



INDEX

A

aaa accounting dot1x command **2-1**
aaa authentication dot1x command **2-3**
aaa authorization network command **2-5, 2-22, 2-27, 2-29, 2-31, 2-33, 2-126, 2-460, B-5, B-30**
AAA methods **2-3**
abort command **2-836**
access control entries
 See ACEs
access control lists
 See ACLs
access groups
 IP **2-182**
 MAC, displaying **2-588**
 access list, IPv6 **2-251**
 access map configuration mode **2-318**
 access mode **2-778**
 access ports **2-778**
 ACEs **2-110, 2-392**
 ACLs
 deny **2-108**
 displaying **2-442**
 for non-IP protocols **2-296**
 IP **2-182**
 matching **2-318**
 on Layer 2 interfaces **2-182**
 permit **2-390**
 action command **2-6**
 aggregate-port learner **2-379**
 allowed VLANs **2-798**
 apply command **2-836**
 archive copy-sw command **2-8**

archive download-sw command **2-11**
archive tar command **2-15**
archive upload-sw command **2-18**
arp (boot loader) command **A-2**
arp access-list command **2-20**
authentication control-direction command **2-22**
authentication event command **2-24**
authentication failed VLAN
 See dot1x auth-fail vlan
authentication fallback command **2-27**
authentication host-mode command **2-29**
authentication open command **2-31**
authentication order command **2-33**
authentication periodic command **2-35**
authentication port-control command **2-37**
authentication priority command **2-39**
authentication timer command **2-41**
authentication violation command **2-43**
auth-fail max-attempts
 See dot1x auth-fail max-attempts
auth-fail vlan
 See dot1x auth-fail vlan
auth open command **2-31**
auth order command **2-33**
authorization state of controlled port **2-142**
auth timer command **2-41**
autonegotiation of duplex mode **2-150**
auto qos voip command **2-45**

B

BackboneFast, for STP [2-701](#)

backup interfaces

- configuring [2-773](#)

- displaying [2-513](#)

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

boot auto-copy-sw command [2-49](#)

boot auto-download-sw command [2-51](#)

boot config-file command [2-53](#)

boot enable-break command [2-54](#)

boot helper command [2-55](#)

boot helper-config file command [2-56](#)

booting

- Cisco IOS image [2-59](#)

- displaying environment variables [2-455](#)

- interrupting [2-54](#)

- manually [2-57](#)

boot loader

- accessing [A-1](#)

booting

- Cisco IOS image [A-3](#)

- helper image [2-55](#)

directories

- creating [A-19](#)

- displaying a list of [A-8](#)

- removing [A-23](#)

displaying

- available commands [A-13](#)

- memory heap utilization [A-14](#)

- version [A-30](#)

environment variables

- described [A-24](#)

- displaying settings [A-24](#)

- location of [A-25](#)

- setting [A-24](#)

- unsettting [A-28](#)

boot loader (continued)

files

- copying [A-6](#)

- deleting [A-7](#)

- displaying a list of [A-8](#)

- displaying the contents of [A-5, A-20, A-27](#)

- renaming [A-21](#)

file system

- formatting [A-11](#)

- initializing flash [A-10](#)

- running a consistency check [A-12](#)

prompt [A-1](#)

resetting the system [A-22](#)

boot manual command [2-57](#)

boot private-config-file command [2-58](#)

boot system command [2-59](#)

BPDU filtering, for spanning tree [2-702, 2-736](#)

BPDU guard, for spanning tree [2-704, 2-736](#)

broadcast storm control [2-757](#)

C

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

CDP, enabling protocol tunneling for [2-277](#)

channel-group command [2-61](#)

channel-protocol command [2-65](#)

Cisco SoftPhone

- auto-QoS configuration [2-45](#)

- trusting packets sent from [2-359](#)

CISP

- See Client Information Signalling Protocol

cisp

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

cisp enable command [2-66](#)

class command [2-67](#)

class-map command [2-69](#)

- class maps
 creating **2-69**
 defining the match criteria **2-320**
 displaying **2-461**
- class of service
 See CoS
- clear dot1x command **2-71**
- clear eap command **2-72**
- clear energywise neighbors command **2-73**
- clear errdisable interface **2-74**
- clear ip arp inspection log command **2-75**
- clear ip arp inspection statistics command **2-76**
- clear ipc command **2-81**
- clear ip dhcp snooping database command **2-77, 2-79**
- clear ipv6 dhcp conflict command **2-82**
- clear l2protocol-tunnel counters command **2-83**
- clear lacp command **2-84**
- clear logging command **2-85**
- clear mac address-table command **2-86, 2-87**
- clear nmsp statistics command **2-88**
- clear pagp command **2-89**
- clear port-security command **2-90**
- clear spanning-tree counters command **2-92**
- clear spanning-tree detected-protocols command **2-93**
- clear vmps statistics command **2-94**
- clear vtp counters command **2-95**
- Client Information Signalling Protocol **2-66, 2-126, 2-460, B-5, B-30**
- command modes defined **1-2**
- configuration files
 password recovery disable considerations **A-1**
 specifying the name **2-53, 2-58**
- configuring multiple interfaces **2-178**
- config-vlan mode
 commands **2-822**
 description **1-5**
 entering **2-821**
 summary **1-2**
- copy (boot loader) command **A-6**
- copy logging onboard command **2-96**
- CoS
 assigning default value to incoming packets **2-329**
 assigning to Layer 2 protocol packets **2-280**
 overriding the incoming value **2-329**
- CoS-to-DSCP map **2-333**
- CPU ASIC statistics, displaying **2-462**
- crashinfo files **2-169**
-
- D**
- debug auto qos command **B-2**
 debug backup command **B-4**
 debug cisp command **B-5**
 debug dot1x command **B-6**
 debug dtp command **B-7**
 debug eap command **B-8**
 debug etherchannel command **B-9**
 debug fastethernet command **B-10**
 debug interface command **B-13**
 debug ip dhcp snooping command **B-11**
 debug ip igmp filter command **B-14**
 debug ip igmp max-groups command **B-15**
 debug ip igmp snooping command **B-16**
 debug ip verify source packet command **B-12**
 debug lacp command **B-17**
 debug lldp packets command **B-18**
 debug mac-notification command **B-19**
 debug matm command **B-20**
 debug matm move update command **B-21**
 debug monitor command **B-22**
 debug mvrdbg command **B-23**
 debug nmsp command **B-24**
 debug nvram command **B-25**
 debug pagp command **B-26**
 debug platform acl command **B-27**
 debug platform backup interface command **B-29**
 debug platform cisp command **B-30**
 debug platform cli-redirection main command **B-31**

