery
 - See MLD
- multicast router learning method [2-185](#)
- multicast router ports, configuring [2-185](#)
- multicast router ports, IPv6 [2-224](#)
- multicast storm control [2-660](#)
- multicast VLAN, MVR [2-291](#)
- multicast VLAN registration
 - See MVR
- multiple hosts on authorized port [2-87](#)
- Multiple Spanning Tree Protocol
 - See MSTP
- multiplexing, UNI [2-120](#)
- MVR
 - and address aliasing [2-291](#)
 - configuring [2-290](#)
 - configuring interfaces [2-293](#)
 - debug messages, display [B-34](#)
 - displaying [2-539](#)
 - displaying interface information [2-541](#)
 - members, displaying [2-543](#)
- mvr (global configuration) command [2-290](#)
- mvr (interface configuration) command [2-293](#)
- mvr vlan group command [2-294](#)

N

- native VLANs [2-691](#)
- native VLAN tagging [2-721](#)
- network node interface [2-332](#)
- no authentication logging verbose [2-297](#)
- no dot1x logging verbose [2-298](#)
- no mab logging verbose [2-299](#)
- nonegotiate, speed [2-658, 2-659](#)
- non-IP protocols
 - denying [2-83](#)
 - forwarding [2-312](#)
- non-IP traffic access lists [2-248](#)
- non-IP traffic forwarding
 - denying [2-83](#)
 - permitting [2-312](#)
- normal-range VLANs [2-716](#)
- no vlan command [2-716](#)

O

- OAM PDUs [2-118](#)
- OAM protocol [2-300](#)
- oam protocol cfm svlan command [2-300](#)
- on-board failure logging, displaying [2-510](#)
- operation, administration, and maintenance protocol
 - See OAM
- output policy maps
 - and QoS group classification [2-277](#)
 - and traffic shaping [2-389](#)
 - commands not supported in [2-328](#)
 - configuration guidelines [2-328](#)
 - priority in [2-337](#)
 - queue limit in [2-344](#)

P

- PAgP
 - See EtherChannel

- pagp learn-method command [2-301](#)
- pagp port-priority command [2-303](#)
- parent policy maps [2-376](#)
- password-recovery mechanism, enabling and disabling [2-371](#)
- permit (ARP access-list configuration) command [2-305](#)
- permit (IPv6) command [2-307](#)
- permit command [2-312](#)
- per-VLAN spanning-tree plus
 - See STP
- physical-port learner [2-301](#)
- PID, displaying [2-458](#)
- PIM-DVMRP, as multicast router learning method [2-185](#)
- police
 - multiple conform actions for a class [2-57](#)
 - multiple exceed actions for a class [2-123](#)
 - with priority [2-315](#)
- police aggregate command [2-323](#)
- police command [2-315](#)
- policer aggregate command [2-319](#)
- policer configuration
 - default for NNIs [C-28](#)
 - default for UNIs [C-27](#)
- policer cpu uni command [2-325](#)
- policers
 - aggregate [2-319, 2-323](#)
 - for CPU protection [2-325](#)
 - individual [2-315](#)
- policy-map class, configuring multiple actions [2-57, 2-123](#)
- policy-map class configuration mode [2-34](#)
- policy-map class police configuration mode [2-57, 2-318](#)
- policy-map command [2-327](#)
- policy-map configuration mode [2-327](#)
- policy maps
 - and CoS classification [2-271](#)
 - and DSCP classification [2-273](#)
 - and IP precedence classification [2-275](#)
 - and policing [2-317](#)
 - applying [2-373](#)
 - applying to an interface [2-328, 2-373, 2-386](#)
 - child [2-375](#)
 - creating [2-327](#)
 - displaying [2-553](#)
 - hierarchical [2-375](#)
 - parent [2-376](#)
 - policers
 - for a single class [2-315](#)
 - for multiple classes [2-319, 2-323, 2-325, 2-375](#)
 - setting priority [2-336](#)
 - setting QoS group identifier [2-384](#)
 - traffic classification, defining [2-34](#)
 - traffic marking
 - setting CoS values [2-378](#)
 - setting DSCP values [2-380](#)
 - setting IP precedence values [2-382](#)
- Port Aggregation Protocol
 - See EtherChannel
- port-based authentication
 - AAA method list [2-3](#)
 - configuring violation modes [2-103](#)
 - debug messages, display [B-3](#)
 - enabling 802.1x
 - globally [2-98](#)
 - per interface [2-93](#)
 - host modes [2-87](#)
 - IEEE 802.1x AAA accounting methods [2-1](#)
 - initialize an interface [2-89, 2-100](#)
 - manual control of authorization state [2-93](#)
 - multiple hosts on authorized port [2-87](#)
 - periodic re-authentication
 - enabling [2-96](#)
 - time between attempts [2-101](#)
 - quiet period between failed authentication exchanges [2-101](#)
 - re-authenticating 802.1x-enabled ports [2-95](#)
 - resetting configurable 802.1x parameters [2-86](#)
 - switch-to-authentication server retransmission time [2-101](#)