- debug platform configuration command **B-32**
 debug platform cpu-queues command **B-33**
 debug platform device-manager command **B-35**
 debug platform dot1x command **B-36**
 debug platform etherchannel command **B-37**
 debug platform fallback-bridging command **B-38**
 debug platform forw-tcam command **B-39**
 debug platform ip arp inspection command **B-40**
 debug platform ipc command **B-49**
 debug platform ip dhcp command **B-41**
 debug platform ip igmp snooping command **B-42**
 debug platform ip multicast command **B-44**
 debug platform ip unicast command **B-46**
 debug platform ip wccp command **B-48**
 debug platform led command **B-50**
 debug platform matm command **B-51**
 debug platform messaging application command **B-52**
 debug platform phy command **B-54**
 debug platform pm command **B-56**
 debug platform port-asic command **B-58**
 debug platform port-security command **B-59**
 debug platform qos-acl-tcam command **B-60**
 debug platform remote-commands command **B-61**
 debug platform resource-manager command **B-62**
 debug platform snmp command **B-63**
 debug platform span command **B-64**
 debug platform stack-manager command **B-65**
 debug platform supervisor-asic command **B-66**
 debug platform sw-bridge command **B-67**
 debug platform tcam command **B-68**
 debug platform udld command **B-71**
 debug platform vlan command **B-72**
 debug pm command **B-73**
 debug port-security command **B-75**
 debug qos-manager command **B-76**
 debug spanning-tree backbonefast command **B-79**
 debug spanning-tree bpdu command **B-80**
 debug spanning-tree bpdu-opt command **B-81**
 debug spanning-tree command **B-77**
- debug spanning-tree mstp command **B-82**
 debug spanning-tree switch command **B-84**
 debug spanning-tree uplinkfast command **B-86**
 debug sw-vlan command **B-87**
 debug sw-vlan ifs command **B-89**
 debug sw-vlan notification command **B-90**
 debug sw-vlan vtp command **B-92**
 debug udld command **B-94**
 debug vqpc command **B-96**
 define interface-range command **2-98**
 delete (boot loader) command **A-7**
 delete command **2-100**
 deny (ARP access-list configuration) command **2-101**
 deny (IPv6) command **2-103**
 deny command **2-108**
 detect mechanism, causes **2-162**
 DHCP snooping
 accepting untrusted packets from edge switch **2-210**
 enabling
 on a VLAN **2-216**
 option 82 **2-208, 2-210**
 trust on an interface **2-214**
 error recovery timer **2-166**
 rate limiting **2-213**
 DHCP snooping binding database
 binding file, configuring **2-206**
 bindings
 adding **2-204**
 deleting **2-204**
 displaying **2-534**
 clearing database agent statistics **2-77, 2-79**
 database agent, configuring **2-206**
 displaying
 binding entries **2-534**
 database agent status **2-536, 2-538**
 renewing **2-421**
 dir (boot loader) command **A-8**
 directories, deleting **2-100**
 domain name, VTP **2-847, 2-851**

- dot1x auth-fail max-attempts **2-120**
- dot1x auth-fail vlan **2-122**
- dot1x command **2-118**
- dot1x control-direction command **2-124**
- dot1x credentials (global configuration) command **2-126**
- dot1x critical global configuration command **2-127**
- dot1x critical interface configuration command **2-129**
- dot1x default command **2-131**
- dot1x fallback command **2-132**
- dot1x guest-vlan command **2-133**
- dot1x host-mode command **2-135**
- dot1x initialize command **2-136**
- dot1x mac-auth-bypass command **2-137**
- dot1x max-reauth-req command **2-139**
- dot1x max-req command **2-140**
- dot1x pae command **2-141**
- dot1x port-control command **2-142**
- dot1x re-authenticate command **2-144**
- dot1x reauthentication command **2-145**
- dot1x timeout command **2-146**
- dot1x violation-mode command **2-148**
- dropping packets, with ACL matches **2-6**
- drop threshold, Layer 2 protocol tunneling **2-277**
- DSCP-to-CoS map **2-333**
- DSCP-to-DSCP-mutation map **2-333**
- DTP **2-779**
 - error detection for **2-162**
 - error recovery timer **2-166**
- DTP negotiation **2-783**
- dual IPv4 and IPv6 templates **2-385**
- duplex command **2-150**
- dynamic-access ports
 - configuring **2-769**
 - restrictions **2-770**
- dynamic ARP inspection
- ARP ACLs
 - apply to a VLAN **2-190**
 - define **2-20**
 - deny packets **2-101**
 - display **2-446**
 - permit packets **2-383**
- clear
 - log buffer **2-75**
 - statistics **2-76**
- display
 - ARP ACLs **2-446**
 - configuration and operating state **2-529**
 - log buffer **2-529**
 - statistics **2-529**
 - trust state and rate limit **2-529**
- enable per VLAN **2-200**
- error detection for **2-162**
- error recovery timer **2-166**
- log buffer
 - clear **2-75**
 - configure **2-194**
 - display **2-529**
- rate-limit incoming ARP packets **2-192**
- statistics
 - clear **2-76**
 - display **2-529**
- trusted interface state **2-196**
- type of packet logged **2-201**
- validation checks **2-198**
- dynamic auto VLAN membership mode **2-778**
- dynamic desirable VLAN membership mode **2-778**
- Dynamic Host Configuration Protocol (DHCP)
 - See DHCP snooping
- Dynamic Trunking Protocol
 - See DTP

E

EAP-request/identity frame
 maximum number to send **2-140**
 response time before retransmitting **2-146**

encapsulation methods **2-798**

energywise (global configuration) command **2-152, 2-154**

energywise domain command **2-156**

energywise query command **2-158**

environment variables, displaying **2-455**

errdisable detect cause command **2-162**

errdisable detect cause small-frame command **2-164**

errdisable recovery cause small-frame **2-168**

errdisable recovery command **2-166**

error conditions, displaying **2-501**

error disable detection **2-162**

error-disabled interfaces, displaying **2-513**

EtherChannel
 assigning Ethernet interface to channel group **2-61**
 creating port-channel logical interface **2-176**
 debug EtherChannel/PAgP, display **B-9**
 debug platform-specific events, display **B-37**
 displaying **2-504**
 enabling Layer 2 protocol tunneling for
 LACP **2-278**
 PAgP **2-278**
 UDLD **2-278**
 interface information, displaying **2-513**

LACP
 clearing channel-group information **2-84, 2-85**
 debug messages, display **B-17**
 displaying **2-574**
 modes **2-61**
 port priority for hot-standby ports **2-281**
 restricting a protocol **2-65**
 system priority **2-283**

load-distribution methods **2-401**

EtherChannel (continued)

PAgP

aggregate-port learner **2-379**
 clearing channel-group information **2-89**
 debug messages, display **B-26**
 displaying **2-639**
 error detection for **2-162**
 error recovery timer **2-166**
 learn method **2-379**
 modes **2-61**
 physical-port learner **2-379**
 priority of interface for transmitted traffic **2-381**
 Ethernet controller, internal register display **2-464, 2-471**
 Ethernet Management port, debugging **B-10**
 Ethernet statistics, collecting **2-425**
 exception crashinfo command **2-169, 2-174**
 exit command **2-836**
 extended-range VLANs
 and allowed VLAN list **2-798**
 and pruning-eligible list **2-798**
 configuring **2-821**
 extended system ID for STP **2-710**

F

fallback profile command **2-170**
 fallback profiles, displaying **2-507**
 fan information, displaying **2-497**
 file name, VTP **2-847**
 files, deleting **2-100**
 flash_init (boot loader) command **A-10**
 flexible authentication ordering **2-33**
 Flex Links
 configuring **2-773**
 displaying **2-513**
 flowcontrol command **2-172**
 format (boot loader) command **A-11**
 forwarding packets, with ACL matches **2-6**
 forwarding results, display **C-9**

frame forwarding information, displaying **C-9**
 front-end controller counter and status information **C-11**
 fsck (boot loader) command **A-12**

G

global configuration mode **1-2, 1-4**

H

hardware ACL statistics **2-442**
 health monitoring diagnostic tests **2-111**
 help (boot loader) command **A-13**
 hierarchical policy maps **2-399**
 host connection, port configuration **2-777**
 host ports, private VLANs **2-781**

IEEE 802.1Q trunk ports and native VLANs **2-838**

IEEE 802.1Q tunnel ports
 configuring **2-778**
 displaying **2-483**
 limitations **2-779**

IEEE 802.1x
 and switchport modes **2-779**
 violation error recovery **2-166**
 See also port-based authentication

IGMP filters
 applying **2-219**
 debug messages, display **B-14**
 IGMP groups, setting maximum **2-221**
 IGMP maximum groups, debugging **B-15**
 IGMP profiles
 creating **2-223**
 displaying **2-541**

IGMP snooping
 adding ports as a static member of a group **2-239**
 displaying **2-542, 2-547, 2-549**
 enabling **2-225**
 enabling the configurable-leave timer **2-227**
 enabling the Immediate-Leave feature **2-236**
 flooding query count **2-233**
 interface topology change notification behavior **2-235**
 multicast table **2-545**
 querier **2-229**
 query solicitation **2-233**
 report suppression **2-231**
 switch topology change notification behavior **2-233**
 images
 See software images
 Immediate-Leave processing
 IGMP **2-236**
 IPv6 **2-273**
 MVR **2-369**
 interface configuration mode **1-2, 1-4**
 interface port-channel command **2-176**
 interface range command **2-178**
 interface-range macros **2-98**
 interfaces
 assigning Ethernet interface to channel group **2-61**
 configuring **2-150**
 configuring multiple **2-178**
 creating port-channel logical **2-176**
 debug messages, display **B-13**
 disabling **2-687**
 displaying the MAC address table **2-600**
 restarting **2-687**
 interface speed, configuring **2-747**
 interface vlan command **2-180**
 internal registers, displaying **2-464, 2-471, 2-474**
 Internet Group Management Protocol
 See IGMP
 ip access-group command **2-182**
 ip address command **2-185**

IP addresses, setting **2-185**
 IP address matching **2-318**
 ip admission command **2-187**
 ip admission name proxy http command **2-188**
 ip arp inspection filter vlan command **2-190**
 ip arp inspection limit command **2-192**
 ip arp inspection log-buffer command **2-194**
 ip arp inspection trust command **2-196**
 ip arp inspection validate command **2-198**
 ip arp inspection vlan command **2-200**
 ip arp inspection vlan logging command **2-201**
 IP DHCP snooping
 See DHCP snooping
 ip dhcp snooping binding command **2-204**
 ip dhcp snooping command **2-203**
 ip dhcp snooping database command **2-206**
 ip dhcp snooping information option allow-untrusted command **2-210**
 ip dhcp snooping information option command **2-208**
 ip dhcp snooping information option format remote-id command **2-212**
 ip dhcp snooping limit rate command **2-213**
 ip dhcp snooping trust command **2-214**
 ip dhcp snooping verify command **2-215**
 ip dhcp snooping vlan command **2-216**
 ip dhcp snooping vlan information option format-type circuit-id string command **2-217**
 ip igmp filter command **2-219**
 ip igmp max-groups command **2-221, 2-246, 2-248**
 ip igmp profile command **2-223**
 ip igmp snooping command **2-225**
 ip igmp snooping last-member-query-interval command **2-227**
 ip igmp snooping querier command **2-229**
 ip igmp snooping report-suppression command **2-231**
 ip igmp snooping tcn command **2-233**
 ip igmp snooping tcn flood command **2-235**
 ip igmp snooping vlan immediate-leave command **2-236**
 ip igmp snooping vlan mrouter command **2-237**
 ip igmp snooping vlan static command **2-239**

IP multicast addresses **2-366**
 IP phones
 auto-QoS configuration **2-45**
 trusting packets sent from **2-359**
 IP-precedence-to-DSCP map **2-333**
 ip snap forwarding command **2-241**
 ip source binding command **2-242**
 IP source guard
 disabling **2-250**
 displaying
 binding entries **2-551**
 configuration **2-552**
 dynamic binding entries only **2-534**
 enabling **2-250**
 static IP source bindings **2-242**
 ip ssh command **2-244**
 IPv6 access list, deny conditions **2-103**
 ipv6 access-list command **2-251**
 ipv6 address dhcp command **2-253**
 ipv6 dhcp client request vendor command **2-254**
 ipv6 dhcp ping packets command **2-255**
 ipv6 dhcp pool command **2-257**
 ipv6 dhcp server command **2-259**
 ipv6 mld snooping command **2-261**
 ipv6 mld snooping last-listener-query count command **2-263**
 ipv6 mld snooping last-listener-query-interval command **2-265**
 ipv6 mld snooping listener-message-suppression command **2-267**
 ipv6 mld snooping robustness-variable command **2-269**
 ipv6 mld snooping tcn command **2-271**
 ipv6 mld snooping vlan command **2-273**
 IPv6 SDM template **2-426**
 ipv6 traffic-filter command **2-275**
 ip verify source command **2-250**