- switch-to-client frame-retransmission number [2-90 to 2-92](#)
- switch-to-client retransmission time [2-101](#)
- test for IEEE 802.1x readiness [2-99](#)
- port-channel load-balance command [2-330](#)
- Port Fast, for spanning tree [2-653](#)
- port ranges, defining [2-73](#)
- ports, debugging [B-77](#)
- ports, protected [2-689](#)
- port security
 - aging [2-685](#)
 - debug messages, display [B-79](#)
 - enabling [2-681](#)
 - violation error recovery [2-110](#)
- port shaping [2-390](#)
- port-type command [2-332](#)
- port types, MVR [2-293](#)
- power information, displaying [2-420](#)
- power-supply dual command [2-334](#)
- power-supply status, displaying [2-420](#)
- precedence
 - for QoS traffic marking [2-382](#)
 - setting in policy maps [2-382](#)
- priority command [2-336](#)
- priority queuing, QoS [2-336](#)
- priority with police, QoS [2-336](#)
- private-vlan command [2-339](#)
- private-vlan mapping command [2-342](#)
- private VLANs
 - association [2-687](#)
 - configuring [2-339](#)
 - configuring ports [2-678](#)
 - displaying [2-585](#)
 - host ports [2-678](#)
 - mapping
 - configuring [2-687](#)
 - displaying [2-442](#)
 - promiscuous ports [2-678](#)
- privileged EXEC mode [1-2, 1-3](#)

- product identification information, displaying [2-458](#)
- promiscuous ports, private VLANs [2-678](#)
- PVST+
 - See STP

Q

QoS

- aggregate policers
 - applying [2-323](#)
 - creating [2-319](#)
 - displaying [2-549](#)
- class maps
 - creating [2-36](#)
 - defining the match criteria [2-271](#)
 - displaying [2-400](#)
- displaying statistics for [2-553, C-35](#)
- policy maps
 - applying an aggregate policer [2-319, 2-323, 2-325, 2-375](#)
 - applying to an interface [2-373, 2-386](#)
 - creating [2-327](#)
 - defining policers [2-315](#)
 - displaying policy maps [2-553](#)
 - setting CoS values [2-378](#)
 - setting DSCP values [2-380](#)
 - setting IP precedence values [2-382](#)
 - setting QoS group identifier [2-384](#)
 - traffic classifications [2-34](#)
- table maps
 - configuring [2-698](#)
 - displaying [2-578](#)
- QoS groups
 - as match criteria [2-277](#)
 - for QoS traffic classification [2-384](#)
 - setting in policy maps [2-384](#)

QoS match criteria

- ACLs [2-270](#)
- CoS value [2-271](#)
- DSCP value [2-273, 2-279](#)
- precedence value [2-275](#)
- QoS group number [2-277](#)

quality of service

- See QoS

querytime, MVR [2-290](#)queue-limit command [2-344](#)