J

jumbo frames

See MTU

L

l2protocol-tunnel command **2-277**

l2protocol-tunnel cos command **2-280**

LACP

See EtherChannel

lacp port-priority command **2-281**

lacp system-priority command **2-283**

Layer 2 mode, enabling **2-767**

Layer 2 protocol ports, displaying **2-571**

Layer 2 protocol-tunnel

error detection for **2-162**

error recovery timer **2-166**

Layer 2 protocol tunnel counters **2-83**

Layer 2 protocol tunneling error recovery **2-278**

Layer 2 traceroute

IP addresses **2-812**

MAC addresses **2-809**

Layer 3 mode, enabling **2-767**

line configuration mode **1-3, 1-6**

Link Aggregation Control Protocol

See EtherChannel

link flap

error detection for **2-162**

error recovery timer **2-166**

link state group command **2-285**

link state track command **2-287**

load-distribution methods for EtherChannel **2-401**

location (global configuration) command **2-288**

location (interface configuration) command **2-290**

logging file command **2-292**

logical interface **2-176**

loopback error

detection for **2-162**

recovery timer **2-166**

loop guard, for spanning tree **2-712, 2-716**

M

mac access-group command **2-294**

MAC access-groups, displaying **2-588**

MAC access list configuration mode **2-296**

mac access-list extended command **2-296**

MAC access lists **2-108**

MAC addresses

disabling MAC address learning per VLAN **2-299**

displaying

aging time **2-594**

all **2-592**

dynamic **2-598**

MAC address-table move updates **2-603**

notification settings **2-602, 2-605**

number of addresses in a VLAN **2-596**

per interface **2-600**

per VLAN **2-609**

static **2-607**

static and dynamic entries **2-590**

dynamic

aging time **2-298**

deleting **2-86**

displaying **2-598**

enabling MAC address notification **2-303**

enabling MAC address-table move update **2-301**

matching **2-318**

persistent stack **2-755**

static

adding and removing **2-305**

displaying **2-607**

dropping on an interface **2-306**

tables **2-592**

MAC address notification, debugging **B-19**

- mac address-table aging-time **2-294, 2-318**
- mac address-table aging-time command **2-298**
- mac address-table learning command **2-299**
- mac address-table move update command **2-301**
- mac address-table notification command **2-303**
- mac address-table static command **2-305**
- mac address-table static drop command **2-306**
- MAC frames
See MTU
- macro apply command **2-308**
- macro description command **2-311**
- macro global command **2-312**
- macro global description command **2-315**
- macro name command **2-316**
- macros
adding a description **2-311**
adding a global description **2-315**
applying **2-312**
creating **2-316**
displaying **2-641**
interface range **2-98, 2-178**
specifying parameter values **2-312**
tracing **2-312**
- maps
- QoS
defining **2-333**
displaying **2-619**
- VLAN
creating **2-833**
defining **2-318**
displaying **2-678**
- match (access-map configuration) command **2-318**
- match (class-map configuration) command **2-320**
- maximum transmission unit
See MTU
- mdix auto command **2-323**
- memory (boot loader) command **A-14**
- mgmt_clr (boot loader) command **A-16**
- mgmt_init (boot loader) command **A-17, A-18**
- mkdir (boot loader) command **A-19**
- MLD snooping
configuring **2-267, 2-269**
configuring queries **2-263, 2-265**
configuring topology change notification **2-271**
displaying **2-561, 2-563, 2-565, 2-567**
enabling **2-261**
enabling on a VLAN **2-273**
- mls qos aggregate-policer command **2-327**
- mls qos command **2-325**
- mls qos cos command **2-329**
- mls qos dscp-mutation command **2-331**
- mls qos map command **2-333**
- mls qos queue-set output buffers command **2-337**
- mls qos queue-set output threshold command **2-339**
- mls qos rewrite ip dscp command **2-341**
- mls qos srr-queue input bandwidth command **2-343**
- mls qos srr-queue input buffers command **2-345**
- mls qos-srr-queue input cos-map command **2-347**
- mls qos srr-queue input dscp-map command **2-349**
- mls qos srr-queue input priority-queue command **2-351**
- mls qos srr-queue input threshold command **2-353**
- mls qos-srr-queue output cos-map command **2-355**
- mls qos srr-queue output dscp-map command **2-357**
- mls qos trust command **2-359**
- mls qos vlan-based command **2-361**
- mode, MVR **2-366**
- Mode button, and password recovery **2-429**
- modes, commands **1-2**
- monitor session command **2-362**
- more (boot loader) command **A-20**
- MSTP
displaying **2-655**
interoperability **2-93**
link type **2-714**

- MSTP (continued)
- MST region
 - aborting changes **2-720**
 - applying changes **2-720**
 - configuration name **2-720**
 - configuration revision number **2-720**
 - current or pending display **2-720**
 - displaying **2-655**
 - MST configuration mode **2-720**
 - VLANs-to-instance mapping **2-720**
 - path cost **2-722**
 - protocol mode **2-718**
 - restart protocol migration process **2-93**
 - root port
 - loop guard **2-712**
 - preventing from becoming designated **2-712**
 - restricting which can be root **2-712**
 - root guard **2-712**
 - root switch
 - affects of extended system ID **2-710**
 - hello-time **2-725, 2-732**
 - interval between BDPU messages **2-726**
 - interval between hello BPDU messages **2-725, 2-732**
 - max-age **2-726**
 - maximum hop count before discarding BPDU **2-727**
 - port priority for selection of **2-728**
 - primary or secondary **2-732**
 - switch priority **2-731**
 - state changes
 - blocking to forwarding state **2-739**
 - enabling BPDU filtering **2-702, 2-736**
 - enabling BPDU guard **2-704, 2-736**
 - enabling Port Fast **2-736, 2-739**
 - forward-delay time **2-724**
 - length of listening and learning states **2-724**
 - rapid transition to forwarding **2-714**
 - shutting down Port Fast-enabled ports **2-736**
- MSTP (continued)
- state information display **2-654**
 - MTU
 - configuring size **2-806**
 - displaying global setting **2-667**
 - Multicase Listener Discovery
 - See MLD
 - multicast group address, MVR **2-369**
 - multicast groups, MVR **2-367**
 - Multicast Listener Discovery
 - See MLD
 - multicast router learning method **2-237**
 - multicast router ports, configuring **2-237**
 - multicast router ports, IPv6 **2-273**
 - multicast storm control **2-757**
 - multicast VLAN, MVR **2-366**
 - multicast VLAN registration
 - See MVR
 - multiple hosts on authorized port **2-135**
 - Multiple Spanning Tree Protocol
 - See MSTP
 - MVR
 - configuring **2-366**
 - configuring interfaces **2-369**
 - debug messages, display **B-23**
 - displaying **2-628**
 - displaying interface information **2-630**
 - members, displaying **2-632**
 - mvr (global configuration) command **2-366**
 - mvr (interface configuration) command **2-369**
 - mvr vlan group command **2-370**
-
- N**
- native VLANs **2-798**
 - native VLAN tagging **2-838**
 - network-policy (global configuration) command **2-372**
 - network-policy command **2-371**

network-policy profile (network-policy configuration) command **2-373**
 nmsp attachment suppress command **2-376**
 nmsp command **2-375**
 nonegotiate
 DTP messaging **2-783**
 non-IP protocols
 denying **2-108**
 forwarding **2-390**
 non-IP traffic access lists **2-296**
 non-IP traffic forwarding
 denying **2-108**
 permitting **2-390**
 non-stop forwarding **2-377**
 normal-range VLANs **2-821, 2-827**
 no vlan command **2-821, 2-831**
 nsf command **2-377**

O

online diagnostics
 configuring health monitoring diagnostic tests **2-111**
 displaying
 configured boot-up coverage level **2-478**
 current scheduled tasks **2-478**
 event logs **2-478**
 supported test suites **2-478**
 test ID **2-478**
 test results **2-478**
 test statistics **2-478**
 enabling
 scheduling **2-113**
 syslog messages **2-111**
 global configuration mode
 clearing health monitoring diagnostic test schedule **2-111**
 clearing test-based testing schedule **2-113**
 setting health monitoring diagnostic testing **2-111**

online diagnostics (continued)
 setting test-based testing **2-113**
 setting up health monitoring diagnostic test schedule **2-111**
 setting up test-based testing **2-113**
 removing scheduling **2-113**
 scheduled switchover
 disabling **2-113**
 enabling **2-113**
 setting test interval **2-113**
 specifying health monitoring diagnostic tests **2-111**
 starting testing **2-115**

P

PAgP
 See EtherChannel
 pagp learn-method command **2-379**
 pagp port-priority command **2-381**
 password, VTP **2-847, 2-851**
 password-recovery mechanism, enabling and disabling **2-429**
 permit (ARP access-list configuration) command **2-383**
 permit (IPv6) command **2-385**
 permit (MAC access-list configuration) command **2-390**
 per-VLAN spanning-tree plus
 See STP
 physical-port learner **2-379**
 PID, displaying **2-528**
 PIM-DVMRP, as multicast router learning method **2-237**
 platform chassis-management command **2-393**
 police aggregate command **2-396**
 police command **2-394**
 policed-DSCP map **2-333**
 policy-map command **2-398**
 policy maps
 applying to an interface **2-431, 2-437**
 creating **2-398**
 displaying **2-644**

- policy maps (continued)
- hierarchical **2-399**
 - policers
 - displaying **2-612**
 - for a single class **2-394**
 - for multiple classes **2-327, 2-396**
 - policed-DSCP map **2-333** - traffic classification
 - defining the class **2-67**
 - defining trust states **2-814**
 - setting DSCP or IP precedence values **2-435**
- Port Aggregation Protocol
- See EtherChannel
- port-based authentication
- AAA method list **2-3**
 - configuring violation modes **2-148**
 - debug messages, display **B-6**
 - enabling guest VLAN supplicant **2-121, 2-132**
 - enabling IEEE 802.1x
 - globally **2-118**
 - per interface **2-142** - guest VLAN **2-133**
 - host modes **2-135**
 - IEEE 802.1x AAA accounting methods **2-1**
 - initialize an interface **2-136**
 - MAC authentication bypass **2-137**
 - manual control of authorization state **2-142**
 - multiple hosts on authorized port **2-135**
 - PAE as authenticator **2-141**
 - periodic re-authentication
 - enabling **2-145**
 - time between attempts **2-146** - quiet period between failed authentication exchanges **2-146**
 - re-authenticating IEEE 802.1x-enabled ports **2-144**
 - resetting configurable IEEE 802.1x parameters **2-131**
 - switch-to-authentication server retransmission time **2-146**
 - switch-to-client frame-retransmission number **2-139 to 2-140**
- port-based authentication (continued)
- switch-to-client retransmission time **2-146**
 - port-channel load-balance command **2-401**
 - Port Fast, for spanning tree **2-739**
 - port ranges, defining **2-96, 2-98**
 - ports, debugging **B-73**
 - ports, protected **2-796**
 - port security
 - aging **2-790**
 - debug messages, display **B-75**
 - enabling **2-785**
 - violation error recovery **2-166** - port trust states for QoS **2-359**
 - port types, MVR **2-369**
 - power information, displaying **2-497**
 - priority-queue command **2-403**
 - priority value, stack member **2-662, 2-762**
 - private-vlan command **2-405**
 - private-vlan mapping command **2-408**
 - private VLANs
 - association **2-794**
 - configuring **2-405**
 - configuring ports **2-781**
 - displaying **2-673**
 - host ports **2-781**
 - mapping
 - configuring **2-794**
 - displaying **2-513**
 - promiscuous ports **2-781** - privileged EXEC mode **1-2, 1-3**
 - product identification information, displaying **2-528**
 - promiscuous ports, private VLANs **2-781**
 - protected ports, displaying **2-519**
 - pruning
 - VLANs **2-798**
 - VTP
 - displaying interface information **2-513**
 - enabling **2-847, 2-851**

pruning-eligible VLAN list [2-800](#)

PVST+

See STP

Q

QoS

auto-QoS

configuring [2-45](#)

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

displaying [2-451](#)

class maps

creating [2-69](#)

defining the match criteria [2-320](#)

displaying [2-461](#)

defining the CoS value for an incoming packet [2-329](#)

displaying configuration information [2-451, 2-611](#)

DSCP transparency [2-341](#)