R

rapid per-VLAN spanning-tree plus

- See STP

rapid PVST+

- See STP

re-authenticating 802.1x-enabled ports [2-95](#)

re-authentication

- periodic [2-96](#)
- time between attempts [2-101](#)

receiver ports, MVR [2-293](#)receiving flow-control packets [2-125](#)

recovery mechanism

- causes [2-110](#)
- display [2-398, 2-423, 2-427](#)
- timer interval [2-111](#)

remote-span command [2-347](#)

Remote Switched Port Analyzer

- See RSPAN

rename (boot loader) command [A-16](#)renew ip dhcp snooping database command [2-349](#)rep admin vlan command [2-350](#)rep block port command [2-351](#)rep lsl-age-timer command [2-354](#)rep preempt delay command [2-356](#)rep preempt segment command [2-358](#)rep segment command [2-359](#)rep stcn command [2-362](#)reset (boot loader) command [A-17](#)resource templates, displaying [2-566](#)rmdir (boot loader) command [A-18](#)rmon collection stats command [2-365](#)root guard, for spanning tree [2-622](#)

routed ports

- IP addresses on [2-137](#)
- number supported [2-137](#)

RSPAN

- configuring [2-286](#)
- displaying [2-537](#)
- filter RSPAN traffic [2-286](#)
- remote-span command [2-347](#)
- sessions
 - add interfaces to [2-286](#)
 - displaying [2-537](#)
 - start new [2-286](#)

Ssdm prefer command [2-366](#)

SDM templates

- allowed resources [2-367](#)
- displaying [2-566](#)
- dual IPv4 and IPv6 [2-366](#)

secure ports, limitations [2-683](#)sending flow-control packets [2-125](#)service instance command [2-369](#)service instances, displaying [2-434](#)service password-recovery command [2-371](#)service policy (policy-map class configuration) command [2-375](#)service-policy interface configuration command [2-373](#)service-policy policy-map class configuration command [2-375](#)set (boot loader) command [A-19](#)set cos command [2-378](#)set dscp command [2-380](#)set precedence command [2-382](#)

- set qos-group command [2-384](#)
- setup command [2-386](#)
- SFPs, displaying information about [2-458](#)
- shape average command [2-389](#)
- show access-lists command [2-391](#)
- show aggregate-policer command [2-578](#)
- show archive status command [2-394](#)
- show arp access-list command [2-395](#)
- show boot command [2-396](#)
- show class-map command [2-400](#)
- show controllers cpu-interface command [2-401](#)
- show controllers ethernet-controller command [2-403](#)
- show controllers tcam command [2-410](#)
- show controllers utilization command [2-412](#)
- show controller utilization command [2-412](#)
- show cpu traffic qos command [2-414](#)
- show dot1q-tunnel command [2-416](#)
- show dot1x command [2-417](#)
- show env command [2-420](#)
- 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 ethernet service evc command [2-432](#)
- show ethernet service instance command [2-434](#)
- show ethernet service interface command [2-436](#)
- show flowcontrol command [2-438](#)
- show idprom command [2-440](#)
- show interface rep command [2-452](#)
- show interfaces command [2-442](#)
- show interfaces counters command [2-450](#)
- show interfaces rep command [2-452](#)
- show interface transceivers command [2-454](#)
- show inventory command [2-458](#)
- show ip arp inspection command [2-460](#)
- show ipc command [2-489](#)
- show ip dhcp snooping binding command [2-465](#)
- show ip dhcp snooping command [2-464](#)
- show ip dhcp snooping database command [2-467, 2-469](#)
- show ip igmp profile command [2-472](#)
- show ip igmp snooping command [2-473](#)
- show ip igmp snooping command querier detail [2-479](#)
- show ip igmp snooping groups command [2-475](#)
- show ip igmp snooping mrouter command [2-477](#)
- show ip igmp snooping querier command [2-479](#)
- show ip igmp snooping querier detail command [2-479](#)
- show ip sla standards command [2-481](#)
- show ip sla twamp connection [2-414](#)
- show ip sla twamp connection command [2-482](#)
- show ip sla twamp session command [2-484](#)
- show ip source binding command [2-486](#)
- show ipv6 access-list command [2-493](#)
- show ipv6 dhcp conflict command [2-495](#)
- show ipv6 route updated command [2-496](#)
- show ip verify source command [2-487](#)
- show l2protocol-tunnel command [2-498](#)
- show lacp command [2-500](#)
- show link state group command [2-504](#)
- show lldp command [2-506](#)
- show location command [2-507](#)
- show logging onboard command [2-510](#)
- show mac access-group command [2-514](#)
- show mac address-table address command [2-518](#)
- show mac address-table aging time command [2-520](#)
- show mac address-table command [2-516](#)
- show mac address-table count command [2-522](#)
- show mac address-table dynamic command [2-524](#)
- show mac address-table interface command [2-526](#)
- show mac address-table learning command [2-528](#)
- show mac address-table move update command [2-529](#)
- show mac address-table notification command [2-47, 2-531, B-32](#)
- show mac address-table static command [2-533](#)
- show mac address-table vlan command [2-535](#)
- show monitor command [2-537](#)
- show mvr command [2-539](#)
- show mvr interface command [2-541](#)
- show mvr members command [2-543](#)