DSCP trusted ports

applying DSCP-to-DSCP-mutation map to [2-331](#)

defining DSCP-to-DSCP-mutation map [2-333](#)

egress queues

allocating buffers [2-337](#)

defining the CoS output queue threshold map [2-355](#)

defining the DSCP output queue threshold map [2-357](#)

displaying buffer allocations [2-615](#)

displaying CoS output queue threshold map [2-619](#)

displaying DSCP output queue threshold map [2-619](#)

displaying queueing strategy [2-615](#)

displaying queue-set settings [2-622](#)

enabling bandwidth shaping and scheduling [2-751](#)

enabling bandwidth sharing and scheduling [2-753](#)

limiting the maximum output on a port [2-749](#)

mapping a port to a queue-set [2-410](#)

QoS (continued)

mapping CoS values to a queue and threshold [2-355](#)

mapping DSCP values to a queue and threshold [2-357](#)

setting maximum and reserved memory allocations [2-339](#)

setting WTD thresholds [2-339](#)

enabling [2-325](#)

ingress queues

allocating buffers [2-345](#)

assigning SRR scheduling weights [2-343](#)

defining the CoS input queue threshold map [2-347](#)

defining the DSCP input queue threshold map [2-349](#)

displaying buffer allocations [2-615](#)

displaying CoS input queue threshold map [2-619](#)

displaying DSCP input queue threshold map [2-619](#)

displaying queueing strategy [2-615](#)

displaying settings for [2-613](#)

enabling the priority queue [2-351](#)

mapping CoS values to a queue and threshold [2-347](#)

mapping DSCP values to a queue and threshold [2-349](#)

setting WTD thresholds [2-353](#)

maps

defining [2-333, 2-347, 2-349, 2-355, 2-357](#)

displaying [2-619](#)

policy maps

applying an aggregate policer [2-396](#)

applying to an interface [2-431, 2-437](#)

creating [2-398](#)

defining policers [2-327, 2-394](#)

displaying policers [2-612](#)

displaying policy maps [2-644](#)

hierarchical [2-399](#)

policed-DSCP map [2-333](#)

setting DSCP or IP precedence values [2-435](#)

- QoS (continued)
- traffic classifications **2-67**
 - trust states **2-814**
 - port trust states **2-359**
 - queues, enabling the expedite **2-403**
 - statistics
 - in-profile and out-of-profile packets **2-615**
 - packets enqueued or dropped **2-615**
 - sent and received CoS values **2-615**
 - sent and received DSCP values **2-615**
 - trusted boundary for IP phones **2-359**
 - VLAN-based **2-361**
- quality of service
- See QoS
- querytime, MVR **2-366**
- queue-set command **2-410**
-
- R**
- radius-server dead-criteria command **2-411**
- radius-server host command **2-413**
- rapid per-VLAN spanning-tree plus
- See STP
- rapid PVST+
- See STP
- re-authenticating IEEE 802.1x-enabled ports **2-144**
- re-authentication
- periodic **2-145**
 - time between attempts **2-146**
- receiver ports, MVR **2-369**
- receiving flow-control packets **2-172**
- recovery mechanism
- causes **2-166**
 - display **2-74, 2-458, 2-499, 2-502**
 - timer interval **2-166**
- reload command **2-415**
- remote command **2-417**
- remote-span command **2-419**
- Remote Switched Port Analyzer
- See RSPAN
- rename (boot loader) command **A-21**
- renew ip dhcp snooping database command **2-421**
- reset (boot loader) command **A-22**
- reset command **2-836**
- resource templates, displaying **2-649**
- restricted VLAN
- See dot1x auth-fail vlan
- rmdir (boot loader) command **A-23**
- rmon collection stats command **2-425**
- root guard, for spanning tree **2-712**
- routed ports
- IP addresses on **2-186**
 - number supported **2-186**
- routing frames
- See MTU
- RSPAN
- configuring **2-362**
 - displaying **2-625**
 - filter RSPAN traffic **2-362**
 - remote-span command **2-419**
 - sessions
 - add interfaces to **2-362**
 - displaying **2-625**
 - start new **2-362**
-
- S**
- scheduled switchover
- disabling **2-113**
 - enabling **2-113**
- SDM mismatch mode **2-427, 2-663**
- sdm prefer command **2-426**
- SDM templates
- allowed resources **2-427**
 - and stacking **2-427**
 - displaying **2-649**
 - dual IPv4 and IPv6 **2-426**

- secure ports, limitations **2-787**
 sending flow-control packets **2-172**
 service password-recovery command **2-429**
 service-policy command **2-431**
 session command **2-434**
 set (boot loader) command **A-24**
 set command **2-435**
 setup command **2-437**
 setup express command **2-440**
 show access-lists command **2-442**
 show archive status command **2-445**
 show arp access-list command **2-446**
 show authentication command **2-447**
 show auto qos command **2-451**
 show boot command **2-455**
 show cable-diagnostics tdr command **2-458**
 show changes command **2-836**
 show cisp command **2-460**
 show class-map command **2-461**
 show controllers cpu-interface command **2-462**
 show controllers ethernet-controller command **2-464**
 show controllers ethernet-controller fastethernet
command **2-471**
 show controllers tcam command **2-474**
 show controller utilization command **2-476**
 show current command **2-836**
 show dot1q-tunnel command **2-483**
 show dot1x command **2-484**
 show dtp **2-488**
 show eap command **2-490**
 show energystate command **2-493**
 show env command **2-497**
 show errdisable detect command **2-499**
 show errdisable flap-values command **2-501**
 show errdisable recovery command **2-502**
 show etherchannel command **2-504**
 show fallback profile command **2-507**
 show flowcontrol command **2-509**
 show idprom command **2-511**
 show interfaces command **2-513**
 show interfaces counters command **2-525**
 show inventory command **2-528**
 show ip arp inspection command **2-529**
 show ipc command **2-554**
 show ip dhcp snooping binding command **2-534**
 show ip dhcp snooping command **2-533**
 show ip dhcp snooping database command **2-536, 2-538**
 show ip igmp profile command **2-541**
 show ip igmp snooping address command **2-563**
 show ip igmp snooping command **2-542, 2-561**
 show ip igmp snooping groups command **2-545**
 show ip igmp snooping mrouter command **2-547, 2-565**
 show ip igmp snooping querier command **2-549, 2-567**
 show ip source binding command **2-551**
 show ipv6 access-list command **2-558**
 show ipv6 dhcp conflict command **2-560**
 show ipv6 route updated **2-569**
 show ip verify source command **2-552**
 show l2protocol-tunnel command **2-571**
 show lacp command **2-574**
 show link state group command **2-578**
 show location **2-580**
 show location command **2-580**
 show logging command **2-583**
 show mac access-group command **2-588**
 show mac address-table address command **2-592**
 show mac address-table aging time command **2-594**
 show mac address-table command **2-590**
 show mac address-table count command **2-596**
 show mac address-table dynamic command **2-598**
 show mac address-table interface command **2-600**
 show mac address-table learning command **2-602**
 show mac address-table move update command **2-603**
 show mac address-table notification command **2-87, 2-605, B-21**
 show mac address-table static command **2-607**
 show mac address-table vlan command **2-609**
 show mls qos aggregate-policer command **2-612**

- show mls qos command **2-611**
 show mls qos input-queue command **2-613**
 show mls qos interface command **2-615**
 show mls qos maps command **2-619**
 show mls qos queue-set command **2-622**
 show mls qos vlan command **2-624**
 show monitor command **2-625**
 show mvr command **2-628**
 show mvr interface command **2-630**
 show mvr members command **2-632**
 show network-policy profile command **2-634**
 show nmfp command **2-636**
 show pagp command **2-639**
 show parser macro command **2-641**
 show platform acl command **C-2**
 show platform backup interface command **C-3**
 show platform chassis command **C-4**
 show platform configuration command **C-6**
 show platform dl command **C-7**
 show platform etherchannel command **C-8**
 show platform forward command **C-9**
 show platform frontend-controller command **C-11**
 show platform igmp snooping command **C-12**
 show platform ipc trace command **C-20**
 show platform ip multicast command **C-14**
 show platform ip unicast command **C-15**
 show platform ipv6 unicast command **C-21**
 show platform ip wccp command **C-19**
 show platform layer4op command **C-23**
 show platform mac-address-table command **C-24**
 show platform messaging command **C-25**
 show platform monitor command **C-26**
 show platform mvr table command **C-27**
 show platform pm command **C-28**
 show platform port-asic command **C-30**
 show platform port-security command **C-35**
 show platform qos command **C-36**
 show platform resource-manager command **C-37**
 show platform snmp counters command **C-39**
 show platform spanning-tree command **C-40**
 show platform stack-manager command **C-42**
 show platform stp-instance command **C-41**
 show platform summary command **C-46**
 show platform tb command **C-47**
 show platform tcam command **C-49**
 show platform vlan command **C-52**
 show policy-map command **2-644**
 show port security command **2-646**
 show proposed command **2-836**
 show sdm prefer command **2-649**
 show setup express command **2-653**
 show spanning-tree command **2-654**
 show storm-control command **2-660**
 show switch command **2-662**
 show system mtu command **2-667**
 show trust command **2-814**
 show udld command **2-668**
 show version command **2-671**
 show vlan access-map command **2-678**
 show vlan command **2-673**
 show vlan command, fields **2-675**
 show vlan filter command **2-679**
 show vmps command **2-680**
 show vtp command **2-682**
 shutdown command **2-687**
 shutdown threshold, Layer 2 protocol tunneling **2-277**
 shutdown vlan command **2-688**
 small violation-rate command **2-689**
 Smartports macros
 See macros
 SNMP host, specifying **2-695**
 SNMP informs, enabling the sending of **2-691**
 snmp-server enable traps command **2-691**
 snmp-server host command **2-695**
 snmp trap mac-notification command **2-699**

- SNMP traps
 enabling MAC address notification trap **2-699**
 enabling the MAC address notification feature **2-303**
 enabling the sending of **2-691**
- SoftPhone
 See Cisco SoftPhone
- software images
 copying **2-8**
 deleting **2-100**
 downloading **2-11**
 upgrading **2-8, 2-11**
 uploading **2-18**
- software version, displaying **2-671**
- source ports, MVR **2-369**
- SPAN
 configuring **2-362**
 debug messages, display **B-22**
 displaying **2-625**
 filter SPAN traffic **2-362**
 sessions
 add interfaces to **2-362**
 displaying **2-625**
 start new **2-362**
 spanning-tree backbonefast command **2-701**
 spanning-tree bpdufilter command **2-702**
 spanning-tree bpduguard command **2-704**
 spanning-tree cost command **2-706**
 spanning-tree etherchannel command **2-708**
 spanning-tree extend system-id command **2-710**
 spanning-tree guard command **2-712**
 spanning-tree link-type command **2-714**
 spanning-tree loopguard default command **2-716**
 spanning-tree mode command **2-718**
 spanning-tree mst configuration command **2-720**
 spanning-tree mst cost command **2-722**
 spanning-tree mst forward-time command **2-724**
 spanning-tree mst hello-time command **2-725**
 spanning-tree mst max-age command **2-726**
 spanning-tree mst max-hops command **2-727**
- spanning-tree mst port-priority command **2-728**
 spanning-tree mst pre-standard command **2-730**
 spanning-tree mst priority command **2-731**
 spanning-tree mst root command **2-732**
 spanning-tree portfast (global configuration) command **2-736**
 spanning-tree portfast (interface configuration) command **2-739**
 spanning-tree port-priority command **2-734**
- Spanning Tree Protocol
 See STP
- spanning-tree transmit hold-count command **2-741**
 spanning-tree uplinkfast command **2-742**
 spanning-tree vlan command **2-744**
 speed command **2-747**
 srr-queue bandwidth limit command **2-749**
 srr-queue bandwidth shape command **2-751**
 srr-queue bandwidth share command **2-753**
 SSH, configuring version **2-244**
 stack-mac persistent timer command **2-755**
- stack member
 access **2-434**
 number **2-662, 2-765**
 priority value **2-762**
 provisioning **2-763**
 reloading **2-415**
- stacks, switch
 disabling a member **2-760**
 enabling a member **2-760**
 MAC address **2-755**
 provisioning a new member **2-763**
 reloading **2-415**
 stack member access **2-434**
 stack member number **2-662, 2-765**
 stack member priority value **2-662, 2-762**
- static-access ports, configuring **2-769**
- statistics, Ethernet group **2-425**
- sticky learning, enabling **2-785**
- storm-control command **2-757**