- show pagp command [2-545](#)
- show parser macro command [2-547](#)
- show platform acl command [C-2](#)
- show platform backup interface command [C-3](#)
- show platform cfm command [C-4](#)
- show platform configuration command [C-5](#)
- show platform dl command [C-6](#)
- show platform etherchannel command [C-7](#)
- show platform forward command [C-8](#)
- show platform frontend-controller command [C-10](#)
- show platform igmp snooping command [C-11](#)
- show platform ipc trace command [C-16](#)
- show platform ip multicast command [C-13](#)
- show platform ip unicast command [C-14](#)
- show platform ipv6 unicast command [C-17](#)
- show platform l2pt dm command [C-19](#)
- show platform layer4op command [C-20, C-42](#)
- show platform mac-address-table command [C-21](#)
- show platform messaging command [C-22](#)
- show platform monitor command [C-23](#)
- show platform mvr table command [C-24](#)
- show platform pm command [C-25](#)
- show platform policer cpu command [C-26](#)
- show platform port-asic command [C-30](#)
- show platform port-security command [C-34](#)
- show platform qos command [C-35](#)
- show platform resource-manager command [C-38](#)
- show platform snmp counters command [C-40](#)
- show platform spanning-tree synchronization command [C-41](#)
- show platform stp-instance command [C-43](#)
- show platform team command [C-44](#)
- show platform vlan command [C-47](#)
- show policer aggregate command [2-549](#)
- show policer cpu uni-eni command [2-550](#)
- show policy-map command [2-553](#)
- show policy-map interface output fields [2-556](#)
- show port security command [2-558](#)
- show port-type command [2-561](#)
- show rep topology command [2-563](#)
- show sdm prefer command [2-566](#)
- show spanning-tree command [2-568](#)
- show storm-control command [2-574](#)
- show system mtu command [2-576](#)
- show uddl command [2-580](#)
- show version command [2-583](#)
- show vlan access-map command [2-590](#)
- show vlan command [2-585](#)
- show vlan command, fields [2-587](#)
- show vlan filter command [2-591](#)
- show vmps command [2-593](#)
- shutdown command [2-595](#)
- shutdown threshold, Layer 2 protocol tunneling [2-228](#)
- shutdown vlan command [2-596](#)
- small violation-rate command [2-597](#)
- SNMP host, specifying [2-604](#)
- SNMP informs, enabling the sending of [2-600](#)
- snmp mib rep trap-rate command [2-599](#)
- snmp-server enable traps command [2-600](#)
- snmp-server host command [2-604](#)
- snmp trap mac-notification change command [2-608](#)
- SNMP traps
 - enabling MAC address notification trap [2-608](#)
 - enabling the MAC address notification feature [2-255](#)
 - enabling the sending of [2-600](#)
- software images
 - deleting [2-75](#)
 - downloading [2-7](#)
 - upgrading [2-7](#)
 - uploading [2-13](#)
- software version, displaying [2-583](#)
- source ports, MVR [2-293](#)

SPAN

- configuring [2-286](#)
- debug messages, display [B-33](#)
- displaying [2-537](#)
- filter SPAN traffic [2-286](#)
- sessions
 - add interfaces to [2-286](#)
 - displaying [2-537](#)
 - start new [2-286](#)

- spanning-tree bpdudfilter command [2-610, 2-612](#)
- spanning-tree bpduguard command [2-614](#)
- spanning-tree cost command [2-616](#)
- spanning-tree etherchannel command [2-618](#)
- spanning-tree extend system-id command [2-620](#)
- spanning-tree guard command [2-622](#)
- spanning-tree link-type command [2-624](#)
- spanning-tree loopguard default command [2-626](#)
- spanning-tree mode command [2-628](#)
- spanning-tree mst configuration command [2-630](#)
- spanning-tree mst cost command [2-632](#)
- spanning-tree mst forward-time command [2-634](#)
- spanning-tree mst hello-time command [2-635](#)
- spanning-tree mst max-age command [2-637](#)
- spanning-tree mst max-hops command [2-639](#)
- spanning-tree mst port-priority command [2-641](#)
- spanning-tree mst pre-standard command [2-643](#)
- spanning-tree mst priority command [2-644](#)
- spanning-tree mst root command [2-646](#)
- spanning-tree portfast (global configuration) command [2-650](#)
- spanning-tree portfast (interface configuration) command [2-653](#)
- spanning-tree port-priority command [2-648](#)
- Spanning Tree Protocol
 - See STP
- spanning-tree vlan command [2-655](#)
- speed command [2-658](#)

SSH, configuring version [2-195](#)

static-access ports, configuring [2-665](#)

statistics, Ethernet group [2-365](#)

sticky learning, enabling [2-681](#)

storm-control command [2-660](#)

STP

- counters, clearing [2-53](#)
- debug messages, display
 - MSTP [B-86](#)
 - optimized BPDUs handling [B-85](#)
 - spanning-tree activity [B-82](#)
 - switch shim [B-88](#)
 - transmitted and received BPDUs [B-84](#)
- enabling on ENIs [2-610](#)
- enabling protocol tunneling for [2-228](#)
- EtherChannel misconfiguration [2-618](#)
- extended system ID [2-620](#)
- path cost [2-616](#)
- protocol modes [2-628](#)
- root port
 - loop guard [2-622](#)
 - preventing from becoming designated [2-622](#)
 - restricting which can be root [2-622](#)
 - root guard [2-622](#)
- root switch
 - affects of extended system ID [2-620, 2-656](#)
 - hello-time [2-655](#)
 - interval between BPDU messages [2-655](#)
 - interval between hello BPDU messages [2-655](#)
 - max-age [2-655](#)
 - port priority for selection of [2-648](#)
 - primary or secondary [2-655](#)
 - switch priority [2-655](#)

- state changes
 - blocking to forwarding state [2-653](#)
 - enabling BPDU filtering [2-612, 2-650](#)
 - enabling BPDU guard [2-614, 2-650](#)
 - enabling Port Fast [2-650, 2-653](#)
 - enabling timer to recover from error state [2-110](#)
 - forward-delay time [2-655](#)
 - length of listening and learning states [2-655](#)
 - shutting down Port Fast-enabled ports [2-650](#)
- state information display [2-568](#)
- VLAN options [2-644, 2-655](#)
- SVIs, creating [2-131](#)
- Switched Port Analyzer
 - See SPAN
- switching characteristics
 - modifying [2-663](#)
 - returning to interfaces [2-663](#)
- switchport access command [2-665](#)
- switchport backup interface command [2-667](#)
- switchport block command [2-672](#)
- switchport command [2-663](#)
- switchport host command [2-674](#)
- switchport mode command [2-675](#)
- switchport mode private-vlan command [2-678](#)
- switchport port-security aging command [2-685](#)
- switchport port-security command [2-681](#)
- switchport private-vlan command [2-687](#)
- switchport protected command [2-689](#)
- switchports, displaying [2-442](#)
- switchport trunk command [2-691](#)
- system env temperature threshold yellow command [2-693](#)
- system message logging, save message to flash [2-244](#)
- system mtu command [2-695](#)
- system resource templates [2-366](#)