STP

BackboneFast **2-701**
 counters, clearing **2-92**
 debug messages, display
 BackboneFast events **B-79**
 MSTP **B-82**
 optimized BPDUs handling **B-81**
 spanning-tree activity **B-77**
 switch shim **B-84**
 transmitted and received BPDUs **B-80**
 UplinkFast **B-86**
 detection of indirect link failures **2-701**
 enabling protocol tunneling for **2-277**
 EtherChannel misconfiguration **2-708**
 extended system ID **2-710**
 path cost **2-706**
 protocol modes **2-718**
 root port
 accelerating choice of new **2-742**
 loop guard **2-712**
 preventing from becoming designated **2-712**
 restricting which can be root **2-712**
 root guard **2-712**
 UplinkFast **2-742**
 root switch
 affects of extended system ID **2-710, 2-745**
 hello-time **2-744**
 interval between BDPU messages **2-744**
 interval between hello BPDU messages **2-744**
 max-age **2-744**
 port priority for selection of **2-734**
 primary or secondary **2-744**
 switch priority **2-744**
 state changes
 blocking to forwarding state **2-739**
 enabling BPDU filtering **2-702, 2-736**
 enabling BPDU guard **2-704, 2-736**
 enabling Port Fast **2-736, 2-739**
 enabling timer to recover from error state **2-166**

STP (continued)

forward-delay time **2-744**
 length of listening and learning states **2-744**
 shutting down Port Fast-enabled ports **2-736**
 state information display **2-654**
 VLAN options **2-731, 2-744**
 SVIs, creating **2-180**
 SVI status calculation **2-771**
 Switched Port Analyzer
 See SPAN
 switching characteristics
 modifying **2-767**
 returning to interfaces **2-767**
 switchport access command **2-769**
 switchport autostate exclude command **2-771**
 switchport backup interface command **2-773**
 switchport block command **2-776**
 switchport command **2-767**
 switchport host command **2-777**
 switchport mode command **2-778**
 switchport mode private-vlan command **2-781**
 switchport nonegotiate command **2-783**
 switchport port-security aging command **2-790**
 switchport port-security command **2-785**
 switchport priority extend command **2-792**
 switchport private-vlan command **2-794**
 switchport protected command **2-796**
 switchports, displaying **2-513**
 switchport trunk command **2-798**
 switchport voice detect **2-801**
 switchport voice vlan command **2-802**
 switch priority command **2-760, 2-762**
 switch provision command **2-763**
 switch renumber command **2-765**
 system env temperature threshold yellow command **2-804**
 system message logging, save message to flash **2-292**
 system mtu command **2-806**
 system resource templates **2-426**

T

tar files, creating, listing, and extracting **2-15**
 TDR, running **2-808**
 temperature information, displaying **2-497**
 templates, system resources **2-426**
 test cable-diagnostics tdr command **2-808**
 traceroute mac command **2-809**
 traceroute mac ip command **2-812**
 trunking, VLAN mode **2-778**
 trunk mode **2-778**
 trunk ports **2-778**
 trunks, to non-DTP device **2-779**
 trusted boundary for QoS **2-359**
 trusted port states for QoS **2-359**
 tunnel ports, Layer 2 protocol, displaying **2-571**
 type (boot loader) command **A-27**

U

UDLD
 aggressive mode **2-816, 2-818**
 debug messages, display **B-94**
 enable globally **2-816**
 enable per interface **2-818**
 error recovery timer **2-166**
 message timer **2-816**
 normal mode **2-816, 2-818**
 reset a shutdown interface **2-820**
 status **2-668**
 udld command **2-816**
 udld port command **2-818**
 udld reset command **2-820**
 unicast storm control **2-757**
 UniDirectional Link Detection
 See UDLD
 unknown multicast traffic, preventing **2-776**
 unknown unicast traffic, preventing **2-776**
 unset (boot loader) command **A-28**

upgrading

copying software images **2-8**
 downloading software images **2-11**
 software images, monitoring status of **2-445**
 UplinkFast, for STP **2-742**
 user EXEC mode **1-2, 1-3**

V

version (boot loader) command **A-30**
 version mismatch mode **2-663, C-43**
 vlan (global configuration) command **2-821**
 vlan (VLAN configuration) command **2-827**
 vlan access-map command **2-833**
 VLAN access map configuration mode **2-833**
 VLAN access maps
 actions **2-6**
 displaying **2-678**
 VLAN-based QoS **2-361**
 VLAN configuration
 rules **2-824, 2-829**
 saving **2-821, 2-831**
 VLAN configuration mode
 commands
 VLAN **2-827**
 VTP **2-851**
 description **1-5**
 entering **2-835**
 summary **1-3**
 vlan database command **2-835**
 vlan dot1q tag native command **2-838**
 vlan filter command **2-840**
 VLAN filters, displaying **2-679**
 VLAN ID range **2-821, 2-827**
 VLAN maps
 applying **2-840**
 creating **2-833**
 defining **2-318**
 displaying **2-678**

VLAN Query Protocol
 See VQP

VLANs
 adding **2-821**
 configuring **2-821, 2-827**
 debug messages, display
 ISL **B-90**
 VLAN IOS file system error tests **B-89**
 VLAN manager activity **B-87**
 VTP **B-92**
 displaying configurations **2-673**
 extended-range **2-821**
 MAC addresses
 displaying **2-609**
 number of **2-596**
 media types **2-824, 2-829**
 normal-range **2-821, 2-827**
 private **2-781**
 configuring **2-405**
 displaying **2-673**
 See also private VLANs
 restarting **2-688**
 saving the configuration **2-821**
 shutting down **2-688**
 SNMP traps for VTP **2-693, 2-696**
 suspending **2-688**
 variables **2-827**

VLAN Trunking Protocol
 See VTP

VM mode **2-663, C-43**

VMPS
 configuring servers **2-845**
 displaying **2-680**
 error recovery timer **2-166**
 reconfirming dynamic VLAN assignments **2-842**

vmps reconfirm (global configuration) command **2-843**
 vmps reconfirm (privileged EXEC) command **2-842**
 vmps retry command **2-844**
 vmps server command **2-845**

voice VLAN
 configuring **2-801, 2-802**
 setting port priority **2-792**

VQP
 and dynamic-access ports **2-770**
 clearing client statistics **2-94**
 displaying information **2-680**
 per-server retry count **2-844**
 reconfirmation interval **2-843**
 reconfirming dynamic VLAN assignments **2-842**

VTP
 changing characteristics **2-847**
 clearing pruning counters **2-95**
 configuring
 domain name **2-847, 2-851**
 file name **2-847**
 mode **2-847, 2-851**
 password **2-847, 2-851**
 counters display fields **2-683**
 displaying information **2-682**
 enabling
 pruning **2-847, 2-851**
 tunneling for **2-277**
 Version 2 **2-847, 2-851**
 mode **2-847, 2-851**
 pruning **2-847, 2-851**
 saving the configuration **2-821, 2-831**
 statistics **2-682**
 status **2-682**
 status display fields **2-684**
 vtp (global configuration) command **2-847**
 vtp (VLAN configuration) command **2-851**