T

- table-map command [2-698](#)
- table-map configuration mode [2-698](#)

- table maps
 - configuring [2-698](#)
 - displaying [2-578](#)
 - QoS [2-698](#)
- tar files, creating, listing, and extracting [2-10](#)
- TDR, running [2-700](#)
- temperature information, displaying [2-420](#)
- temperature status, displaying [2-420](#)
- templates, system resources [2-366](#)
- test cable-diagnostics tdr command [2-700](#)
- traceroute mac command [2-702](#)
- traceroute mac ip command [2-705](#)
- traffic shaping, QoS [2-389](#)
- trunking, VLAN mode [2-675](#)
- trunk mode [2-675](#)
- trunk ports [2-675](#)
- tunnel ports, Layer 2 protocol, displaying [2-498](#)
- type (boot loader) command [A-22](#)

U

- UDLD
 - aggressive mode [2-707, 2-709](#)
 - debug messages, display [B-94](#)
 - enable globally [2-707](#)
 - enable per interface [2-709](#)
 - error recovery timer [2-110](#)
 - message timer [2-707](#)
 - normal mode [2-707, 2-709](#)
 - reset a shutdown interface [2-711](#)
 - status [2-580](#)
- udld command [2-707](#)
- udld port command [2-709](#)
- udld reset command [2-711](#)
- UNI
 - bundling and multiplexing [2-120](#)
 - Ethernet [2-120](#)
- unicast storm control [2-660](#)
- uni count command [2-712](#)

UniDirectional Link Detection

See UDLD

UNI ID, Ethernet [2-122](#)

uni-vlan command [2-714](#)

unknown multicast traffic, preventing [2-672](#)

unknown unicast traffic, preventing [2-672](#)

unset (boot loader) command [A-23](#)

upgrading

software images [2-7](#)

monitoring status of [2-394](#)

user EXEC mode [1-2](#)

user network interface [2-332](#)

V

version (boot loader) command [A-25](#)

vlan access-map command [2-719](#)

VLAN access map configuration mode [2-719](#)

VLAN access maps

actions [2-5](#)

displaying [2-590](#)

vlan command [2-716](#)

VLAN configuration mode

commands [2-716](#)

description [1-4](#)

entering [2-716](#)

summary [1-2](#)

vlan dot1q tag native command [2-721](#)

vlan filter command [2-723](#)

VLAN filters, displaying [2-591](#)

VLAN ID range [2-716](#)

VLAN maps

applying [2-723](#)

creating [2-719](#)

defining [2-268](#)

displaying [2-590](#)

VLAN Query Protocol

See VQP

VLANs

adding [2-716](#)

configuring [2-716](#)

debug messages, display

activation of [B-92](#)

VLAN IOS file system error tests [B-91](#)

VLAN manager activity [B-90](#)

displaying configurations [2-585](#)

extended-range [2-716](#)

MAC addresses

displaying [2-535](#)

number of [2-522](#)

normal-range [2-716](#)

private [2-678](#)

configuring [2-339](#)

displaying [2-585](#)

See also private VLANs

restarting [2-596](#)

saving the configuration [2-716](#)

shutting down [2-596](#)

suspending [2-596](#)

VMPS

configuring servers [2-728](#)

displaying [2-593](#)

error recovery timer [2-110](#)

reconfirming dynamic VLAN assignments [2-725](#)

vmmps reconfirm (global configuration) command [2-726](#)

vmmps reconfirm (privileged EXEC) command [2-725](#)

vmmps retry command [2-727](#)

vmmps server command [2-728](#)

VQP

and dynamic-access ports [2-666](#)

clearing client statistics [2-56](#)

displaying information [2-593](#)

per-server retry count [2-727](#)

reconfirmation interval [2-726](#)

reconfirming dynamic VLAN assignments [2-725](#)

VTP, enabling tunneling for [2-228](#)

W

Weighted Tail Drop

See WTD

WTD, queue-limit command [2-344](#)